

2.25



Volume 2, Chapter 25

Ground Conditions



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25. Ground conditions

25.1 Introduction

25.1.1 This chapter of the Preliminary Environmental Information Report (PEIR) presents the preliminary results of the assessment of the likely significant effects of Rampion 2 with respect to ground conditions including land contamination, geohazards, geodiversity and minerals safeguarding. It should be read in conjunction with the project description provided in **Chapter 4: The Proposed Development** and the relevant parts of the following chapters:

- **Chapter 21: Soils and agriculture** for assessment of potentially significant effects with respect to soil resources and soil structure;
- **Chapter 23: Terrestrial ecology and nature conservation** for assessment of impacts on designated sites (excluding sites designated for their geological importance which are addressed in this Chapter) including those that are dependent on the water environment; and
- **Chapter 27: Water environment** for assessment of potentially significant effects with respect to groundwater and surface water levels, flows and interactions including flood risk receptors and effects of construction dewatering.

25.1.2 This chapter describes:

- the legislation, planning policy and other documentation that has informed the assessment (**Section 25.2: Relevant legislation, policy and other information and guidance**);
- the outcome of consultation engagement that has been undertaken to date, including how matters relating to ground conditions within the Scoping Opinion received in August 2020 have been addressed (**Section 25.3: Consultation and engagement**);
- the scope of the assessment for ground conditions (**Section 25.4: Scope of the assessment**);
- the methods used for the baseline data gathering (**Section 25.5: Methodology for baseline data gathering**);
- the overall baseline (**Section 25.6: Baseline conditions**);
- embedded environmental measures relevant to ground conditions and the relevant maximum design scenario (**Section 25.7: Basis for PEIR assessment**);
- the assessment methods used for the PEIR (**Section 25.8: Methodology for PEIR assessment**);
- the assessment of ground conditions effects (**Section 25.9 - 25.11: Preliminary assessment** and **Section 25.12: Preliminary assessment: Cumulative effects**);

- consideration of transboundary effects (**Section 25.13: Transboundary effects**);
- consideration of Inter-related effects (**Section 25.14: Inter-related effects**);
- a summary of residual effects for ground conditions (**Section 25.15: Summary of residual effects**);
- an outline of further work to be undertaken for the Environmental Statement (ES) (**Section 25.16: Further work to be undertaken for ES**);
- a glossary of terms and abbreviations is provided in **Section 25.17: Glossary of terms and abbreviations**; and
- a references list is provided in **Section 25.18: References**.

25.1.3 This chapter is supported by the following technical appendix:

- **Appendix 25.1: Rampion 2 Phase 1 Geo-Environmental Desk Study, Volume 4.**

25.2 Relevant legislation, policy, and other information and guidance

Introduction

25.2.1 This section identifies the legislation, policy, and other documentation that has informed the assessment of effects with respect to ground conditions. Further information on policies relevant to the Environmental Impact Assessment (EIA) and their status is provided in **Chapter 2: Policy and legislative context** of this PEIR.

Legislation and national planning policy

25.2.2 **Table 25-1** lists the key legislation relevant to the assessment of the effects on ground conditions receptors.

Table 25-1 Legislation relevant to ground conditions

Legislation description	Relevance to assessment
European Union Groundwater Directive (2006/118/EC), 2006	
The aim of the directive is to protect groundwater against pollution caused by dangerous substances. The directive continues to have effect in England following the end of the Brexit Transition Period.	The potential for Rampion 2 to have an effect on groundwater bodies through the introduction of dangerous substances during the construction and operation phases requires assessment. Appropriate embedded environmental measures have been put in place as

Legislation description

Relevance to assessment

detailed in **Section 25.7** of this chapter to help ensure the protection of groundwater.

Water Resources Act 1991 as amended by the Water Act 2003

The Water Resources Act 1991 states that it is an offence to cause or knowingly permit polluting, noxious, poisonous or any solid waste matter to enter controlled waters.

The Act was revised by the Water Act 2003, which provides the definition of and regulatory controls for the protection of water resources, including the quality standards expected for controlled waters.

The 2003 Act sets out the definition of controlled waters which have been used to define the scope of receptors for the assessment in **Section 25.4**.

Appropriate embedded environmental measures have been put in place as detailed in **Section 25.7** of this chapter to help ensure the protection of controlled waters.

The Environmental Protection Act 1990

Part 2 of the Act makes provision for the improved control of pollution arising from certain industrial and other processes. Part 2A of the Act provides the regulatory basis for the identification, designation, and remediation of contaminated land.

The potential for Rampion 2 to be built on land potentially affected by historical contamination requires assessment to ensure it is suitable for the proposed land-use and that, where necessary, remediation is carried out to ensure the land cannot be determined as Contaminated Land under the Act.

The approach to incorporating the requirements of the Act is outlined in **Section 25.8**.

Environmental Damage (Prevention and Remediation) (England) Regulations 2015

Regulations implementing the European Union (EU) directive on environmental liability setting out the principles for prevention and remedy of environmental damage.

Construction and operational activities for Rampion 2 have the potential to cause pollution and the regulations place emphasis on businesses to proactively implement pollution prevention measures so that damage to the environment does not arise.

Appropriate embedded environmental measures have been put in place as detailed in **Section 25.7** of this chapter to help ensure the prevention of pollution.

Health and Safety at Work etc. Act 1974

Legislation description	Relevance to assessment
<p>The Health and Safety at Work etc. Act and regulations made under the Act places responsibilities upon employers to carry out a risk assessment for every work activity and to document it. Besides carrying out a risk assessment, employers also need to: make arrangements for implementing the health and safety measures identified as necessary by the risk assessment; appoint competent people to help them implement the arrangements; set up emergency procedures; provide clear information and training to employees; and work together with other employers sharing the same workplace.</p>	<p>Land contamination poses a hazard to groundworkers and potentially others in proximity to the construction work. Appropriate risk assessments must be carried out and arrangements made to protect the health and safety of workers directly involved in groundworks for Rampion 2 and other human receptors who could be affected.</p> <p>The consideration of how the requirements of the Act relate to ground conditions effects in relation to the construction activities is addressed in Section 25.4.</p>
<p>The Construction (Design and Management) Regulations 2015</p>	
<p>The Construction (Design and Management) Regulations (CDM) place specific duties on clients, designers and contractors, so that health and safety is considered throughout the life of a construction project from its inception to its subsequent final demolition and removal.</p> <p>They include the requirement to appoint a Principal Designer and Principal Contractor to co-ordinate health and safety aspects during construction.</p> <p>Under the CDM regulations, designers must avoid foreseeable risks so far as reasonably practicable by: eliminating hazards from the construction, cleaning, maintenance, and proposed use and demolition of a structure; reducing risks from any remaining hazard; and giving collective safety measures priority over individual measures.</p>	<p>Construction of Rampion 2 will fall under the requirements of the Regulations requiring consideration of health and safety to be incorporated into the design of the Rampion 2 components and at construction stage.</p> <p>The consideration of how the requirements of the Act relate to ground conditions effects in relation to the construction activities is addressed in Section 25.4.</p>

25.2.3 **Table 25-2** lists the national planning policy relevant to the assessment of the effects on ground conditions receptors.



Table 25-2 National planning policy relevant to ground conditions

Policy description	Relevance to assessment
Overarching National Policy Statement (NPS) for Energy (EN-1) (Department for Energy and Climate Change, 2011a)	
<p>NPS EN-1 includes guidance on what matters are to be considered in the assessment of renewable energy projects including the potential effects in relation to geological conservation.</p> <p>With regard to paragraphs 5.3.3, the ES will need to demonstrate that effects on internationally, nationally, and locally designated sites of geological conservation importance have been identified.</p> <p>With regard to paragraph 5.10.8, where development occurs on previously developed land, the ES will need to demonstrate consideration of the risk posed by land contamination.</p> <p>With regard to paragraph 5.10.22, where development has an impact upon a Mineral Safeguarding Area, appropriate mitigation measures should be put in place to safeguard mineral resources.</p>	<p>Locally designated geological sites have been identified as part of the baseline as set out in Section 25.6, and this chapter considers the potential impact of Rampion 2 on geological sites in Section 25.9.</p> <p>The scope of the ground conditions assessment set out in Section 25.4 considers the risks from land contamination on and adjacent to the land required for Rampion 2.</p> <p>This chapter considers the potential impact of Rampion 2 on minerals resources in Section 25.9.</p>
National Planning Policy Framework, (NPPF) (Ministry of Housing, Communities and Local Government, 2019)	
<p>The NPPF sets out the Government's planning policies for England and how these should be applied. It provides a framework within which locally prepared plans for housing and other development can be produced. With regard to paragraphs 117, 178, 179, 180 and 204, the ES will need to demonstrate that:</p> <ul style="list-style-type: none"> • Rampion 2 makes effective use of land, including the use of suitable brownfield land, and provides an opportunity to remediate land affected by contamination. • Rampion 2 site is suitable for the proposed use taking account of ground conditions arising from contamination. • If remediation is required, then, as a minimum, after remediation, the land should not be capable of being determined as 	<p>The approach to the assessment of potentially significant ground conditions effects, including effects on minerals safeguarding, is addressed in Section 25.8 and includes reference to relevant legislation and guidance (including Part 2A of the Environmental Protection Act 1990 in the case of land contamination). The outputs of the assessment of likely significant effects are presented in Section 25.9. The consideration of embedded environmental measures including how Rampion 2 has been designed to reduce land quality effects is addressed in Section 25.7 and includes measures to prevent land and soil</p>

Policy description	Relevance to assessment
<p>contaminated land under Part 2A of the Environmental Protection Act 1990.</p> <ul style="list-style-type: none"> • Adequate site investigation information, prepared by a competent person, is provided. • RED have met the requirement to secure a safe development with respect to land contamination. • Rampion 2 is appropriate for its location, taking into account the likely effects (including cumulative effects) of pollution on health, living conditions and the natural environment, as well as the sensitivity of the site and wider area to impacts that could arise from Rampion 2. • With respect to land, Rampion 2 will need to demonstrate that the potential for migration of contaminants to affect sensitive receptors has been considered and there will be no significant effects. • With respect to minerals, Rampion 2 will need to demonstrate that minerals resources are not being needlessly sterilised. 	<p>pollution during the construction and operation and maintenance phases of Rampion 2.</p>
<p>National Policy Statement for Electricity Networks Infrastructure (EN-5) (Department for Energy and Climate Change, 2011b)</p>	
<p>With regard to paragraphs 2.4.1, the ES will need to demonstrate that the impact of earth movement or subsidence caused by flooding or drought has been considered.</p>	<p>A review of potential geohazards (such as earth movement or subsidence) is included in the desk study (Appendix 25.1, Volume 4). The outputs of the assessment of likely significant effects are presented in Section 25.9. The consideration of embedded environmental measures is addressed in Section 25.7 including how Rampion 2 has been designed to take into account effects of geohazards.</p>

Local planning policy

25.2.4 The following local and regional planning authorities fall within the ground conditions study area and due regard has been given to their local planning



policies, all of which refer to implementation of the requirements of the NPPF (Ministry of Housing, Communities and Local Government, 2019) in respect of the assessment of the effects on ground conditions receptors:

- West Sussex County Council (WSCC);
- Arun District Council;
- Horsham District Council; and
- Mid Sussex District Council.

Other relevant information and guidance

25.2.5 A summary of other relevant information and guidance relevant to the assessment undertaken for ground conditions is provided here:

- *The Environmental Protection Act 1990: Part 2A Contaminated Land Statutory Guidance* (Defra, 2012) sets out how local authorities should implement the Part 2A regime, including how they should go about deciding whether land is contaminated land in the legal sense of the term. It also elaborates on the remediation provisions of Part 2A, such as the goals of remediation, and how regulators should ensure that remediation requirements are reasonable.
- The Environment Agency (2020) guidance document *Land Contamination Risk Management* (LCRM) dated October 2020 provides the technical framework for applying a risk management process when dealing with land affected by contamination.
- *The Contaminated Land: Applications in Real Environments (CL:AIRE) (2010) Framework for Assessing the Sustainability of Soil and Groundwater Remediation* dated March 2010 provides a framework for assessing the sustainability of remediation and informing the decision-making process where remediation measures are required.
- The CL:AIRE (2016) *CAR-SOIL: Control of Asbestos Regulations 2012, Interpretation for Managing and Working with Asbestos in Soil and Construction and Demolition Materials* provides interpretation and guidance to all involved in the management of asbestos in both soils and construction and demolition arisings in accordance with the Control of Asbestos Regulations 2012.
- West Sussex County Council (2020a) *Minerals and Waste Safeguarding Guidance* dated March 2020 provides guidance on how the safeguarding of mineral resources and infrastructure associated with minerals supply and waste management will take place in West Sussex.

25.3 Consultation and engagement

Overview

25.3.1 This section describes the outcome of, and response to, the Scoping Opinion (Planning Inspectorate, 2020a) in relation to ground conditions assessment and

provides details of the ongoing informal consultation that has been undertaken with stakeholders and individuals. An overview of engagement undertaken can be found in **Section 1.5** of **Chapter 1: Introduction**.

- 25.3.2 Given the restrictions which have been in place due to the COVID-19 pandemic, all consultation has taken the form of conference calls.

Scoping opinion

- 25.3.3 Rampion Extension Development Limited (RED) submitted a Scoping Report (RED, 2020) and request for a Scoping Opinion to the Secretary of State (administered by the Planning Inspectorate (PINS)) on 2 July 2020. A Scoping Opinion was received on 11 August 2020 (Planning Inspectorate, 2020a). The Scoping Report set out the proposed ground conditions assessment methodologies, outline of the baseline data collected to date and proposed, and the scope of the assessment. **Table 25-3** sets out the comments received in Section 5 of the PINS Scoping Opinion ‘Aspect based scoping tables – Onshore’ and how these have been addressed in this PEIR. A full list of the PINS Scoping Opinion comments and responses is provided in **Appendix 5.1: Response to the Scoping Opinion, Volume 4**. Regard has also been given to other stakeholder comments that were received in relation to the Scoping Report.
- 25.3.4 The information provided in the PEIR is preliminary and it has not been possible to address all the Scoping Opinion comments at this stage, however, all comments will be addressed within the ES.

Table 25-3 PINS Scoping Opinion responses – ground conditions

PINS ID number	Scoping Opinion comment	How this is addressed in this PEIR
5.7.1	In relation to construction activities located on, or adjacent to landfills and other potentially contaminated sites such as industrial/waste management facilities and fuel storage/distribution facilities (exposure to contamination via direct contact, inhalation and/or ingestion of soils and dusts resulting in health effects) being scoped out: “The Inspectorate considers that given the nature of the development the conclusion is reasonable and therefore agrees that these matters can be scoped out of the assessment. This is based on the justification that any construction would be subject to The Construction (Design and Management) (CDM) Regulations 2015 and safe working practices as part of normal construction health and safety management under the Health and Safety at Work Act (1974) and regulations made under the Act.	Acknowledged agreement to scope out effects from exposure to contamination via direct contact, inhalation and/or ingestion of soils and dusts resulting in health effects during construction activities on or adjacent to landfills and other potentially contaminated sites. Additional detail on the legislation and environmental measures, including how they will be employed and secured, has been included in Section 25.4 and will be included in the ES.

