The Great Grid Upgrade

North Humber to High Marnham

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North Humber to High Marnham

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13. Agriculture and Soils

13.1 Introduction

13.1.1 This chapter of the Environmental Statement (ES) presents the assessment of likely significant agriculture and soils effects that could result from the North Humber to High Marnham Project (the 'Project') as described in **Application Document 6.4 Chapter 4 Description of the Project**.

13.1.2 This chapter describes relevant legislation and policy, the scope of the assessment, the methodology used, the datasets that have informed the assessment, the baseline conditions, mitigation measures, and the residual significant effects that could result from the Project.

13.1.3 The Order Limits, which illustrate the boundary of the Project, are shown on **Application Document 6.1.F1 Figure 1.1 Project Location and Route Sections**

13.1.4 This chapter should be read in conjunction the following ES chapters:

- **Application Document 6.3 Chapter 3 Main Alternatives Considered;**
- **Application Document 6.4 Chapter 4 Description of the Project**;
- **Application Document 6.5 Chapter 5 EIA Approach and Methodology**;
- **Application Document 6.6 Chapter 6 Landscape**;
- **Application Document 6.8 Chapter 8 Ecology**;
- **Application Document 6.11 Chapter 11 Water Environment**;
- **Application Document 6.12 Chapter 12 Geology and Hydrogeology**;
- **Application Document 6.18 Chapter 18 Health and Wellbeing**;
- **Application Document 6.19 Chapter 19 Climate Change**;
- **Application Document 6.20 Chapter 20 Intra-project Cumulative Effects**; and
- **Application Document 6.21 Chapter 21 Inter-project Cumulative Effects**.

13.1.5 This chapter is supported by the following figures:

- **Application Document 6.13.F1 Figure 13.1 Agriculture and Soils Study Area**;
- **Application Document 6.13.F2 Figure 13.2 Provisional Agricultural Land Classification Mapping**;
- **Application Document 6.13.F3 Figure 13.3 Detailed Agricultural Land Classification Mapping (Post-1988)**;
- **Application Document 6.13.F4 Figure 13.4 Agri-environment Schemes**;
- **Application Document 6.13.F5 Figure 13.5 Forestry and Woodland Grant Schemes**; and
- **Application Document 6.13.F6 Figure 13.6 National Soils Map**.

- **Application Document 6.13.F7 Figure 13.7 Detailed Agricultural Land Classification Survey Map**

13.1.6 This chapter is supported by the following appendices:

- **Application Document 6.13.A1 Appendix 13.1 Regional and Local Planning Policy**; and
- **Application Document 6.13.A2 Appendix 13.2 Agricultural Land Classification Survey Report**.

13.1.7 This chapter is supported by the following application documents:

- **Application Document 7.1 Biodiversity Net Gain Report**;
- **Application Document 6.5.A1 Appendix 5.1 Environmental Impact Assessment Scoping Report**;
- **Application Document 6.5.A2 Appendix 5.2 Scoping Opinion**;
- **Application Document 6.5.A3 Appendix 5.3 Scoping Response Tables**
- **Application Document 7.2 Outline Code of Construction Practice**;
- **Application Document 7.3 Register of Environmental Actions and Commitments**;
- **Application Document 7.5 Outline Soil Management Plan**;
- **Application Document 7.8 Outline Landscape and Ecology Management Plan**; and
- **Application Document 7.11 Electric and Magnetic Field Compliance Report**.

13.2 Regulatory and Planning Context

13.2.1 This section sets out the legislation and planning policy that is relevant to the agriculture and soils assessment. A full review of compliance with relevant national, regional and local planning policy is provided within **Application Document 5.5 Planning Statement** submitted as part of the application for development consent.

13.2.2 **Application Document 6.2 Chapter 2 Legislation and Policy Context** describes the overall regulatory and planning policy context for the Project. Key legislation, policy and planning guidance relevant to the assessment of agriculture and soils effects of the Project is presented below.

Legislation

13.2.3 The Agricultural Land (Removal of Surface Soil) Act 1953 (HM Government, 1953) provides that the removal of surface soil from agricultural land without planning permission with a view to the sale of that soil is an offence.

National Policy

National Policy Statements

13.2.4 National Policy Statements (NPSs) set out the primary policy tests against which the application for a Development Consent Order (DCO) for the Project will be considered.

13.2.5 Table 13.1 and Table 13.2 provide details of the elements of Overarching NPS for Energy (EN-1) (Department for Energy Security and Net Zero, 2026) and NPS for Electricity Networks Infrastructure (EN-5) (Department for Energy Security and Net Zero, 2025) referred to hereafter as NPS EN-5 that are relevant to the assessment of the Project on agriculture and soils and how and where related information is provided in the ES and application.

Table 13.1 – NPS EN-1 sections relevant to agriculture and soils

NPS EN-1 Section	Where this is Covered in the application
4.6.13 '*In addition to delivering biodiversity net gain, developments may also deliver wider environmental gains and benefits to communities relevant to the local area, and to national policy priorities, such as:* • *reductions in GHG emissions* • *reduced flood risk* • *improvements to air, water or soil quality* • *climate adaptation* • *landscape enhancement* • *increased access to natural greenspace, or* • *the enhancement, expansion or provision of trees and woodlands'*	The Project's Biodiversity Net Gain commitments can be found in **Application Document 7.1 Biodiversity Net Gain Report**. An Outline Soil Management Plan (SMP) (**Application Document 7.5 Outline Soil Management Plan**) has been included in the application for development consent; this would be updated pre-construction in line with all Project requirements, such as habitat designs detailed in the Outline Landscape and Ecological Mitigation Plans (**Application Document 7.8 Outline Landscape and Ecology Management Plan, including an Outline Landscape Maintenance and Management Plan**), to detail the sustainable management measures to be implemented to ensure successful BNG and habitat implementation.
5.11.4 *'Development of land will affect soil resources, including physical loss of and damage to soil resources, through land contamination and structural damage. Indirect impacts may also arise from changes in the local water regime, organic matter content, soil biodiversity and soil process.'*	The extent of agricultural land within the Order Limits is reported in Table 13.16. The overall extent of land required has been minimised through the evolution of the design of the Project. **Application Document 7.5 Outline Soil Management Plan** contains handling and management measures designed to minimise damage to soil resources disturbed as part of the Project.
5.11.12 '*Applicants should seek to minimise impacts on the best and most versatile agricultural land (defined as land in grades 1, 2 and 3a of the Agricultural Land Classification) and preferably use land in*	The extent of best and most versatile (BMV) land within the Order Limits is reported in Table 13.16. The assessment of the likely impacts on BMV land is presented in section 13.9 of this chapter, and mitigation measures have been identified to minimise the effects. The overall extent of land

NPS EN-1 Section	Where this is Covered in the application
areas of poorer quality (grades 3b, 4 and 5)'.	required has been minimised through the evolution of the design of the Project. The presence of Provisionally graded BMV land formed part of the initial siting assessment as detailed in **Application Document 6.3 Chapter 3 Main Alternatives Considered**.
5.11.13 '*Applicants should also identify any effects and seek to minimise impacts on soil health and protect and improve soil quality taking into account any mitigation measures proposed*'.	Mitigation measures include those proposed to be set out in an SMP in line with published guidance. **Application Document 7.5 Outline Soil Management Plan** has been included in the application for development consent. An assessment of impacts and residual effects on soils and their functions, taking account of mitigation measures, is set out in section 13.9 of this chapter.
5.11.14 of '*Applicants are encouraged to develop and implement a Soil Management Plan which could help minimise potential land contamination. The sustainable reuse of soils needs to be carefully considered in line with good practice guidance where large quantities of soils are surplus to requirements or are affected by contamination*'.	Mitigation measures include those proposed to be set out in an SMP in line with published guidance. **Application Document 7.5 Outline Soil Management Plan** has been included in the application for development consent and will be updated pre-construction, in line with all Project requirements, such as habitat designs detailed in the Outline Landscape and Ecological Mitigation Plans (**Application Document 7.8 Outline Landscape and Ecology Management Plan including an Outline Landscape Maintenance and Management Plan**), to detail the sustainable management measures which will be implemented to ensure adequate volumes of material for restoration, as well as minimising any surplus soil materials. The final SMP submitted before construction will set out details of disposal routes should there be a surplus of soil materials. Land required temporarily is committed to being returned to its pre-construction condition, including Agricultural Land Classification (ALC) grade, as referenced in Code of Construction Practice (CoCP) items GG06, GG30 and AS01 (**Application Document 7.3 Register of Environmental Actions and Commitments**. **Application Document 7.5 Outline Soil Management Plan** includes a requirement for existing contaminated soils to be kept separate to avoid contamination of currently clean soil materials.
5.11.23 *'Although in the case of most energy infrastructure there may be little that can be done to mitigate the direct effects of*	The extent of agricultural land within the Order Limits is reported in Table 13.16. The overall extent of land required has been minimised

NPS EN-1 Section	Where this is Covered in the application
an energy project on the existing use of the proposed site (assuming that some of that use can still be retained post project construction) applicants should nevertheless seek to minimise these effects and the effects on existing or planned uses near the site by the application of good design principles, including the layout of the project and the protection of soils during construction'.	through the evolution of the design of the Project. **Application Document 7.5 Outline Soil Management Plan** has been included in the application for development consent; this contains handling and management measures designed to minimise damage to soil resources disturbed as part of the Project. **Application Document 7.5 Outline Soil Management Plan** draws upon accepted good practice guidance such as that contained in the Defra Construction Code of Practice for the Sustainable Use of Soils on Construction Sites (Department for Environment, Food and Rural Affairs, 2009).
5.11.34 '*The Secretary of State should ensure that Applicants do not site their scheme on the best and most versatile agricultural land without justification. Where schemes are to be sited on best and most versatile agricultural land the Secretary of State should take into account the economic and other benefits of that land. Where development of agricultural land is demonstrated to be necessary, areas of poorer quality should be preferred to those of a higher quality*'.	The extent of BMV land within the Order Limits is reported in Table 13.16. An assessment of the likely impacts on BMV land is presented in section 13.9 of this chapter and mitigation measures have been identified to minimise the effects. The overall extent of land required has been minimised through the evolution of the design of the Project. The presence of Provisionally graded BMV land formed part of the initial siting assessment as detailed in **Application Document 6.3 Chapter 3 Main Alternatives Considered**.

Table 13.2 – NPS EN-5 sections relevant to agriculture and soils

NPS EN-5 section	Where this is covered in the application
2.9.26 *'In such cases the Secretary of State should only grant development consent for underground or subsea sections of a proposed line over an overhead alternative if they are satisfied that the benefits accruing from the former proposal clearly outweigh any extra economic, social, or environmental impacts that it presents, the mitigation hierarchy has been followed, and that any technical obstacles associated with it are surmountable. In this context it should consider:* […] • *The potentially very disruptive effects of undergrounding on local communities, habitats, archaeological and heritage assets, marine environments, soil (including peat soils), hydrology, geology, and, for a substantial time after construction, landscape and visual*	The Project does not directly contain underground cables as part of the design, though does contain areas of DNO undergrounding activities. Therefore, the approach to protecting and sustainably managing soils is still applicable. Mitigation measures include those proposed to be set out in an SMP in line with published guidance. **Application Document 7.5 Outline Soil Management Plan** has been included in the application for development consent; this would be updated pre-construction, in line with all Project requirements, such as habitat designs detailed in **Application Document 7.8 Outline Landscape and Ecology Management Plan**, to detail the sustainable management measures which would be implemented to ensure adequate volumes of material for restoration, as well as minimising any surplus soil materials. The final SMP submitted before construction will set out

NPS EN-5 section	Where this is covered in the application
amenity. (Undergrounding an overhead line will mean digging a trench along the length of the route, and so such works will often be more disruptive – albeit temporarily – to receptors listed above than would an overhead line of equivalent rating); • *[…] The applicant's commitment, as set out in their ES, to mitigate the potential detrimental effects of undergrounding works on any relevant agricultural land and soils (including peat soils), particularly regarding Best and Most Versatile land, including development and implementation of a Soil Resources and Management Plan. Such a commitment must guarantee appropriate handling of soil, backfilling, and return of the land to the baseline Agricultural Land Classification (ALC), thus ensuring no loss or degradation of agricultural land. Such a commitment should be based on soil and ALC surveys in line with the 1988 ALC criteria and due consideration of the Defra Construction Code of Practice for Sustainable Use of Soils on Construction Sites'.*	details of disposal routes should there be a surplus of soil materials. Land required temporarily is committed to being returned to its pre-construction condition, including ALC grade, as referenced in Code of Construction Practice (CoCP) items GG06, GG30 and AS01 (**Application Document 7.3 Register of Environmental Actions and Commitments**).
2.9.59 '*There is little evidence that exposure of crops, farm animals or natural ecosystems to transmission line EMFs* [electric and magnetic forces] *has any agriculturally significant consequences*'.	**Application Document 7.11 Electric and Magnetic Field Compliance Report** has been submitted with the application for development consent. However, as set out in **Application Document 6.5.A1 Appendix 5.1 Environmental Impact Assessment (EIA) Scoping Report**, and as agreed by the Planning Inspectorate (Planning Inspectorate, 2023), the potential effects of EMFs on land use during operation have been scoped out of the assessment.

