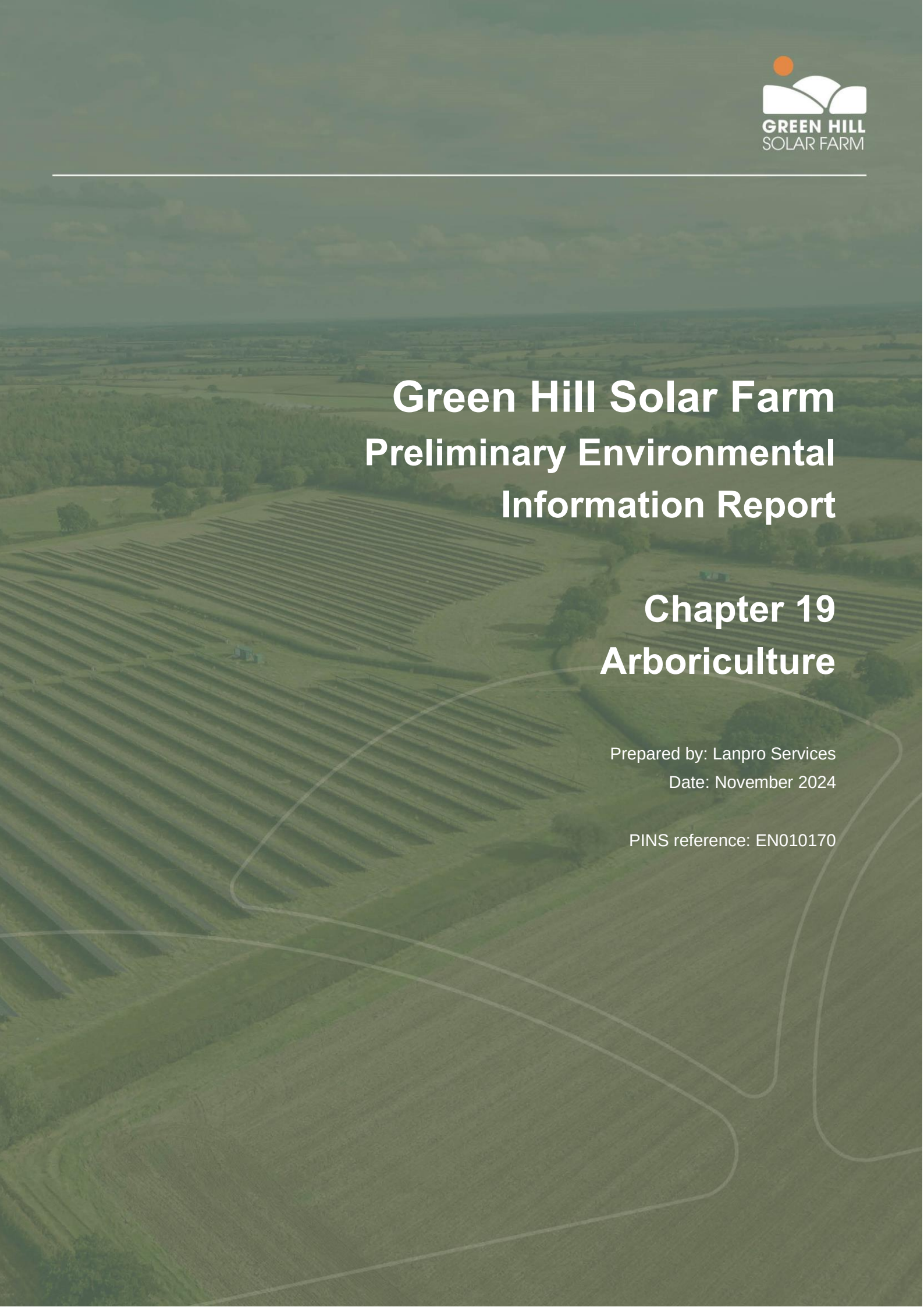

Green Hill Solar Farm

Preliminary Environmental Information Report

Chapter 19 Arboriculture

Prepared by: Lanpro Services

Date: November 2024

PINS reference: EN010170

Contents

19 Arboriculture

19.1 Introduction

19.1.1 This chapter of the Preliminary Environmental Information Report (PEIR) presents the findings of the Environmental Impact Assessment (EIA) undertaken to date concerning the potential impacts of the Scheme on arboriculture during the construction, operational and decommissioning phases. For the purposes of this chapter, arboriculture includes trees, groups of trees and woodlands. Hedgerows are considered separately in **Chapter 9: Ecology and Biodiversity**.

19.1.2 The following aspects will be considered within the arboricultural assessment process:

- The baseline arboricultural conditions within the Study Area;
- Embedded mitigation for trees;
- Assessment of likely significant effects on arboriculture and any additional mitigation required; and
- Assessment of potential residual likely significant effects once any additional mitigation measures have been employed.

19.1.3 Whilst this chapter presents the potential significant arboricultural effects of the Scheme, it is recognised that trees have multiple interconnected values such as ecological and landscape value. The ecological and landscape effects of tree loss may be inferred in this report but are formally assessed within the respective chapters being **Chapter 9: Ecology and Biodiversity** and **Chapter 8: Landscape and Visual Impact**.

19.1.4 Key findings reported in this chapter include:

- The locations of, and a description of, the Scheme's potential effects on, 39 identified veteran trees, one of which is considered to be ancient;
- The locations of, and a description of the Scheme's potential effects on, identified ancient woodland and trees protected by a Tree Preservation Order and/or Conservation Area designation;
- The abundance of ash trees within the Study Area, many of which have varying degrees of ash dieback disease and the implications of this for the Scheme's design; and
- The need for further tree surveys of the Cable Route Search Area along with further details on the design of the Scheme in order to confirm the likely significant arboricultural effects of the Scheme and any mitigation or compensation measures required.

19.1.5 For more details about the Scheme, refer to **Chapter 4: Scheme Description** of this PEIR.

19.1.6 The potential arboricultural effects of the Scheme will be confirmed in a Preliminary Arboricultural Impact Assessment to be submitted with the DCO application. Mitigation and compensation measures for potential arboricultural effects will be detailed in an Outline Arboricultural Method Statement which will also be submitted with the DCO application. The arboriculture chapter of the Environmental Statement (ES) will then summarise the likely significant effects of the Scheme on arboriculture, proposed mitigation and compensation, and residual likely significant arboricultural effects.

Appendices and Figures

19.1.7 This chapter is supported by the following appendices in PEIR **Volume 3**:

- **Appendix 19.1:** Definitions for Tree Survey Schedule; and
- **Appendix 19.2:** Tree Survey Schedule.

19.1.8 This chapter is supported by the following figures in PEIR **Volume 2**:

- **Figure 19.1 to Figure 19.3:** Tree Constraints Plan Green Hill A;
- **Figure 19.4:** Tree Constraints Plan Green Hill A.2;

- **Figure 19.5:** Tree Constraints Plan Green Hill B;
- **Figure 19.6:** Tree Constraints Plan Green Hill C;
- **Figure 19.7 and Figure 19.8:** Tree Constraints Plan Green Hill D;
- **Figure 19.9 to Figure 19.14:** Tree Constraints Plan Green Hill E;
- **Figure 19.15 to Figure 19.17:** Tree Constraints Plan Green Hill BESS;
- **Figure 19.18 to Figure 19.27:** Tree Constraints Plan Green Hill F; and
- **Figure 19.28 to Figure 19.31:** Tree Constraints Plan Green Hill G.

19.1.9 This chapter is supported by the following tables:

- **Table 19.1:** Summary of Consultation and Responses;
- **Table 19.2:** Definitions and Characteristics of Ancient and Veteran Trees and Ancient Woodland;
- **Table 19.3:** Criteria for Sensitivity and Value of Arboricultural Feature;
- **Table 19.4:** Criteria for Determining Magnitude of Impact;
- **Table 19.5:** Significance of Effect; and
- **Table 19.6:** Likely Impacts and Effects to Ancient and Veteran Trees and Ancient Woodlands.

19.2 Consultation

19.2.1 An EIA Scoping Report was submitted to the Planning Inspectorate (PINS) in July 2024, with a formal request for Scoping Opinion. PINS subsequently issued the Scoping Opinion on 30th August 2024. Consultation undertaken throughout the pre-application and scoping phase for the Scheme has informed the approach to the arboricultural assessment and the information provided within this chapter.

19.2.2 In the Scoping Opinion the Inspector agreed that effects to trees within Green Hill A-G and the Green Hill BESS site during construction, operation and decommissioning are scoped out of the ES chapter due to embedded mitigation during design (except for effects on ancient and veteran trees and ancient woodlands).