PINS ID number	Scoping Opinion comment	How this is addressed in this PEIR
	<p>The Inspectorate agrees that, with the implementation of measures to limit any potential pollution incidents, any potential impacts on ground conditions are unlikely to result in significant effects and therefore further assessment is not required. However, the Inspectorate seeks assurances as to the detail of such measures that would be employed and how they would be secured and therefore considers that this detail should be described within the ES.”</p>	
<p>5.7.2</p>	<p>In relation to construction vehicle and equipment maintenance and storage of fuels/oils for construction vehicles and equipment (accidental spillages and leaks resulting in ground contamination and risks to human health) being scoped out:</p> <p>“The Inspectorate considers that given the nature of the development the conclusion is reasonable and therefore agrees that these matters can be scoped out of the assessment. This is based on the justification that any maintenance would be subject to The Construction (Design and Management) (CDM) Regulations 2015 and safe working practices as part of normal construction health and safety management under the Health and Safety at Work Act (1974) and regulations made under the Act. The Inspectorate agrees that, with the implementation of measures to limit any potential pollution incidents, any potential impacts on ground conditions are unlikely to result in significant effects and therefore further assessment is not required. However, the Inspectorate seeks assurances as to the detail of such measures that would be employed and how they would be secured and therefore considers that this detail should be described within the ES.”</p>	<p>Acknowledged agreement to scope out effects from accidental spillages and leaks resulting in ground contamination and risks to human health during construction activities.</p> <p>Additional detail on the legislation and environmental measures, including how they will be employed and secured, has been included in Section 25.4 and will be included in the ES.</p>
<p>5.7.3</p>	<p>In relation to operational vehicle and equipment maintenance and storage of</p>	<p>Acknowledged agreement to scope out effects from</p>

PINS ID number	Scoping Opinion comment	How this is addressed in this PEIR
5.7.4	<p>fuels/oils for operational vehicles and equipment (accidental spillages and leaks resulting in ground contamination and risks to human health) being scoped out: “The Inspectorate considers that given the nature of the development the conclusion is reasonable and therefore agrees that these matters can be scoped out of the assessment.”</p> <p>In relation to decommissioning activities including removal and reinstatement of the onshore substation (exposure to contamination via direct contact, inhalation and/or ingestion of soils and dusts resulting in health effects) being scoped out: “The Inspectorate considers that given the nature of the development (and likely activities during decommissioning) the conclusion is reasonable and therefore agrees that these matters can be scoped out of the assessment.”</p>	<p>accidental spillages and leaks resulting in ground contamination and risks to human health during operational activities.</p> <p>Acknowledged agreement to scope out effects from exposure to contamination via direct contact, inhalation and/or ingestion of soils and dusts resulting in health effects during decommissioning activities.</p>
5.7.5	<p>In relation to decommissioning activities including removal and reinstatement of the onshore substation (accidental spillages and leaks resulting in ground contamination and risks to human health) being scoped out: “The Inspectorate considers that given the nature of the development (and likely activities during decommissioning) the conclusion is reasonable and therefore agrees that these matters can be scoped out of the assessment.”</p>	<p>Acknowledged agreement to scope out effects from accidental spillages and leaks resulting in ground contamination and risks to human health during decommissioning activities.</p>
5.7.6	<p>The Inspectorate notes that the study area proposed is provisional and will be reviewed and amended in response to such matters as refinement of the onshore components, the identification of additional impact pathways and in response, where appropriate, to feedback from consultation. The Inspectorate welcomes this approach to refinement of the study area and recommends that the ES should clearly define the chosen study area and provide a justification in support of its suitability.</p>	<p>The ES will present the updated study area based on final onshore cable corridor and onshore substation location using the criteria presented in Section 25.4. The study area used for this PEIR is shown on Figure 25.1, Volume 3 and is based on these principles and the latest onshore cable corridor</p>

PINS ID number	Scoping Opinion comment	How this is addressed in this PEIR
5.7.7	Table 6.8.6 of the Scoping Report sets out the data sources to be used to inform the baseline assessment. Effort should be made to agree the desk-based study area and need for site surveys (as may be necessary according to the desk study outcomes) with relevant consultation bodies.	and onshore substation search areas. Consultation was undertaken with stakeholders as detailed in paragraphs 25.3.6-25.3.11 and included discussion of the study area and intention to carry out a site inspection of key locations prior to the ES to support the desk study. Further consultation will be undertaken with stakeholders prior to the ES as detailed in Section 25.16 .
5.7.8	The Inspectorate notes the reference to the simple and detailed assessments which are 'analogous' to the stages of Land Contamination Risk Management (LCRM). The impact assessment should also include detailed and site-specific assessments to demonstrate that the risks to groundwater are acceptable, particularly in those areas identified as of greatest risk. Effort should be made to agree the approach to the assessment, including the simple and detailed assessment methodology and site-specific surveys, with the relevant consultation bodies, including the EA.	The assessment presented in the desk study which supports this PEIR (Appendix 25.1, Volume 4) identifies where more detailed site-specific assessments are required. Informal consultation was undertaken with stakeholders as detailed in paragraphs 25.3.6- 25.3.11 and included discussion of assessment methodology. Further consultation will be undertaken with stakeholders prior to the ES as detailed in Section 25.16 .
5.7.9	The Inspectorate notes that the term Conceptual Site Model (CSM) is included within the acronyms listed in the Scoping Report. However, there is no reference to a CSM within the Ground Condition section of the Scoping Report. The Applicant should seek to agree the scope of and coverage of any CSM with the EA and other relevant consultation bodies, as appropriate.	Reference to CSM in the PEIR has been included in this chapter. Informal consultation was undertaken with stakeholders as detailed in paragraphs 25.3.6- 25.3.11 and included discussion of the scope of the assessment, the baseline data and the CSM. Further

PINS ID number	Scoping Opinion comment	How this is addressed in this PEIR
5.7.10	The ES should include specific consideration of any preferential pathways for pollution and contaminants that may be created as a result of the Proposed Development.	consultation will be undertaken with stakeholders prior to the ES as detailed in Section 25.16 . Consideration of preferential pathway creation has been included as part the assessment of effects presented in Section 25.9 and will also be included as part of the ES.
-	WSCC in its response to the scoping consultation undertaken by PINS identified that the Scoping Boundary passes through a soft sand consultation area, a rare resource, the potential for sterilisation of which need to be firstly avoided where possible and secondly assessed within the EIA. WSCC noted that Chalk Quarries, Aggregate Recycling Sites and allocated and permitted waste sites should be considered in the assessment. WSCC stated that the assessment should take into account its Minerals and Waste Safeguarding Guidance.	Minerals safeguarding has been added to the preliminary assessment of Ground Conditions. Consideration of effects on minerals safeguarding and on minerals sites is presented in Section 25.9 . Reference has been made to the WSCC guidance as part of the assessment (West Sussex County Council, 2020a).

Evidence Plan Process (EPP)

- 25.3.5 The EPP has been set up to provide a formal, non-legally binding, independently chaired forum to agree the scope of the EIA and HRA, and the evidence required to support the DCO Application.
- 25.3.6 For ground conditions, further engagement has been undertaken via the EPP Expert Topic Group (ETG) 'Onshore Ecology, Hydrology and Nature Conservation' meeting held by conference call on 28 October 2020. The conference call as attended by the following stakeholders:
- West Sussex County Council;
 - Environment Agency;
 - Sussex Ornithological Society;
 - South Downs National Park Authority;
 - Sussex Wildlife Trust;

- Royal Society for the Protection of Birds;
- Natural England; and
- Ouse and Adur Rivers Trust.

- 25.3.7 The ground conditions section of the first ETG meeting on 28 October 2020 covered the scope of the ground conditions assessment, the baseline data and supporting assessments to be used to undertake the assessment, proposed environmental measures and the assessment methodology. The engagement also presented the proposed approach to address the Scoping Opinion comments detailed in **Table 25-3**.
- 25.3.8 No concerns were raised by the stakeholders in attendance at the ETG meeting on 28 October 2020 to the scope and assessment of ground conditions effects.
- 25.3.9 A second ETG meeting was held for Onshore Ecology, Hydrology and Nature Conservation on 23 March 2021 with the same key stakeholders as the meeting in October 2020.
- 25.3.10 The ground conditions section of the second ETG meeting on 23 March 2021 covered the scope of the ground conditions assessment (noting that the scope had been increased to include minerals safeguarding), the key potential sources of contamination identified from the baseline data, details of the ground conditions inputs to refinement of the design of the onshore elements of the Proposed Development and environmental measures and the preliminary findings of the PEIR (excluding minerals safeguarding).
- 25.3.11 No concerns were raised by the stakeholders in attendance at the ETG meeting on 23 March 2021 to the scope and assessment of ground conditions effects.

Informal consultation and further engagement

- 25.3.12 Informal engagement has been ongoing with several prescribed and non-prescribed consultation bodies and local authorities.

Informal Consultation – January / February 2021

- 25.3.1 RED carried out an Informal Consultation exercise for a period of four weeks from 14 January 2021 to 11 February 2021. This Informal Consultation exercise aimed to engage with a range of stakeholders including the prescribed and non-prescribed consultation bodies, local authorities, Parish Councils and general public with a view to introducing the Proposed Development and seeking early feedback on the emerging designs.
- 25.3.2 There were no key themes emerging from Informal Consultation in January 2021 specifically relating to ground conditions.
- 25.3.3 Further detail about the results of the Informal Consultation exercise can be found in **Informal Consultation Analysis**.

25.4 Scope of the assessment

Overview

- 25.4.1 This section sets out the scope of the PEIR assessment for ground conditions. This scope has been developed as the Rampion 2 design has evolved and responds to feedback received to date as set out in **Section 25.3**. As outlined in the Planning Inspectorate's (PINS) Advice Note Seven: Environmental Impact Assessment: Process, Preliminary Environmental Information and Environmental Statements (Version 7, Planning Inspectorate, 2020b), information presented in the PEIR is preliminary, therefore, this scope will be reviewed and may be refined as Rampion 2 evolves and as a result of ongoing consultation.

Spatial scope and study area

- 25.4.2 At this stage of the EIA process, several options for the onshore cable corridor and onshore substation search areas are included within the onshore part of the PEIR Assessment Boundary. Therefore, the study area used in this PEIR to inform the ground conditions baseline (excluding the minerals safeguarding assessment) has been taken as the wider of either:
- the onshore part of the PEIR Assessment Boundary comprising the area within which the onshore elements of the Proposed Development and associated onshore infrastructure will be located, including the temporary and permanent construction and operational work areas; or
 - a Zone of Influence (ZOI) 250m from the edge of the onshore cable corridor presented at PEIR stage; or
 - a ZOI 500m around the boundary of the land required for the onshore substation search areas presented at PEIR stage.
- 25.4.3 The minerals safeguarding assessment uses a ZOI 250m from the edge of the onshore part of the PEIR Assessment Boundary.
- 25.4.4 Using these assumptions, the ground conditions study area for the PEIR assessment is shown on **Figure 25.1, Volume 3**.
- 25.4.5 The rationale for the ZOI used to define the study area is informed by considering:
- the spatial extent (taking into account contaminant degradation, dilution and dispersion in the environment) at which significant ground conditions effects have the potential to be realised through potentially active contaminant linkages;
 - the spatial extent from which off-site sources of contamination have the potential to lead to significant effects on receptors within the onshore elements of the Proposed Development;
 - the spatial extent from which geohazards such as compressible and collapsible ground have the potential to lead to significant effects on receptors within the onshore elements of the Proposed Development; and

- the spatial extent from which minerals sites/resources could be affected by the onshore elements of the Proposed Development or vice versa.

25.4.6 The study area will continue to be reviewed and amended in response to such matters as refinement of the onshore components, the identification of additional impact pathways and in response, where appropriate, to feedback from consultation.

Temporal scope

25.4.7 The temporal scope of the assessment of ground conditions is the entire lifetime of Rampion 2 which therefore, covers the construction, operation and maintenance, and decommissioning phases.

Potential receptors

25.4.8 The spatial and temporal scope of the assessment enables the identification of receptors that may experience a change as a result of Rampion 2. The receptors identified that may experience significant effects for ground conditions are outlined in **Table 25-4**.

Table 25-4 Receptors requiring assessment for ground conditions

Receptor group	Receptors included within group
Human Health	<ul style="list-style-type: none"> • Construction / operational workers. • Residential. • Commercial / industrial. • Public open space. • Land and property (including land used for allotments, agriculture (crops and livestock), existing and future structures, utilities and infrastructure).
Controlled Waters	<ul style="list-style-type: none"> • Groundwater in superficial deposits. • Groundwater in bedrock. • Surface waters (for example, reservoirs, streams, rivers, lakes and ponds).
Geodiversity	<ul style="list-style-type: none"> • Geological Sites of Special Scientific Interest (SSSI). • Regionally Important Geological Sites (RIGS). • Locally Important Geological Sites (LIGS).

Receptor group	Receptors included within group
Mineral Resources	<ul style="list-style-type: none"> ● Mineral sites with valid planning permissions for minerals extraction, and which have not been exhausted by previous extraction. ● Sites designated as preferred areas for mineral extraction in local planning authority (LPA) local plans. ● Minerals safeguarding areas (MSAs) and minerals/minerals infrastructure consultation areas (MCAs) in LPA local plans.

25.4.9 The list of receptors will be kept under review during the EIA as more detailed information is obtained during baseline surveys and other forms of data collection by other aspects and will be reflected in the final ES.

Potential effects

25.4.10 Potential effects on ground conditions receptors that have been scoped in for assessment are summarised in **Table 25-5**. Each potential effect has been given a linkage reference in the final column of the table to allow ease of referencing within the ground conditions chapter.

Table 25-5 Potential effects on ground conditions receptors scoped in for further assessment

Activity and impact	Potential effect	Receptor	Linkage Reference
Construction			
Construction activities located on, or adjacent to landfills and other potentially contaminated sites such as industrial/waste management facilities and fuel storage/distribution facilities	Mobilisation of contamination via numerous pathways (including groundwater, surface water, preferential pathway creation and leaching from soil) resulting in contamination of controlled waters.	Controlled waters receptors (groundwater and surface waters)	GC-C-1
	Mobilisation of contamination via numerous pathways (including groundwater, surface water, leaching from soil, migration of vapours and windblown dusts) resulting in health effects.	Human health receptors (residential, agricultural land, commercial/industrial and public open space)	GC-C-2
	Build-up of gases in confined spaces in existing or newly constructed infrastructure on and adjacent to the land required for the Proposed Development.	Human health receptors (residential, commercial/industrial land) and property (including existing and new infrastructure)	GC-C-3
	Damage to newly constructed infrastructure from aggressive ground conditions (such as sulphate attack on concrete) and geohazards including unstable ground conditions.	Human health receptors, land and property (including existing and new infrastructure)	GC-C-4

Activity and impact	Potential effect	Receptor	Linkage Reference
Construction activities located near to sites of geological importance	Damage to or detrimental impact on sites of geological importance.	Sites of geological importance (SSSIs, RIGS or LIGS)	GC-C-5
Unexploded Ordnance (UXO) encounter during construction activities	Damage to existing property or infrastructure in vicinity of construction works or disruption to local communities.	Human health receptors and property (including existing and new infrastructure)	GC-C-6
Construction vehicle and equipment maintenance and storage of fuels/oils for construction vehicles and equipment	Accidental spillages and leaks resulting in ground contamination and risks to controlled waters during construction. This includes the potential for leakage of bentonite during Horizontal Directional Drilling (HDD).	Controlled waters receptors (groundwater and surface waters)	GC-C-7
Construction activities located within or near to minerals sites, preferred areas or safeguarding areas.	The viability of the operation of an ongoing mineral extraction site is reduced either through temporary/permanent sterilisation of a minerals resource or temporary reversal of previous sterilisation allowing access to unworked minerals for a limited period prior to the Proposed Development being constructed.	Mineral sites with valid planning permissions for minerals extraction, and which have not been exhausted by previous extraction. Sites designated as preferred areas for mineral extraction in LPA local plans. Minerals safeguarding areas and minerals consultation areas in LPA local plans.	GC-C-8
Operation			
Presence of significant quantities of artificial ground, disturbed	Mobilisation of landfill leachate, which, if not properly managed, could accumulate and/or migrate to controlled waters.	Controlled waters receptors (groundwater and surface waters)	GC-O-1

Activity and impact	Potential effect	Receptor	Linkage Reference
landfill material or excavated and re-used material beneath permanent infrastructure	Damage to infrastructure from aggressive ground conditions and geohazards including unstable ground conditions and settlement.	Land and property (including existing and new infrastructure)	GC-O-2
	Build-up of ground gases in confined spaces in existing or newly constructed infrastructure on and adjacent to the Proposed Development boundary.	Human health receptors (residential, commercial/industrial) and land and property (including existing and new infrastructure)	GC-O-3
Operational vehicle and equipment maintenance and storage of fuels/oils for operational vehicles and equipment	Accidental spillages and leaks resulting in ground and/or controlled waters contamination.	Controlled waters receptors (groundwater in superficial deposits and surface waters)	GC-O-4
Permanent infrastructure located within or near to minerals sites, preferred areas or safeguarding areas.	The viability of the operation of an ongoing mineral extraction site is reduced or results in permanent sterilisation of a minerals resource.	Mineral sites with valid planning permissions for minerals extraction, and which have not been exhausted by previous extraction.	GC-O-5
		Sites designated as preferred areas for mineral extraction in LPA local plans. Minerals safeguarding areas and minerals consultation areas in LPA local plans.	
Decommissioning			
Decommissioning activities including	Mobilisation of contamination via numerous pathways (including groundwater, surface	Controlled waters receptors (groundwater and surface waters)	GC-D1