National Planning Policy Framework

13.2.6 The National Planning Policy Framework (NPPF) as revised in August 2026 (Ministry of Housing, Communities and Local Government, 2026) sets out national planning policies that reflect priorities of the Government for the operation of the planning system and the economic, social, and environmental aspects of the development and use of land. The NPPF (Ministry of Housing, Communities and Local Government, 2026) has a strong emphasis on sustainable development, with a presumption in favour of such development. Although the NPSs set out the primary policy tests for the Project, the NPPF (Ministry of Housing, Communities and Local Government, 2026) has the potential to be considered important and relevant to the consideration of the Project by the Secretary of State (SoS).

13.2.7 Table 13.3 provides details of the elements of the NPPF (Ministry of Housing, Communities and Local Government, 2026) that relate to the agriculture and soils assessment, and how and where they are covered in this ES and application.

Table 13.3 – NPPF sections relevant to agriculture and soils

NPPF Section	Where this is Covered in the application
Clause CC2: Mitigation of climate change *"In order to contribute to climate change mitigation and the transition to net zero, development proposals should, where relevant to the proposal:[…]d. Take advantage of opportunities to reuse existing structures and materials, including by reusing non-contaminated excavated soil and hardcore within the site[…]f. Contribute to the creation or restoration of habitats which can act as carbon stores, such as through woodland planting and peatland restoration, while avoiding harm to habitats which can act as important carbon stores, including peatland and salt marsh;[…]"*	Measures relating to the sustainable management of soils within the Project including handling, storage and reuse of soils during construction are set out within **Application Document 7.5. Outline Soil Management Plan**. Potential peat and organic-rich soils within the Order Limits have been identified through the Agricultural Land Classification surveys (**Application Document 6.13.A2 Appendix 13.2 Agricultural Land Classification Survey Report**). Potential impacts and effects on agricultural land and soil resources are assessed in section 13.9 of this chapter, with mitigation measures detailed in section 13.8. Where peat or organic-rich soils may be present and affected by construction activities, further survey work will be undertaken to inform mitigation measures and soil management requirements. Measures relating to the protection, handling, storage and reinstatement of soils, including peat where applicable, are set out within **Application Document 7.5 Outline Soil Management Plan**.
Clause P1: Planning for clean and safe places *"To support efforts to avoid and mitigate risks from natural and man-made hazards, minimise levels of pollution and create clean, liveable and safe places for people to live, work and visit, development plans should:[…]b Consider any wider opportunities to reduce air, water, soil, noise or other forms of pollution, and contribute to*	Potential impacts and effects on agricultural land and soil resources arising from construction activities are assessed in section 13.9 of this chapter. Mitigation measures designed to minimise soil degradation, erosion, compaction and contamination are detailed in section 13.8 and **Application Document 7.5 Outline Soil Management Plan**.

NPPF Section	Where this is Covered in the application
compliance with national and local environmental targets and objectives, through the spatial strategy and policies for specific parts of the plan area (such as by identifying opportunities for strategic nature-based solutions)[…]"	
Clause N1: Identifying environmental opportunities and safeguards *"Development plans should safeguard and enhance the natural environment, and reflect the wider benefits from natural capital and ecosystem services, by using Local Nature Recovery Strategies, Protected Landscape Management Plans, River Basin Management Plans, National Forest Strategies, Community Forest Plans and other relevant evidence at the most appropriate level to: […] c. Steer the location of development, including through site allocations, in ways which utilise land of least environmental value where that would be consistent with other policies in this Framework. This should include limiting the scale and extent of development within Protected Landscapes, avoiding the use of higher quality agricultural land where land of poorer quality if available and avoiding and minimising harm to designated sites of importance for nature. Areas which could become of particular importance for nature identified in Local Nature Recovery Strategies should be taken into account as opportunities to integrate development with environmental restoration, but should not necessarily preclude the allocation of land for development[…]"*	The overall extent of land required by the Project has been minimised through the evolution of the design. Agricultural land quality, including the presence of Provisionally graded Best and Most Versatile (BMV) land, formed part of the initial siting and routeing assessment as detailed in **Application Document 6.3 Chapter 3 Main Alternatives Considered**. The extent of BMV land within the Order Limits is reported in Table 13.16. An assessment of likely impacts and effects on agricultural land and soil resources is presented in section 13.9 of this chapter and has been undertaken taking account of the mitigation measures set out in section 13.8
Clause N2: Improving the natural environment *"To contribute positively to the natural environment, and support nature's recovery, development proposals should: a. Consider the environmental qualities of land proposed for development, including habitats, landscape character and the natural beauty of the countryside, and identify opportunities for those qualities to be conserved or enhanced (including through requirements for biodiversity net gain where these apply; b. Take into account the quality of agricultural land*	The environmental qualities of land affected by the Project, including agricultural land and soil resources, were considered during the siting and routeing process. Agricultural land quality, including the presence of Provisionally graded Best and Most Versatile (BMV) land, formed part of the initial siting and routeing assessment as detailed in **Application Document 6.3 Chapter 3 Main Alternatives Considered**. The overall extent of land required by the Project has been minimised through the evolution of the design. The extent of BMV land within the Order Limits is reported in Table 13.16. An assessment of likely

NPPF Section	Where this is Covered in the application
(including that classified as best and most versatile agricultural land, and its grade), and if significant development of agricultural land is necessary, use areas of poorer quality land where possible[…]"	impacts and effects on agricultural land and soil resources is presented in section 13.9 of this chapter and has been assessed taking account of the mitigation measures set out in section 13.8 of this chapter.

National Planning Practice Guidance

13.2.8 The NPPF (Ministry of Housing, Communities and Local Government, 2026) is supported by Planning Practice Guidance (PPG) (Ministry of Housing, Communities and Local Government, 2025). This guidance is updated on a regular basis and provides advice on a range of topics related to the implementation of NPPF (Ministry of Housing, Communities and Local Government, 2026) policies. The PPG that is relevant to the agriculture and soils assessment are summarised below.

Planning Practice Guidance for the Natural Environment

13.2.9 The Planning Practice Guidance for the Natural Environment (Ministry of Housing, Communities and Local Government, 2025) contains details on agricultural land, soil and brownfield land of environmental value. The PPG provide information on the ALC system and links to published guidance from Natural England in relation to assessing development proposals on agricultural land. It also provides guidance on the safeguarding soil resources with specific reference to the Construction Code of Practice for the Sustainable Use of Soils on Construction Sites (Department for Environment, Food and Rural Affairs, 2009) which provides advice on the use and protection of soil in construction projects.

Other National Policy

13.2.10 Although the Project will be tested in line with the national policy detailed above, the assessment has also been undertaken in the light of the Environmental Improvement Plan 2023 (Department for Environment, Food and Rural Affairs, 2023) which highlights the importance of soils and their protection. This is the first revision to A Green Future: Our 25-Year Plan to Improve the Environment (HM Government, 2018). The newly available Land Use Framework (Department for Environment, Food and Rural Affairs, 2026) has also been considered as part of this assessment.

Regional and Local Policy

13.2.11 **Application Document 6.2 Chapter 2 Legislation and Policy Context** lists relevant regional and local policy documents.

13.2.12 A range of regional and local planning policies are in place that seek to protect and enhance agriculture and soils; these have been given due regard in the agriculture and soils assessment and have been considered as part of the design development process of the Project. Full details of local policies relevant to this assessment are presented in **Application Document 6.13.A1 Appendix 13.1 Relevant Regional and Local Policy**.

13.3 Scoping Opinion and Consultation

Scoping Opinion

13.3.1 A Scoping Report for the Project was issued to the Planning Inspectorate on 21 August 2023 (**Application Document 6.5.A1 Appendix 5.1 Environmental Impact Assessment (EIA) Scoping Report**) and a Scoping Opinion was received from the Planning Inspectorate on behalf of the SoS for the Department for Energy Security and Net Zero on 29 September 2023 (**Application Document 6.5.A2 Appendix 5.2 Scoping Opinion**). Table 13.4 sets out the comments raised in **Application Document 6.5.A2 Appendix 5.2 Scoping Opinion** that relate to agriculture and soils and how these have been addressed in this assessment. **Application Document 6.5.A2 Appendix 5.2 Scoping Opinion** takes account of responses from prescribed consultees as appropriate. **Application Document 6.5.A3 Appendix 5.3 Scoping Response Tables** provide responses to the comments made by the prescribed consultees at the scoping stage that relate to the scope of the assessment and how each comment has been considered.

Table 13.4 – Comments raised in the Scoping Opinion

ID	Inspectorate's Comments	Response
3.7.1	**Temporary acquisition of land to accommodate construction activities (temporary disruption to land holdings and loss of income to farm businesses)** The Applicant proposes to scope this matter out on the basis that the measures outlined in Section 12.5 would reduce the potential for temporary disruption and any residual disruption to loss of income from farm businesses would be dealt with through compensation agreements which lie outside of the scope of the EIA process. On the basis of these measures and compensation agreements being implemented, the Inspectorate agrees to scope these matters out from further assessment.	National Grid notes the Inspectorate's comments. All land affected by the Project and those with a legal interest in the land are identified in **Application Document 4.3 Book of Reference**. National Grid has engaged, and will continue to engage, with landowners with a view to reaching agreement before powers are granted and will look to agree land take prior to construction commencing, with compensation being paid in line with the compensation code whether by agreement or otherwise. National Grid is agreeing heads of terms with some of the landowners which will address impact on businesses and will update the Examining Authority throughout the examination of the Project. The status of these engagements is detailed within **Application Document 4.4 Pre-application Land and Rights Negotiations Tracker**.
3.7.2	**Permanent acquisition of land to accommodate the operational Proposed Development** The Applicant proposes to scope this matter out on the basis that the measures outlined in Section 12.5 would reduce the potential for disruption and any residual disruption would be dealt with through compensation agreements which lie	National Grid notes the Inspectorate's comments. All land affected by the Project and those with a legal interest in the land are identified in **Application Document 4.3 Book of Reference**. National Grid has engaged, and will continue to engage, with landowners with a view to reaching agreement before powers are granted and will look to agree land take prior to

ID	Inspectorate's Comments	Response
	outside of the scope of the EIA process. On the basis of these measures and compensation agreements being implemented and subject to further design detail being made available and confirmation of the extent of the reduction in the operational capacity of farm businesses and loss of income, the Inspectorate agrees to scope this matter out from further assessment.	construction commencing, with compensation being paid in line with the compensation code whether by agreement or otherwise. National Grid is agreeing heads of terms with some of the landowners which will address impact on businesses and will update the Examining Authority throughout the examination of the Project. The status of these engagements is detailed within **Application Document 4.4 Pre-application Land and Rights Negotiations Tracker**. The extent of agricultural land permanently required is set out in Table 13.19 in this chapter.
3.7.3	**EMF effects – Operation** The Applicant proposes to scope this matter out on the basis that the National Policy Statement for Electricity Networks Infrastructure (EN-5) states that there is little evidence that exposure of crops, farm animals or natural ecosystems to transmission line EMFs has any agriculturally significant consequences. Table 12.1 details that where indirect effects to sensitive land uses (such as riding manèges) are identified, additional conductor clearances will be applied. Considering the lack of evidence that exposure of crops, farm animals or natural ecosystems to transmission line EMFs has any agriculturally significant consequences, and given the measures proposed within Table 12.1, the Inspectorate agrees that this matter can be scoped out from further assessment.	The Applicant notes the Inspectorate's comments. **Application Document 7.11 Electric and Magnetic Field Compliance Report** has been submitted with the DCO application. It is noted, however, that EMF impacts on land use during operation are scoped out.
3.7.4	**Temporary acquisition of land to accommodate maintenance activities associated with the operational phase** The Applicant proposes to scope these matters out on the basis that there is potential for only small areas of BMV land to be temporarily affected and that the measures outlined in Section 12.5 would reduce the potential for temporary disruption, and any residual disruption to loss of income from farm businesses would be dealt with through compensation agreements which lie	Land-take required for the purpose of maintenance is assumed to be small scale and temporary, and as such is not considered to be of significant impact to agricultural operations. Details of likely routine and maintenance activities are included in **Application Document 6.4 Chapter 4 Description of the Project** . All maintenance works will be undertaken following legal requirements and good practice relevant at the time which would be employed to minimise potential impacts.