19.2.3 Effects to trees in the Cable Route Search Area from the installation of cables are scoped in for the ES chapter. This approach was not commented upon specifically by PINS and therefore effects to trees in the Cable Route Search Area remain scoped into the ES.

19.2.4 A summary of consultation and response to the Scoping Report within the Scoping Opinion are outlined below in **Table 19.1**.

Table 19.1: Summary of Consultation and Responses

Consultee and Date	Response	Outcome and Any Further Steps Anticipated
The Planning Inspectorate, Scoping Opinion Date – 30th August 2024	Scoping Opinion ID 3.15.1 - *"It is proposed by the Applicant that …[impacts to trees in Sites A-G and the BESS site during construction, operation and decommissioning]… is scoped out given that embedded mitigation would be included within the design of the Proposed Development and further mitigation contained in the OCEMP.* *It is explained that a desk-based assessment found that there are no existing records of ancient and veteran*	The ES will scope out arboricultural impacts across Sites A-G and the Green Hill BESS (except for effects on ancient and veteran trees and ancient woodlands as per below advice in Scoping Opinion ID 3.15.3). The ES will describe the embedded mitigation which has been relied upon to avoid

Consultee and Date	Response	Outcome and Any Further Steps Anticipated
	trees or Tree Preservation Orders or Conservation Areas within Sites A-G, the BESS site or the Cable Route Search Area. The Inspectorate notes that para 20.3.6 identifies that tree surveys on Sites A-E (excluding A.2) have so far recorded 16 veteran trees, one of which is also ancient, and that tree surveys on the BESS site and Sites A.2 and G are ongoing. *The Inspectorate agrees that significant effects are unlikely to occur on the basis that embedded mitigation to avoid impacts would be included within the design of the Proposed Development and further measures would be contained within the OCEMP. Therefore, the Inspectorate agrees to scope out impacts to trees within Sites A-G and the BESS site out for all phases. However, the ES should describe the mitigation which has been relied upon to avoid significant effects and explain how this has been secured."*	significant effects and explain how this has been secured.
	Scoping Opinion ID 3.15.2 – *"The Inspectorate notes and welcomes that a Preliminary Arboricultural Impact Assessment setting out the potential effects and an Outline Arboricultural Method Statement containing proposed mitigation and compensatory planting measures (incorporated within the OCEMP) will be submitted with the DCO application. Para 20.6.3 also states that compensatory measures will be secured in a Landscape and Ecology Mitigation and Enhancement Plan.* *Explicit cross-reference should be made from the ES to the location of the relevant information contained in the above documents.* *Enhancement measures should be clearly differentiated from mitigation and compensatory measures."*	The ES will cross reference to the Preliminary Arboricultural Impact Assessment, Outline Arboricultural Method Statement and a Landscape and Ecology Mitigation and Enhancement Plan in the ES to set out the location of relevant information in those documents. Enhancements will be clearly differentiated from mitigation and compensatory measures in the ES.
	Scoping Opinion ID 3.15.3 – *"The Inspectorate notes that there are areas of ancient woodland adjacent to parts of the site. Effects on ancient and veteran trees should be addressed in the ES, where there is potential for likely significant effects to occur and suitable mitigation measures proposed as necessary and secured. The approach to survey and assessment should be agreed with the relevant consultation bodies. The Applicant's attention is drawn to the comments made by the Forestry Commission, in relation to the protection of trees, contained in Appendix 2 of this Opinion."*	Potential effects of the Scheme on ancient and veteran trees as well as ancient woodland will be scoped into and addressed in the arboriculture ES chapter to reflect Scoping Opinion advice. The ES will include an assessment of the likely significant effects of the Scheme on these trees and woodlands, outline proposed mitigation measures (and how they are secured) and assess residual significant effects to these features.

Consultee and Date	Response	Outcome and Any Further Steps Anticipated
		The survey and assessment approach will be communicated to Local Authority Tree Officers and any other relevant consultation bodies in November 2024 with a request for any comments.
The Planning Inspectorate, Scoping Opinion The Forestry Commission – 22nd August 2024	*"We note there are several areas of Ancient Woodland directly adjacent to some of the site areas and the cable search areas, including Sywell Wood, Horn Wood, Threeshire Wood, Nunn Wood and Cold Oak Copse... We also note that 16 veteran trees and 1 ancient tree have been identified within the proposed site area."*	The desk-based study which informed this chapter considered land within the Study Area as well as land within an influencing distance of 50m of the boundaries of the Sites and the Cable Route Search Area. This influencing distance reflects the potential size of the ancient/veteran tree/woodland buffer zones from trees or woodland outside the Study Area. These ancient woodlands are all noted in section 19.619.6 Baseline Conditions except for Cold Oak Copse which is located more than 50m from the Cable Route Search Corridor (it is 85m away at the closest point).
	"*Section 5.4.32 of EN-1 – The Overarching National Policy Statement for Energy states: 'Applicants should include measures to mitigate fully the direct and indirect effects of development on ancient woodland, ancient and veteran trees or other irreplaceable habitats during both the construction and operational phases.'* *Section 5.4.53 goes on to state: 'The Secretary of State should not grant development consent for any development that would result in the loss or deterioration of any irreplaceable habitats, including ancient woodland, and ancient and veteran trees unless there are wholly exceptional reasons and a suitable compensation strategy exists.'*	The relevant paragraphs of EN-1 have been considered by the EIA and are noted in this Chapter in Section 19.3.9 and 19.3.10.
	"The Standing Advice states that proposals should have a buffer zone of at least 15m from the boundary of ancient woodlands to avoid root damage which can result in loss or deterioration of the woodland. Where assessment shows impacts are likely to extend beyond this distance, you're likely to need a larger buffer zone."	Appropriate buffers will be applied for ancient woodlands and embedded mitigation has been stipulated for ancient woodlands in paragraph 19.7.

Consultee and Date	Response	Outcome and Any Further Steps Anticipated
	"Fragmentation is one of the greatest threats to lowland mixed deciduous woodland. Woodlands can suffer loss or deterioration from nearby development through damage to soils, roots and vegetation and changes to drainage and air pollution from an increase in traffic or dust, particularly during the construction phase of a development."	Embedded mitigation measures have been stipulated in paragraph 19.7 to avoid woodland fragmentation. Siting activities outside of Root Protection Areas of woodland will also avoid harm to woodland soils, roots and vegetation and minimise changes from air pollution and drainage.
	"For any woodland within the development boundary, land required for temporary use or land where rights are required for the diversion of utilities, the Root Protection Zone must be taken into consideration. The Root Protection Zone (as specified in British Standard 5837) is there to protect the roots of trees, which often spread out further than the tree canopy. *Protection measures include taking care not to cut tree roots (e.g., by trenching) or causing soil compaction around trees (e.g., through vehicle movements or stacking heavy equipment) or contamination from poisons (e.g., site stored fuel or chemicals) and fencing off these areas to prevent unintended incursions into the root protection zone."*	Root Protection Areas for individual trees and groups of trees are part of the constraints provided to inform design in addition to minimum 15m buffers for ancient woodlands as shown in Figures 19.1-19.31. Protection measures likely to be included in the Outline Arboricultural Method Statement to avoid tree root impacts and soil compaction have been included in paragraph 19.9. The Outline Arboricultural Method Statement will detail adopted measures more fully.
	"It is expected that there will be a thorough assessment of any loss of all trees and woodlands within the project boundary and the development of mitigation measures to minimise any risk of net deforestation because of the scheme."	The DCO application will be accompanied by a Preliminary Arboricultural Impact Assessment and Outline Arboricultural Method Statement as stated in paragraph 19.1.6 which together, will provide a thorough assessment of any loss of woodlands and trees as a result of the Project. A Landscape and Ecology Mitigation and Enhancement Plan will include compensatory and enhancement tree and woodland planting to ensure no net deforestation.
	"Hedgerows, individual trees and woodlands within a development site should also be considered in terms of their overall connectivity between woodlands affected by the development. Perhaps with the creation of some larger woodland blocks and hedgerow/hedgerow trees possibly between the existing woodland blocks on site, to ensure maximum gains to increase habitat connectivity and benefit biodiversity across the whole site, not solely	Hedgerows, lines of trees and individual trees that link woodlands will be preserved first and foremost (see embedded mitigation paragraph 7). Compensatory links between woodlands will be planted as required. As mentioned hedgerows are considered separately in