Activity and impact	Potential effect	Receptor	Linkage Reference
removal and reinstatement of the onshore substation	water and leaching from soil) resulting in contamination of controlled waters.		
	Mobilisation of contamination via numerous pathways (including groundwater, surface water, leaching from soil, migration of vapours and windblown dusts) resulting in health effects.	Human health receptors (residential, agricultural land, commercial/industrial and public open space)	GC-D-2
	Accidental spillages and leaks resulting in ground contamination and risks to controlled waters during decommissioning.	Controlled waters receptors (groundwater and surface waters)	GC-D-3

Activities or impacts scoped out of assessment

- 25.4.11 A number of potential effects have been scoped out from further assessment, resulting from a conclusion of no likely significant effect. These conclusions have been made based on the knowledge of the baseline environment, the nature of planned works and the wealth of evidence on the potential for impact from such projects more widely. The conclusions follow (in a site-based context) existing best practice. Each scoped out activity or impact is considered in turn below and an indication given of whether the scope has evolved since Scoping.
- 25.4.12 Construction work for the construction or decommissioning of Rampion 2 must comply with the law. Construction workers will therefore be subject to The Construction (Design and Management) (CDM) Regulations 2015 and safe working practices as part of normal construction health and safety management under the Health and Safety at Work Act (1974) and regulations made under the Act. These legal obligations include the requirement for risk assessments and method statements for all construction related activities and the use of appropriate working methods, training and Personal Protective Equipment (PPE).
- 25.4.13 In addition to these legal obligations, **Section 25.7** outlines the embedded environmental measures that have been designed to reduce ground condition effects and include measures to prevent pollution incidents that could result in harm to construction workers. These measures include good and standard construction practices and actions that would be undertaken to meet existing legislative requirements under CDM and the Health and Safety at Work Act.
- 25.4.14 Taking into account compliance with the law and the commitment to implementing the environmental measures, there will be no significant adverse effects on construction workers as a result of Rampion 2 and, as agreed by PINS (PINS Scoping Response IDs 5.7.1 to 5.7.5 presented in **Table 25-3**), the effects in **Table 25-6** have been scoped out of this assessment.

Table 25-6 Potential effects on ground conditions receptors scoped out of further assessment

Activity and impact	Effect	Receptor
Construction		
Construction activities located on, or adjacent to landfills and other potentially contaminated sites such as industrial/waste management facilities and fuel storage/distribution facilities	Exposure to contamination via direct contact, inhalation and/or ingestion of soils and dusts	Human health receptors (construction workers)
Construction vehicle and equipment maintenance and storage of fuels/oils for construction vehicles and equipment	Accidental spillages and leaks resulting in ground contamination and risks to human health	Human health receptors (construction workers)
Operation		
Operational vehicle and equipment maintenance and storage of fuels/oils for operational vehicles and equipment	Accidental spillages and leaks resulting in ground contamination and risks to human health.	Human health receptors (construction/operational workers)
Decommissioning		
Decommissioning activities including removal and reinstatement of the onshore substation	Exposure to contamination via direct contact, inhalation and/or ingestion of soils and dusts	Human health receptors (construction workers)
	Accidental spillages and leaks resulting in ground contamination and risks to human health	Human health receptors (construction workers)

25.5 Methodology for baseline data gathering

Overview

25.5.1 Baseline data collection has been undertaken to obtain information over the study areas described in **Section 25.4: Scope of the assessment**. The current baseline conditions presented in **Section 25.6: Baseline conditions** sets out data currently available for the study area/s.

Desk study

25.5.2 The data sources that have been collected and used to inform this ground conditions assessment are summarised in **Table 25-7**.

Table 25-7 Data sources used to inform the ground conditions PEIR assessment

Source	Date	Summary	Coverage of study area
Groundsure	November 2020	Environmental and GIS data including information on geohazards, 1:10,000 and 1:50,000 historical mapping	Full coverage of study area
Gov.uk open data	November 2020	Rivers shapefile Source Protection Zones (SPZs) Historical and Authorised landfills shapefiles Environmental Pollution incidents (database) Consented discharge data	Full coverage of study area
MAGIC.gov.uk website	November 2020	Designated sites Aquifer designations and groundwater vulnerability Geological SSSIs information.	Full coverage of study area
Ordnance Survey	November 2020	1:50,000 and 1:25,000 mapping	Full coverage of study area
British Geological Survey (BGS)	November 2020	On-line Geindex 1:50,000 digital geology Borehole Record Viewer (offers access to the National Geoscience Data Centre collection of onshore scanned boreholes, shafts and well records) Minerals resource data	Full coverage of study area

Source	Date	Summary	Coverage of study area
Zetica Limited	July 2020	Unexploded Ordnance (UXO) mapping	Full coverage of study area
Sussex Geodiversity Partnership / Sussex Biodiversity Record Centre	July 2020	Information on geological SSSIs, RIGS and LIGS	Full coverage of study area
Natural England	July 2020	Geological SSSI citations	Full coverage of study area
Local authorities	July 2020	Environmental site register data Contaminated land register data Landfills data Information on geological SSSIs, RIGS and LIGS Information on mineral resources and local plan designations/allocations	Full coverage of study area

Data limitations

- 25.5.3 At this stage of the EIA, no site surveys have been undertaken and the description of baseline conditions is based on the desk study data described above. This is not considered to affect the robustness of the PEIR assessment. It is noted that, as outlined in **Section 25.16**, site surveys (comprising a site walkover of the onshore substation search areas and key points along the onshore temporary cable corridor) are proposed to be undertaken prior to ES to inform the baseline conditions.

25.6 Baseline conditions

Overview

- 25.6.1 The information from the data sources outlined in **Section 25.5** has been used to develop a Conceptual Site Model (CSM) from which the ground conditions assessment can be undertaken. The CSM identifies the sources, receptors, and potentially active pathways within the study area.

Current baseline

- 25.6.2 The current baseline conditions and CSM are presented in the Phase 1 desk study report that accompanies this chapter as **Appendix 25.1, Volume 4** and a summary is outlined in the following section.

- 25.6.3 Superficial deposits are present in the study area, predominantly beneath the landfall location, around Arundel and along the course of the River Arun and River Adur. The deposits comprise alluvium, head deposits (brickearth, silt and blown sands) with clay with flints, and river terrace deposits in some locations. A plan showing the superficial deposits in the study area is presented on **Graphic 4-5** and **Graphic 4-6** of the desk study (**Appendix 25.1, Volume 4**).
- 25.6.4 Underlying the superficial deposits at the landfall location and around Arundel the solid geology comprises predominantly Chalk overlain by a narrow band of Lambeth Group and Thames Group (London Clay Formation) just to the south of Arundel.
- 25.6.5 As the onshore temporary cable corridor runs northeastwards, the solid geology comprises a narrow band of the Gault Formation and the Upper and Lower Greensand Formations, with much of the solid geology comprising Weald Clay as shown on **Graphic 4-7** and **Graphic 4-8** of the desk study (**Appendix 25.1, Volume 4**).
- 25.6.6 Groundwater is likely to be present in the permeable strata of the superficial deposits, Lambeth Group and Greensand Formations, which the Environment Agency classifies as Secondary (A) Aquifers. The main hydrogeological unit is the Chalk, which the Environment Agency classifies as a Principal Aquifer. The Weald Clay is classified as Unproductive Strata. Environment Agency data also indicates that there are a number of existing groundwater abstractions and source protection zones (SPZs) to the northeast of Arundel. A more detailed description of the groundwater and surface water baseline is included in **Chapter 27: Water environment**.
- 25.6.7 Numerous ponds and streams are indicated by Ordnance Survey (OS) mapping to be present within the study area, which crosses two rivers (the River Arun and the River Adur). In addition, there are anticipated to be numerous drainage ditches present on the agricultural land along the onshore temporary cable corridor.
- 25.6.8 The general land use within the study area is agricultural (arable and improved grassland), with a number of towns, villages and commercial areas connected by roads. The existing Bolney substation operated by National Grid (including the immediately adjacent Rampion 1 onshore substation) and a sewage treatment works to the south of the village of Partridge Green are also present in the study area.
- 25.6.9 Environment Agency information indicates that there are a number of historical landfills within the study area, predominantly to the south of Arundel. An authorised landfill (Windmill Quarry, operated by Biffa Waste Services Ltd) is also shown to be present to the northeast of the village of Washington, West Sussex as shown on **Figure 25.2a-r, Volume 3** of this chapter and **Figure 25.1.2a-r** of the desk study (**Appendix 25.1, Volume 4**).
- 25.6.10 There are no geological SSSIs located within the study area. One LIGS (Rock Common Sand Quarry) is present within the study area as shown on **Figure 25.2a-r, Volume 3** of this chapter and **Figure 25.1.2a-r** of the desk study (**Appendix 25.1, Volume 4**).
- 25.6.11 The majority of the study area is classified as having a low unexploded ordnance (UXO) hazard with two areas of moderate UXO hazard identified around the

landfall location and the town of Arundel as detailed in Appendix B of the desk study (**Appendix 25.1, Volume 4**).

- 25.6.12 Based on the desk study, potential sources of contamination that may be present in the vicinity of the onshore cable corridor and onshore substation search areas that required further assessment were anticipated to include:
- the historical and authorised landfills;
 - infilled former ponds, quarries and railway lines;
 - commercial/industrial properties at Oakdene Industrial estate;
 - the Crossbush Service Station at Arundel;
 - historical petroleum tanks associated with a vehicle showroom and former service station near Washington, West Sussex; and
 - a sewage treatment works at Partridge Green.
- 25.6.13 Based on the review of development plan policies and allocations the following potential minerals resources have been identified within the study area:
- MSA for soft sand (including potential silica sand);
 - MSA for brick clay;
 - MSA for building stone;
 - MSA for chalk;
 - minerals infrastructure consultation area associated with Rock Common Sand Quarry;
 - minerals infrastructure consultation areas at Storrington and associated with Washington Chalk Quarry; and
 - proposed strategic mineral site allocations at Ham Farm, Steyning and Chantry Lane Extension, Storrington.
- 25.6.14 A figure summarising the ground conditions baseline is presented as **Figure 25.2a-r, Volume 3**. The baseline with respect to minerals is summarised on **Figure 25.3, Volume 3**.

Future baseline

- 25.6.15 With the exception of minerals safeguarding, in the absence of Rampion 2, there is unlikely to be a change in the baseline conditions over the lifetime of the Proposed Development. This is because the geology and ground conditions are unlikely to be altered over time without a significant change of land use.
- 25.6.16 With respect to land contamination, this is managed in England by Part 2A of the Environmental Protection Act and the Town and Country Planning Act 1990. Part 2A requires local authorities to identify potentially contamination land in their area and ensure potential risks from historical contamination are assessed and mitigated accordingly. For future developments, The Town and Country Planning Act requires the consideration of the potential for contamination to be present and

ensure a site is suitable for the proposed end use. Therefore, it is reasonable to conclude that in the absence of Rampion 2 there would not be a change in ground conditions over time within the study area.

- 25.6.17 However, over the lifetime of the Proposed Development, the minerals safeguarding baseline may change. Extraction at several of the currently active minerals sites in the study area will have ceased and the sites will be restored or be in the process of being restored. For example, the planning permission for Rock Common Quarry requires minerals extraction to cease in December 2020 and the site to be restored by December 2022. The planning permission for Sandgate Park Quarry requires the site to be restored over an 11-year period. A current application is seeking permission to extend the period for mineral extraction at Washington Sand Pit to December 2021 with restoration using inert fill by 2028.
- 25.6.18 Consideration has been given to the timing of extraction when assessing the effect of Rampion 2 on minerals safeguarding.

25.7 Basis for PEIR assessment

Maximum design scenario

- 25.7.1 Assessing using a parameter-based design envelope approach means that the assessment considers a maximum design scenario whilst allowing the flexibility to make improvements in the future in ways that cannot be predicted at the time of submission of the Development Consent Order (DCO) Application. The assessment of the maximum adverse scenario for each receptor establishes the maximum potential adverse impact and as a result impacts of greater adverse significance would not arise should any other development scenario (as described in **Chapter 4: The Proposed Development**) to that assessed within this Chapter be taken forward in the final scheme design.
- 25.7.2 The maximum assessment assumptions that have been identified to be relevant to ground conditions are outlined in **Table 25-8** below and are in line with the Project Design Envelope (**Chapter 4**).

Table 25-8 Maximum assessment assumptions for impacts on ground conditions

Project phase and activity/impact	Maximum assessment assumptions	Justification
Construction	Onshore cable corridor: <ul style="list-style-type: none"> Up to 50m wide onshore cable corridor located within the onshore part of the PEIR Assessment Boundary with approximate length of 	The onshore temporary construction corridor and potential temporary construction compounds represent the areas where construction works may result in ground condition effects, for example from spills or leaks from construction equipment or minerals sterilisation and

Project phase and activity/impact	Maximum assessment assumptions	Justification
Operation and maintenance	<p>36km. Width widened in locations where there is a technical necessity, such as HDD sites.</p> <ul style="list-style-type: none"> ● Up to 4 trenches, with burial depth target of 1.2m to top of duct. <p>Temporary construction compounds:</p> <ul style="list-style-type: none"> ● Up to four temporary construction compound locations (each approximately 4 hectares (ha) in size. ● Temporary construction compound use duration of up to three years six months. <p>Onshore substation:</p> <ul style="list-style-type: none"> ● Up to 5.9 ha onshore substation with associated structures and infrastructure. ● Up to 2.5ha additional temporary works area. <p>Onshore cable corridor:</p> <ul style="list-style-type: none"> ● All permanent onshore cable elements will be below ground. ● Cables are not oil-filled. ● Minimal maintenance required (periodic testing at joint boxes every 2 to 5 years). <p>Onshore substation:</p> <ul style="list-style-type: none"> ● 5.9ha onshore substation with 	<p>provides for worst-case assessment to allow for micro siting of onshore cable corridor within the onshore part of the PEIR Assessment Boundary.</p> <p>The design assumptions for construction activities such as volumes of potentially contaminating substances and frequency of refuelling activities are reasonable maximum assumptions from which to assess the risk of soil or groundwater contamination.</p> <p>This area represents the permanent infrastructure that could result in ground condition effects during operation and maintenance of Rampion 2, For example, from potential contamination due to spills or leaks from operational equipment or from minerals sterilisation.</p>

Project phase and activity/impact	Maximum assessment assumptions	Justification
	<p>associated structures and infrastructure.</p> <ul style="list-style-type: none"> 2.5ha additional temporary works area. Around 30 year operational lifetime. 	
Decommissioning	<p>Onshore substation:</p> <ul style="list-style-type: none"> If fully decommissioned and returned to baseline condition, assessment assumptions as per construction phase. <p>Onshore cable corridor:</p> <ul style="list-style-type: none"> Left <i>in-situ</i> with ends cuts, sealed and buried. 	<p>Onsite disassembly of equipment and demolition of structures would have greatest potential for soil or groundwater contamination due to spills, leaks and waste generated.</p> <p>A decommissioning plan will be provided, as secured through the measures in Table 25-9. The detail and scope of the decommissioning will be determined by the relevant legislation and guidance at the time along with the proposed end-use for the land. As such, for the purposes of a maximum design scenario, impacts no greater than those identified for the construction phase are expected for the decommissioning phase.</p> <p>It is anticipated that the onshore cables will be left <i>in-situ</i> with ends cuts, sealed and buried to minimise effects associated with removal.</p> <p>The removal of infrastructure or easements associated with the cables which will remain <i>in-situ</i> could lead to the opening up of minerals which have been sterilised by that infrastructure.</p>

- 25.7.3 The assessment of effects in this PEIR takes into consideration the optionality that exists for flexibility at this stage of the design of the Proposed Development (as outlined in **Chapter 5: Approach to the EIA**). For example, this PEIR considers the effects that could result from construction on or adjacent to land affected by contamination which would arise from taking forward either one of the two onshore substation search areas or from selection of a specific 50m onshore temporary construction corridor within the larger 100m corridor currently assessed for flexibility at this stage.
- 25.7.4 Therefore, effects that are more significant than those presented in this PEIR are not predicted to occur should any other development scenario within the project design envelope be taken forward in the final design of the Proposed Development.