ID	Inspectorate's Comments	Response
	outside of the scope of the EIA process. In the absence of further detail relating to the location and frequency of maintenance activities associated with the operational phase, the Inspectorate does not at this time agree to scope these matters out from further assessment. The ES should provide an assessment of these matters where there is potential for likely significant effects to occur. The Inspectorate draws the Applicant's attention to ID 2.1.11 of this Opinion.	
3.7.5	**Temporary soil disturbance from maintenance activities associated with the operational phase** The Applicant proposes to scope these matters out on the basis that the measures outlined in Section 12.5 would minimise the risk of damage to soil health and function which prevents short-term damage and subsequent long-term damage. On the basis of the control and management measures listed in Section 12.5 being implemented, the Inspectorate agrees that significant effects are unlikely to occur and agrees to scope this matter out from further assessment. The Inspectorate draws the Applicants attention to ID 2.1.11 of this Opinion.	The Applicant notes the Inspectorate's comments. Details of likely routine and maintenance activities have been included in **Application Document 6.4 Chapter 4 Description of the Project** with cross reference to standard approaches (as already set out in terms of industry good practice) which would be employed to minimise potential impacts. The comments on maintenance/operation have been addressed in line with the response to ID 2.1.11. in **Application Document 6.4 Chapter 4 Description of the Project**
3.7.6	**Baseline** The Inspectorate welcomes the proposed detailed ALC surveys of relevant areas. The ES should clearly set out what constitutes a relevant area for surveying and effort should be made to agree the detailed ALC survey locations with the relevant consultation bodies. The Applicant's attention is drawn to Natural England's response (Appendix 2 of this Opinion) in this regard.	ALC surveys have been undertaken, and the survey approach follows published guidelines with a survey density of at least 1 auger per hectare (in accordance with published guidance (Defra & Welsh Government, 2025)). ALC survey coverage was not achieved across all agricultural land within the Order Limits due to access constraints and other limitations on survey suitability at the time of fieldwork. To provide a complete baseline for the assessment, unsurveyed areas were reviewed using the Predictive Agricultural Land Classification Map for England (Defra, 2026). Full survey findings are detailed in **Application Document 6.13.A2 Appendix 13.2 Agricultural Land Classification Survey Report**. The survey plan has been shared with Natural England with a clear rationale

ID	Inspectorate's Comments	Response
		presented for any areas not proposed to be surveyed. This approach was confirmed as acceptable by Natural England in a meeting on 5 August 2026. Reference to the Natural England response is noted. The advice/recommendations given by Natural England have been followed.

Statutory Consultation

13.3.2 Statutory consultation for the Project took place between 18 February and 15 April 2025. A summary of the relevant feedback received during statutory consultation relating to agriculture and soils is provided below in Table 13.5. Further details on how consultation responses have informed the assessment are provided in **Application Document 5.1 Consultation Report**.

Table 13.5 – Assessment aspects raised at statutory consultation and how these have been addressed

Stakeholder	Assessment Aspects Raised	How this has been Addressed
Natural England	Soil Management Plan – the commitment to deliver a Soil Management Plan in line with the Defra code is welcomed	**Application Document 7.5 Outline Soil Management Plan** has been submitted with the application for development consent and provides details of the approaches to soil handling, based on published good practice (specifically the Defra code) (Department for Environment, Food and Rural Affairs, 2009)) along with other relevant guidance. It sets out a reuse hierarchy (to focus on maximising, where practicable, within-project reuse) and broad acceptance criteria for soil resources to be reused within the Project. These requirements will be detailed further in the final SMP to be produced prior to construction commencing where the final design and thus final soil volumes will be known.
	ALC Survey Approach	ALC surveys have been undertaken in line with the ALC Guidelines (Defra & Welsh Government, 2025)[1], such that the survey has been undertaken at a minimum survey density of one auger point per hectare. Along the proposed overhead line route this has been undertaken as one auger point per 100 m linearly along the central alignment, and

[1] The original 1988 Ministry of Agriculture, Fisheries and Food Agricultural Land Classification of England and Wales Guidance (Agricultural Land Classification (ALC) of England & Wales: Revised guidelines and criteria for grading the quality of agricultural land) was updated in December 2025. These updates do not change the basis of approach for conducting ALC surveys.

Stakeholder	Assessment Aspects Raised	How this has been Addressed
		a one per 1 ha density within the wider areas, e.g. mitigation planting areas, construction compounds.
	Impacts on BMV Land	The data collated from the surveys have been used to map boundaries between different ALC grades which have then been used to inform micro-siting opportunities to minimise the overlap between infrastructure and BMV land where practicable. Land required temporarily will be reinstated to its original ALC grade. **Application Document 7.5 Outline Soil Management Plan** details management measures to ensure that soils disturbed by the Project remain suitable for their determined end use. This chapter sets out the baseline in relation to ALC grades based on the detailed ALC surveys that have been undertaken. The assessment reports on the extent of each grade affected both temporarily and permanently by the Project. Full survey findings are detailed in **Application Document 6.13.A2 Appendix 13.2 Agricultural Land Classification Survey Report.**
Bassetlaw District Council	Cumulative impacts on BMV Land	This chapter sets out the baseline, utilising detailed ALC survey data and mapping. These survey data have been used to confirm the extent of each grade and include a differentiation between Grades 3a and 3b (Appendix 6.13.A2 to **Application Document 13.2 Agricultural Land Classification Survey Report**). The cumulative effects of the Project with Other Existing and/or Approved Development have been assessed and are presented in **Application Document 6.21 Chapter 21 Inter-project Cumulative Effects**.
Yorkshire Wildlife Trust	Lowland Peat	There are areas of the Willingham association (extremely calcareous silty and clayey soils, in places humose, and often over peat) mapped near Gringley on the Hill. The ALC surveys have assessed soil characteristics from which the presence or absence of peat has been assessed. The ALC surveys have identified locations where subsurface peaty/organic horizons are present (Appendix 6.13.A2 to **Application Document 13.2 Agricultural Land Classification Survey Report**). In most cases these horizons occur beneath mineral upper horizons and are of limited thickness. In line with accepted definitions, peat is

Stakeholder	Assessment Aspects Raised	How this has been Addressed
		generally distinguished from mineral soil by organic matter (OM) content and depth (Hodgson, 2022). Soils with OM content greater than 12% being a peaty loamy, and over 50% being peat, and with deposits greater than 40 cm often treated as deep peat; on this basis, only a small number of recorded horizons would qualify as deeper peat deposits, while most represent thinner peat, peaty pockets or peaty subsoil horizons. In areas where these surveys identify that peat or organic-rich soils are present and will interact with excavations deep enough to disturb the peat(y) horizon, a further survey will be undertaken to record peat depth and stratigraphy. This survey information will be used to develop further the mitigation measures as part of the Soil Management Plan (which will include reference to peat where applicable).

Stakeholder Engagement

13.3.3 National Grid Electricity Transmission plc (National Grid) has engaged with relevant stakeholders throughout the evolution of the Project including Natural England

13.3.4 A summary of discussions and how these have influenced the scope and the approach to the agriculture and soils assessment are provided in Table 13.6.

Table 13.6 – Further engagement

Organisation and Date	Summary of Issues Raised	How this has been Addressed
Natural England, 5 August 2026	Use of predictive mapping to fill gaps was confirmed as reasonable.	The assessment is based on survey data with the use of the predictive mapping to fill gaps.
	Use of soil resource surveys where surplus soil may be generated.	A proposal to undertake pre-construction surveys to fill gaps and support detailed soil management and re-use (where required) has been included in **Application Document 7.5 Outline Soil Management Plan**.
	UXO risk not accepted as a reason for areas not being surveyed as mitigation measures could be put in place.	The health & safety risk associated with the potential presence of UXOs has been clearly set out in **Application Document 7.5 Outline Soil Management Plan**.

Organisation and Date	Summary of Issues Raised	How this has been Addressed
	Handling of plastic soils should be avoided.	The measures proposed to manage soil handling during wet weather/wet ground conditions is set out in **Application Document 7.5 Outline Soil Management Plan**. This approach was accepted by Natural England.
	Provision of a breakdown of temporary and permanent land take for each ALC grade.	The breakdown of land grades affected temporarily and permanently has been set out in this Chapter.

Summary of Scope of Assessment

13.3.5 The following summarises which aspects have been scoped into and out of the assessment through **Application Document 6.5.A1 Environmental Impact Assessment (EIA) Scoping Report** and **Application Document 6.5.A2 Appendix 5.2 Scoping Opinion** as set out in Table 13.4, statutory consultation as set out in Table 13.5 and further engagement with stakeholders as set out in Table 13.6.

Aspects scoped into the assessment

13.3.6 The scope of this assessment has considered the temporary and permanent impacts on agriculture and soils receptors (such as BMV land and soil function) during the construction and maintenance of the Project.

13.3.7 The following aspects have been scoped into the assessment:

- Temporary impacts on BMV land during construction;
- Permanent impacts on BMV land during operation; and
- Temporary impacts on soils during construction.

13.3.8 Whilst the aspects listed below have been scoped out, it was agreed at Scoping that further information on the extent of land take affecting agricultural receptors during construction and maintenance would be set out; this information is provided in section 13.9 of this chapter.

Aspects scoped out of the assessment

13.3.9 The following aspects have been scoped out of the assessment (noting that the extent of permanent land take has been set out in section 13.9):

- Temporary acquisition of land to accommodate construction activities (temporary disruption to land holdings and loss of income to farm businesses);
- Permanent acquisition of land to accommodate the operational Project;
- Temporary soil disturbance from maintenance activities associated with the operational phase; and
- Effects of EMFs on land use (operation).

13.3.10 Decommissioning has been scoped out of the assessment as explained in **Application Document 6.5 Chapter 5 Environmental Impact Assessment Approach and Methodology**.

13.4 Assessment Approach and Methods

13.4.1 **Application Document 6.5 Chapter 5 Environmental Impact Assessment Approach and Methodology** sets out the overarching approach and methodology which has been used in preparing the information in this ES. This section describes the technical methods used to determine the baseline conditions, sensitivity of receptors, and magnitude of impacts and sets out the criteria that have been used for the agriculture and soils assessment. Where the assessment criteria terminology differs from the general assessment criteria terminology, as set out in **Application Document 6.5 Chapter 5 Environmental Impact Assessment Approach and Methodology**, justification is provided.

Guidance Specific to the Agriculture and Soils Assessment

13.4.2 Relevant guidance specific to agriculture and soils that has informed the approach to the assessment in this chapter comprises:

- A New Perspective on Land and Soil in Environmental Impact Assessment (Institute of Environmental Management & Assessment, 2022);
- Soil Health and Environmental Assessment (Institute of Sustainability & Environmental Professionals, 2025);
- Safeguarding our Soils: A Strategy for England (Department for Environment, Food and Rural Affairs, 2009);
- Technical Information Note 049. ALC Protecting the Best and Most Versatile Agricultural Land (Natural England, 2012);
- Guide to assessing development proposals on agricultural land (Natural England, 2021);
- Guidance Note: Working with Soil Guidance Note on Benefitting from Soil Management in Development and Construction (British Society of Soil Science, 2022);
- British Standard Specification for Topsoil and Requirements for Use (BS 3882:2015) (British Standards Institution, 2015);
- Construction Code of Practice for the Sustainable Use of Soils on Construction Sites (Department for Environment, Food and Rural Affairs, 2009);
- Good Practice Guide for Handling Soils in Mineral Workings (Institute of Quarrying, 2022);
- Agricultural Land Classification of England and Wales. Revised Guidelines and Criteria for Grading the Quality of Agricultural Land (Defra & Welsh Government, 2025); and
- Design Manual for Roads and Bridges (DMRB) LA 109 Geology and Soils (Highways England, 2019).