Consultee and Date	Response	Outcome and Any Further Steps Anticipated
	in specific areas or just to be used as screening."	Chapter 9 (Ecology and Biodiversity).
The Planning Inspectorate, Scoping Opinion Bedford Borough Council – 21st August 2024	*"It is noted that the statement regarding Root Protection Areas and canopy spread of recorded trees (scattered woodland and woodland blocks) is welcomed. It is nevertheless suggested that a similar approach is set out for recorded / retained low hedgerows and treed hedgerows within and framing individual Sites."*	Surveying and recording Root Protection Areas and canopy spreads of hedgerows is not considered necessary given that embedded mitigation for hedgerows in the Ecology and Biodiversity Chapter (paragraph 19.7.9) includes a 15m buffer for all hedgerows.
	"Possible effects to trees from the operation of the Scheme include tree pruning to maintain permanent access routes, visibility splays, parking areas and compounds as well as any pruning to reduce shading to solar panels'. This statement needs clarification as elsewhere in the Applicant's Scoping Report they reference setbacks and / or corridors to protect the existing low hedgerows, treed hedgerows, scattered woodland, woodland blocks, Ancient Woodlands, and designated protected landscapes. As read against 20.6.1 Mitigation ('avoid buffer zones, canopy spreads and shade patterns of existing trees'), the Applicant's intent requires clarification."	Tree pruning during operation is listed as a 'possible effect' here as it cannot yet be ruled out at this stage of the design. As stated, embedded mitigation to design the Scheme outside buffer zones, canopy spreads and shade patterns will be followed wherever possible and final pruning requirements during operation confirmed in the Preliminary Arboricultural Impact Assessment.
	"Proposed effects to trees from the decommissioning of the Scheme are anticipated to be negligible given that the Scheme's infrastructure is likely to be removed via pre-established permanent access routes and is therefore unlikely to require any additional tree removal, pruning or root loss'. As noted elsewhere, BBC are not supportive of leaving the underground cables in-situ post decommissioning and consequently their suggested removal may have an effect on existing trees. The ES should address mitigation measures to address this matter should it arise."	Noted. Should it be the Applicant's intention to remove underground cables at the decommissioning stage then the potential impacts of this work on existing trees (and newly planted trees) will be detailed in the Preliminary Arboricultural Impact Assessment.
	"In light of the fact that Ancient Woodlands are immediately adjacent to Site G, it is suggested that an assessment of impact on the Ancient Woodlands is included within the Scoping Summary."	Noted. Impacts to ancient woodlands can be including in the summary of the ES Chapter for Arboriculture.
The Planning Inspectorate, Scoping Opinion Holcot Parish Council– 20th August 2024	*"As regards Impacts on trees in Green Hill A-G and BESS (Chapter 20), the applicant has requested that these potential impacts should be scoped out because of the 'embedded mitigation of designing the scheme… and further mitigation that will be included within the OCEMP'. (20.7.1-3 and Table 20.4). Whilst we note the intended mitigation, proposed trees will*	Arboricultural impacts across the Scheme (including within Sites A-G and BESS) will be assessed in the Preliminary Arboricultural Impact Assessment, however, these impacts will not be included in the ES Chapter as they are

Consultee and Date	Response	Outcome and Any Further Steps Anticipated
	take many years to grow. We consider that the nature and extent of the proposed loss need to be assessed, as well as the proposed mitigation measures."	likely to be insignificant within an EIA context.
The Planning Inspectorate, Scoping Opinion North Northamptonshire Council– 22nd August 2024	*"In respect of arboriculture North Northamptonshire Council offer the following comments.* *It is noted that a Preliminary Arboricultural Impact Assessment and Outline Arboricultural Method Statement will accompany the DCO submission once the final layout and construction details are available, and all surveys completed. There is also the presence of Ancient Woodland in the North Northamptonshire Council sites vicinity which are 'irreplaceable habitats'. The Scoping Summary at Table 20.4 of the Scoping Report is considered reasonable and fair subject to the submission of an Outline Arboricultural Method Statement and a Landscape and Ecological Management Plan to support the DCO submission."*	No comments.
The Planning Inspectorate, Scoping Opinion West Northamptonshire Council– 22nd August 2024	*"Though in general agreement the LPA would advise that it appears hedgerow's have not been included in the assessment. Hedgerows form an important function with regards to landscape, screening of potential development and overall biodiversity and so should be included within the ES."*	Hedgerows will form part of the Ecology and Biodiversity and Landscape Chapters for the ES. They have been scoped out of the arboriculture chapter given their consideration in the aforementioned chapters.

19.3 Legislation, Planning Policy and Guidance

19.3.1 This section provides an overview of the legislation, planning policy and guidance against which the Scheme will be considered for arboriculture.

Legislation

UK Legislation

Town and Country Planning Act 1990

19.3.2 Section 198 of the Act empowers local planning authorities to make Tree Preservation Orders (TPOs) where it appears to be "*expedient in the interests of amenity to make provision for the preservation or trees or woodlands in their area"*. Pursuant to section 210(1), a TPO present on a tree, group of trees or woodland means that it is an offence to do the following in contravention of the TPO:

- Cut down, uproot of wilfully destroy that tree;
- Top, lop or wilfully damage a tree in a way that is likely to destroy it; or
- Cause or permit such activities.

19.3.3 A TPO does not prevent the management of trees or removal of trees for development. Trees subject to a TPO can be managed (for example branch removal) once an application for consent to carry out those works has been approved by the local planning authority. Similarly, trees subject

to a TPO can be worked upon or removed for development (without the need for a tree works application) so far as such work is necessary to implement a full planning permission. A TPO does however prevent unauthorised removal or work to protected trees prior to full planning permission being granted or an application for tree work being consented.

19.3.4 Section 211 of the Town and Country Planning Act preserves trees in Conservation Areas. A Conservation Area is designated by a local planning authority as *"an area which has been designated because of its special architectural or historic interest, the character or appearance of which is desirable to preserve or enhance"* (Ref.23). Trees within a Conservation Area and not already covered by a TPO are protected from cutting down, topping, lopping, uprooting, wilful damage and wilful destruction except insofar as the act in question is authorised by the local planning authority or by an order granting development consent.

19.3.5 To carry out work to a tree in a Conservation Area, a six-week notification must be provided to the local planning authority prior to works being carried out unless an exception applies. The notification must identify the tree in question and describe the intended works to the tree. Once the six-week notification period has passed or the local planning authority issues a 'no objection' response to the proposed tree work, the tree work may then take place. Similarly to a TPO, works to trees in a Conservation Area can also take place (without the need for a six-week notification) to facilitate a development provided full planning permission is in place.

19.3.6 Exemptions exist to the requirement to make an application/submit a notification to undertake works to trees protected a TPO or Conservation Area respectively. An application or notification is not required for:

- The removal of dead trees or dead wood (five days written notice to the local authority must be given to remove a dead tree covered by a TPO or Conservation Area designation);
- The making safe of dangerous trees where there is an immediate risk of serious harm;
- The minimum of work that is necessary to prevent or abate an actionable nuisance; and
- Tree works necessary to implement a full and valid planning permission.

19.3.7 Full government guidance on TPOs and Conversation Areas can be found in government guidance (Ref.12).

Planning Policy

National Planning Policy

Overarching National Policy Statement for Energy (EN-1) (Designated January 2024) (Ref.3)

19.3.8 Paragraph 5.4.32 (Ancient Woodland and Veteran Trees) requires proposals to "*include measures to mitigate fully the direct and indirect effects of development on ancient woodland, ancient and veteran trees or other irreplaceable habitats during both construction and operational phases*".

19.3.9 Paragraph 5.4.53 (Ancient woodland, ancient trees, veteran trees and other irreplaceable habitats) states that *"The Secretary of State should not grant development consent for any development that would result in the loss or deterioration of any irreplaceable habitats, including ancient woodland, and ancient and veteran trees unless there are wholly exceptional reasons and a suitable compensation strategy exists."* Wholly exceptional reasons are "*For example where the public benefits (including need) of the nationally significant energy infrastructure would clearly outweigh the loss or deterioration of the habitat."*

19.3.10 Paragraph 5.11.27 of EN-1 requires existing trees and woodlands to be retained wherever possible. Paragraph 5.11.27 also states that "*Mitigation may include, but is not limited to, the use of buffers"* and *"Where woodland loss is unavoidable, compensation schemes will be required, and the long-term management and maintenance of newly planted trees should be secured".*

The National Policy Statement for Renewable Energy Infrastructure (EN-3) (Designated January 2024) (Ref.4)

19.3.11 Paragraph 2.10.100 requires proposals to consider as part of the design, layout, construction, and future maintenance plans how to "*protect and retain, wherever possible, the growth of vegetation on site boundaries, as well as the growth of existing hedges, established vegetation, including mature trees within boundaries"*. Paragraph 2.10.101 of EN-3 also states that the impacts of a proposed development should be informed by a tree survey and arboricultural assessment.