Embedded environmental measures

- 25.7.5 As part of the Rampion 2 design process, several embedded environmental measures have been adopted to reduce the potential for impacts on ground conditions. These embedded environmental measures will evolve over the development process as the EIA progresses and in response to consultation. They will be fed iteratively into the assessment process.
- 25.7.6 These measures typically include those that have been identified as good or standard practice and include actions that would be undertaken to meet existing legislative requirements. As there is a commitment to implementing these embedded environmental measures, and to various standard sectoral practices and procedures, they are considered inherently part of the design of Rampion 2 and are set out in this PEIR.
- 25.7.7 **Table 25-9** sets out the relevant embedded environmental measures within the design and how these affect the ground conditions assessment.

Table 25-9 Relevant ground conditions embedded environmental measures

ID	Environmental measure proposed	Project phase measure introduced	How the environmental measures will be secured	Relevance to ground conditions assessment
C-5	Main rivers, watercourses, railways and roads that form part of the Strategic Highways Network will be crossed by Horizontal Directional Drill (HDD) or other trenchless technology where this represents the best environment solution and is financially and technically feasible (see C-17).	Scoping - updated at PEIR	DCO works plans and order limits	Minimises potential for pollution of controlled waters receptors during construction.
C-6	Where practical, sensitive sites will be avoided by the temporary and permanent onshore project footprint including SSSIs, Local Nature Reserves, Local Wildlife Sites, ancient woodland, areas of consented development, areas of historic and authorised landfills and other known areas of potential contamination, National Trust Land, Listed Buildings, Scheduled Monuments and mineral resources (including existing mineral sites, mineral sites allocated in development plans and mineral safeguarding areas).	Scoping – updated at PEIR	DCO works plans and order limits	Minimises potential to damage geologically important sites and minimises interaction with land potentially affected by contamination.
C-8	During both construction and operation, vehicle maintenance and refuelling of machinery will be undertaken within designated areas where spillages can be easily contained, and machinery will be routinely checked to ensure it is in good working condition. These areas at risk of spillage or containing hazardous materials, such as vehicle maintenance areas and hazardous substance stores (including fuel, oils and chemicals) will comply with industry good practice, be bunded, have appropriate containment and segregation and	Scoping – updated at PEIR	Outline COCP and DCO requirement	Minimises potential for pollution from leaks and spills during construction.

ID	Environmental measure proposed	Project phase measure introduced	How the environmental measures will be secured	Relevance to ground conditions assessment
	will be risk assessed and carefully sited to minimise the risk of hazardous substances entering the drainage system, or the local watercourses, or sensitive land based receptors. Where feasible, such areas will be sited at least 10m from a watercourse and away from areas at risk of flooding. Additionally, the bunded areas will have impermeable bases to limit the potential for migration of contaminants into groundwater following any leakage/spillage.			
C-14	Potential risks to human health from any unexpected ground contamination will be avoided by the use of Personal Protective Equipment (PPE) and by adopting appropriate working practices.	Scoping	Outline COCP and DCO requirement	Minimises risks to construction workers during construction.
C-15	Contamination, if found, will be subject to appropriate risk assessment and if necessary, either removed, treated and/or mitigated as part of the Proposed Development.	Scoping	Outline COCP and DCO requirement	Minimises risks to human health and controlled waters during construction. Embeds best practice land contamination guidance into construction of the onshore elements of the Proposed Development.
C-17	Where trenchless techniques are not required or are not practical, watercourses may be crossed by open cut techniques (with flows overpumped around the working area).	Scoping – updated at PEIR	Outline COCP and DCO requirement	Minimises potential for pollution of controlled

ID	Environmental measure proposed	Project phase measure introduced	How the environmental measures will be secured	Relevance to ground conditions assessment
	Appropriate environmental permits or land drainage consents will be applied for works from the Environment Agency (e.g. for Main Rivers, works on or near sea defences/flood defence structures or in a flood plain) or from the Lead Local Flood Authority (LLFA) (for Ordinary Watercourse crossings) (see commitment C-5).			waters receptors during construction.
C-23	Where possible, micro-siting will be undertaken during detailed design to avoid ponds.	Scoping	Outline COCP and DCO requirement	Minimises potential for pollution of controlled waters receptors during construction.
C-24	Best practice air quality management measures will be applied as described in Institute of Air Quality Management (IAQM) (2014) guidance on the Assessment of Dust from Demolition and Construction 2014, version 1.1.	Scoping – updated at PEIR	Outline COCP and DCO requirement	Minimises risks to human health receptors during construction.
C-25	All aspects of the construction work will be in accordance with the Construction (Design and Management) Regulations 2015.	Scoping	Outline COCP and DCO requirement	Minimises risks to human health receptors during construction.
C-31	Any disposal off-site of excavated material will be undertaken in consultation with the landowner/occupier and in accordance with the Waste Management Regulations.	Scoping	Outline COCP and DCO requirement	Minimises risks of inappropriate reuse of materials during construction.
C-33	An Outline COCP will be adopted to minimise temporary disturbance to residential properties, recreational users and	Scoping	Outline COCP and DCO requirement	Minimises risks to human health and

ID	Environmental measure proposed	Project phase measure introduced	How the environmental measures will be secured	Relevance to ground conditions assessment
	existing land users. It will provide details of measures to protect environmental receptors.			controlled waters receptors during construction.
C-69	Construction strategies will be implemented that will seek to maximise the reuse of excavated clean materials from the onshore cable construction corridor where practicable and feasible. Prior to construction, an Outline Materials Management Plan (MMP) will be developed that outlines where excavated non-waste materials will be reused in line with the CL:AIRE (2011) Definition of Waste Code of Practice (DoWCoP). The MMP will include a declaration by a Qualified Person that the MMP has been completed in accordance with the DoWCoP and that best practice is being followed.	Scoping – updated at PEIR	Outline COCP and DCO requirement	Minimises risks of inappropriate reuse of materials during construction.
C-70	An emergency response plan in accordance with ‘Unexploded ordnance, A guide for the construction industry CIRIA C681’ (CIRIA, 2009) will be developed prior to construction. Site inductions, toolbox talks and appropriate training on the risks from unexploded ordnance (UXO) will also be undertaken as part of the construction approach for Rampion 2. In areas with a moderate UXO hazard level and above, a detailed UXO desk study will be undertaken prior to construction to identify where additional mitigation such as non-intrusive geophysical clearance or supervision by an explosive ordnance clearance (EOC) operative is required.	Scoping – updated at PEIR	Outline COCP and DCO requirement	Minimises risks from UXO encounter during construction.

ID	Environmental measure proposed	Project phase measure introduced	How the environmental measures will be secured	Relevance to ground conditions assessment
C-71	RED will ensure that the land used for the Proposed Development is suitable for the proposed use with respect to the potential for soil and groundwater contamination and, that where necessary, risk-based remediation is undertaken in line with Environment Agency (2020) guidance (Land Contamination: Risk Management). The precise design of any remediation strategy will be confirmed in the detailed design after consent has been granted.	Scoping – updated at PEIR	DCO and UK legislative requirement	Minimises risks to human health and controlled waters during construction. Embeds best practice land contamination guidance into construction of the onshore elements of the Proposed Development.
C-72	Prior to construction, an unexpected contamination protocol will be developed in line with Environment Agency (2020) guidance (LCRM) to minimise the potential risks to human health and controlled waters from any unexpected ground contamination. The protocol will take into account the requirements for risk assessment, the use of Personal Protective Equipment (PPE) and adoption of best practice methods during construction.	Scoping – updated at PEIR	Outline COCP and DCO requirement	Minimises risks to human health and controlled waters during construction. Embeds best practice land contamination guidance into construction of the onshore elements of the Proposed Development.
C-76	In line with good practice, Pollution Prevention Plans (PPPs) developed to detail how ground and surface waters will be protected in construction and operation. These will include information on the use and storage of any fuels, oils and other chemicals (in line with C-8 and C-167) and pollution incidence response planning. These will also include measures for the protection of licenced and private abstractions. This could	Scoping – updated at PEIR	Outline COCP and DCO requirement	Minimises potential for pollution of controlled waters receptors during construction.

ID	Environmental measure proposed	Project phase measure introduced	How the environmental measures will be secured	Relevance to ground conditions assessment
	include a monitoring regime associated with critical or very near receptors.			
C-116	The basis of the structural design for the proposed onshore cable corridor and onshore substation infrastructure will be completed in general accordance with design standards to minimise the risk of structural or geotechnical instability. The structural design of onshore substation buildings will give due consideration to minimum design requirements for ambient design temperatures, wind pressures and snow loads, including climate change allowances where appropriate.	PEIR	Embedded in design of Proposed Development and Outline COCP	Minimises risks from geohazards (such as earth movement or subsidence) during construction and operation.
C-137	All proposed onshore infrastructure and construction activities will be sited outside of the inner Source Protection Zones (SPZ1) for the Southern Water Warningcamp and Burpham borehole public water supplies. Construction activities will also be steered as far as practicable outside of their respective SPZ2s, and there will be no drilling activities or storage of hazardous materials including chemicals, oils and fuels within any SPZ.	PEIR	Outline COCP and DCO requirement	Minimises potential for pollution of controlled waters receptors during construction.
C-142	If water being pumped from excavations is suspected to be contaminated, appropriate measures will be taken in accordance with Environment Agency guidance and the Environmental Permitting Regulations to prevent uncontrolled or unauthorised releases of this water to ground or to the water environment.	PEIR	Outline COCP and DCO requirement	Minimises potential for pollution of controlled waters receptors during construction.

ID	Environmental measure proposed	Project phase measure introduced	How the environmental measures will be secured	Relevance to ground conditions assessment
C-143	Any temporary onsite storage of excavated materials suspected or confirmed to be contaminated will be on impermeable sheeting, covered over and with adequate leachate/ runoff drainage to prevent migration of contaminants from the stockpile. Materials will be segregated where possible to prevent cross-contamination occurring. Such materials will only be reused if they are confirmed as suitable for use in line with the requirements of the Outline Materials Management Plan (C-69).	PEIR	Outline COCP and DCO requirement	Minimises potential for pollution of controlled waters receptors during construction. Minimises risks of inappropriate reuse of materials during construction.
C-149	In areas where there is a potential for hydrocarbon residues from run-off/ isolated leakages surface water drainage measures will be provided to capture hydrocarbons prior to discharge, such as hydrocarbon interceptors.	PEIR	Outline COCP and DCO requirement	Minimises potential for pollution of controlled waters receptors during construction.
C-150	Plant and machinery used during the construction and operation phases will be maintained to minimise the risks of oils leaks or similar, in line with C-8. Maintenance and refuelling of machinery will be undertaken off-site or within designated areas of hardstanding. In these designated areas contingency plans will be implemented to ensure that the risk of spillages is minimised. Placing a drip tray beneath a plant and machinery during refuelling and the availability of spill kits will contain small spillages.	PEIR	Outline COCP and DCO requirement	Minimises potential for pollution from leaks and spills during construction.
C-151	Contractors will be made aware of their statutory responsibility not to “cause or knowingly permit water	PEIR	Outline COCP and DCO requirement	Minimises potential for pollution from leaks and

ID	Environmental measure proposed	Project phase measure introduced	How the environmental measures will be secured	Relevance to ground conditions assessment
	<p>pollution". A Pollution Prevention Plan (PPP) and Pollution Incident Response Plan (PIRP) will be prepared for the Proposed Development, the latter in line with Pollution Prevention Guideline 21 (GPP 21, 2009), and all contractors will be briefed on these plans, with copies made available on site.</p>			<p>spills during construction.</p>
C-153	<p>An Operations and Maintenance Plan will be developed with a Pollution Incident Control Plan (PICP) for implementation during the operational phase.</p>	PEIR	<p>Outline COCP and DCO requirement</p>	<p>Minimises potential for pollution from leaks and spills during operational phase.</p>
C-167	<p>Any tanks and associated pipe work containing oils, fuels and chemicals will be double skinned and provided with leak detection equipment. There will be a bunded capacity of 100% of the maximum tank volume for non-hazardous fluids. For hazardous chemicals, fuels or oils bund capacity will be the larger of 110% of the largest tank volume for single tank bunds, (or, in the case of multi tank bunds, 110% of the largest tank capacity or 25% of the combined tank capacity, whichever it is the largest). Fuel storage will be in accordance with the Control of Pollution (Oil Storage) (England) Regulations 2001 and Pollution Prevention Guidelines (PPGs). All stores of fuel will be located at least 20m from any watercourses and away from areas at risk of flooding.</p>	PEIR	<p>Outline COCP and DCO requirement</p>	<p>Minimises potential for pollution from leaks and spills during construction.</p>

25.8 Methodology for PEIR assessment

Introduction

- 25.8.1 The project-wide generic approach to assessment is set out in **Chapter 5: Approach to the EIA**. Excluding minerals safeguarding, the assessment methodology for ground conditions for the PEIR is consistent with that provided in the Scoping Report (RED, 2020) and no changes have been made since the scoping phase. For minerals safeguarding, the need for this assessment was identified through the consultation response from WSCC and the assessment methodology has been introduced into this chapter since Scoping.
- 25.8.2 The assessment and management of ground conditions (not including the minerals assessment) is usually based on the risk presented by the presence of a hazard (for example, contamination) for a given circumstance, i.e. the probability and consequence of an event occurring. However, EIA seeks to identify the magnitude of a change in status from baseline (impact) caused by the Proposed Development and the consequences of those changes (effects).
- 25.8.3 Consequently, for the ground conditions assessment (excluding minerals safeguarding), the impact and its effect have been defined as a change in risk and the magnitude of the change in risk from baseline, through construction to post-development conditions.
- 25.8.4 The methodology that is proposed for assessing these risks is set out in **paragraph 25.8.7** onwards and is supported by a desk study (**Appendix 25.1, Volume 4**) which sets out the baseline and post-development risks identified for Rampion 2 using this methodology.
- 25.8.5 For the minerals assessment, the methodology is based on the proximity of the onshore elements of the Proposed Development to identified minerals resources, and the impact that the onshore elements of the Proposed Development would have on the ability to extract economically viable resources. The effect is determined by considering the sensitivity of the minerals resources, based on the likelihood of extraction occurring, and the magnitude of change from the level of impact that the onshore elements of the Proposed Development will have.
- 25.8.6 The methodology for the minerals safeguarding assessment is set out **paragraph 25.8.16** onwards.

Risk Assessment – Ground Conditions

- 25.8.7 The process of managing land contamination, as set out in the Environment Agency (2020) guidance LCRM, is based on risk assessment. The assessment of risks from contaminated land is based upon the identification and subsequent assessment of a contaminant linkage. A contaminant linkage requires the presence of:
- a source of contamination;
 - a receptor capable of being adversely affected by the contamination; and

- an active pathway capable of exposing a receptor to the contaminant.

25.8.8 The risk assessment aims to assess the significance of each potential contaminant linkage. The key to the classification is that the designation of risk is based upon the consideration of both of the following:

- **the magnitude of the potential consequence** (severity). It takes into account both the potential severity of the hazard and the sensitivity of the receptor; and
- **the magnitude of probability** (likelihood). It takes into account both the presence of the hazard and receptor and the integrity of the pathway.

25.8.9 The definitions for the qualitative risk assessment have been taken from *Guidance for the Safe Development of Housing on Land Affected by Contamination Annex 4* (NHBC et al., 2008).