Study Area

13.4.3 The study area for the agriculture and soils assessment comprises the area directly affected by the Project, as defined by the Order Limits as shown in **Application Document 6.13.F1 Figure 13.1 Agriculture and Soils Study Area**. Herein, where relevant, the study area will be referred to as the Order Limits.

13.4.4 A wider study area was considered during the scoping stage, which extended to 1 km around the Order Limits to provide wider environmental context and enable consideration of potential design changes. As the design and development process continued, the study area was reassessed to be purely defined as the land within the Order Limits. The study area was refined due to likely significant effects for agriculture and soils being primarily determined by the physical impacts of construction and was therefore confined to the area directly affected by the Project.

13.4.5 The assessment detailed in this chapter is supported by site surveys conducted exclusively within this study area.

Baseline Data Gathering and Forecasting Methods

Data sources

13.4.6 The baseline information presented in this chapter has been informed by a desk study which has drawn on the following information sources:

- British Geological Survey (BGS) Geology Viewer, online mapping for bedrock and superficial geology (British Geological Survey, 2025);
- Ordnance Survey (OS) mapping and aerial photography to establish land use and settlement patterns;
- OS 1:10,000, 1:25,000, 1:50,000 and 1:250,000 base mapping;
- National Soil mapping showing the distribution of main soil associations was assessed using data from Land Information System (Cranfield University, 2026);
- ALC mapping, including Provisional and (where available) detailed ALC mapping from the MAGIC website (Department for Environment, Food and Rural Affairs, 2025)
- Predictive ALC Map for England (Defra, 2026);
- Met Office Climatological Data for ALC (Meteorological Office, 1989);
- Extent of agri-environmental, and woodland and forestry schemes from the MAGIC website (Department for Environment, Food and Rural Affairs, 2025);
- National Character Areas (NCA 27, NCA 39, NCA 40, NCA 41, NCA 48) (Natural England, 2014 a-e); and
- Relevant data gathered for other assessment chapters include:

- **Application Document 6.6 Chapter 6 Landscape**;
- **Application Document 6.8 Chapter 8 Ecology**;
- **Application Document 6.11 Chapter 11 Water Environment**;
- **Application Document 6.12 Chapter 12 Geology and Hydrogeology**; and
- **Application Document 6.18 Chapter 18 Health and Wellbeing**.

Site visits and surveys

13.4.7 The baseline within this chapter has been supported by soil and ALC surveys undertaken between September 2025 and March 2026. Full details of the methodology used are presented in **Application Document 6.13.A2 Appendix 13.2 Agricultural Land Classification Survey Report**. The ALC calculations are based on an analysis of the survey data along with climatic data.

Assessment Methods and Criteria

13.4.8 This section sets out the methodology used for assessing the effects on agriculture and soils for those aspects scoped into the assessment, developed from the methodology set out within **Application Document 6.5.A1 Appendix 5.1 Environmental Impact Assessment (EIA) Scoping Report**.

13.4.9 The following methodology sets out how the sensitivity of receptors, the degree of damage to/loss of soil resources, agricultural land and agricultural landholdings, and the subsequent impact effects of the Project on agriculture and soils has been assessed.

13.4.10 The assessment draws on guidance set out by the Institute of Environmental Management and Assessment[2] (IEMA) on how land and soil should be assessed in EIA (Institute of Environmental Management & Assessment, 2022) and DMRB (Highways England, 2019). The IEMA guidance (Institute of Environmental Management & Assessment, 2022) seeks to move practice away from a narrow focus on quantifying and financially compensating effects on agricultural land and advocates a new and wider approach to assessing the soil functions, ecosystem services and natural capital provided by land and soils.

13.4.11 The concept of ecosystem services encompasses the vital benefits that natural systems provide to humans and the environment. In the context of soil functions, these services include key processes such as biomass production (e.g., food, fibre, and fuel), the provision of ecological habitats, and the role of soils as a platform for green infrastructure. Soils also play a critical part in regulating atmospheric interactions, supporting the carbon, nitrogen, and hydrological cycles, and preserving archaeology, cultural heritage, and geodiversity. Additionally, they serve as a source of materials.

13.4.12 The assessment in this chapter assumes that all mitigation measures – including embedded (design measures), standard construction practice, and any additional mitigation (as defined in **Application Document 6.4 Chapter 4 Description of the Project**) are in place before assessing the effects. This is in accordance with guidance from IEMA as part of preparing a proportional assessment (Institute of Environmental Management & Assessment, 2022) and the EIA Scoping Report (**Application Document 6.5.A1 Appendix 5.1 Environmental Impact Assessment (EIA) Scoping Report)**.

[2] Now the Institute of Sustainability and Environmental Professionals

Sensitivity

13.4.13 The sensitivity of agricultural land and soils has been defined in accordance with IEMA (Institute of Environmental Management & Assessment, 2022) and DMRB (Highways England, 2019) guidance. Table 13.7 and Table 13.8 set out the criterion which have been used to determine the sensitivity of receptors addressed within the agriculture and soils assessment.

13.4.14 Table 13.7 combines the criteria for sensitivity for both agricultural land and soils, but it is also recognised that some soils are more sensitive to damage when handled during construction than others. Table 13.8 provides a summary of broad soil types and their sensitivity to structural damage.

Table 13.7 – Criteria for sensitivity of agricultural land and soils (based on Table 2 from *'A New Perspective on Land and Soil in Environmental Impact Assessment'* (Institute of Environmental Management & Assessment, 2022))

Receptor Sensitivity	Soil Resource and Soil Functions
Very High	**Biomass production:** ALC Grades 1 and 2; Ecological habitat, soil biodiversity and platform for landscape: Soils supporting protected features within a National Site Network (formally referred to as European sites) (e.g., Special Areas of Conservation (SACs), Special Protection Areas (SPAs), Ramsar sites); Peat soils; Soils supporting a National Park, or ancient woodland; **Soil carbon:** Peat soils; Soils with potential for ecological/landscape restoration; **Soil hydrology:** Very important catchment pathway for water flows and flood risk management; **Archaeology, Cultural Heritage, Community Benefits and Geodiversity:** Scheduled Monuments and adjacent areas; World Heritage and European sites; Soils with known archaeological interest; Soils supporting community/recreational/educational access to land covered by National Park designation; and **Source of materials:** Important surface mineral reserves that would be sterilised (i.e., without future access).
High	**Biomass production:** ALC Grade 3a; **Ecological habitat, soil biodiversity and platform for landscape:** Soils supporting protected features within a UK designated site (e.g., United Nations Educational, Scientific and Cultural Organisation (UNESCO) Geoparks, Sites of Specific Interest (SSSI) or National Landscapes (formerly Area of Outstanding Natural Beauty (AONB)), Special Landscape Areas (SLAs) and Geological Conservation Review sites); Native Forest and woodland soils; Unaltered soils supporting seminatural vegetation (including the UKBAP Priority habitats); **Soil carbon:** Organo-mineral soils (e.g., peaty soils);

Receptor Sensitivity	Soil Resource and Soil Functions
	Soil hydrology: Important catchment pathway for water flows and flood risk management; **Archaeology, Cultural Heritage, Community Benefits and Geodiversity:** Soils with probable but as yet unproven (prior to being revealed by construction) archaeological interest; historic parks and gardens; Regionally Important Geological Site (RIGS)[3]; Soils supporting community/recreational/educational access to RIGS and National Landscapes; and **Source of materials:** Surface mineral reserves that would be sterilised (i.e., without future access).
Medium	**Biomass production:** ALC Grade 3b; Ecological habitat, soil biodiversity and platform for landscape: Soils supporting protected or valued features within non-statutory designated sites (e.g., Local Nature Reserves (LNRs), Local Geological Sites (LGSs), Sites of Nature Conservation Importance (SNCIs), SLAs; Non-Native Forest and woodland soils; **Soil carbon:** Mineral soils; Soil hydrology: Important minor catchment pathway for water flows and flood risk management; **Archaeology, Cultural Heritage, Community Benefits and Geodiversity:** Soils with possible but as yet unproven (prior to being revealed by construction) archaeological interest; Soils supporting community/recreational/educational access to land; and **Source of materials:** Surface mineral reserves that would remain accessible for extraction.
Low	**Biomass production:** ALC Grade 4 and 5 or Urban soils; Ecological habitat, soil biodiversity and platform for landscape: Soils supporting valued features within non-designated notable or priority habitats/landscapes. Agricultural soils; **Soil carbon:** Mineral soils; **Soil hydrology:** Pathway for local water flows and flood risk management; **Archaeology, Cultural Heritage, Community Benefits and Geodiversity:** Soils supporting no notable cultural heritage, geodiversity nor community benefits; Soils supporting limited community/recreational/educational access to land; and **Source of materials:** Surface mineral reserves that would remain accessible for extraction.
Very Low	As for low sensitivity, but with only indirect, tenuous, and unproven links between sources of impact and soil functions**.**

[3] RIGS are now referred to as Local Geological Sites in England

Table 13.8 – Criteria of sensitivity for soil handling (based on Table 4 from *'A New Perspective on Land and Soil in Environmental Impact Assessment'* (Institute of Environmental Management & Assessment, 2022))

Sensitivity of Topsoil and Subsoil	Soil Texture, Field Capacity Days4 (FCD) and Wetness Class
High sensitivity (low resilience to structural damage)	Soils with high clay and silt fractions (clays, silty clays, sandy clays, heavy silty clay loams and heavy clay loams) and organo-mineral and peaty soils where the FCD are 150 or greater; Medium-textured soils (silt loams, medium silty clay loams, medium clay loams and sandy clay loams) where the FCDs are 225 or greater; and All soils in wetness class (WC) WCV or WCVI.
Medium sensitivity (medium resilience to structural damage)	Clays, silty clays, sandy clays, heavy silty clay loams, heavy clay loams, silty loams and organo-mineral and peaty soils where the FCDs are fewer than 150; Medium-textured soils (silt loams, medium silty clay loams, medium clay loams and sandy clay loams) where FCDs are fewer than 225; and Sands, loamy sands, sandy loams and sandy silt loams where the FCDs are 225 or greater or are in wetness classes WCIII and WCIV.
Low sensitivity (high resilience to structural damage)	Soils with a high sand fraction (sands, loamy sands, sandy loams and sandy silt loams) where the FCDs are fewer than 225 and are in wetness classes WCI to WCII.

Magnitude

13.4.15 Table 13.9 taken from the IEMA guidance (Institute of Environmental Management & Assessment, 2022) sets out the criteria which has been used to assess the magnitude of impact on receptors identified within the agriculture and soils assessment.

Table 13.9 – Criteria for magnitude of impact on agricultural land and soils

Magnitude of Impact (Change)	Description of Impacts Restricting Proposed Land Use
Large	Permanent, irreversible loss of one or more soil functions or soil volumes (including permanent sealing or land quality downgrading), over an area of more than 20 ha or loss of soil-related features set out in Table 13.7 (including effects from 'Temporary Developments' [5]);

[4] Field Capacity Days (FCD) is a meteorological parameter which estimates the duration of the period when the soil moisture deficit is zero.