National Planning Policy Framework (NPPF, 2023) (Ref.2)

19.3.12 Paragraph 186 part c) states that:

"development resulting in the loss or deterioration of irreplaceable habitats (such as ancient woodland and ancient or veteran trees) should be refused, unless there are wholly exceptional reasons and a suitable compensation strategy exists"

19.3.13 It should be noted that in the context of DCO applications, while the NPPF is an important and relevant consideration, applications are decided in accordance with the National Policy Statements. Irrespective, in accordance with the National Policy Statements we have avoided such impacts where possible in the first instance, and recommended a comprehensive mitigation package to ensure there is no such loss or deterioration of these trees.

Local Planning Policy

West Northamptonshire's Joint Core Strategy Local Plan (Part 1) (Ref.5)

19.3.14 The Local Plan, by way of providing context to its policies for trees and woodlands, states that *"West Northamptonshire has a relatively poor level of tree cover. Creation of new woodlands, particularly with native species can stimulate the economy, through tourism, business diversification and forestry employment".*

19.3.15 The Local Plan contains one policy with specific regard to trees and woodlands – Policy BN3 'Woodland Enhancement and Creation'. This policy seeks to support development applications that propose to enhance and manage existing woodlands or create new woodlands. In particular, to support the creation of new woodlands to buffer, extend or relink areas of ancient woodland. The policy also supports the protection of *"aged or veteran trees"* outside of ancient woodlands. The policy states that development that would lead to loss or fragmentation of ancient woodland or aged or veteran trees will not be permitted unless the need for and benefits of the development in that location clearly outweigh the loss.

North Northamptonshire Joint Core Strategy 2011-2031 (Ref.6)

19.3.16 There are no tree-specific policies within North Northamptonshire's Joint Core Strategy except for Policy 21 'Rockingham Forest' which seeks to promote 40 hectares of new tree planting in Rockingham Forest to expand this woodland.

19.3.17 North Northamptonshire District Council has published a 'Trees and Landscape Supplementary Planning Document' (SPD) adopted in June 2013 (Ref.7). This document provides advice to applicants on recognising, protecting and enhancing existing arboricultural features such as mature trees, woodland and hedgerow and incorporating them into proposals. It also promotes the planting of new trees wherever possible and compliance with the design principles and process detailed in British Standard 5837:2012 'Trees in relation to design, demolition and construction – Recommendations'.

19.3.18 The SPD advises that a tree survey should be undertaken as the starting point and a Tree Retention Plan, Tree Protection Plan, Arboricultural Impact Assessment and Arboricultural Method Statement provided where necessary.

Milton Keynes Council Plan: MK 2016-2031 (Adopted March 2019) (Ref.8)

19.3.19 Milton Keynes Council does not have any specific planning policies or Supplementary Planning Documents relating to trees. Policy NE1 'Protection of Sites' relates to ancient woodland and reiterates the effects of NPPF paragraph 186 part c) by stating:

19.3.20 "Development proposals which would cause harm to a National Nature Reserve, Site of Special Scientific Interest or irreplaceable habitats such as ancient woodland will not be permitted unless:

1. *There is no suitable alternative to the development;*
2. *The benefits of the development, at this site, clearly outweigh the adverse impacts on the site;*
3. *All reasonable possibilities for mitigation have been put in place; and*
4. *Compensatory provision in line with the mitigation hierarchy to ensure that the overall coherence of the site is protected and with the intent to achieve a net gain in biodiversity."*

Guidance

Natural England and Forestry Commission, Ancient woodland, ancient trees and veteran trees: advice for making planning decisions (Ref.9)

19.3.21 This guidance is a material consideration for local planning authorities and advises the following for ancient and veteran trees and ancient woodland:

- Recorded ancient woodland should be identified using Natural England's Ancient Woodland database (Ref.10) and veteran/ancient tree records should be checked via the Woodland Trust's Ancient Tree Inventory (Ref.11);
- For ancient woodlands, a buffer zone of at least 15 metres from the boundary of the woodland is needed to avoid root damage. Where assessment shows that other impacts are likely to extend beyond this distance, a larger buffer zone will likely be required;
- For ancient and veteran trees, the Veteran Tree Buffer Zone should be at least 15 times larger than the diameter of the tree or five metres from the edge of the tree's canopy, whichever is greater; and
- Buffer zones should contribute to wider ecological networks and be part of the green infrastructure of the area. Buffer zones should comprise semi-natural habitats. Development, including drainage infrastructure, should not be located within buffer zones.

Planning Policy Guidance for Tree Preservation Orders and Conservation Areas (Ref.12)

19.3.22 This guidance details how trees are protected by TPO and Conservation Area designations and the exemptions to the need to apply for permission or notify the local planning authority of works to such trees. Much of the content has been summarised above in paragraphs relating to UK Legislation.

British Standard 5837:2012 'Trees in Relation to Design, Demolition and Construction (BS5837:2012) (Ref.13)

19.3.23 This guidance provides a framework for surveying trees and providing tree constraints information to inform the design of developments. It then provides guidance on the assessment, mitigation and compensation of arboricultural impacts and the arboricultural input needed at each stage of the Town and Country Act 1990 planning process. Whilst BS5837:2012 does not provide explicit guidance on Development Consent Order (DCO) applications, its approach and recommendations can be adapted and followed for the DCO process.

19.3.24 BS5837:2012 states that when undertaking a tree survey for development, the Arboriculturist must assess the quality of the trees and categorise each arboricultural feature as either Category A (a high quality tree), Category B (a moderate quality tree), Category C (a low quality tree/young tree) or Category U (a very low quality tree). Subcategories 1 (mainly arboricultural qualities), 2 (mainly landscape qualities) and 3 (mainly cultural values, including conservation) are then added

to the categorisation to reflect the predominantly arboricultural, landscape and/or cultural/conservation value of the tree. BS5837:2012 states that veteran trees will *"almost always be included in the A3 category"*, i.e. a high quality tree with mainly conservation value.

19.3.25 BS5837:2012 requires the following information to be recorded for each individual tree, groups of trees or woodland:

- Reference number (T = individual tree, G = group of trees, W = woodland);
- Species (common name and scientific name);
- Tree height;
- Stem diameter measured at 1.5m height;
- Branch spread at four cardinal points (north, east, south and west);
- Existing height above ground level of a) first significant branch and direction of growth and b) canopy;
- Life stage (young, semi-mature, early-mature, mature);
- General Observations;
- Estimated remaining contribution in years; and
- Quality Category A-C and U.

19.3.26 BS5837:2012 then provides guidance on avoiding and minimising impacts to identified arboricultural features such as siting all development outside of Root Protection Areas and canopy spreads in the first instance. Should development need to occur within Root Protection Areas or canopy spreads, guidance is provided on how to minimise impacts to the above and below ground parts of the tree during construction through sensitive working methods, tree protection measures and arboricultural supervision.

19.4 Assessment Methodology

19.4.1 The methodologies described in the following section have been developed in line with the relevant planning policy and appropriate industry guidance for assessing the potential effects from the Scheme on arboricultural features.

Arboricultural Features

19.4.2 Arboricultural features, for the purpose of this assessment, are defined as individual trees, groups of trees and woodlands. Hedgerows are not included in this assessment and are considered separately in **Chapter 9: Ecology and Biodiversity.**

19.4.3 Definitions and characteristics used to assess whether an arboricultural feature is an ancient tree, a veteran or ancient woodland are shown below in **Table 19.2.**

Table 19.2 Definitions and Characteristics of Ancient and Veteran Trees and Ancient Woodland

Ancient/Veteran Tree	Definition
Ancient Tree	An ancient tree is one that has passed beyond maturity and is old or aged in comparison with other trees of the same species. Definition as per the Ancient Tree Forum guidance (Ref.14).
Veteran Tree	A veteran tree is a survivor that has developed some of the features found on an ancient tree, not necessarily as a consequence of time, but of its life and environment. Definition as per the Ancient Tree Forum guidance (Ref.14). As per Natural England advice (Ref.15), the following are characteristics of a veteran tree, the more characteristics a tree has the stronger the indication that it is a veteran:

Ancient/Veteran Tree	Definition
	• Girth large for the tree species concerned • Major trunk cavities or progressive hollowing • Naturally forming water pools • Decay holes • Physical damage to trunk • Bark loss • Large quantity of dead wood in the canopy • Sap runs • Crevices in the bark, under branches or on the root plate sheltered from direct rainfall • Fungal fruiting bodies (e.g. from heart rotting species) • High number of interdependent wildlife species • Epiphytic plants • An 'old' look • High aesthetic interest
Ancient Woodland	An area that has been wooded continuously since at least 1600 AD. It includes ancient semi-natural woodland and plantations on ancient woodland sites. Definition as per NPPF (Ref.2),

Study Area

19.4.4 The Study Area comprises nine sites described as Green Hill A, A.2. B, C, D, E, F, G and the Green Hill BESS ('collectively referred to as the Sites'). The Sites are situated in an area of countryside to the west and south of Wellingborough, and north and southeast of Northampton.