25.8.10 The likelihood classifications for the contaminant linkages being realised is presented in **Table 25-10**.

Table 25-10 Likelihood classification of contaminant linkage being realised

Classification	Definition	Examples
High Likelihood	There is a contaminant linkage and an event would appear very likely in the short-term and almost inevitable over the long-term, or there is evidence at the receptor of harm or pollution	a) Elevated concentrations of toxic contaminants are present in soils in the top 0.5m in a residential garden. b) Ground/groundwater contamination could be present from chemical works, containing a number of Underground Storage Tanks (USTs).
Likely	There is a contaminant linkage and all the elements are present and in the right place, which means that it is probable that an event will occur. Circumstances are such that an event is not inevitable, but possible in the short-term and likely over the long-term.	a) Elevated concentrations of toxic contaminants are present in soils at depths of 0.5-1.0m in a residential garden, or the top 0.5m in public open space. b) Ground/groundwater contamination could be present from an industrial site containing a UST present between 1970 and 1990. The tank is known to be single skin. There is no evidence of leakage although there are no records of integrity tests.
Low Likelihood	There is a contaminant linkage and circumstances are possible under which an event could occur. However, it is by no means certain that even over a long period such an event would	a) Elevated concentrations of toxic contaminants are present in soils at depths >1m in a residential garden, or 0.5-1.0m in public open space.

Classification	Definition	Examples
	take place and is less likely in the shorter term.	b) Ground/groundwater contamination could be present on a light industrial unit constructed in the 1990s containing a UST in operation over the last 10 years – the tank is double skinned but there is no integrity testing or evidence of leakage.
Unlikely	There is a contaminant linkage, but circumstances are such that it is improbable that an event would occur even in the very long-term.	a) Elevated concentrations of toxic contaminants are present below hardstanding. b) Light industrial unit <10 years old containing a double skinned UST with annual integrity testing results available.

- 25.8.11 The magnitude of the potential consequence of a contaminant linkage gives an indication of the sensitivity of a given receptor to a particular source or contaminant of concern under consideration. It is based on full exposure *via* the linkage being examined. The classification of consequence is presented in **Table 25-11**.

Table 25-11 Classification of consequence

Classification	Human Health	Controlled Water	Geodiversity	Property / Structures/ Crops and animals	Examples
Severe	Highly elevated concentrations likely to result in “significant harm” to human health as defined by the Environmental Protection Act (EPA) 1990, Part 2A, if exposure occurs.	Equivalent to Environment Agency Category 1 pollution incident including persistent and/or extensive effects on water quality; leading to closure of a potable abstraction point; major impact on amenity value or major damage to agriculture or commerce.	Major damage to a geodiversity site, which is likely to result in a substantial adverse change in its functioning or harm to a site of special interest that endangers the long-term maintenance of the site.	Catastrophic damage to crops, buildings or property.	<p>Significant harm to humans is defined in the Contaminated Land Statutory Guidance as death, life threatening diseases (for example, cancers), other diseases likely to have serious impacts on health, serious injury, birth defects, and impairment of reproductive functions.</p> <p>Major fish kill in surface water from large spillage of contaminants from site.</p> <p>Highly elevated concentrations of Hazardous or priority substances present in groundwater close to small potable abstraction (high sensitivity).</p> <p>Explosion, causing building collapse (can also equate to immediate human health risk if buildings are occupied).</p>

Classification	Human Health	Controlled Water	Geodiversity	Property / Structures/ Crops and animals	Examples
Medium	Elevated concentrations which could result in “significant harm” to human health as defined by the EPA 1990, Part 2A if exposure occurs.	Equivalent to Environment Agency Category 2 pollution incident including significant effect on water quality; notification required to abstractors; reduction in amenity value or significant damage to agriculture or commerce.	Significant damage to a geodiversity site, which may result in a substantial adverse change in its functioning or harm to a site of special interest that may endanger the long-term maintenance of the site.	Significant damage to crops, buildings or property.	<p>Significant harm to humans is defined in the Contaminated Land Statutory Guidance as death, life threatening diseases (for example, cancers), other diseases likely to have serious impacts on health, serious injury, birth defects, and impairment of reproductive functions.</p> <p>Damage to building rendering it unsafe to occupy, for example, foundation damage resulting in instability.</p> <p>Ingress of contaminants through plastic potable water pipes.</p>
Mild	Exposure to human health unlikely to lead to “significant harm”.	Equivalent to Environment Agency Category 3 pollution incident including minimal or short-lived effect on water quality; marginal effect on amenity value,	Minor or short-lived damage to a geodiversity site, which is unlikely to result in a substantial adverse change in its functioning or harm to a site of special interest that would	Minor damage to crops, buildings or property.	<p>Exposure could lead to slight short-term effects (for example, mild skin rash).</p> <p>Surface spalling of concrete.</p>

Classification	Human Health	Controlled Water	Geodiversity	Property / Structures/ Crops and animals	Examples
		agriculture or commerce.	endanger the long-term maintenance of the site.		
Minor	No measurable effects on humans	Equivalent to insubstantial pollution incident with no observed effect on water quality or ecosystems.	Equivalent to insubstantial pollution incident with no observed effect on a geodiversity site or site of special interest.	Repairable effects of damage to buildings, structures	The loss of plants in a landscaping scheme. Discoloration of concrete.

25.8.12 The risk matrix to link the likelihood and consequence is shown in **Table 25-12**.

Table 25-12 Risk matrix

Likelihood	Unlikely	Low	Likely	High
Potential Consequence				
Severe	Moderate/Low Risk	Moderate Risk	High Risk	Very High Risk
Medium	Low Risk	Moderate/Low Risk	Moderate Risk	High Risk
Mild	Very Low Risk	Low Risk	Moderate/Low Risk	Moderate Risk
Minor	Very Low Risk	Very Low Risk	Low Risk	Low Risk

25.8.13 The overall risk definitions are summarised in **Table 25-13**.

Table 25-13 Risk definitions

Risk	Definition
Very High	There is a high probability that severe harm could arise to a designated receptor from an identified hazard at the site without remediation action OR there is evidence that severe harm to a designated receptor is already occurring. Realisation of that risk is likely to present a substantial liability to the site owner/or occupier. Investigation is required as a matter of urgency and remediation works likely to follow in the short-term.
High	Harm is likely to arise to a designated receptor from an identified hazard at the site without remediation action. Realisation of the risk is likely to present a substantial liability to the site owner/or occupier. Investigation is required as a matter of urgency to clarify the risk. Remediation works may be necessary in the short-term and are likely over the longer term.
Moderate	It is possible that harm could arise to a designated receptor from an identified hazard. However, it is either relatively unlikely that any such harm would be severe, and if any harm were to occur it is more likely that the harm would be relatively mild. Further investigative work is normally required to clarify the risk and to determine the potential liability to site owner/occupier. Some remediation works may be required in the longer term.

Risk	Definition
Low	It is possible that harm could arise to a designated receptor from identified hazard, but it is likely at worst that this harm if realised would normally be mild. It is unlikely that the site owner/or occupier would face substantial liabilities from such a risk. Further investigative work (which is likely to be limited) to clarify the risk may be required. Any subsequent remediation works are likely to be relatively limited.
Very Low	It is a low possibility that harm could arise to a designated receptor, but it is likely at worst, that this harm if realised would normally be mild or minor.

Significance evaluation methodology

- 25.8.14 To use risk assessment as the basis for the evaluation of the significance of effects, it is necessary to evaluate the change in risk from baseline conditions to those during and following the Proposed Development. In order to define the baseline risk the initial assessment and classification of risk is carried out for the study area in its pre-development state. A separate assessment of risk is then conducted for the site post-development (including environmental measures inherently embedded in the development) to enable an evaluation of the change in risk due to the Proposed Development.
- 25.8.15 **Table 25-14** uses the risk classification pre- and post-development as the basis for a significance evaluation matrix for the purposes of EIA.

Table 25-14 Ground conditions significance evaluation matrix

			Risk Post-development (including embedded environmental measures)					
			Very Low	Low	Moderate / Low	Moderate	High	Very High
Risk Pre-development	Existing Receptors	Very High	Major Positive (Significant)	Major Positive (Significant)	Moderate Positive (Potentially Significant)	Moderate Positive (Potentially Significant)	Minor Positive (Not Significant)	Negligible (Not Significant)
		High	Major Positive (Significant)	Moderate Positive (Potentially Significant)	Moderate Positive (Potentially Significant)	Minor Positive (Not Significant)	Negligible (Not Significant)	Minor Negative (Not Significant)
		Moderate	Moderate Positive (Potentially Significant)	Moderate Positive (Potentially Significant)	Minor Positive (Not Significant)	Negligible (Not Significant)	Minor Negative (Not Significant)	Moderate Negative (Potentially Significant)
		Moderate / Low	Moderate Positive (Potentially Significant)	Minor Positive (Not Significant)	Negligible (Not Significant)	Minor Negative (Not Significant)	Moderate Negative (Potentially Significant)	Moderate Negative (Potentially Significant)
		Low	Minor Positive (Not Significant)	Negligible (Not Significant)	Minor Negative (Not Significant)	Moderate Negative (Potentially Significant)	Moderate Negative (Potentially Significant)	Major Negative (Significant)
		Very Low	Negligible (Not Significant)	Minor Negative (Not Significant)	Moderate Negative (Potentially Significant)	Moderate Negative (Potentially Significant)	Major Negative (Significant)	Major Negative (Significant)
	No Receptor Present Pre-development	N/A	Minor Negative (Not Significant)	Moderate Negative (Potentially Significant)	Moderate Negative (Potentially Significant)	Major Negative (Significant)	Major Negative (Significant)	Major Negative (Significant)
Risks that remain at moderate, high or very high post-development are unlikely to be considered acceptable and further environmental measures will be required to enable the development to proceed.								

Risk Assessment – Minerals Safeguarding

- 25.8.16 There is no established methodology for assessing the environmental effects of a development on mineral safeguarding. The methodology used in this assessment has, therefore, been developed based on the generic approach guidance detailed in **Chapter 5: Approach to the EIA**.
- 25.8.17 A summary of the receptor sensitivity criteria is presented in **Table 25-15** and the criteria for evaluation of magnitude of effects is summarised in **Table 25-16**.

Table 25-15 Sensitivity criteria for minerals safeguarding

Sensitivity	Planning Designation
High	Existing minerals sites. Allocated minerals sites.
Medium	Minerals safeguarding areas. Minerals/minerals infrastructure consultation areas.
Low	No mineral resources identified.
Negligible	No mineral resources identified.

Table 25-16 Evaluation of magnitude of effects for minerals safeguarding

Magnitude	Criteria
High	Development permanently prevents viable exploitation of a resource. Development directly and negatively affects the operation of an ongoing mineral extraction site to the extent that its viability is clearly and demonstrably reduced.
Medium	Development has permanent effects that will sterilise a significant proportion of a mineral deposit (excluding those under ongoing extraction). Development has temporary effects that sterilise a significant proportion of a mineral deposit (excluding those under ongoing extraction) but which would be expected to be reversed in the short to medium term.
Low	Development permanently affects a minor proportion of a mineral deposit, to an extent that is unlikely to significantly affect its overall viability or quality.

Magnitude	Criteria
	Development has temporary effects that sterilise minor parts of a mineral deposit (excluding those under ongoing extraction), which would be expected to be reversed in the short to medium term,
Negligible	Development has no permanent or temporary effects on mineral deposits that would affect the ability to extract the deposits, their viability or their quality.

25.8.18 **Table 25-17** combines the sensitivity and magnitude of minerals safeguarding effects as the basis for a significance evaluation matrix for the purposes of EIA.

Table 25-17 Minerals safeguarding significance evaluation matrix

Magnitude \ Sensitivity	Negligible	Low	Medium	High
High	Minor	Moderate	Major (significant)	Major (significant)
Medium	Negligible	Minor	Moderate	Major (significant)
Low	Negligible	Negligible	Minor	Moderate
Negligible	Negligible	Negligible	Negligible	Minor

25.9 Preliminary assessment: Construction phase

Overview

- 25.9.1 The following section details the preliminary assessment of ground condition effects for the construction phase of Rampion 2 and a summary of the assessment is presented in **Table 25-18** for ground conditions and **Table 25-19** for minerals safeguarding.
- 25.9.2 A figure summarising the ground conditions baseline on which this assessment is based is presented as **Figure 25.2a-r, Volume 3**. A figure summarising the minerals safeguarding baseline is presented as **Figure 25.3, Volume 3**.

GC-C-1 and GC-C-2 (Mobilisation of contamination from construction activities located on, or adjacent to landfills and other potentially contaminated sites)

25.9.3 Most of the onshore cable corridor and onshore substation search areas are located on agricultural land or adjacent to existing highways where there is not anticipated to be a significant risk from the presence of land contamination. However, the following potential sources of contamination that have the potential to impact on controlled waters and human health receptors have been identified in the desk study (**Appendix 25.1, Volume 4**):

- To the south of the River Arun a former sewage treatment works was present between 1974 and 1992. The treatment works is no longer present and is outside the onshore part of the PEIR Assessment Boundary, immediately adjacent to an existing access track to be used for access onto the onshore cable corridor. Accordingly, no physical works that interact with the former treatment works are anticipated.
- Just north of the River Arun, a historical landfill (known as Brookbarn Farm) is present within the study area. The landfill operated between c.1970 and c.1975 and is believed to have received only inert waste based on Environment Agency data. Two other areas of landfill are also shown in the same area (Old Mead Road and Ferry Road North) with the waste types accepted including inert, industrial, commercial and household wastes. The location of the landfills is shown on **Figure 25.2a-r, Volume 3**. The temporary onshore cable corridor passes through the eastern-most part of the permitted boundary of Brookbarn Farm. Therefore, there is risk from encountering land affected by contamination in this section of the cable corridor.
- Several areas of infilled land have been identified including ponds, former quarries and railway lines. Whilst these are not marked as landfills, made ground used to infill these areas has the potential to be contaminated. However, it is noted that most of these areas are currently in agricultural use and, as shown on **Figure 25.2a-r, Volume 3**, most of these areas are also on the edge or outside of the onshore cable corridor. Therefore, the risk from encountering land affected by contamination in the shallow soils where the cable trench will pass is considered to be low.
- Near the village of Washington, West Sussex, the onshore cable corridor passes along the A283 immediately adjacent to, but outside the boundary of, an authorised landfill known as Windmill Quarry, which is known from Environment Agency data to have taken household, commercial and industrial waste. The landfill operates under an Environment Agency environmental permit, which includes control measures to prevent pollution from landfill leachate and ground gas. However, no physical works for Rampion 2 will take place within the boundary of the landfill.
- The Wineham Lane North onshore substation search area is adjacent to the existing National Grid Bolney substation and the Rampion 1 onshore substation. The Rampion 1 onshore substation was built with the benefit of planning permission, which requires the site to be suitable for use in respect of

land contamination. Therefore, the risk of contamination from the Rampion 1 onshore substation is considered to be low.

- The Bolney Road / Kent Street onshore substation search area is immediately adjacent to a small industrial estate (Oakendene Estates) with businesses including a vehicle repair workshop and scrap metal dealership. Whilst these potential sources of contamination are outside of the land required for this onshore substation search area, a worst-case scenario has been considered in which contamination from the industrial estate extends into the onshore substation search area.
- A petrol filling station is located near Warningcamp and historical petroleum tanks have been identified associated with a historical service station to the south of Washington and a vehicle showroom north of Washington, West Sussex. However, it is noted that all these potential sources are outside of the onshore cable corridor. Nevertheless, a worst-case scenario has been considered in which contamination from these sites extends onto the onshore cable corridor.