[5] Temporary developments can result in a permanent impact if resulting disturbance or land use changes cause permanent damage to soils

Magnitude of Impact (Change)	Description of Impacts Restricting Proposed Land Use
	or Potential for permanent improvement in one or more soil functions or soil volumes due to remediation or restoration over an area of more than 20 ha or gain in soil-related features set out in Table 13.7 (including effects from 'Temporary Developments'[5]).
Medium	Permanent, irreversible loss of one or more soil functions or soil volumes, over an area of between 5 and 20 ha or loss of soil-related features set out in Table 13.7 (including effects from 'Temporary Developments'[5]); or Potential for improvement in one or more soil functions or soil volumes due to remediation or restoration over an area of between 5 and 20 ha or gain in soil-related features set out in Table 13.7.
Small	Permanent, irreversible loss over less than 5 ha or a temporary, reversible loss of one or more soil functions or soil volumes, or temporary, reversible loss of soil related features set out in Table 13.7; or Potential for permanent improvement in one or more soil functions or soil volumes due to remediation or restoration over an area of less than 5 ha or a temporary improvement in one or more soil functions due to remediation or restoration or off-site improvement, or temporary gain in soil-related features set out in Table 13.7.
Very Small	No discernible loss or reduction or improvement of soil functions or soil volumes that restrict current or proposed land use.

Significance of effects

13.4.16 Significance of effect has been assessed by considering the sensitivity (or value) of the agriculture and soil receptor within the Order Limits, and the magnitude of change (impact) likely to be caused by the activities of the Project. These factors are combined to give an overall significance of effect.

13.4.17 Significance has been derived using the matrix set out in **Application Document 6.5 Chapter 5 Environmental Impact Assessment Approach and Methodology**. This has been supplemented by professional judgement which, where applicable, has been explained to give the rationale behind the values assigned. Likely significant effects, in the context of The Infrastructure Planning (Environmental Impact Assessment) Regulations 2017 (the "EIA Regulations") (HM Government, 2017), are considered to be effects of moderate or greater significance.

Assumptions and Limitations

13.4.18 This section describes the key parameters and assumptions that have been used/made when undertaking the assessment presented within this chapter. The assumptions are based on information presented within **Application Document 6.4 Chapter 4 Description of the Project**:

- Land drainage: It has been assumed that in accordance with standard mitigation measures, where appropriate, pre-construction field drainage would be installed within working areas to help prevent possible waterlogging of working areas and therefore the need for temporary dewatering during construction. This would also enable the landowner's current drainage systems to continue working throughout construction. Pre-construction field drainage would help prevent damage to the soil structure, aid recovery from construction activities and help prevent any further drainage problems. Landowners would be consulted on the design of the land drainage proposals, and a full post-construction drainage plan would be developed and installed where required.
- Soil stripping: It is assumed that soil stripping would be required for the working areas, the temporary construction compounds, the temporary haul roads/bellmouths, temporary highways widening, DNO works, and pylon foundations. It is also assumed that soil stripping would be required for the areas where land and soils would be disturbed from construction activities unless a specific commitment has been made otherwise. Topsoil and subsoil would be separated and stored locally for reuse, unless a commitment has been made otherwise.
- Soil reinstatement: It is assumed that where any stripped topsoil is reinstated, the land would be returned to its former use and condition, subject to any planting restrictions or agreements with landowners or specific requirements for landscape, ecological mitigation, or flood compensation areas.
- Soil reuse: It is assumed that any soil excavated from the Project (e.g. displaced from the access roads or pylon foundations) would be reused on site where soil is suitable for reuse (for example, not contaminated and giving consideration to land holdings and applicable biosecurity measures). This could be through backfilling and/or for landscaping. It is assumed that all soil could be reused on site; however, if it arises that excess soil cannot be reused on site, this soil would be taken off site in accordance with the relevant regulatory controls.
- Permanent land-take would be associated with pylon foundations and areas required for landscape or ecological mitigation which result in land-use change.
- Third party works that involve open cut trenching for cabling have predominantly been aligned with boundary features and field margins. There are limited locations where third-party infrastructure lies within fields and therefore it is considered that the extent of land (and associated ALC grade) potentially affected is minimal and would not affect the overall management and productive potential of the land.
- Operation (and maintenance): It is assumed that any activities required to operate and maintain the Project that involve soil stripping would be undertaken in accordance with standard National Grid processes and good practice soil handling measures. Details of likely routine and maintenance activities have been included in **Application Document 6.4 Chapter 4 Description of the Project**

with cross reference to standard approaches (as already set out in terms of industry good practice) which would be employed to minimise potential impacts. As such the temporary soil disturbance from maintenance activities associated with the operational phase were proposed to be scoped out (Planning Inspectorate, 2023).

13.5 Basis of Assessment

13.5.1 This section sets out the assumptions that have been applied in respect of design flexibility maintained within the Project. Details of the available flexibility and assessment scenarios are presented in **Application Document 6.5 Chapter 5 Environmental Impact Assessment Approach and Methodology.**

Flexibility Assumptions

13.5.2 The agriculture and soils assessment has been undertaken based on the description of the Project provided in **Application Document 6.4 Chapter 4 Description of the Project**. To take account of the flexibility allowed in the Project, consideration has been given to the potential for effects to be of greater or different significance, should any of the permanent or temporary infrastructure elements be moved within the Limits of Deviation (LoD) (horizontal, vertical or longitudinal) or Order Limits.

13.5.3 The assumptions made regarding the use of flexibility for the assessment are set out in Table 13.10.

Table 13.10 – Flexibility assumptions

Element of Flexibility	How this has been considered within the assessment
Horizontal LoD	Changes to the alignment of the proposed overhead line would not be expected to result in new impacts on agriculture and soils; the soil conditions across the full LoD have been assessed and therefore the maximum flexibility has been assessed.
Vertical LoD	The vertical LoD does not affect the likely significance of effect on agriculture and soils, and as such does not change the assessment presented in this chapter.
Longitudinal LoD	Changes to the location of pylons along the length of the proposed overhead line would not be expected to result in new impacts on agriculture and soils; the soil conditions across the full LoD have been assessed and therefore the maximum flexibility has been assessed. Changes to locations may result in changes to the extent of each land grade affected; however, given the small area affected by individual pylons, it is not anticipated that this would alter the overall impact assessment.
Pylon footprint	Changes to the size of pylon footprint would not be expected to result in new impacts on agriculture and soils; the soil conditions across the full LoD have been assessed and therefore the maximum flexibility has been assessed.

Element of Flexibility	How this has been considered within the assessment
	Changes to footprint size may result in changes to the extent of each land grade affected; however, given the overall small area affected by individual pylons, it is not anticipated that this would alter the overall impact assessment. An assumption of a 10 m x 10 m loss of agricultural land per pylon base has been made as a worst-case scenario.
Foundation type	Pylon foundation type does not affect the likely significance of effect for agriculture and soils. An assumption of a 10 m x 10 m loss of agricultural land per pylon base has been made as a worst-case scenario.
Order Limits – temporary construction works	Changes to the layout of temporary construction works within the Order Limits are not expected to result in new impacts on agriculture and soils; the soil conditions across the full Order Limits have been assessed and therefore the maximum flexibility has been assessed.
Watercourse crossings	The watercourse crossing type does not affect the likely significance of effects on agriculture and soils.
Modifications to third-party assets – construction methodology	Any third-party works within the Order Limits that result in a temporary or permanent impact (including undergrounding) do not affect the likely significance of effects for agriculture and soils.

Optionality

13.5.4 As set out in **Application Document 6.4 Chapter 4 Description of the Project** and shown on **Application Document 6.4.F3 Figure 4.3 Temporary Construction Works** optionality has been included at the following five locations.

- Two alternative options for temporary construction access between Pennyhill Cottages (Main Street) Primary Access Route (PAR 34) and proposed pylon 4AF82 and satellite construction compound S-3:
  - Bellmouths BM-040/41, associated construction access track and watercourse crossings C-169 and BC-11; or
  - Bellmouths BM-040A/41A off Pennyhill Cottages (PAR 34), associated construction access tracks and watercourse crossings C-220A, C-169A and BC-11A.
- Two alternative options for temporary construction access tracks to proposed pylon 4AF88:
  - Watercourse crossings BC-36 and BC-37; or
  - Watercourse crossing B-06A.
- Two alternative options for the construction access track between proposed pylons 4AF130 and 4AF131:
  - Watercourse crossing BC-29; or

- Watercourse crossings BC-29A and BC-29B

- Two alternative options for taking access off High Melwood (PAR 63) and the associated construction access track:
  - Bellmouth BM-077; or
  - Bellmouth BM-100.
- Two alternative power supply connections to the proposed main construction compound (M1) as shown on **Application Document 6.4.F4 Figure 4.4 Third Party Works.**
  - NPG-09A from the west – there is currently uncertainty whether capacity of the network would be sufficient for this connection; or
  - NPG-09B from the east.

13.5.5 Where differences in effects between options have been identified these are set out within section 13.9, with clear reference to the nature, extent, and significance of any resulting residual effects.

Sensitivity Test

13.5.6 Under the terms of the DCO, construction could commence any year up to five years from the granting of the DCO, which is assumed to be 2028. Consideration has therefore been given to whether the effects reported would be different if the works were to commence in any year up to year five, following the granting of the DCO. Where there is a difference, this is reported in section 13.9 of this chapter.

13.6 Baseline Conditions

13.6.1 This section describes the baseline agriculture and soils environment in the Order Limits.

Existing Baseline

13.6.2 Baseline conditions have been gathered from both desk-based information and soil/ALC surveys and are presented with reference to the Route Section of the Project within which they are located.

Geology

13.6.3 The solid geology underlying Route Section A is described as predominately comprising Burnham Chalk Formation, sedimentary bedrock formed between 93.9 and 83.6 million years ago during the Cretaceous period. As the proposed overhead line turns to the south, much of the remaining route in Route Sections B-F is described as underlain with Mercia Mudstone Group, sedimentary bedrock formed between 252.2 and 201.3 million years ago during the Triassic period.

13.6.4 Within Route Section A (west of Hull and north of the Humber Estuary), superficial deposits are present, comprising alluvial and till deposits. South of the Humber Estuary in Route Sections B-F, extensive areas of alluvium and warp silt and clay are present within the floodplains of the River Trent and its tributaries.

13.6.5 Further descriptions of the underlying geology associated with the indicative soil associations are detailed in the baseline sections below.

Soils

13.6.6 The soil types which have formed in this geology vary across the Order Limits, as shown in Application Document 6.13.F6 Figure 13.6 National Soils Map. The predominant soil types are identified as loamy and clayey soils of coastal flats with naturally high groundwater in the areas surrounding the River Ouse. The soil types across the rest of the Order Limits are primarily described as slightly acidic loamy and clayey soils with impeded drainage.

13.6.7 The soil associations (representing a group of soil series (soil types) which are typically found occurring together in the landscape) have been identified within the Order Limits (Cranfield University, 2026) as follows:

- Aberford: Shallow, locally brashy, well drained calcareous fine loamy soils over limestone. Parent material: Permian, Jurassic, and Eocene limestone.
- Andover 1: Shallow well drained calcareous silty soils over chalk on slopes and crests. Deep calcareous and non-calcareous fine silty soils in valley bottoms. Striped soil patterns locally. Parent material: chalk.
- Blackwood: Deep permeable sandy and coarse loamy soils. Parent material: Glaciofluvial drift.
- Blacktoft: Deep stoneless permeable calcareous fine and course silty soils. Some calcareous clayey soils. Groundwater controlled by ditches and pumps. Flat land. Parent material: marine alluvium.
- Brockhurst 2: Slowly permeable seasonally waterlogged reddish fine loamy over clayey and clayey soils. Some reddish clayey alluvial soils affected by groundwater. Parent material: Permo-Triassic reddish mudstone and alluvium.
- Burlingham 2: Deep fine loamy soils with slowly permeable subsoils and slight seasonal waterlogging. Some slowly permeable seasonally waterlogged fine loamy soils. Some well drained fine and coarse loamy soils. Parent material: chalky till.
- Compton: Seasonally wet deep stoneless mostly reddish clayey soils affected by groundwater. Parent material: Reddish river alluvium.
- Downholland 2: Deep, stoneless clayey or calcareous silty soils, mainly with a humose surface horizon. Parent material: Marine alluvium.
- Foggathorpe 2: Slowly permeable seasonally waterlogged stoneless clayey and fine loamy over clayey soils. Parent material: Glaciolacustrine clay.
- Holderness: Slowly permeable seasonally waterlogged fine loamy soils and similar soils with only slight waterlogging. Some narrow strips of clayey alluvial soils. Parent material: chalky till.
- Hunstanton: Deep well drained often reddish fine loamy and course loamy soils. Some similar calcareous soils over chalk. Parent material: Till and glaciofluvial drift over chalk.
- Isleham 2: Deep permeable sandy and peaty soils affected by groundwater. Parent materials: Glaciofluvial drift and peat.