19.4.5 The Study Area also includes the Cable Route Search Area and in accordance with BS5837:2012, the Study Area also includes trees within influencing distance of the boundary of the Sites and Cable Route Search Area (i.e. within 15m). This influencing distance accounts for the maximum size of Root Protection Areas (RPAs) as specified in BS5837:2012 and also the minimum buffer zone for ancient woodland.

19.4.6 The Cable Route Search Area represents the area of search for a cable route to connect the Sites to Grendon Substation (the Cable Corridor). This will be refined as the design of the Scheme is developed and additional technical surveys of the Cable Route Search Area are carried out. A narrow width within the Cable Route Search Area will be required for the Cable Corridor and its construction. Temporary construction compounds will also be required within these areas.

Potential Effects

19.4.7 Potential effects on arboricultural features may arise during construction from:

- Temporary construction access routes and visibility splays;
- Permanent access routes and visibility splays;
- Temporary construction compounds/parking areas/materials storage areas;
- Permanent parking areas and compounds;
- Installation of cables, solar panels, services, protective fencing and ancillary equipment; and

- Movements of tall and/or heavy machinery.

19.4.8 Possible impacts to arboricultural features from the operational phase of the Scheme include tree pruning to maintain permanent access routes, visibility splays, parking areas and compounds as well as any pruning to reduce shading to solar panels. The risks of these impacts during the operational phase, during routine maintenance and large-scale equipment replacement are likely to be minor given that suitable distance offsets from trees will be applied during the design stage.

19.4.9 Proposed impacts to arboricultural features from the decommissioning of the Scheme are anticipated to be negligible given that the Scheme's infrastructure is likely to be removed via pre-established permanent access routes and is therefore unlikely to require any additional tree removal, pruning or root loss.

Impact Assessment Methodology

Surveys

19.4.10 The following tree surveys will inform the ES:

- High-level tree survey for the Sites (including the relevant 15m influencing distance from the Sites). This tree survey involves an Arboriculturist walking all the individual fields within the Sites and recording all ancient and veteran trees present within Green Hill A to G and BESS as well as the tree with the largest stem diameter (and therefore the largest RPA) along each field boundary. For example, Green Hill D contains four fields so the largest tree on each boundary of each field within Green Hill D is recorded. Where an ancient or veteran tree is found on a field boundary, a second tree along that field boundary is only recorded where its RPA would exceed that of the Veteran Tree Buffer Zone. By surveying the largest tree along each field boundary within Green Hill A to G an arboricultural buffer for each field boundary can be established to inform the design of the Solar Arrays;
- Targeted BS5837:2012 tree survey for the Sites and Cable Corridor (including the relevant 15m influencing distance) where arboricultural effects cannot be avoided through embedded mitigation, for example for vehicle access into the Sites or working corridors for cable installation; and
- Walkover of the Cable Corridor once determined to record ancient and veteran trees in accordance with BS5837:2012.

19.4.11 Hedgerows will not be surveyed by an Arboriculturist or included within this chapter as hedgerow information is being assessed in **Chapter 9: Ecology and Biodiversity.**

19.4.12 To date, the high-level tree survey of the Sites has been completed and a targeted BS5837:2012 tree survey has been completed for fields BESS1 and BESS2. Tree surveys were undertaken between October 2023 and June 2024 by Alexander Lowe BSc (Hons) MArborA Dip Arb L4 (ABC) and Ho Ming Mak FdSc (Arb). A Forestry Pro Laser was used to record tree height, a laser distometer D110 was used to measure canopy spread and stem diameter was measured using a diameter at breast height measuring tape.

19.4.13 Further targeted BS5837:2012 tree surveys still need to be conducted within the Sites in addition to a walkover of the Cable Corridor once determined. These surveys will be undertaken as the Scheme design progresses and the results will inform the ES chapter.

Desk Study

19.4.14 A desk-based study of the Study Area as well as land within an influencing distance of 50m of the boundaries of the Sites and the Cable Route Search Area has been undertaken. The desk-based study reviewed freely available online resources to identify: trees protected by a Conservation Area designation or TPO; records of ancient and veteran trees; and records of ancient woodlands. The following sources were used in the desk study:

- North Northamptonshire Council's interactive mapping tool showing TPOs and Conservation Areas [Ref.16];

- West Northamptonshire Council's interactive mapping tool showing TPOs and Conservation Areas [Ref.17];
- Milton Keynes Council's interactive mapping tool showing TPOs and Conservation Areas [Ref.18Ref.18];
- The Woodland Trust's Ancient Tree Inventory for ancient and veteran tree records [Ref.19]; and
- Defra's MAGIC map application for ancient woodlands (Ref.20).

19.4.15 A further check with Local Planning Authorities will also be undertaken to ensure that all TPO and Conservation Area information online is valid and up to date.

Assessment

19.4.16 The assessment of potential effects on existing arboricultural features from the Scheme considers the construction, operational and decommissioning phases.

19.4.17 The following arboricultural features are scoped into the ES assessment in accordance with the Planning Inspectorate's Scoping Opinion:

- Ancient and veteran trees and ancient woodlands within the Sites and Cable Route Search Area; and
- All arboricultural features within the Cable Route Search Area.

19.4.18 Effects on relevant trees will be assessed by understanding both the sensitivity of the arboricultural receptor and the magnitude of the impact to that receptor to provide an overall assessment of the significance of the arboricultural effect. **Tables 19.3 to 19.5** below describe how this chapter defines the sensitivity of an arboricultural receptor, the magnitude of the impact and the significance of the overall arboricultural effect.

Sensitivity of Receptors

19.4.19 The sensitivity of arboricultural features to potential effects arising from the Scheme is defined below in **Table 19.3.**

Table 19.3 Criteria for Sensitivity/Value of Arboricultural Feature

Value/Sensitivity	Description
High	Ancient and veteran trees.
Medium	Trees protected by a Tree Preservation Order and/or classified as Category A in BS 5837:2012.
Low	Trees protected by a Conservation Area designation and/or classified as Category B in BS 5837:2012.
Negligible	Trees classified as Category C and U in BS 5837:2012

Magnitude of Impacts

19.4.20 The magnitude of impact to an arboricultural feature is defined below in **Table 19.4.**

Table 19.4 Criteria for Determining Magnitude of Impact

Magnitude of Impact	Description
High	Tree removal or significant tree pruning which alters the value/sensitivity of an arboriculture feature.
Medium	Canopy or root impacts which do not alter the value/sensitivity of an arboricultural feature but may have a medium to long term impact on tree condition, health and safe life expectancy.

Low	Canopy or roots impacts which do not meet the definitions of 'high' of 'medium' above and are likely to have a temporary/short term impacts on the condition of the arboricultural feature, health and safe life expectancy.
Negligible	Very minor impact to the arboricultural feature which does not meet the definitions of high, medium or low magnitude.
Neutral	No feasible impact to the arboricultural feature.

Assessment of Significance

19.4.21 Likely significant arboricultural effects, for the purposes of the Environmental Statement, will be defined as effects which are assessed as being moderate significance or above as defined in **Table 19.5** below. Where an effect can be moderate or minor in **Table 19.5** below, professional arboricultural judgement will be applied to categorise the effect as minor or moderate and therefore non-significant or significant.

Table 19.5 Significance of Effect

	Arboricultural Value/Sensitivity			
Magnitude of Impact	**High**	**Medium**	**Low**	**Negligible**
High	Major	Major/Moderate	Moderate	Moderate/Minor
Medium	Major/Moderate	Moderate	Moderate/Minor	Minor
Low	Moderate	Moderate/Minor	Minor	Negligible
Negligible	Moderate/Minor	Minor	Negligible	Negligible
Neutral	Neutral	Neutral	Neutral	Neutral

19.4.22 Mitigation and compensation measures will be required for likely significant effects. The residual likely significant effects on arboricultural features will then be assessed in accordance with **Tables 19.3-19.5** which will confirm what the effects are likely to be on each feature provided advised mitigation and compensation is in place.

19.5 Assessment Assumptions and Limitations

19.5.1 This preliminary assessment is based on tree survey results to date and scheme design information available at the time of writing this chapter. Preliminary arboricultural effects presented in this PEIR chapter are therefore only relevant for the current layout iteration. The final assessment of potential arboricultural effects will be presented in the ES once more detailed layout information is available.