- 25.9.4 It is noted that except for the Brookbarn Farm historical landfill and areas of infilled/made ground, none of these potential sources of contamination would be directly affected by Rampion 2. On this basis, the potential for mobilisation of contamination to controlled waters or human health receptors during the construction phase where the onshore cable corridor does not pass through these potential sources of contamination is considered to be unlikely and the consequences mild at worst. Therefore, there would be no change from the current baseline risk and the effect would be **negligible**, which is **Not Significant** in EIA terms.
- 25.9.5 In the case of the areas where the onshore cable corridor passes through the potential sources of contamination (such as the Brookbarn Farm historical landfills and areas of infilled/made ground) the desk study (**Appendix 25.1, Volume 4**) indicates that for human health receptors, whilst the baseline likelihood is unlikely, the worst-case outcome would be severe which represents a moderate/low risk. In the case of controlled waters, the worst-case outcome is considered to be medium with a baseline likelihood of likely which represents a moderate risk.
- 25.9.6 The Rampion 2 embedded environmental measures in **Table 25-9** include control measures for encountering unexpected contamination (C-14, C-15 and C-72) and for management of potentially contaminated soils excavated during trenching to prevent generation of dusts and leaching of contamination (C-24 and C-143).
- 25.9.7 Consequently, whilst the likelihood of encountering contamination during construction increases, they only do so by one order of likelihood (that is to a low likelihood in the case of human health receptors and to a high likelihood in the case of controlled waters). Therefore, the risks to controlled waters and human health receptors from the onshore cable corridor passing through potential sources of contamination during construction are considered to be moderate and, therefore, the effect is **minor negative**, which is **Not Significant** in EIA terms.

GC-C-3 (Build-up of ground gases from construction activities located on, or adjacent to landfills and other potentially contaminated sites)

- 25.9.8 With the exception of the potential sources of contamination identified in the desk study, none of the proposed Rampion 2 infrastructure would be constructed on ground that is likely to generate ground gasses that could build up in the onshore cable corridor trenches or onshore substation infrastructure.
- 25.9.9 It is also noted that the onshore cable corridor will be backfilled with the existing ground material under a MMP and only where that material is suitable for use (C-69 and C-143, **Table 25-9**). Material which is not suitable for use will be disposed offsite in line with the Waste Management Regulations (C-31). Therefore, any change to the potential for ground gas migration will be negligible from the baseline condition.
- 25.9.10 In the case of the potential sources of contamination in the desk study, such as the Brookbarn Farm historical landfills and areas of infilled/made ground, the onshore cable corridor passes through a number of these areas and, therefore, a worst-case consequence from the build-up of gases (that is a gas explosion) of severe has been assigned.
- 25.9.11 However, the desk study information suggests that the historical landfill was backfilled using inert material, which would have a low potential for ground gas generation, and the areas of infilled/made ground are limited in extent. Therefore, the baseline likelihood is considered to be unlikely representing a moderate/low risk.
- 25.9.12 The Rampion 2 embedded environmental measures in **Table 25-9** include for management of unexpected ground contamination and as such measures would be in place to amend the design of the onshore cable corridor (for example through installation of an impermeable lining) should ground gas be encountered during construction through the historical landfill.
- 25.9.13 Based on the above, the likelihood of Rampion 2 creating a preferential pathway for ground gas migration to human health receptors remains unlikely. Accordingly, the construction risk would be moderate/low and, therefore, the effect is **negligible**, which is **Not Significant** in EIA terms.

GC-C-4 (Damage to infrastructure from construction activities located on, or adjacent to landfills and other potentially contaminated sites)

- 25.9.14 The desk study data (**Appendix 25.1, Volume 4**) indicates a number of areas within the study area where geohazards such as aggressive ground conditions, compressible ground and clay shrinkage may be present.
- 25.9.15 In a number of locations, the onshore cable corridor passes within 100m of existing residential and commercial properties and the consequence of a ground failure as a result of Rampion 2 would therefore be a medium consequence.
- 25.9.16 Rampion 2 includes commitments to the design of infrastructure in general accordance with design standards (C-116, **Table 25-9**) which would take into account the potential for geohazards including aggressive ground conditions and the effect on dewatering and appropriate measures such as sulphate resistant

concrete or cut-off trenches would be implemented as part of the construction methodology. The design standards would also take into account the requirement for climate change resilience (for example the design of infrastructure to tolerate earth movement or subsidence which might be caused by flooding or drought).

- 25.9.17 In addition, it is noted that none of the proposed infrastructure for Rampion 2 such as joint bays or the onshore substation are proposed to be built on potentially contaminated sites and, therefore, the likelihood of damage to infrastructure from the presence of ground contamination is unlikely.
- 25.9.18 Accordingly, the baseline and construction risk would be low and, therefore, the effect is **negligible**, which is **Not Significant** in EIA terms.

GC-C-5 (Damage to geological sites from construction activities located near to sites of geological importance)

- 25.9.19 The desk study (**Appendix 25.1, Volume 4**) indicates that there is one LIGS within the study area as shown on **Figure 25.2a-r, Volume 3**. Rock Common Sand Quarry at Washington, West Sussex, lies immediately adjacent to but outside the onshore cable corridor and onshore part of the PEIR Assessment Boundary.
- 25.9.20 In line with the Rampion 2 environmental measure C-6, **Table 25-9**, the design of the onshore cable corridor has been chosen to avoid direct interaction with sites of natural importance (which includes LIGS).
- 25.9.21 Whilst the consequence of damage to a LIGS would be medium, damage to, or detrimental impact will only occur where Rampion 2 is built directly on or through such a site. Given the onshore cable corridor for Rampion 2 avoids Rock Common Sand Quarry, the likelihood is unlikely that a detrimental impact will occur and accordingly the risk would be low.
- 25.9.22 Given that there would be no change from the current baseline risk during the construction phase the effect of Rampion 2 on the LIGS is **negligible**, which is **Not Significant** in EIA terms.

GC-C-6 (Damage to property and infrastructure from UXO encounter during construction activities)

- 25.9.23 The majority of the study area is classified as having a low UXO hazard with two areas of moderate UXO hazard identified around the landfall location and the town of Arundel. These hazard levels represent a likelihood of low.
- 25.9.24 Given the potential for UXO to cause significant damage to buildings or property, the consequences of a UXO encounter are considered to be severe, which presents a moderate risk.
- 25.9.25 Whilst intrusive construction activities would increase the likelihood of a UXO encounter, in line with the Rampion 2 environmental measure C-70, **Table 25-9**, a detailed UXO assessment will be undertaken as part of the design and UXO awareness included as part of the Outline COCP. Accordingly, the construction phase likelihood is considered to be low, which presents a moderate risk.

- 25.9.26 Based on a baseline moderate risk and a moderate construction phase risk, at this stage of Rampion 2 the effect is considered to be **negligible**, which is **Not Significant** in EIA terms.

GC-C-7 (Accidental spillages and leaks impacting controlled waters during construction activities)

- 25.9.27 The construction activities for Rampion 2 include the setup of temporary construction compounds to facilitate the onshore cable corridor construction and construction works on the onshore substation location itself. All these construction activities, regardless of the location of the temporary construction compounds, will require the storage of fuels including the refuelling of plant and machinery, which have the potential to cause fuel losses either as a result of loss of bulk containment or from minor leaks/spills.
- 25.9.28 In addition, the HDD crossings will require the use of drilling fluids to be stored at the HDD site with the potential for a release from loss of bulk containment.
- 25.9.29 The Rampion 2 commitments detailed in **Table 25-9** include a number of measures to limit the potential for accidental spillages and leaks during construction (C-8, C-76, C-149, C-150, C-151 and C-167, **Table 25-9**), incorporating requirements for secondary containment of bulk fuel storage in line with best practice containment guidance, locating of bulk storage and refuelling activities on an impermeable surface and development of incident response plans to promptly deal with incidents.
- 25.9.30 The drilling fluids used during HDD are bentonite-based muds which are not classified as environmentally hazardous and, therefore, a loss of containment would be mild at worst.
- 25.9.31 In addition, the Rampion 2 environmental measures C-8, C-76, C-149, C-150, C-151 and C-167, **Table 25-9** include measures to reduce the severity of a spillage, for example through citing of fuel storage on an impermeable surface, not storing hazardous materials within a SPZ or immediately adjacent to surface water receptors.
- 25.9.32 Consequently, whilst the consequence of a spillage could be mild, such a spillage both at baseline and with these measures in place would be unlikely, which represents a very low risk.
- 25.9.33 Therefore, the effect of Rampion 2 would be **negligible**, which is **Not Significant** in EIA terms.

GC-C-8 (Construction activities located within or near to minerals sites, preferred areas or safeguarding areas)

Building Stone

- 25.9.34 The northern end of the onshore part of the PEIR Assessment Boundary falls within a building stone MSA. Information is not currently available from the BGS to determine the exact area of the MSA affected, although it will involve two thin strips of the MSA which extend east away from Cowfold.

- 25.9.35 The West Sussex County Council (2020a) Minerals and Waste Safeguarding Guidance advises that, due to the extent of the safeguarded resource and the low level of demand, it should be considered whether a proposal may lead to sterilisation of building stone resources that are important for the repair of historic buildings.
- 25.9.36 No existing building stone quarries exist in the area of the MSA or within proximity of the onshore part of the PEIR Assessment Boundary and the Joint Minerals Local Plan identifies that there are only four active building stone quarries in the county.
- 25.9.37 The magnitude of effect is therefore considered to be **low**. The sensitivity of the building stone resource is **medium** and therefore the effect of Rampion 2 will be **minor negative**, which is **Not Significant** in EIA terms.

Brick Clay

- 25.9.38 A section of the onshore part of the PEIR Assessment Boundary lies within the brick clay MSA (see **Figure 25.3, Volume 3**). Information in the West Sussex County Council (2018) Joint Minerals Local Plan indicates that three of the active brickworks have more than 25 years of clay reserves and one has 24 years. The brickworks at West Hoathly had less than ten years reserves but the Joint Minerals Local Plan identifies a strategic mineral site allocation for this brickworks.
- 25.9.39 With the extensive resource available, the fact that less than 1% of the MSA will be affected and there is a relatively healthy landbank position/ allocated site, the magnitude of effect is considered to be **negligible**. The sensitivity of the brick clay resource is **medium** and therefore the effect of Rampion 2 will be **negligible**, which is **Not Significant** in EIA terms.

Soft Sand

- 25.9.40 The onshore cable corridor passes through a soft sand MSA (see **Figure 25.3, Volume 3**). In its response to the Scoping consultation, WSCC states that soft sand is a rare resource, the potential for sterilisation of which need to be firstly avoided where possible and secondly assessed within the EIA.
- 25.9.41 As the MSA runs perpendicular to the southwest to northwest alignment of the onshore cable corridor it is not possible to avoid the MSA. The onshore cable corridor will interact with approximately 14ha of land within the MSA which is less than 0.5% of the total MSA. This area consists of a thin strip of land running mainly alongside the southern side A283, from the junction with The Hollow in the west to the Sussex Timber Company sawmill in the east.
- 25.9.42 In the western half of this area, the extent of the MSA within the onshore cable corridor is unlikely to be sufficient to allow a viable extraction site to be developed. A more likely location for a viable extraction site will be to the north of the A283, adjacent to the existing Rock Common Quarry. The buffer provided by the A283 and the temporary nature of construction works on the onshore cable corridor will mean that mineral resources in this area adjacent to Rock Common Quarry will not be sterilised.

- 25.9.43 In the eastern half of this area there is potentially more scope for a viable extraction site, although the proximity to the A283 and the need for a buffer between any minerals extraction and the highway, the proximity of buildings at Lower Chancton Farm (including residential properties) and the Sussex Timber company mean that the actual land which will be sterilised will only be approximately 6ha which represents an even smaller proportion of the MSA.
- 25.9.44 It is acknowledged that the soft sands in West Sussex have the potential to be defined as silica sands in the broadest sense and are likely to be capable of being used in virtually all specialist end uses. Although sand/sandstone deposits are widely distributed in the UK, only a small proportion of these possess the necessary physical and chemical properties to be considered as potential sources of silica sand. However, the extent of the potential sterilisation will only affect a very minor proportion of the soft sand deposit covered by the safeguarding area and the magnitude of effect is therefore considered to be **low**.
- 25.9.45 The sensitivity of the soft sand resource is **medium** and therefore the effect of Rampion 2 will be **minor negative**, which is **Not Significant** in EIA terms

Chalk

- 25.9.46 The chalk MSA is tightly defined around existing sites, the closest of which is Washington Chalk Quarry (see **Figure 25.3, Volume 3**).
- 25.9.47 Given the closest point of the onshore cable corridor is over 500m to the north of the quarry, there will be **no effect** on the viability of their operations.

Minerals Consultation Areas

- 25.9.48 There are a number of active mineral sites around Storrington in close proximity to the onshore cable corridor which coincide with the minerals infrastructure MCAs (see **Figure 25.3, Volume 3**), including:
- Rock Common Quarry (where minerals extraction is expected to cease in December 2020);
 - Washington Sand Pit (where minerals extraction ceased in December 2019 although an application to extend this to December 2021 is under consideration by the LPA);
 - Sandgate Park Quarry;
 - Chantry Sand Pit; and
 - Washington Chalk Quarry.
- 25.9.49 It is considered that these sites are sufficiently distant from the onshore cable corridor (in the case of Sandgate Park Quarry, Chantry Sand Pit and Washington Chalk Pit) or only close to access points for the onshore cable corridor (in the case of Washington Sand Pit) such that there would be **no effect** on the viability of their operations.
- 25.9.50 Rock Common Quarry lies immediately adjacent to the onshore cable corridor. However, the areas of the quarry which lie closest to the onshore cable corridor have all been previously worked and are now largely restored to woodland. If any

future extraction was to occur at the quarry, this will therefore take place in the northern parts of the quarry, further away from the onshore cable corridor.

- 25.9.51 The magnitude of effect on the Rock Common MCA is therefore considered to be **negligible**. The sensitivity of the MCA is **high** and therefore the effect of Rampion 2 will be **minor negative**, which is **Not Significant** in EIA terms

Allocated Minerals Sites

- 25.9.52 There are two proposed strategic minerals site allocations in proximity to the onshore cable corridor (see **Figure 25.3, Volume 3**), namely:
- Ham Farm, Steyning; and
 - Chantry Lane Extension.
- 25.9.53 However, it is considered that these proposed allocations are sufficiently distant from the onshore cable corridor (both over 500m away) such that there will be **no effect** on their future viability.

25.10 Preliminary assessment: Operation and maintenance phase

Overview

- 25.10.1 The following section details the preliminary assessment of ground condition effects for the operation and maintenance phase of Rampion 2 and a summary of the assessment is presented in **Table 25-18** for ground conditions and **Table 25-19** for minerals safeguarding.

GC-O-1, GC-O-2 and GC-O-3 (Risks to human health and controlled waters from presence of artificial ground, disturbed landfill or other excavated and reused material)

- 25.10.2 Rampion 2 includes commitments during the construction phase for the development of a MMP for the reuse of soils within the onshore cable corridor (C-69) and for dealing with potentially contaminated soils requiring disposal as opposed to reuse (C-31).
- 25.10.3 In addition, the design of Rampion 2, as detailed in embedded environmental measure C-71, **Table 25-9**, will ensure that the land required for the construction will be suitable for the proposed use in line with LCRM guidance (Environment Agency, 2020).
- 25.10.4 Accordingly, the potential for land contamination risk to increase during the operation and maintenance phase from inappropriate reuse of materials generating a build-up of ground gas or landfill leachate or from aggressive ground conditions is not likely. On this basis, the effects of Rampion 2 on controlled waters and human health receptors during the operation and maintenance phase are considered to be **negligible**, which is **Not Significant** in EIA terms.

GC-O-4 (Accidental spillages and leaks impacting controlled waters during operation and maintenance activities)

- 25.10.5 During the operation and maintenance phase, activities which could give rise to accidental spillages and leaks will be limited to those taking place at the onshore substation.
- 25.10.6 It can reasonably be expected that whilst the impact of any individual spillage/leak would be similar to that during the construction phase, the likelihood of a spillage/leak will be significantly reduced owing to the absence of large-scale construction vehicles and storage of associated fuels/liquids.
- 25.10.7 As detailed in environmental measure C-153, **Table 25-9**, the operational management of the onshore substation facilities will include environmental measures to prevent spillages of oils and other substances through development of a PICP which will incorporate, for example, the use of hardstanding, spill kits and the presence of operational controls.
- 25.10.8 In addition, it is noted that the cables within the onshore cable corridor will not be oil filled and, therefore, there is no risk of leaks/spillages from damaged cables that would result in pollution of controlled waters.
- 25.10.9 Therefore, the consequence of an operational spill is considered to be mild, the likelihood is considered to be unlikely, which presents a very low risk. On this basis, the effects of Rampion 2 during operation and maintenance are considered to be **negligible**, which is **Not Significant** in EIA terms.