- Landbeach: Permeable calcareous coarse loamy soils affected by groundwater over chalky gravel. Parent material: Glaciofluvial sand and gravel.
- Newchurch 2: Deep stoneless mainly calcareous clayey soils. Groundwater controlled by ditches and pumps. Flat land. Risk of flooding in places. Parent material: marine alluvium.
- Newport 1: Deep well drained sandy and coarse loamy soils. Parent material: Glaciofluvial drift.
- Panholes: Well drained calcareous fine silty soils over chalk. Associated similar shallow soils and deeper non-calcareous fine silty soils. Parent material: chalk.
- Romney: Deep stoneless permeable calcareous course and fine silty soils. Flat land. Groundwater controlled by ditches and pumps. Parent material: marine alluvium.
- Whimple 3: Reddish fine loamy or fine silty over clayey soils with slowly permeable subsoils and slight seasonal waterlogging. Some similar clayey soils on brows. Slowly permeable seasonally waterlogged fine loamy and fine silty over clayey soils on lower slopes. Parent material: Drift over Permo-Triassic and Carboniferous reddish mudstone.
- Willingham: Extremely calcareous silty and clayey soils, in places humose, and often over peat. Parent material: Lake marl tufa and peat.
- Worcester: Slowly permeable non-calcareous and calcareous reddish clayey soils over mudstone, shallow on steeper slopes. Associated with similar non-calcareous fine loamy over clayey soils. Slight risk of water erosion. Parent material: Permo-Triassic reddish mudstone.

13.6.8 The distribution of the primary soil associations mapped across the Route Sections of the Order Limits are detailed in Table 13.11.

Table 13.11 – Distribution of mapped soil associations across the Route Sections within the Order Limits

Soil Association	Route Section					
	A	B	C	D	E	F
Holderness	X					
Burlingham 2	X					
Hunstanton	X					
Panholes	X					
Andover 1	X					
Landbeach	X					
Aberford	X					
Newchurch 2	X					
Foggathorpe 2	X					
Blacktoft	X		X			
Romney		X	X	X	X	
Blackwood			X	X	X	
Brockhurst 2			X	X	X	
Newport 1				X		
Worcester				X	X	X
Whimple 3					X	X
Willingham					X	
Isleham 2					X	
Downholland 2					X	
Compton					X	X

13.6.9 It is recognised that some soils are more sensitive to damage when handled during construction than others.

13.6.10 The level of sensitivity to soil handling is a result of the combination of soil texture (proportion of sand, silt and clay), as well as climatic variability (primarily wetness as described by Field Capacity Days).

13.6.11 Soils with higher proportions of clay and silt are described as being of high sensitivity, or low resilience, to structural damage, whereas soils with a higher sand content are described as low sensitivity, or a high resilience, to structural damage.

13.6.12 Using guidance outlined in Table 4 (Sensitivity of Soil Receptors) of the IEMA Guidance (Institute of Environmental Management & Assessment, 2022), Table 13.12 categorises the indicative soil associations mapped across the Project, by their sensitivity.

Table 13.12 – Sensitivity of soil associations within the Order Limits

Soils		Receptor Sensitivity	Indicative Soil Associations
Soil handling (structural damage)	Soils with high clay and silt fractions and organo-mineral and peaty soils where the Field Capacity Days are 150 or greater[6].	High	Foggathorpe 2, Newchurch 2, Blacktoft, Burlingham 2, Holderness
	Soils with high clay and silt fractions and organo-mineral and peaty soils where the Field Capacity days are fewer than 150. OR Medium textured soils where Field Capacity Days are fewer than 225.	Medium	Aberford, Andover 1, Blackwood, Brockhurst 2, Compton, Downholland 2, Hunstanton, Isleham 2, Landbeach, Panholes, Romney, Whimple 3, Willingham, Worcester
	Soils with a high sand fraction where Field Capacity Days are fewer than 225 and are in wetness classes I to II	Low	Newport 1

Agricultural land

Predictive Agricultural Land Classification

13.6.13 Predictive ALC mapping, shown on **Application Document 6.13.F2 Figure 13.2 Predictive Agricultural Land Classification Map**, shows that the Order Limits comprises predominantly Predictive BMV land, with areas of Grade 1 land primarily modelled within Sections B-D, primarily following the banks of the River Ouse, the River Trent, and the Warping Drain.

13.6.14 Based on the Predictive ALC mapping, the extent of each land grade present within the Order Limits is as shown in Table 13.13. Further granularity of the Predictive grade proportions present within specific Route Sections are detailed below.

Table 13.13 – Route wide Predictive ALC Grade distribution

ALC grade	Area (ha)	%
Grade 1	532.58	32.93
Grade 2	165.51	10.23
Grade 3a	776.93	48.04

[6] Field Capacity Days greater than 150 have only been recorded north of the Humber River, Section A.

ALC grade	Area (ha)	%
Potential BMV	*1475.02*	*91.21*
Grade 3b	112.70	6.97
Grade 4	3.78	0.23
Grade 5	0.31	0.02
Total Agricultural	*1591.81*	*98.43*
Other	25.42	1.57
Total	**1617.23**	**100%**

Existing Detailed Agricultural Land Classification

13.6.15 Small areas of detailed ALC mapping are available for areas of agricultural land in close proximity to the Order Limits (**Application Document 6.13.F3 Figure 13.3 Detailed Agricultural Land Classification Map (Post-1988)**). Outside the northern end of the Order Limits there are areas of Grades 2, 3a and 3b land mapped from surveys conducted at Spring Park Golf Course, Cottingham in 1989. Small sections of Grades 2, 3a and 3b are also recorded near Gilberdyke as surveys conducted in 1992.

13.6.16 For areas of land in proximity to the Order Limits near Crowle, surveys conducted between 1992-1995 identified and mapped further areas of Grades 2, 3a and 3b. This information indicates the presence of BMV land in the landscape surrounding the Order Limits and thus the likelihood that BMV land will be present within the Order Limits.

Provisional Agricultural Land Classification

13.6.17 The existing detailed ALC grades are supported by information on the relative extents of Provisional Grades 1, 2 and 3 land within the wider landscape. Table 13.14 shows that there is an above average representation of Provisionally graded BMV land within the region (using an assumption that all Provisional Grade 3 land does comprise BMV land).

13.6.18 This mapping, at a scale of 1:250,000, does not distinguish between Grades 3a and 3b (and cannot be used to inform site-specific assessments) but provides an indication of the likely land classification.

13.6.19 The Provisional ALC information available indicates that a large proportion of the Order Limits may comprise BMV land (Grades 1, 2, and 3a). Nationally, 65.1 percent of land in England (Ministry of Agriculture, Fisheries and Food and ADAS, 1983) is provisionally graded as Grades 1, 2 and 3 (not distinguishing between Grades 3a and 3b), and therefore likely to comprise BMV land as laid out in Table 13.14.

13.6.20 Whilst Provisional mapping has been superseded by the new Predictive ALC Map for England, further analyses on its distribution, across counties and by National Character Area (NCA), has not yet been conducted.

Table 13.14 – Provisionally mapped Best and Most Versatile land across the Project counties

Area	Route Section(s)	Extent of Grades 1, 2 and 3 Land (ha) within Area	Proportion (%) of Grades 1, 2 and 3 Land within Area
England	-	8,493,646	65.1
East Riding of Yorkshire	A, B	220,514	91.5
North Lincolnshire	B, C, D	76,663	90.3
Nottinghamshire	D, E, F	172,100	82.5

13.6.21 Due to the scale of the Project, information presented in the profiles of the NCAs provide an indication of the extent of each ALC grade (Natural England, 2014 a-e) in each character area, which can be compared to the extent of each grade at national level.

13.6.22 The Project extends through five NCAs (NCA 27, NCA 39, NCA, 40, NCA 41, and NCA 48 – from Holderness through to the Trent and Belvoir Vales). Table 13.15 indicates an above average proportion of Provisionally graded BMV land within the Order Limits and surrounding landscape.

Table 13.15 – Provisional Agricultural Land Classification Grades by area (ha) for the NCA profiles across the Project[7]

ALC Grade	NCA 27: Yorkshire Wolds [Area (%)]	NCA 39: Humberhead Levels [Area (%)]	NCA 40: Holderness [Area (%)]	NCA 41: Humber Estuary [Area (%)]	NCA 48: Trent and Belvoir Vales [Area (%)]	England [Area (%)]
Grade 1	0 (0%)	16,736 (10%)	0 (0%)	352 (1%)	180 (<1%)	354,562 (2.7%)
Grade 2	54,627 (49%)	55,874 (33%)	36,547 (42%)	10,102 (36%)	24,116 (14%)	1,848,874 (14.2%)
Grade 3	47,903 (43%)	71,260 (41%)	43,985 (50%)	8,395 (30%)	139,310 (78%)	6,290,210 (48.2%)
Potential BMV	*102,530 (92%)*	*143,870 (84%)*	*80,532 (92%)*	*18,849 (67%)*	*163,606 (92%)*	*8,493,646 (65.1%)*
Grade 4	6,776 (6%)	14,764 (9%)	1,661 (2%)	347 (1%)	2,771 (2%)	1,839,581 (14.1%)
Grade 5	459 (<1%)	3,405 (2%)	0 (0%)	0 (0%)	0 (0%)	1,100,305 (8.4%)

[7] This data is taken straight from the referenced NCA profile documentation. All data provided here is representative of the information available.

ALC Grade	NCA 27: Yorkshire Wolds [Area (%)]	NCA 39: Humberhead Levels [Area (%)]	NCA 40: Holderness [Area (%)]	NCA 41: Humber Estuary [Area (%)]	NCA 48: Trent and Belvoir Vales [Area (%)]	England [Area (%)]
Non-agricultural	735 (<1%)	4,165 (2%)	1,087 (1.3%)	282 (<1%)	3,874 (2%)	655,856 (5%)
Urban	856 (<1%)	5,415 (3%)	3,898 (4.5%)	7,988 (28%)	7,354 (4%)	951,424 (7.3%)

13.6.23 This information shows that in the regions that the Order Limits pass through there is generally a greater proportion of higher-grade agricultural land than compared to the average for England. Whilst the Provisional ALC mapping does not distinguish between Grades 3a and 3b and thus does not correlate directly with the proportion of BMV present, it provides an indication that these areas are likely to comprise a greater extent of BMV land than compared to the average for England.

Detailed Agricultural Land Classification

13.6.24 The detailed ALC site surveys undertaken for the Project have confirmed the presence of BMV land within the Order Limits, as shown on **Application Document 6.13.F7 Figure 13.7 Detailed Agricultural Land Classification Survey Map**. In larger areas where the ALC surveys could not be undertaken due to landowner access constraints, ALC grades were determined using predictive ALC mapping. These larger areas, distinguished from directly surveyed sections, are represented by the hatched infill on **Application Document 6.13.F7 Figure 13.7 Detailed Agricultural Land Classification Survey Map**, clearly indicating where predictive mapping has been applied.

13.6.25 Of the mapped area within the Order Limits determined by the detailed surveys (and gap filled with available predictive mapping) a total of 1050.39 ha, 64.32 % of the land, is identified as BMV land in Grades 1, 2 and 3a. Of this BMV total, 619.99 ha, 59.0 % of the total BMV land has been defined using the Predictive mapping (where detailed ALC surveys could not be completed due to constraints relating to landowner access at the time of the survey).

13.6.26 Table 13.16 details the extend of each ALC grade based on the detailed ALC surveys undertaken within the Order Limits and the additional unsurveyed areas where predictive mapping has been applied. Full details of the ALC survey results are presented in **Application Document 6.13.A2 Appendix 13.2 Agricultural Land Classification Survey Report**.