19.5.2 Where the Scheme's design and details are either not yet known or incomplete at this stage, either assumptions have been made based on professional judgment, or, in the event that it is not possible to make any assumptions, a full assessment has not been made. This has been the case for the Cable Corridor which has not yet been defined and methods for cable installation are not yet available. This assessment is an iterative process and will be both expanded and made more specific as survey data is collected, analysed and reported on, and designs are further developed. This process will be carried out in conjunction with relevant consultees and third parties as necessary to achieve the most robust outcome.

19.5.3 The methodology for the arboriculture assessment has considered the following assumptions:

- The publicly available information for TPOs, Conservation Area designations, ancient and veteran tree records and ancient woodland mapping is up to date and complete. Publicly available information will be regularly reviewed and updated to ensure the most up to date information is included in the final ES Chapter. Data requests will also be made to North

Northamptonshire Council, West Northamptonshire Council and Milton Keynes City Council for up-to-date Tree Preservation Orders and Conservation Area information to inform the ES Chapter.

19.5.4 This preliminary assessment has the following limitations:

- Tree surveys have not yet been completed for the Cable Route Search Area. Surveys will be completed and results provided in the final ES chapter;
- Targeted tree surveys within the Sites where tree impacts are likely such as highway access points and temporary/permanent roads have not yet been undertaken. Surveys will be completed and results provided in the final ES chapter;
- Tree constraints are based on aerial imagery only in **Volume 2**, **Figures 19.28-19.31** as a topographical survey of Green Hill G has not been made available in time for PEIR. Tree constraints will be based on a topographical survey of Green Hill G in the final ES Chapter;
- Details on the locations of highway accesses, internal roads, compounds, Solar Arrays and other associated infrastructure have not been made available for this preliminary assessment. Full layout details will be provided for the DCO application so that a full assessment of arboricultural impacts can be made in the ES Chapter;
- Tree surveys were undertaken from ground level only. The assessment is for the purposes of planning and development. No internal decay detection tools have been used in this assessment; therefore, this is not a full health and safety assessment; and
- Access to some tree stems and canopy spreads by the surveyor was sometimes impeded due to a range of factors such as dense vegetation. Estimates were therefore made of dimensions were necessary and recorded as estimates in **Volume 3**, **Appendix 19.1 Tree Survey Schedule**.

19.6 Baseline Conditions

19.6.1 This section describes the baseline environmental characteristics for the Scheme and surrounding areas with specific reference to Arboriculture.

Existing Baseline

19.6.2 The existing baseline conditions are derived from desk and in-progress field-based studies, the methodologies of which are given separately in Section 19.4. It is important to note that the tree survey results provided below for Green Hill A to G are inherently biased towards trees with the largest stem diameter on each field boundary which reflects the survey methodology for Green Hill A to G. Comments on the recorded tree species, maturity and condition therefore only reflect the largest trees within those sites and may not be indicative of the overall trees present.

19.6.3 Full results of the tree survey data are provided in **Volume 3**, **Appendix 19.2 Tree Survey Schedule** and definitions of terms used in the Tree Survey Schedule are provided in **Volume 3**, **Appendix 19.1 Definitions for Tree Survey Schedule**. A visual representation of the recorded tree constraints is provided in **Volume 2, Figures 19.1-19.31** Tree Constraints Plans.

Green Hill A

Desk Study Results

19.6.4 No TPOs, no Conservation Areas, no records of ancient/veteran trees and no registered ancient woodland within the site or within 50m of the site.

Tree Survey Results

19.6.5 Seventy-nine (79) individual trees were recorded across the 29 fields within Green Hill A. The most common species (53 trees) recorded was common ash *Fraxinus excelsior* followed by common oak *Quercus robur* (13 trees). Other species recorded included smaller numbers of crack willow *Salix fragilis*, field maple *Acer campestre*, green ash *Fraxinus pennsylvanica*, hawthorn *Crateagus monogyna*, horse chestnut *Aesculus hippocastanum*, sycamore *Acer pseudoplatanus*, white willow *Salix alba* and willow *Salix sp*.

19.6.6 Six veteran trees were recorded for Green Hill A. These were AF4-T3 crack willow, AF18-T1 ash, AF20-T1 ash, AF23-T1 ash, AF24-T5 ash and AF27-T2 ash. All trees were veteran but not ancient and included features such as extensive stem hollowing, abundant standing and fallen deadwood, evidence of fungal decay, cavities and niches for birds and mammals.

Green Hill A.2

Desk Study Results

19.6.7 No TPOs, no Conservation Areas, no records of ancient/veteran trees and no ancient woodland within the site or within 50m of the site.

Tree Survey Results

19.6.8 Twenty-nine (29) individual trees were recorded across four fields within Green Hill A.2. Ten (10) of these trees were recorded as veteran and were all mature ash. There is therefore a significant population of veteran ash in A.2.

19.6.9 The remaining trees were all found to be ash, common oak, white willow or elm *Ulmus sp*.

Green Hill B

Desk Study Results

19.6.10 No TPOs, no Conservation Areas, no records of ancient/veteran trees and no ancient woodland within the site or within 50m of the site.

Tree Survey Results

19.6.11 Twenty-one (21) individual trees were recorded across the five fields within Green Hill B. The most common species recorded (17 trees) was common ash followed by common oak (4 trees). Two veteran trees were recorded for Green Hill B: BF3-T6 ash and BF1-T3 ash. BF3-T6 ash was found to have a large open stem cavity and extensive hollowing with large decaying dead scaffold limbs. BF1-T3 ash was found to have a truncated canopy where the top had previously broken off; a stem cavity was visible with likely significant hollowing despite stem access for the surveyor being impeded.

Green Hill C

Desk Study Results

19.6.12 No TPOs, Conservation Areas and no records of ancient/veteran trees within the site or within 50m of the site. Sywell Wood, an ancient replanted woodland, is located to the north of Sywell Aerodrome and is directly adjacent to Green Hill C's northern boundary.

Tree Survey Results

19.6.13 Twenty (20) individual trees were recorded across the 10 fields within Green Hill C. The most common species recorded (14 trees) was common ash followed by common oak (4 trees), horse chestnut (1 tree) and Leyland cypress *x Cuprocyparis leylandii* (1 tree).

19.6.14 Three veteran ash trees were identified in Green Hill C: CF4-T1, CF6-T3 and CF9-T1. CF4-T1 is also an ancient tree, the only ancient tree recorded in the surveys thus far. It had a recorded stem diameter of 1.8m with a large hollow stem which is in the process of dividing into functional units. Decay fungi were recorded as present alongside other ancient characteristics such as cavities and standing deadwood; the tree showed no signs of ash dieback.

Green Hill D

Desk Study Results

19.6.15 No TPOs, no Conservation Areas, no records of ancient/veteran trees and no ancient woodland within the site or within 50m of the site.

Tree Survey Results

19.6.16 Thirteen (13) individual trees were recorded across the four fields within Green Hill D. The most common species recorded was common ash (10 trees) followed by aspen *Populus tremula* (1 tree), sycamore (1 tree) and poplar *Populus sp*. (1 tree).

19.6.17 One veteran ash tree was recorded: DF4-T2. An early mature specimen with a stem diameter of 700mm and extensive stem hollowing up to a height of 3.5m and some standing and fallen deadwood.

Green Hill E

Desk Study Results

19.6.18 No TPOs, no records of ancient/veteran trees and no ancient woodland within the site or within 50m of the site.

19.6.19 Mears Ashby Conservation Area is located approximately 45m from the western edge of Green Hill E but does not overlap with Green Hill E or any of the trees recorded.

Tree Survey Results

19.6.20 Eighty-four (84) individual trees were recorded across the 34 fields within Green Hill E. The most common tree species recorded was common ash (55 trees) followed by common oak (18 trees). Smaller numbers of crack willow, hybrid black poplar *Populus x canadensis*, Norway maple *Acer platanoides*, red oak *Quercus rubra*, sycamore, wellingtonia *Sequioadendron giganteum* and willow *Salix sp.* were recorded.

19.6.21 Five veteran trees were recorded in Green Hill E: EF1-T1 crack willow, EF10-T1 ash, EF2-T2 ash, EF3-T3 ash and EF7-T3 ash. These trees all had recorded extensive stem hollowing with some individuals also suffering canopy decline likely because of ash dieback.

Green Hill F

Desk Study

19.6.22 The Easton Maudit Conservation Area is approximately 5m from part of Green Hill F, the Conservation Area does not overlap with Green Hill F and does not cover any of the trees recorded in the tree survey of this site.

19.6.23 TPO T9/21 WBC (Easton Maudit) TPO 1985 is located approximately 35m from Green Hill F however, all protected trees are located on the opposite side of Easton Way in a private residence. None of the recorded trees identified in the tree survey of this site are protected by the TPO.