GC-O-5 (Permanent infrastructure located within or near to minerals sites, preferred areas or safeguarding areas)

- 25.10.10 The likely significant effects for minerals safeguarding only occur where land is temporarily or permanently taken for the onshore elements of the Proposed Development. Therefore, the potential for significant mineral safeguarding effects to occur following completion of the construction activities (i.e. in the operation and maintenance phase) is considered to have been taken into account in the construction phase assessment.

25.11 Preliminary assessment: Decommissioning phase

Overview

- 25.11.1 The following section details the preliminary assessment of ground condition effects for the decommissioning phase of Rampion 2 and a summary of the assessment is presented in **Table 25-18**.

GC-D-1, GC-D-2 and GC-D-3 (Risks to human health and controlled waters during decommissioning activities)

- 25.11.2 Onsite disassembly of equipment and demolition of structures would have greatest potential for soil or groundwater contamination due to spills, leaks and waste generated.

- 25.11.3 It is also anticipated that the onshore electrical cables will be left *in-situ* with ends cut, sealed and buried to minimise effects associated with removal.
- 25.11.4 The detail and scope of the decommissioning for the remaining onshore infrastructure will be determined by the relevant legislation and guidance at the time.
- 25.11.5 As such, for the purposes of a worst-case scenario, impacts no greater than those identified for the construction phase are expected for the decommissioning phase.
- 25.11.6 Accordingly, the effects during decommissioning are considered, at worse, to be **negligible** (for GC-D-1 and GC-D-2 which are equivalent to GC-C-1 and GC-C-2) and **negligible** (for GC-D-3 which is equivalent to GC-C-7), which are **Not Significant** in EIA terms.

Table 25-18 Summary of preliminary ground conditions assessment

	Baseline Assessment			Assessment with Rampion 2			Change in Risk (Significance)
	Likelihood	Consequence	Risk	Likelihood	Consequence	Risk	
Construction¹							
GC-C-1 and GC-C-2 Mobilisation of contamination to human health and controlled waters receptors from construction activities located outside of potential sources of contamination	Unlikely	Minor/Mild	Very low	Unlikely	Minor/Mild	Very low	Negligible (Not Significant)
GC-C-1 Mobilisation of contamination to human health receptors from construction activities located on, or adjacent to landfills and other potentially contaminated	Likely	Medium	Moderate	High	Medium	High	Minor Negative (Not significant)

¹ Based on the findings of the assessment presented in **Section 25.9**, the construction linkage references GC-C-1 to GC-C-3 have been split in this table to separately summarise the assessment of effects from where the onshore cable corridor passes through potential sources of contamination to those from outside of potential sources of contamination.

	Baseline Assessment			Assessment with Rampion 2			Change in Risk (Significance)
	Likelihood	Consequence	Risk	Likelihood	Consequence	Risk	
sites (where onshore cable corridor passes through potential sources of contamination)							
GC-C-2 Mobilisation of contamination to human health receptors from construction activities located on, or adjacent to landfills and other potentially contaminated sites (where onshore cable corridor passes through potential sources of contamination)	Unlikely	Severe	Moderate /Low	Low	Severe	Moderate	Minor Negative (Not significant)
GC-C-3 Build-up of ground gases from construction activities located outside of potential sources of contamination	Unlikely	Severe	Moderate /Low	Unlikely	Severe	Moderate/Low	Negligible (Not Significant)
GC-C-3	Unlikely	Severe	Moderate /Low	Unlikely	Severe	Moderate/Low	Negligible

	Baseline Assessment			Assessment with Rampion 2			Change in Risk (Significance)
	Likelihood	Consequence	Risk	Likelihood	Consequence	Risk	
Build-up of ground gases from construction activities located on, or adjacent to landfills and other potentially contaminated sites (where onshore cable corridor passes through potential sources of contamination)							(Not significant)
GC-C-4 Damage to infrastructure from construction activities located on, or adjacent to landfills and other potentially contaminated sites	Unlikely	Medium	Low	Unlikely	Medium	Low	Negligible (Not significant)
GC-C-5 Damage to geological sites from construction activities located near to sites of geological importance	Unlikely	Medium	Low	Unlikely	Medium	Low	Negligible (Not significant)
GC-C-6	Low	Severe	Moderate	Low	Severe	Moderate	Negligible

	Baseline Assessment			Assessment with Rampion 2			Change in Risk (Significance)
	Likelihood	Consequence	Risk	Likelihood	Consequence	Risk	
Damage to property and infrastructure from UXO encounter during construction activities							(Not significant)
GC-C-7 Accidental spillages and leaks impacting controlled waters during construction activities	Unlikely	Mild	Very low	Unlikely	Mild	Very low	Negligible (Not significant)
Operation and maintenance							
GC-O-1 Risks to human health from presence of artificial ground disturbed landfill or other excavated and reused material	Likely	Medium	Moderate	Likely	Medium	Moderate	Negligible (Not significant)
GC-O-2 Risks to land and property receptors from presence of artificial ground, disturbed landfill or other excavated and reused material	Unlikely	Mild	Very low	Unlikely	Mild	Very low	Negligible (Not significant)

	Baseline Assessment			Assessment with Rampion 2			Change in Risk (Significance)
	Likelihood	Consequence	Risk	Likelihood	Consequence	Risk	
GC-O-3 Risks to controlled waters from presence of artificial ground, disturbed landfill or other excavated and reused material	Unlikely	Severe	Moderate /low	Unlikely	Severe	Moderate/low	Negligible (Not significant)
GC-O-4 Accidental spillages and leaks impacting controlled waters during operation and maintenance activities	Unlikely	Mild	Very low	Unlikely	Mild	Very low	Negligible (Not significant)
Decommissioning							
GC-D-1 Risks to controlled waters from mobilisation of contamination during decommissioning activities	Likely	Medium	Moderate	Likely	Medium	Moderate	Negligible (Not Significant)
GC-D-2 Risks to human health from mobilisation of contamination during	Unlikely	Severe	Moderate /Low	Unlikely	Severe	Moderate/Low	Negligible (Not significant)

	Baseline Assessment			Assessment with Rampion 2			Change in Risk (Significance)
	Likelihood	Consequence	Risk	Likelihood	Consequence	Risk	
decommissioning activities							
GC-D-3 Accidental spillages and leaks impacting controlled waters during decommissioning activities	Unlikely	Mild	Very low	Unlikely	Mild	Very low	Negligible (Not significant)

Table 25-19 Summary of preliminary minerals safeguarding assessment

Receptor	Sensitivity of receptor	Magnitude of effect	Level of effect	Significance of effect
Construction activities located within or near to minerals sites, preferred areas or safeguarding areas (GC-C-8)				
Building stone MSA	Medium	Low	Minor	Not significant
Brick clay MSA	Medium	Negligible	Negligible	Not significant
Soft sand MSA	Medium	Low	Minor	Not significant
Chalk MSA	Medium	No effect	No effect	Not significant
Minerals Consultation Areas (Washington /Hampers lane Sand Pit, Sandgate Park Quarry, Chanty Sand Pit and Washington Chalk Quarry)	High	No effect	No effect	Not significant
Minerals Consultation Areas Rock Common Quarry	High	Negligible	Minor	Not significant

Receptor	Sensitivity of receptor	Magnitude of effect	Level of effect	Significance of effect
Allocated minerals sites	High	No effect	No effect	Not significant
<p>Operation and maintenance of permanent infrastructure located within or near to minerals sites, preferred areas or safeguarding areas (GC-O-5)</p> <p>The likely significant effects for minerals safeguarding only occur where land is temporarily or permanently taken for the onshore elements of the Proposed Development. Therefore, the potential for significant mineral safeguarding effects to occur following completion of the construction activities (i.e. in the operation and maintenance phase) is considered to have been taken into account in the construction phase assessment.</p>				

25.12 Preliminary assessment: Cumulative effects

Approach

- 25.12.1 A preliminary cumulative effects assessment (CEA) has been undertaken for Rampion 2 which examines the result from the combined effects of Rampion 2 with other developments on the same single receptor or resource and the contribution of Rampion 2 to those impacts. The overall method followed when identifying and assessing potential cumulative effects in relation to the onshore environment, is set out in **Chapter 5: Approach to the EIA** and **Appendix 5.3: Cumulative effects assessment detailed onshore search and screening criteria, Volume 4**.
- 25.12.2 The onshore screening approach has followed PINS' Advice Note Seventeen (Planning Inspectorate, 2019) which is an accepted process for Nationally Significant Infrastructure Projects (NSIPs) and will follow the four-stage approach set out in the guidance.

Cumulative effects assessment

- 25.12.3 For ground conditions, including minerals safeguarding, a Zone of Influence (ZOI) has been applied for the CEA to ensure direct and indirect cumulative effects can be appropriately identified and assessed. The ZOI has been defined as an area 500m from the edge of the onshore cable corridor and 1km around the land required for the onshore substation. The ZOI accounts for shared receptors which could experience an effect from both Rampion 2 and 'other developments' when considering the maximum extent of the ZOI used to determine ground condition effects from Rampion 2 alone (250m and 500m for the onshore cable corridor and onshore substation search areas respectively).
- 25.12.4 A short list of other developments that may interact with the Rampion 2 ZOIs during their construction, operation or decommissioning is presented in **Appendix 5.4: Cumulative effects assessment shortlisted developments, Volume 4** and on **Figure 5.4.2, Volume 4**. This list has been generated by applying criteria set out in **Chapter 5** and **Appendix 5.3: Cumulative effects assessment detailed onshore search criteria, Volume 4** and has been collated up to the finalisation of the PEIR through desk study, consultation and engagement.
- 25.12.5 The ground conditions ZOI is shown in **Figure 25.4, Volume 3**. Only those developments in the short list that fall within the ground conditions ZOI have the potential to result in cumulative effects with the Proposed Development either through introduction of a new contaminative source or sensitive receptor or through a combined impact on the same minerals receptor. Therefore, all developments falling outside the ground conditions ZOI are excluded from this assessment.
- 25.12.6 On the basis of the above, the following specific other developments contained within the short list in **Appendix 5.4, Volume 4** are scoped into this CEA.

Table 25-20 Developments to be considered as part of the CEA

ID (Figure 5.4.2)	Development type	Project	Status	Confidence in assessment	Tier ²
12	Mixed use	Mulgrave Properties LLP (CM/1/17/OUT)	Application approved (with conditions) 28/09/2018	High	1
22	Non- residential infrastructure	Dudman Investments Limited (CM/56/19/PL)	Application approved (with conditions) 29/05/2020	High	1
27	Mixed-use	Hampton Quay Holdings (LU/238/20/OUT)	Application submitted 03/09/2020, awaiting decision	High	1
1	Transport	Highways England A27 Arundel Bypass	Pre- application, no scoping report yet submitted. Preferred alignment issued	Low	3
28	Energy	DM/15/0644 British Solar Renewables	Approved	High	1
2	Energy	AQUIND Connector (EN020022)	Application submitted,	High	1

² **Chapter 5** sets out the full definitions of the tiers. Tier 1: high level of certainty or information availability (including under construction or where a planning application has been approved or is awaiting decision). Tier 2: medium level of certainty or information (such as developments on PINS Programme of Projects where a Scoping Report has been submitted). Tier 3: low level of certainty or information available (no planning applications submitted or identified for potential future development only).

ID (Figure 5.4.2)	Development type	Project	Status	Confidence in assessment	Tier ²
			awaiting decision		
3	Energy	Esso London to Southampton Pipeline (EN070005)	DCO granted 07/10/2020	High	1

- 25.12.7 For ground conditions with respect to land contamination, UK legislation and planning policy requires all developments to be suitable for their proposed use in which risks to human health and controlled waters from land contamination and risks from geohazards and damage to geodiversity sites have been appropriately managed.
- 25.12.8 The majority of the 'other developments' have been approved with conditions requiring environmental ground conditions measures to be adopted prior to commencement of construction activities, such as submission of detailed land contamination remediation plans and adoption of best practice construction mitigation to prevent pollution.
- 25.12.9 In addition, it is noted that the Aquind Interconnector Cable and Esso London to Southampton Pipeline developments are NSIPs applying for DCO consent which include environmental commitments to manage ground condition effects during construction which are similar to those proposed for Rampion 2.
- 25.12.10 On this basis, it is considered that successful implementation of such embedded and standard good industry practice measures will offset any potential significant impacts identified as part of the other developments.
- 25.12.11 With respect to minerals safeguarding, none of the receptors identified for assessment are likely to experience a significant effect as a result of Rampion 2. Therefore, any effect on the receptor would come wholly from the 'other developments'.
- 25.12.12 Therefore, there are not considered to be any impacts from Rampion 2 that have the potential to act cumulatively with similar impacts from the 'other developments' in **Table 25-20** to contribute to cumulative ground conditions effects including minerals safeguarding.
- 25.12.13 Baseline data and further information on other developments will continue to be collected prior to the finalisation of the ES and iteratively fed into the assessment. An updated CEA will be reported in the ES.

25.13 Transboundary effects

- 25.13.1 Transboundary effects arise when impacts from a development within one European Economic Area (EEA) states affects the environment of another EEA state(s). A screening of transboundary effects has been carried out and is presented in Appendix B of the Scoping Report (RED, 2020).
- 25.13.2 Based on the knowledge of the baseline environment (and in particular that there are no internationally designated geological sites of importance), the nature of planned works and the wealth of evidence on the potential for impact from such projects more widely, there are not considered to be any transboundary effects on ground conditions receptors from Rampion 2.

25.14 Inter-related effects

- 25.14.1 The inter-related effects assessment considers likely significant effects from multiple impacts and activities from the construction, operation and decommissioning of Rampion 2 on the same receptor, or group of receptors.
- 25.14.1 The potential inter-related effects include:
- **Proposed Development lifetime effects:** i.e., those arising throughout more than one phase of the Proposed Development (construction, operation and maintenance, and decommissioning) to interact to potentially create a more significant effect on a receptor than if just one phase were assessed in isolation; and
 - **Receptor-led effects:** assessment of the scope for all effects to interact, spatially and temporally, to create inter-related effects on a receptor (or group). Receptor-led effects might be short term, temporary or transient effects, or incorporate longer term effects.
- 25.14.2 The potential inter-related effects that could arise in relation to ground conditions are presented in **Table 25-21**. A description of the process to identify and assess these effects is presented in **Chapter 5**.

Table 25-21 Inter-related effects assessment for ground conditions

Project phase(s)	Nature of inter-related effect	Assessment alone	Inter-related effects assessment
Proposed Development lifetime effects			
Construction, operation and maintenance, and decommissioning	Disturbances of controlled waters, geodiversity sites and mineral resources that could also impact human health	Residual impacts are Not Significant	Ground conditions effects described in this chapter will be confined to each phase of the Proposed Development. As the phases do not overlap temporally, there is no potential for any ground conditions inter-related lifetime effects.

Project phase(s)	Nature of inter-related effect	Assessment alone	Inter-related effects assessment
Receptor-led effects			
<p>Controlled waters (groundwater in superficial deposits / groundwater in bedrock / surface waters (for example, reservoirs, streams, rivers, lakes and ponds)).</p> <p>Potential for inter-related effects with water environment</p>			<p>For ground conditions, the highest potential for inter-related effects arises for controlled waters receptors where effects on water quality through mobilisation of contamination assessed in this chapter and effects on water quantity (flow and levels) assessed in Chapter 27: Water environment interact during the construction or decommissioning phases.</p> <p>Taking into account the implementation of the Rampion 2 commitments (Appendix 4.1, Commitment Register, Volume 4), no significant ground conditions or water environment effects are predicted. Therefore, it is considered unlikely that the significance of effects when combined with potential water environment effects would be any greater than that recorded during construction for ground conditions alone.</p> <p>On this basis, no significant inter-related ground conditions effects on controlled waters receptors are considered likely.</p>
<p>Human health (construction / operational workers)</p> <p>Potential for inter-related effects with air quality and noise</p>			<p>The construction phase has the most potential for impacts on human health.</p> <p>Some inter-related effects may arise at some locations on a temporary basis. However, embedded environmental measures are designed to reduce these effects and it is considered unlikely that any inter-related effects will exceed the significance reported in the individual aspect chapters for ground conditions, noise and vibration and air quality, all of which are Not Significant in EIA terms.</p> <p>Operation and maintenance effects for ground conditions are expected to be limited to occasional site visits and maintenance works. This is expected to result in effects that are Not Significant in EIA terms and they are unlikely to produce Significant inter-related receptor-led effects.</p>

Project phase(s)	Nature of inter-related effect	Assessment alone	Inter-related effects assessment
		Decommissioning is expected to be broadly similar to the construction phase.	