Table 13.16 – Detailed ALC Grade Distribution

Route Section	Grade Distribution (ha) & Percentage (%)							Subtotal	
	1	2	3a	3b	4	5	Other	BMV*	Non-BMV
A	13.04	36.07	165.74	197.58	16.32	0.17	52.00	214.85	266.07
B	153.01	43.94	20.68	39.54	0.00	0.00	19.33	217.64	58.87
C	22.00	29.38	40.56	9.63	0.00	0.00	19.34	91.93	28.97
D	41.24	39.05	67.05	90.09	0.00	0.00	14.80	147.35	104.89
E	4.34	89.86	213.82	104.08	0.00	0.00	12.99	308.02	117.07
F	0.00	35.19	35.42	4.82	0.00	0.00	2.03	70.60	6.85
TOTAL	233.64 [14.31%]	273.49 [16.75%]	543.26 [33.27%]	445.73 [27.29%]	16.32 [1.00%]	0.17 [0.01%]	120.49 [7.38%]	1050.39 [64.32%]	582.71 [35.68%]

**59.0 % of the total BMV land has been determined by Predictive ALC mapping.*

Land use

13.6.27 A desk-based assessment using detailed aerial photography and Ordnance Survey mapping has shown that the land use across the Order Limits appears to be a combination of arable and pastureland. The Order Limits also pass close by areas of urban infrastructure including large settlements such as Hull and Scunthorpe.

13.6.28 Records from the detailed ALC surveys note areas of willow biomass production, turf cultivation, as well as more standard arable and pasture systems.

13.6.29 Across the Order Limits there are various areas of land under Countryside Stewardship Agreements (Middle and Higher Tier), as well as areas designated under various Environmental Stewardship Agreement Levels[8] as shown in Application Document 6.13.F4 Figure 13.4 Agri-environment Schemes. There are also parcels of land within the Order Limits which are under Woodland Grant Schemes[9], as illustrated in Application Document 6.13.F5 Figure 13.5 Forestry and Woodland Grant Schemes.

Future Baseline

13.6.30 As detailed in **Application Document 6.5 Chapter 5 Environmental Impact Assessment Approach and Methodology**, a review has been undertaken to determine whether the existing baseline conditions might change between the time of undertaking the assessment and the future years in which the Project is planned to be constructed and become operational.

[8] Stewardship and Agri-environment Schemes comprise government funding to farmers and land managers to support activities which improve the local environment. There are different levels of these schemes which have increasing complexity and land management requirements but also therefore have greater environmental benefits.

[9] Woodland Grant Schemes (WGS) comprise grants and other incentives for woodland creation, maintenance, management and tree health. WGS 1, 2 and 3 were time based, with WGS1 being replaced by WGS2 etc.

13.6.31 It is considered that the baseline in relation to soils and ALC grades would not change from that described within the timeframe for the construction of the Project. While there may be potential natural changes to the future baseline in relation to climate change, including greater rainfall intensity and frequency of droughts, that could affect soil conditions, land grade, and farming practices, it is likely that these would only be visible over longer timeframes, occurring after the Project is operational. Given the extended timeframe required for such changes to manifest (and for landowners to change practices as a result), the nature, extent and timeframe of any potential effects are impossible to predict with certainty at this stage.

13.6.32 There could potentially be changes to land management practices and business approaches across the landowners/land managers over the construction and operation (and maintenance) of the Project. These changes may arise from evolving agricultural techniques, economic factors, or policy shifts. Such management adaptations are not expected to alter ALC grades, or the soil resources present unless major disturbances to the land are anticipated.

13.7 Potential Effects

13.7.1 Based on the assessment scope (see section 13.3), the following sections describe how construction (C), operation (O), and maintenance (M) activities are likely to affect agriculture and soil receptors in the study area. This takes account of the embedded mitigation measures which are defined in **Application Document 7.3 Register of Environmental Actions and Commitments** This section first lists the impacts that could result from each phase of the Project and Table 13.17 sets out the potential effects on the receptors identified in section 13.6.

Construction

13.7.2 The potential impacts that could result from the construction of the Project are:

- Temporary loss of agricultural land (including BMV land) during construction; and
- Temporary effects on soil function resulting in a reduction in the ability of the soil to function and provide ecosystem services as a result of temporary soil disturbance.

Operation

13.7.3 The potential impacts that could result from the operation of the Project are:

- Permanent loss of agricultural land (including BMV land) during operation.

Maintenance

13.7.4 The potential impacts that could result from the maintenance of the Project are:

- Temporary disruption to landholdings resulting in reduction in the operational capacity of farm businesses and loss of income; and
- Temporary loss of agricultural land (including BMV land) and reduction in the extent of productive agricultural land.

Potential Effects

13.7.5 Table 13.17 sets out the impact pathways that have the potential to result in an effect on the receptors identified in section 13.6 and during which phase of the Project.

Table 13.17 – Summary of potential agriculture and soils effects at each phase of the Project

Receptor	Potential effect	Description	C	O	M
Agricultural land including BMV Land	Temporary loss	Temporary loss of agricultural land, including BMV land and a reduction in the extent of the most productive agricultural land.	✓		✓
	Permanent loss	Permanent loss of agricultural land, including BMV land and a reduction in the extent of the most productive agricultural land.		✓	
Soils and their ecological function	Temporary disturbance	Potential effects on soil function resulting in a reduction in the ability of the soil to function and provide ecosystem services as a result of temporary soil disturbance.	✓		✓
Soils and their ecological function	Permanent loss	Potential effects on soil function resulting in a reduction in the volume of soil providing ecosystem services as a result of permanent removal of soils.	✓		

13.8 Mitigation

Embedded Measures

13.8.1 Environmental appraisal has been an integral part of the Project design from the outset, which has meant that the Project has been able to avoid environmentally sensitive features as far as reasonably practicable. National Grid has also embedded measures into the design of the Project to avoid or reduce significant effects that may otherwise be experienced during construction and operation (and maintenance) of the Project.

13.8.2 Embedded measures are those that are intrinsic to and built into the design of the Project; these are listed in **Application Document 7.3 Register of Environmental Actions and Commitments.** Embedded measures of relevance to this agricultural and soils assessment are:

- DE1: The Project will be delivered and operated in compliance with all relevant legislation, consents and permits.
- DE2: The Project's detailed design will be compliant with the guidelines and policies relating to electric and magnetic fields (EMF) stated in the National Policy Statement for Electricity Networks Infrastructure (EN-5) (Department for Energy Security and Net Zero, 2025), including the International Commission on Non-Ionizing Radiation Protection (ICNIRP) guidelines (ICNIRP, 1998).

- DE6: The Project will use existing watercourse crossing points as far as practicable to minimise the introduction of new crossings and associated impacts.
- DE10: Clearly demarcated, dedicated access routes will be provided during construction.
- DE13: The Project has committed to siting specific pylons and/ or restricting the movement of specific pylons or infrastructure along the longitudinal Limits of Deviation (LoD). These include:
  - Pylon 4ZQ74 (see H07); and
  - Pylon 4AF41 (see H07).
- GG01: The final versions of the outline environmental management plans will be submitted for approval in accordance with Requirement 4 (construction management plans) of **Application Document 3.1 Draft Development Consent Order** prior to commencement of development and will reflect the final construction methodologies of the Main Works Contractor(s). The following will be produced prior to construction:
  - Code of Construction Practice (CoCP);
  - Construction Traffic Management Plan (CTMP);
  - Soil Management Plan;
  - Public Right of Way Management Plan;
  - Noise and Vibration Management Plan;
  - Landscape and Ecology Management Plan (LEMP); and
  - Archaeological Written Scheme of Investigation; and
  - Cultural Heritage Management Plan
  - Framework Construction Surface Water Management Plan (CSWMP).

13.8.3 All construction works will be undertaken in general accordance with these plans and all reference subordinate plans.

- GG06: Land used temporarily will be reinstated to its pre-construction condition and use (or as agreed with the relevant landowner). Hedgerows, fences, and walls (including associated earthworks and boundary features) will be reinstated to a similar style and quality to those that were removed, unless otherwise agreed.

Control and Management Measures

13.8.4 Control and management measures comprise management activities and techniques that will be implemented during construction of the Project to limit effects, through adherence to good site practices and ensuring legal compliance.

13.8.5 Measures relevant to the control and management of impacts during construction have been included within **Application Document 7.2 Outline Code of Construction Practice, Application Document 7.5 Outline Soil Management Plan** and **Application Document 7.3 Register of Environmental Actions and Commitments** which are secured by Requirement 4 of **Application Document 3.1**

Draft Development Consent Order and **Application Document 7.3 Register of Environmental Actions and Commitments** secured by Requirement 5 of **Application Document 3.1 Draft Development Consent Order** These outline management plans and the following measures in Application Document 7.3 Register of Environmental Actions and Commitments have been taken into account in assessing the agriculture and soils effects of the Project:

- GG02: The Mains Works Contractor(s) will undertake site inspections to check conformance to the measures set out within each of the management plans and their subordinate plans as set out within GG01.
- GG03: A number of roles and their respective responsibilities are listed within **Application Document 7.2 Outline Code of Construction Practice**. Suitably qualified personnel will be appointed to undertake these roles for the duration of the construction phase.
- GG04: Construction workers will undergo training to increase their awareness of environmental issues as applicable to their role on the Project as set out within **Application Document 7.2 Outline Code of Construction Practice**.
- GG05: A record of condition (held within an Aftercare Management Plan) will be produced by the Main Works Contractor(s). It will cover the working area(s) that may be affected by the construction activities prior to the works commencing. These surveys will identify and record the condition of features such as trees, woodland, hedgerows, walls and fences, and will comprise of photographic, descriptive, and locational baseline evidence/information. Records will be available for comparison. The land will be reinstated to a condition no worse than shown on the record of condition (or as agreed with the relevant landowner). Exceptions to reinstatement will be replacing mature vegetation and replanting directly beneath the proposed overhead line where it may cause operational safety concerns.
- GG07: Where sensitive features are to be retained within the Order Limits, and appropriate protective area will be established using appropriate demarcation and signage will be inspected, repaired and replaced as necessary.
- GG21: Earthworks and stockpiled soil will be protected by covering, seeding or using water suppression.
- GG24: A Site Waste Management Plan (SWMP) will be developed prior to construction. The SWMP will include but not be limited to:
  - Waste forecasts;
  - How waste will be reduced, re-used, managed and disposed of in accordance with the waste hierarchy;
  - Identification of recovery routes; and
  - Actual waste figures once work has begun.

13.8.6 Consideration will be given to the guidance in The Definition of Waste: Development Industry Code of Practice (DoWCoP). Dedicated waste management areas will be designed to sufficiently accommodate the types and volumes of waste produced and to reduce the environmental risk of storing waste on-site (covered, secured and away from drainage).

- GG26: Where necessary, stone pads will be installed in areas where heavy equipment, such as cranes and piling rigs, are to be used. The stone pads will provide stable working areas and will reduce disturbance to the ground. The stone pad area will be stripped of the topsoil, which will be stored and reinstated in accordance with the soil management measures set out in **Application Document 7.5 Outline Soil Management Plan**. Other soil stabilisation techniques will be considered where appropriate.
- GG27: Working areas will be appropriately demarcated. The type of demarcation to be installed will depend on the area to be managed and will take into consideration the level of security required in relation to the surrounding land and public access, rural or urban environment, and arable or stock farming. For some locations the demarcation used may also serve to provide acoustic and visual screening of the work sites and reduce the potential for disturbance of users in the surrounding areas. Any demarcated area will be regularly inspected and maintained and removed as part of demobilisation unless otherwise specified.
- GG30: The construction work area will be reinstated to pre-existing conditions as far as reasonably practical in line with a Soil Management Plan and the Department for Environment, Food and Rural Affairs (Defra) Code of Construction Practice for the Sustainable Use of Soils on Construction Sites (Department for Environment, Food and Rural Affairs, 2009). This will include a commitment to the development of an Aftercare Management Plan (including the aftercare period) prior to the completion of construction.
- ARB10: Where practical, stockpiles, material storage, vehicle tracking, and soil bunds will be located away from trees and hedgerows. This is to ensure no damage occurs to these features and works remain outside of the root protection area of the features. Works that cannot be undertaken without entering into a Root Protection Area will be addressed within a site-specific Arboricultural Method Statement (AMS).
- E35: Calcareous grasslands will be avoided as far as practicable. Should access be required across calcareous grassland, any topsoil and subsoil stripped will be kept separate from surrounding habitats and reinstated on completion. During storage of the topsoil, it will be protected from damage and pollution and reinstated as soon as practicable. If reseeding is required to secure the topsoil during storage, an appropriate seed mix for calcareous grassland will be used. The topsoil will be reinstated in accordance with the **Application Document 7.8 Outline Landscape and Ecology Management Plan**
- H07: Refurbishment works, and specifically the stringing of conductors in the preservation of archaeological remains area at Ellerker (as referenced in **Application Document 7.10 Outline Cultural Heritage Management Plan),** will be undertaken in line with the following protection measures in addition to the soil management measures within the Soil Management Plan which must be substantially in accordance with Application Document 7.5 Outline Soil Management Plan:
  - The preservation of archaeological remains area plus a 10 m buffer will be demarcated.
  - Interlocking track mats will be used to protect archaeological remains from damage caused by wheel rutting.