19.6.24 Horn Wood, a woodland combining ancient and semi-natural woodland and replanted ancient woodland is located directly adjacent to Green Hill F.

19.6.25 No ancient and veteran tree records are present within the site and within 50m of Green Hill F.

Tree Survey Results

19.6.26 Seventy-seven (77) individual trees were recorded across the 33 fields within Green Hill F. The most common species recorded was common ash (25 trees) and common oak (24 trees). Sycamore, crack willow and goat willow *Salix caprea* (6 trees or less per species) were occasionally recorded with smaller numbers of Atlantic cedar *Cedrus atlantica*, black pine *Pinus nigra*, elm *Ulmus sp*., field maple, hawthorn, hybrid black poplar, Lombardy poplar *Populus nigra 'Italica'*, Turkey oak *Quercus cerris* and willow recorded.

19.6.27 Eleven (11) veteran trees were recorded within Green Hill F: FF11-T1 ash, FF15-T2 ash, FF2-T1 hybrid black poplar, FF28-T1 oak, FF29-T2 ash, FF29-T4 ash, FF30-T2 oak, FF4-T2 ash, FF4-T3 ash, FF5-T3 crack willow and FF7-T1 ash. The majority of veteran trees recorded were early mature or mature individuals with stem diameters up to 1.4m. Trees had veteran features including significant stem hollowing, a variety of sized fallen and standing deadwood and other habitat features.

Green Hill G

Desk Study

19.6.28 No TPOs, no Conservation Areas and no records of ancient/veteran trees within the site or within 50m of the site.

19.6.29 Three Shire Wood and Nun Wood, both areas of ancient and semi-natural woodland are located directly adjacent to the eastern boundary of Green Hill G. A third ancient and semi-natural woodland, Barslay Spinney, is located 25m west of Green Hill G on the opposite side of the A509.

Tree Survey Results

19.6.30 Thirty-seven (37) individual trees were recorded across the fields in Green Hill G. The most common species was common oak (18 trees) followed by common ash (11 trees). Smaller numbers of field maple, goat willow, horse chestnut, Norway maple and white willow were recorded.

19.6.31 One veteran oak tree was recorded in Green Hill G: GF12-B - T1 oak. This tree was a mature specimen with a stem diameter of 1.1m with a hollow stem, retrenching canopy and standing deadwood.

Green Hill BESS

Desk Study

19.6.32 No TPOs, no Conservation Areas, no records of ancient/veteran trees and no recorded ancient woodland within the site or within 50m of the site.

Tree Survey Results

19.6.33 So far, fifty-six (56) individual trees, two woodlands, seven hedgerows and 10 groups of trees have been recorded across the Green Hill BESS. Within Green Hill BESS, fields BESS1 and BESS2 have been surveyed, and BESS3 has not yet been surveyed.

19.6.34 The most common individual tree species was ash (17 trees) followed by common oak (14 trees) and sycamore (8 trees). Smaller numbers of alder *Alnus glutinosa*, crack willow, field maple, goat willow, horse chestnut, hybrid black poplar, sycamore, white willow and willow were also recorded.

19.6.35 No veteran or ancient trees were found within BESS1 and BESS2.

19.6.36 High value (Category A) mature oak trees were recorded on the southern boundary of BESS1 (BESS1-T14 and BESS1-T15) which offer good visual amenity value along the adjacent Station Road. High value Category A mature oaks were also recorded along the north-west boundary of BESS2-T27, BESS2-T28 and BESS2-T29.

19.6.37 Woodland BESS2-W1 located beside Station Road comprised semi-mature ash with varying states of ash dieback and occasional individual hawthorn. Woodland BESS2-W2 was an early mature belt of trees comprised of common oak, hybrid black poplar, sycamore and common ash. Neither of these woodlands are registered ancient woodlands.

Cable Route Search Area

Desk Study

19.6.38 The following Conservation Areas are outside of, but within 50m of, the Cable Route Search Area:

- Sywell Conservation Area in North Northamptonshire – located 10m of the Cable Route Search Area on the opposite side of Wellingborough Road;
- Mears Ashby Conservation in North Northamptonshire – located 40m south-west of the Cable Route Search Area; and
- Grendon Conservation Area in North Northamptonshire – located directly adjacent to the Cable Route Search Area.

19.6.39 The following TPOs are outside of, but within 50m of, the Cable Route Search Area:

- TPO 1984 T9/15 WBC (Washbrook Lane, Mears Ashby) protecting trees at Park View House, Washbrook Lane, Mears Ashby, NN6 0QX – located 15m west of the Cable Route Search Area; and
- TPO 1983 T9/12 BCW (The Knoll, Grendon) protected an area of trees at Land opposite 3 The Knoll, Grendon, Northampton – located directly adjacent to the Cable Route Search Area.

19.6.40 The following ancient woodland is within the Cable Route Search Area:

- Barslay Spinney, a semi-natural woodland on the west side of Green Hill G which is located within the Cable Route Search Area.

19.6.41 The following ancient woodlands are outside of, but within 50m of, the Cable Route Search Area:

- Broadlane Spinney, an ancient and semi-natural woodland located 15m from the Cable Route Search Area.
- Horn Wood, a woodland combining ancient and semi-natural woodland and replanted ancient woodland is located 40m from the Cable Route Search Area;
- Sywell Wood, an ancient replanted woodland, is located directly adjacent to the Cable Route Search Area; and
- Hardwick Wood, a woodland combining ancient and semi-natural woodland and replanted ancient woodland, is located directly adjacent to the Cable Route Search Area.

19.6.42 The are no ancient or veteran tree records within 50m of the Cable Route Search Area. There is one notable oak tree with a 4m stem girth recorded within the Cable Route Search Area to the west of Grendon Substation at approximately National Grid reference: SP 8690 6021 (Ancient Tree Inventory ID reference: 210161).

Future Baseline

19.6.43 This section considers changes to the baseline conditions, described above, that might occur in the absence of the Scheme and during the time period over which the Scheme would be in place. The future baseline scenarios are set out in **Chapter 2: EIA Process and Methodology**.

19.6.44 In the absence of the Scheme, it is anticipated that over the 60-year operational lifetime of the Scheme, the baseline arboricultural features on the Sites are likely to change negatively as a result of climate change and the progression of existing and future tree pests and diseases and potentially positively as a result of future land management.

19.6.45 Of particular note for the Study Area is the presence of ash dieback disease, which was recorded frequently across Green Hill A, A.2, B, C, D, E, F, G during surveys. The most common large tree recorded across nearly all of those sites was ash, many of which were found to have varying degrees of canopy decline due to ash dieback. Veteran ash trees were also often recorded as being affected by ash dieback disease. This disease was first officially recorded in the UK in 2012 and research from the UK and Europe predicts that 70-80% of ash trees may die from the disease (Ref.21). For the Study Area, this would result in a significant loss of some of largest trees with implications for landscape and ecology.

19.6.46 Other pests and diseases that may affect the future baseline arboricultural conditions of the Study Area include oak pests and diseases such as chronic oak decline and acute oak decline as well as *Phytophthora sp.* infections.

19.6.47 The future baseline arboricultural conditions may also change positively in the Study Area should any of the land fall out of agricultural use and change into secondary woodland through natural regeneration over time. In the absence of the Scheme, it is also feasible that Environmental Land Management schemes may also be implemented within the Sites and Cable Route Search Area which could see the planting of new hedgerows, trees and woodland.

19.7 Embedded Mitigation Measures

19.7.1 The way that potential environmental impacts have been or will be prevented, avoided or mitigated to reduce impacts to a minimum through design and/or management of the Scheme is outlined in this section and will be considered as part of the assessment of the potential effects. Proposed environmental enhancements are also described where relevant.

19.7.2 The following embedded mitigation measures for construction, operation and decommissioning phases relevant to arboriculture have been incorporated into the Scheme design, with detailed proposals and methods to be submitted with the DCO application in an Outline Arboricultural Method Statement.

Embedded Construction Mitigation Measures

19.7.3 Arboricultural constraints from high-level and targeted tree surveys have informed the layout of the Scheme and ensured wherever possible that:

- All development on the Sites is sited outside of Veteran Tree Buffer Zones and buffer zones for ancient woodland;
- Existing habitat connectivity between ancient woodlands and other woodlands is preserved and enhanced wherever possible. Opportunities for creating new habitat connectivity between woodlands, such as new woodland planting between existing woodlands or establishment of linked hedgerows, are maximised wherever possible;
- Development within the Sites has avoided the RPAs and canopy spreads of existing trees and woodlands wherever possible. Where RPA and canopy spread incursions are unavoidable, incursions target low quality Category U trees followed by Category C, B and A trees in that order in an effort to avoid effects to high quality trees; and
- Tree removal has been avoided wherever possible. Where tree removal is unavoidable, tree removal targets very low quality Category U trees followed by Category C, B and A trees in that order in an effort to avoid the removal of high quality trees.