25.15 Summary of residual effects

- 25.15.1 **Table 25-22** presents a summary of the preliminary assessment of significant impacts, any relevant embedded environmental measures and residual effects on ground conditions receptors.

Table 25-22 Summary of preliminary assessment of residual effects for ground conditions

Activity and impact	Effect	Receptor	Linkage Reference	Embedded environmental measures	Preliminary assessment of residual effect (significance)
Construction					
Construction activities located on, or adjacent to landfills and other potentially contaminated sites such as industrial/waste management facilities and fuel storage/distribution facilities	Mobilisation of contamination via numerous pathways (including groundwater, surface water, preferential pathway creation and leaching from soil) resulting in contamination of controlled waters.	Controlled waters receptors (groundwater and surface waters)	GC-C-1	C-14 C-15 C-24 C-143	Minor Negative (not significant) Noted residual effect is Negligible (not significant) outside of potential sources of contamination)
	Mobilisation of contamination via numerous pathways (including groundwater, surface water, leaching from soil, migration of vapours and windblown dusts) resulting in health effects.	Human health receptors (residential, agricultural land, commercial/industrial and public open space)	GC-C-2	C-14 C-15 C-24 C-143	Negligible (not significant)
	Build-up of gases in confined spaces in existing or newly constructed infrastructure on and adjacent to the land	Human health receptors (residential, commercial/ industrial land) and property	GC-C-3	C-31 C-69 C-143	Negligible (not significant)

Activity and impact	Effect	Receptor	Linkage Reference	Embedded environmental measures	Preliminary assessment of residual effect (significance)
	required for the Proposed Development.	(including existing and new infrastructure)			
	Damage to newly constructed infrastructure from aggressive ground conditions (such as sulphate attack on concrete) and geohazards including unstable ground conditions.	Human health receptors, land and property (including existing and new infrastructure)	GC-C-4	C-116	Negligible (not significant)
Construction activities located near to sites of geological importance	Damage to or detrimental impact on sites of geological importance.	Sites of geological importance (SSSIs, RIGS or LIGS)	GC-C-5	C-6	Negligible (not significant)
UXO encounter during construction activities	Damage to existing property or infrastructure in vicinity of construction works or disruption to local communities.	Human health receptors and property (including existing and new infrastructure)	GC-C-6	C-70	Negligible (not significant)
Construction vehicle and equipment maintenance and storage of fuels/oils for construction vehicles and equipment	Accidental spillages and leaks resulting in ground contamination and risks to controlled waters during construction. This includes the potential for leakage of bentonite during HDD.	Controlled waters receptors (groundwater and surface waters)	GC-C-7	C-8 C-76 C-149 C-150 C-151 C-167	Negligible (not significant)

Activity and impact	Effect	Receptor	Linkage Reference	Embedded environmental measures	Preliminary assessment of residual effect (significance)
Construction activities located within or near to minerals sites, preferred areas or safeguarding areas.	The viability of the operation of an ongoing mineral extraction site is reduced either through temporary/permanent sterilisation of a minerals resource or temporary reversal of previous sterilisation allowing access to unworked minerals for a limited period prior to the Proposed Development being constructed.	Mineral sites with valid planning permissions for minerals extraction, and which have not been exhausted by previous extraction. Sites designated as preferred areas for mineral extraction in LPA local plans. Minerals safeguarding areas and minerals consultation areas in LPA local plans.	GC-C-8	-	No effect, Negligible or Minor (not significant)
Operation and maintenance					
Presence of significant quantities of artificial ground, disturbed landfill material or excavated and re-used material beneath permanent infrastructure	Generation of landfill leachate, which, if not properly managed, could accumulate and/or migrate to controlled waters. Damage to infrastructure from aggressive ground conditions and geohazards including unstable ground conditions and settlement.	Controlled waters receptors (groundwater and surface waters) Human health receptors, land and property (including existing and new infrastructure)	GC-O-1 GC-O-2	C-31 C-69 C-71 C-31 C-69 C-71	Negligible (not significant) Negligible (not significant)

Activity and impact	Effect	Receptor	Linkage Reference	Embedded environmental measures	Preliminary assessment of residual effect (significance)
	Build-up of ground gases in confined spaces in existing or newly constructed infrastructure on and adjacent to the Proposed Development boundary.	Human health receptors (residential, commercial/industrial) and land and property (including existing and new infrastructure)	GC-O-3	C-31 C-69 C-71	Negligible (not significant)
Operational vehicle and equipment maintenance and storage of fuels/oils for operational vehicles and equipment	Accidental spillages and leaks resulting in ground and/or controlled waters contamination.	Controlled waters receptors (groundwater in superficial deposits and surface waters)	GC-O-4	C-153	Negligible (not significant)
Permanent infrastructure located within or near to minerals sites, preferred areas or safeguarding areas.	The viability of the operation of an ongoing mineral extraction site is reduced or results in permanent sterilisation of a minerals resource.	Mineral sites with valid planning permissions for minerals extraction, and which have not been exhausted by previous extraction. Sites designated as preferred areas for mineral extraction in LPA local plans.	GC-O-5	-	No effect, Negligible or Minor (not significant)

Activity and impact	Effect	Receptor	Linkage Reference	Embedded environmental measures	Preliminary assessment of residual effect (significance)
		Minerals safeguarding areas and minerals consultation areas in LPA local plans.			
Decommissioning					
Decommissioning activities including removal and reinstatement of the onshore substation	Mobilisation of contamination via numerous pathways (including groundwater, surface water and leaching from soil) resulting in contamination of controlled waters.	Controlled waters receptors (groundwater and surface waters)	GC-D1	C-14 C-15 C-24 C-143	Negligible (not significant)
	Mobilisation of contamination via numerous pathways (including groundwater, surface water, leaching from soil, migration of vapours and windblown dusts) resulting in health effects.	Human health receptors (residential, agricultural land, commercial/industrial and public open space)	GC-D-2	C-14 C-15 C-24 C-143	Negligible (not significant)
	Accidental spillages and leaks resulting in ground contamination and risks to controlled waters during decommissioning.	Controlled waters receptors (groundwater and surface waters)	GC-D-3	C-8 C-76 C-149 C-151 C-167	Negligible (not significant)

25.16 Further work to be undertaken for ES

Introduction

25.16.1 Further work that will be undertaken to support the ground conditions assessment and presented within the ES is set out below.

Baseline

25.16.2 Subject to COVID-19 pandemic restrictions, a site walkover of the onshore substation search areas and key points along the onshore cable corridor will be undertaken to refine the ground conditions desk study (**Appendix 25.1, Volume 4**).

25.16.3 The ground conditions desk study (**Appendix 25.1, Volume 4**) will be updated using the information from the site walkover and feedback from consultees. In addition, the desk study will be updated to reflect the final onshore substation location and onshore cable corridor to be taken forward for the ES.

25.16.4 The minerals safeguarding baseline will be updated to reflect the final onshore substation location and onshore cable corridor to be taken forward for the ES alongside feedback from consultees.

Assessment

25.16.5 The preliminary assessment presented in this PEIR will be refined to reflect the final onshore substation location and onshore cable corridor to be taken forward for the ES and any updates to the desk study and baseline information.

Consultation and engagement

25.16.6 Further consultation and engagement that will be undertaken to inform the ground conditions assessment and presented within the ES is set out in **Table 25-23**.

Table 25-23 Further consultation and engagement for ground conditions

Consultee	Issues to be addressed	Relevance to assessment
Environment Agency	Review of ground conditions desk study (Appendix 25.1, Volume 4) and PEIR assessment of effects	Discuss feedback from review of PEIR assessment and seek agreement on ground conditions baseline, assessment of effects and environmental measures.
Local planning authorities	Review of ground conditions desk study (Appendix 25.1,	Discuss feedback from review of PEIR assessment and seek agreement on

Consultee	Issues to be addressed	Relevance to assessment
	Volume 4) and PEIR assessment of effects	ground conditions and minerals safeguarding baseline, assessment of effects and environmental measures.

25.17 Glossary of terms and abbreviations

Table 25-24 Glossary of terms and abbreviations

Term	Definition
Asbestos Containing Materials	Asbestos is a mineral that was frequently used as a building material in the UK between 1940 and 1999, although it was most common in materials made in the 60s, 70s and 80s. For this reason, any structure or product manufactured before the year 2000 (when the material was banned in the UK due to the risks to human health) has the potential to contain asbestos. Materials that commonly contain asbestos include: Loose asbestos in ceiling or floor cavity, Lagging, Sprayed coatings on ceilings, walls and beams/columns, Asbestos insulating board, Floor tiles, textiles and composites, Textured coatings, Asbestos cement products, Roofing felt, Rope seals and gaskets.
Authorised Landfill	Authorised Landfill sites are facilities that local authorities and industry take waste to be disposed of in the ground, and that are currently authorised by the Environment Agency under Environmental Permitting Regulations.
CDM	Construction (Design and Management)
CIRIA	Construction Industry Research and Information Association
CL:AIRE	Contaminated Land: Applications in Real Environments
Conceptual Model	A conceptual model represents the characteristics of the site in diagrammatic or written form that shows the possible relationships between contaminants, pathways and receptors.
Controlled Waters	Controlled waters as defined by Defra as follows: <ul style="list-style-type: none"> ● Relevant territorial waters which extend seaward for three miles from the low-tide limit from which the territorial sea adjacent to England and Wales is measured: <ul style="list-style-type: none"> ▶ Coastal waters from the low-tide limit to the high-tide limit or fresh-water limit of a river or watercourse.

Term	Definition
	<ul style="list-style-type: none"> ▶ Inland freshwaters. ▶ Natural and artificial lakes, ponds, reservoirs, rivers or watercourses above the fresh-water limit. <ul style="list-style-type: none"> ● Natural and artificial underground rivers and watercourses. ● Surface water sewers, ditches and soakaways that discharge to surface or groundwater. It also includes those that may be currently dry. ● Groundwaters - any waters contained in underground strata. <p>Controlled waters do not include any public sewer or any drain that enters into a public sewer (foul sewer).</p>
CSM	Conceptual Site Model
DECC	Department of Energy and Climate Change
Definition of Waste Code of Practice (DoWCoP)	The DoWCoP is an industry code of practice written by the independent research group Contaminated Land: Applications in Real Environments (CL:AIRE) to support and enhance the sustainability of development projects by providing a consistent and efficient process for the reuse of excavated materials. The DoWCoP requires a Materials Management Plan (MMP) to be in place.
Defra	Department for Environment, Food and Rural Affairs
Environmental Impact Assessment (EIA)	The process of evaluating the likely significant environmental effects of a proposed project or development over and above the existing circumstances (or 'baseline').
EEA	European Economic Area
EPA	Environmental Protection Act 1990
EPP	Evidence Plan Process
Environmental Statement (ES)	The written output presenting the full findings of the Environmental Impact Assessment.
ETG	Expert Topic Group
Geodiversity	Geodiversity is defined as 'the range of rocks, minerals, fossils, soils and landforms' and is the variety of rocks, fossils, minerals, landforms, soils and natural processes, such as weathering, erosion and sedimentation, that underlie and determine the character of our natural landscape and environment.

Term	Definition
Historical Landfill	Historical Landfill sites are former facilities that local authorities and industry took waste to be disposed of in the ground. The sites are now closed and there are no waste management or environmental permits in force.
Horizontal Directional Drilling (HDD)	An engineering technique for installing underground pipes or conduits and which is designed to avoid the use of open trenches
IAQM	Institute of Air Quality Management
LCRM	Land Contamination: Risk Management
Locally Important Geological Site (LIGS)	These are equivalent to Sites of Borough or Local Importance for Nature Conservation and accorded equivalent protection.
LPA	Local Planning Authority
Materials Management Plan (MMP)	A MMP is a mechanism by which those who are developing a site can comply with the Environment Agency regulations for excavated ground materials. A MMP can be used to show that excavated ground materials are not a waste under the Waste Management Regulations and can therefore be reused onsite in line with the Definition of Waste: Code of Practice.
Minerals Safeguarding Area (MSA)	Areas of known mineral resources that are of sufficient economic or conservation value to warrant protection for future use.
Minerals Consultation Area (MCA)	A mechanism that aims to ensure that in two-tier authority areas consultation takes place between county and district planning authorities when mineral interests could be compromised by non-mineral development.
Nationally Significant Infrastructure Project (NSIP)	Nationally Significant Infrastructure Projects are major infrastructure developments in England and Wales which are consented by DCO. These include proposals for renewable energy projects with an installed capacity greater than 100MW.
NHBC	National House Building Council
PEIR Assessment Boundary	The PEIR Assessment Boundary combines the search areas for the offshore and onshore infrastructure associated with the Proposed Development. It is defined as the area within which the Proposed Development and associated infrastructure will be located, including the temporary and permanent construction and operational work areas.

Term	Definition
PICP	Pollution Incident Control Plan
PINS	Planning Inspectorate
Preliminary Environmental Information Report (PEIR)	The written output of the Environmental Impact Assessment undertaken to date for the Proposed Development. It is developed to support formal consultation and presents the preliminary findings of the assessment to allow an informed view to be developed of the Proposed Development, the assessment approach that has been undertaken, and the preliminary conclusions on the likely significant effects of the Proposed Development and environmental measures proposed.
PPE	Personal Protective Equipment
PPGs	Pollution Prevention Guidelines
Regionally Important Geological Site (RIGS)	<p>The most important places for geology and geomorphology outside statutorily protected land such as Sites of Special Scientific Interest. The designation of a Regionally Important Geological Site is one way of recognising and protecting important Earth science and landscape features for future generations to enjoy.</p> <p>Sites are selected according to their value for: educational fieldwork scientific study, historical significance and aesthetic qualities. In London Regionally Important Geological Sites are sites that are considered worthy of protection for their geodiversity importance at the London-wide level.</p>
Scoping Opinion	A Scoping Opinion is adopted by the Secretary of State for a Proposed Development.
Scoping Report	A report that presents the findings of an initial stage in the Environmental Impact Assessment process.
Secretary of State (SoS)	The body who makes the decision to grant development consent.
Site of Special Scientific Interest (SSSI)	Sites designated at the national level under the Wildlife & Countryside Act 1981 (as amended). They are a series of sites that are designated to protect the best examples of significant natural habitats and populations of species.
Source	A substance that is in, on or under the land and has the potential to cause harm or to cause pollution of controlled waters.
Source-Pathway-Receptor (SPR) Linkage	The linkage of a source of contamination on or under the land which has the potential to cause harm or pollution (such as a landfill) and a receptor (something that could be adversely affected by

Term	Definition
	contamination such as groundwater or people) by means of a pathway (a route by which the receptor is exposed to, or affected by, the contamination such as direct contact). A land contamination risk only exists where a source, pathway and receptor are present. Without this complete linkage, there is no risk to people or the environment even if a source of contamination is present.
SPZ	Source Protection Zone
Study Area	The ground conditions study area used in this PEIR to inform the ground conditions baseline has been taken as the wider of either: the PEIR Assessment Boundary comprising the area within which the Proposed Development and associated onshore infrastructure will be located, including the temporary and permanent construction and operational work areas; or a Zone of Influence (ZOI) 250m from the edge of the onshore cable corridor presented at PEIR; or a ZOI 500m around the boundary of the land required for the onshore substation search areas presented at PEIR.
Unexploded Ordnance (UXO)	Unexploded ordnance are explosive weapons (bombs, shells, grenades, land mines, naval mines, etc.) that did not explode when they were employed and still pose a risk of detonation, potentially many decades after they were used or discarded
UST	Underground Storage Tank
WSCC	West Sussex County Council

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