- Regardless of the proposed track mats, works will not be carried out during periods of prolonged rainfall that result in waterlogged conditions within the field.

There will be no traffic movement over unprotected topsoil or over wet soils, unless in exceptional circumstances (such as to allow access by emergency services). Trafficking over unprotected topsoil may be permissible where there is a clear plan in place to limit compaction and rutting.

- W05: Where new or additional surfacing is required on any construction access tracks and compound areas, these will be permeable surfaces where ground conditions allow. The Project will incorporate appropriate surface water drainage measures into the final design for any access tracks so that they do not lead to a significant increase in flood risk. Construction access tracks will be removed at the end of the construction phase, and the ground surface will be reinstated to pre-Project levels.
- W09: Severance of existing land drainage routes, including agricultural field drainage systems, would be managed during construction through provision of temporary alternative drainage routes. Any affected drainage systems would be reinstated or replaced to ensure their existing function is maintained.
- GH06: Earthworks or materials movement (including any re-use of materials) will be controlled under appropriate Environmental Permits, exemptions or CL:AIRE The definition of Waste: Development Industry Code of Practice (CL:ARE, 2011).
- AS01: Where land is being returned to agricultural use, the appropriate soil conditions (for example through the replacement of stripped layers and the removal of any compaction) will be recreated. This will be achieved to a depth of 1.2 m (or the maximum natural soil depth if this is shallower).
- AS02: Access to and from residential, commercial, community and agricultural land uses will be maintained where practicable and possible during the construction period or as agreed through the landowner discussions. This may require signed diversions or temporary restrictions to access. The means of access to affected properties, facilities and land parcels will be communicated to affected parties at the start of the Project, with any changes communicated in advance of the change being implemented. Where field-to-field access points require alteration as a result of construction, alternative field access will be provided in consultation with the landowner/occupier.
- AS03: Existing water supplies for livestock will be identified pre-construction. Where supplies will be lost or access compromised by construction works, temporary alternative supplies will be provided. Water supplies will be reinstated following construction.
- AS04: Consultation with affected landowners will be carried out to investigate the current extent of land drainage. A scheme of pre-construction land drainage will be designed with the intent of maintaining the efficiency of the existing land drainage system and to assist in maintaining the integrity of the working area during construction. The Project may include a system of ‘cut-off’ drains which feed into a new header drain and the Project will also take into account surface water runoff measures. The Main Works Contractor(s) will ensure any land drains within the Order Limits, affected as a result of the Project are reinstated to their former functional condition, where agreed with the landowner. Any installed pre-construction land drainage to replace existing land drains affected by permanent

infrastructure, as well as any drainage improvements resulting from the Project, would be retained.

- AS05: Should animal bones be discovered during construction, which may indicate a potential burial site, works will cease, and advice will be sought from the Animal Health Regional Office on how to proceed, relevant to the origin and age of the materials found.
- AS06: All movement of plant and vehicles between fields will cease in the event of a notification by the Department for Environment, Food and Rural Affairs (Defra) of a disease outbreak in the vicinity of the site that requires the cessation of activities. Advice will be sought from Defra in order to develop suitable working methods required to reduce the biosecurity risk associated with the continuation of works.
- AS07: Clay bungs or other vertical barriers will be constructed within trench excavations where deemed necessary by a technical specialist advisor to prevent the creation of preferential drainage pathways.
- AS08: Should peat deposits or peaty soils be identified, impacts to these areas would be avoided, where practicable.
- AS09: Appropriate technology/material will be installed in areas where heavy equipment, such as cranes and piling rigs, are to be used to provide stable working areas and reduce disturbance to the ground
- AS10: To reduce the potential for a reduction in the depth of soil profiles under agricultural use and potential effects on ALC grades, third party works that involve open cut trenching for cabling have predominantly been aligned with boundary features and field margins with only limited locations lying within fields.
- AQ05: Preparing and Maintaining the Site:
  - Solid screens or barriers will be erected around dusty activities, where required, that are at least as high as any stockpiles on-site. S
  - Specific activities will be fully enclosed where there is a high potential for dust production, and the activity is ongoing for an extensive period.
  - Runoff of water or mud will be avoided where possible.
  - Site fencing, barriers and scaffolding will be kept clean using wet methods.
  - Materials that have the potential to produce dust from site will be removed as soon as possible, unless being re-used on-site. If they are being re-used on-site, they will be covered as described below.
  - Stockpiles will be covered, seeded or fenced to prevent wind whipping (where needed and depending on duration).
- AQ08: Earthworks
  - Earthworks and exposed areas/soil stockpiles will be re-vegetated to stabilise surfaces as soon as practicable, where appropriate and using appropriate seed mix for what habitat the topsoil was from.
  - Hessian, mulches or trackifiers will be used where it is not possible to re-vegetate or cover with topsoil, as soon as practicable.
  - The cover will be removed in small areas during work and not all at once.

Additional Measures

13.8.7 Additional comprises mitigation measures over and above any embedded and control and management mitigation measures, for which assessment has identified a requirement to further reduce significant environmental effects.

13.8.8 No additional mitigation measures, beyond the embedded and control and management measures identified above, are required.

13.9 Residual Effects Assessment

13.9.1 The likely significant effects of the Project have been assessed using current available data relating to its construction and operation (and maintenance) phases. The residual effects are presented below. As set out in **Application Document 6.5 Chapter 5 Environmental Impact Assessment Approach and Methodology** only the residual effects are reported in this assessment. This is in accordance with guidance from IEMA as part of preparing a proportional assessment (Institute of Environmental Management and Assessment, 2017).

Construction Effects

BMV land

13.9.2 During construction there would be a temporary loss of BMV land (ALC Grades 1, 2, and 3a) from agricultural productivity. It is calculated that 1512.62 ha of agricultural land would be temporarily removed from agricultural production during construction, this includes all land within the Order Limits assigned an ALC grade (excludes land identified as non-agricultural, urban or 'other'). Of this, 1050.39 ha (64.32 percent) are mapped as Grades 1, 2 and 3a and, as such, the temporary removal of land is considered to have a Small temporary impact on very high to low sensitivity receptors which is assessed as being a **major (significant)** effect, as shown in Table 13.18.

Table 13.18 – Assessment of impact on agricultural land during construction

Land Grade	Area Required Temporarily (ha)	Percentage of Agricultural Land within Order Limits	Receptor Sensitivity	Magnitude of Impact	Significance of Effect
Grades 1 and 2 (BMV land)	507.13	33.53 %	Very high	Small	**Significant**
Grade 3a (BMV land)	543.26	35.92 %	High	Small	**Significant**
Grade 3b (non-BMV land)	445.73	29.47 %	Medium	Small	**Significant**
Grade 4 (non-BMV land)	16.32	1.08 %	Low	Small	**Non-Significant**
Grade 5 (non-BMV land)	0.17	0.01 %	Low	Small	**Non-Significant**

Soil function

13.9.3 There would be disturbance to soils, either from access across unstripped land for proposed overhead line installation/removal, or due to the soil stripping required for the underground cable installation as part of third-party works, pylon footings, and areas required temporarily (such as construction compounds, haul roads). There would also be the potential for effects on the ecosystem services the soils provide. Effective mitigation measures are set out within **Application Document 7.3 Register of Environmental Actions and Commitments** and **Application Document 7.5 Outline Soil Management Plan** for soil handling, storage and reinstatement which would reduce effects on soils.

13.9.4 The impacts on soils have the potential to occur on land within the Order Limits, adversely affecting the ecosystem services the soils provide over an area of up to approximately 1617.20 ha. This could include, for example, soil compaction due to the movement of plant across the soil surface or poor restoration of disturbed soils resulting in mixing of the soil horizons and compaction. This could reduce the infiltration rate of rainfall and result in an increase in surface runoff and consequent erosion and flood risk.

13.9.5 The implementation of effective soil handling, storage and reinstatement measures would therefore be critical in ensuring minimisation of effects on these functions and their successful restoration. Given the scale of the Project and construction activity required, it is considered that the effect of the construction phase on soil quality and its associated ecosystem services is considered to have a small temporary impact on very high to medium sensitivity receptors (assessed for soil ecosystem functions)which is assessed as being a **moderate** (**significant)** effect.

13.9.6 All land required (including areas where soils have been disturbed) temporarily would be reinstated by the end of the construction phase.

Agricultural operations

13.9.7 During construction there would be potential effects on agricultural operations due to disturbance (where livestock are present), fragmentation, access restrictions or disruption to water supplies or land drainage. Commitments set out within **Application Document 7.2 Outline Code of Construction Practice** and **Application Document 7.3 Register of Environmental Actions and Commitments** to maintain access throughout construction, would minimise the effects on agricultural landholdings. Potential effects on land drainage and flood risk from all relevant sources during construction and operation are covered in **Application Document 6.11 Chapter 11 Water Environment**.

13.9.8 Effects on agricultural operations during the construction phase would be dealt with through agreements with landowners which lie outside the DCO and EIA process. By the end of construction, land required temporarily would be reinstated and no operational effects are anticipated thereafter. Although not assessed in EIA terms the proposed compensation will ensure no changes to agricultural operations resulting from the Project would be detrimental to agricultural businesses.

Operational and Maintenance Effects

BMV land

13.9.9 The design requires 3.11 ha for the new-build pylon footings across the route with 61.09 % situated in BMV land. An additional 45.35 ha is also required for environmental/ecological mitigation (including areas for veteran tree compensation, mitigation planting, BNG mitigation and flood compensation) of which 70.29 % is mapped as BMV land.

13.9.10 It is therefore considered that the permanent removal of 48.46 ha, of which 69.70 % is mapped as comprising BMV land, would have a large impact on very high to low sensitivity receptors, which is assessed as a **major (significant)** effect in relation to the permanent removal of BMV land from agricultural use.

Table 13.19 – Assessment of impact on agricultural land during operation

Land Grade	Area Required Permanently (ha)	Percentage of Agricultural Land within Order Limits	Receptor Sensitivity	Magnitude of Impact	Significance of Effect
Grades 1 and 2 (BMV land)	9.38	0.62 %	Very high	Medium	**Significant**
Grade 3a (BMV land)	25.02	1.65 %	High	Large	**Significant**
Grade 3b (non-BMV land)	12.38	0.82 %	Medium	Medium	**Significant**
Grade 4 (non-BMV land)	0.63	0.04 %	Low	Small	**Non-Significant**

13.9.11 Any soil materials required to be removed from the pylon footings would be reused within the Order Limits, where practicable. Where land use would be changed to enable environmental mitigation, the soils would not be removed, and there may be potential benefits as a result of such changes in terms of soil health and soil function. The management and reuse of soils will be assessed further during construction dependent on the current and proposed land use.

13.9.12 Under the current design it is assumed that all access routes will utilise pre-existing access infrastructure, such as roads and farm tracks. As such, no vegetation clearance, soil stripping or access way upgrades have been assessed.

Agricultural operations

13.9.13 During operation there will be limited effects on agricultural operations. There is potential for restrictions to existing activities immediately under proposed overhead lines; however, these will be dealt with through compensation agreements, which lie outside the EIA process. Although not assessed in EIA terms the proposed compensation will ensure no changes to agricultural operations resulting from the Project would be detrimental to agricultural businesses

13.9.14 Maintenance activities have the potential to impact agricultural operations. All maintenance works will be undertaken following legal requirements and good practice relevant at the time. Where impacts are identified, these would be dealt with through compensation agreements which lie outside of the EIA process. Although not assessed in EIA terms the proposed compensation will ensure no changes to agricultural operations resulting from the Project would be detrimental to agricultural businesses.

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