19.7.4 The following embedded mitigation will also be in place during construction:

- An Arboricultural Clerk of Works (ACoW) will provide supervision during construction within the Sites and Cable Corridor to ensure tree protection measures are being correctly implemented, such as Tree Protection Barriers, ground protection and stem protectors as appropriate, are used and correctly installed to safeguard retained trees during construction;
- Temporary construction compounds will be located outside of the RPAs and canopy spreads of retained trees;
- Specialist working methods will be prescribed for works within the RPAs of retained trees. The ACoW will supervise these works to ensure root impacts are minimised;
- All tree pruning works will be undertaken by a professionally qualified and insured arborist working in accordance with British Standard 3998:2010 ‘Tree Work – Recommendations’; and
- Replacement tree planting will be used to compensate for trees removed for development.

19.7.5 Given the abundance of common ash recorded within the Study Area, new tree planting to replace those trees removed and to enhance the Study Area will comprise a diverse and predominantly native species mix appropriate for the soils present and with due consideration to future climate change. Field maple, common oak, sessile oak *Quercus petraea*, rowan, Dutch elm disease resistant elms and sycamore would be appropriate as open grown specimens within hedgerows. In wetter areas such as beside ditches or streams, native species such as alder, aspen, native black poplar *Populus nigra subsp. betulifolia*, crack willow and goat willow are advised.

Embedded Operational Phase Mitigation Measures

19.7.6 New tree planting will not occur within 30m of existing veteran and ancient trees to ensure these trees do not become shaded during the operational phase which could result in a decline in canopy health and possible premature death.

19.7.7 New tree and woodland planting will not occur close to proposed accesses, visibility splays, parking areas and internal roads to avoid and minimise the need for tree pruning during the operational phase, including when replacement of the solar panels occur (every 30 years).

19.7.8 New tree and woodland planting will not be undertaken in areas where future tree growth may cause shading of solar panels which would result in tree pruning or removal being required during operation.

19.7.9 All tree pruning works will be undertaken by a professionally qualified and insured arborist working in accordance with British Standard 3998:2010 'Tree Work – Recommendations'.

Embedded Decommissioning Mitigation Measures

19.7.10 All tree pruning works will be undertaken by a professionally qualified and insured arborist working in accordance with British Standard 3998:2010 'Tree Work – Recommendations'.

19.8 Assessment of Likely Significant Effects

19.8.1 Taking into account the embedded mitigation measures as detailed in Section 19.7, the potential for the likely effect of the Scheme on arboriculture was assessed using the methodology as detailed in Section 19.4 of this Chapter. In the sections below, associated effects during the construction, operation and decommissioning phases of the Scheme are discussed for arboricultural features scoped into the ES chapter (namely ancient and veteran trees and ancient woodlands within the Sites and Cable Route Search Area, and arboricultural features within the Cable Route Search Area).

Construction

Ancient and Veteran Trees

19.8.2 **Table 19.6** below shows the ancient and veteran trees and ancient woodlands that are likely to be impacted during construction and the likely significance of that effect.

Table 19.6 Likely Effects on Ancient and Veteran Trees and Ancient Woodlands

Site	Tree Reference	Value/Sensitivity	Magnitude of Impact	Significance of Effect
Green Hill A	AF18-T1 ash	High	Medium – internal road within Veteran Tree Buffer Zone, potential root impacts	Moderate
Green Hill A.2	A2F2-T5 ash	High	Negligible – protective fencing just within Veteran Tree Buffer Zone, potential root impacts	Minor
Green Hill A.2	A2F3-T5 ash	High	Low – protective fencing within Veteran Tree Buffer Zone, potential root impacts	Moderate
Green Hill C	CF4-T1 ash (ancient)	High	Medium – potential road alignment and protective fencing within Veteran Tree	Moderate

Site	Tree Reference	Value/Sensitivity	Magnitude of Impact	Significance of Effect
			Buffer Zone, potential root impacts	
Green Hill E	EF7-T3 ash	High	Medium – internal road within Veteran Tree Buffer Zone, potential root impacts	Moderate
Green Hill F	FF11-T1 ash	High	Negligible – protective fencing just within Veteran Tree Buffer Zone, potential root impacts	Minor
Green Hill F	FF30-T2 oak	High	Medium – Solar panels within Veteran Tree Buffer Zone, potential root impacts	Moderate
Green Hill F	FF4-T3 ash	High	Negligible – protective fencing just within Veteran Tree Buffer Zone, potential root impacts	Minor
Cable Route Search Area	Hardwick Wood – ancient woodland	High	Low – root and dust impacts to woodland from open-cut trenching for cable	Moderate
Cable Route Search Area	Sywell Wood – ancient woodland	High	Low – root and dust impacts to woodland from open-cut trenching for cable	Moderate
Cable Route Search Area	Horn Wood – ancient woodland	High	Low – root and dust impacts to woodland from open-cut trenching for cable	Moderate
Cable Route Search Area	Barslay Spinney – ancient woodland	High	Low – root and dust impacts to woodland from open-cut trenching for cable	Moderate

All major and moderate effects listed above in **Table 19.6** are likely significant effects to veteran trees and ancient woodlands during the construction phase.

Cable Route Search Area

19.8.3 Targeted and walkover surveys of the Cable Route Search Area have not yet been undertaken therefore likely effects on arboricultural features within the Cable Route Search Area cannot be confirmed at this stage other than those associated with ancient woodlands as shown in **Table 19.6** above.

19.8.4 Impacts to trees in the Cable Route Search Area during construction are likely to be focused on areas of open-cut trenching along the Cable Corridor as well vehicular and machinery access into fields, haul roads and working corridors. Details of open-cut trenching sections and likely working corridors will be detailed in the ES along with an assessment of likely arboricultural impacts and significant effects.

Operational Phase

Ancient and Veteran Trees and Ancient Woodlands

19.8.5 No excavation is required to replace solar PV panels near FF30-T2 oak which should minimise impacts on that tree for those works. However, vehicle tracking within its Veteran Tree Buffer Zone may result in minor root damage or soil compaction to the tree which, as outlined above in **Table 19.6**, constitutes a likely significant effect for the purposes of this assessment.

19.8.6 Embedded mitigation as detailed in paragraphs 19.7.3 to 19.7.9 for Scheme design will mean that all other Veteran Tree Buffer Zones (other than that of FF30-T2 oak) will be unaffected during site operation activities such as maintenance visits and replacement activities and will be unaffected by new tree planting.

19.8.7 Apart from the above, no significant effects to ancient and veteran trees or ancient woodlands are anticipated during the operational phase of the Scheme.

Cable Route Search Area

19.8.8 No works are likely to take place within the Cable Route Search Area during operation of the Scheme therefore no additional impacts to arboricultural features are anticipated.

Decommissioning

Ancient and Veteran Trees and Ancient Woodland

19.8.9 Given that solar PV panels are anticipated to be removed using the roads and accesses installed during the construction stage which have been designed with embedded mitigation in mind (as per paragraphs 19.7.3 to 19.7.9) no significant effects to ancient and veteran trees and ancient woodland are anticipated during decommissioning.

Cable Route Search Area

19.8.10 The cables are anticipated to be left in situ and not removed for decommissioning. As such, no additional impacts to arboricultural features are anticipated during decommissioning.

19.9 Additional Mitigation Measures

19.9.1 The following additional mitigation measures for the construction phase are likely to be required and will be included in the DCO application, where necessary, as part of the Outline Arboricultural Method Statement and Outline Construction Environment Management Plan (OCEMP).

19.9.2 The following additional mitigation measures are likely to be included in the Outline Arboricultural Method Statement:

- Tree Protection Barriers and ground protection where necessary during construction to safeguard retained trees;
- Micrositing security fencing post holes to avoid tree roots and lining post holes within RPAs with an impermeable membrane prior to pouring any concrete;
- Micrositing open cut trenching for cabling to avoid high and medium sensitivity/value arboricultural features;
- Specialist construction methods are incorporated into the design (such as ‘no-dig’ or ‘limited-dig’ hard surfacing for internal roads) where incursions into the RPAs of retained trees occur. Horizontal Directional Drilling can also be used to avoid impacting tree roots when installing the cables; and
- Hand digging under ACoW supervision where excavation is required within RPAs.

19.9.3 The following additional mitigation measure will be required for inclusion in the OCEMP:

- Dust management measures for open cut trenching near ancient woodlands.

19.10 Residual Effects

19.10.1 This section summarises the likely residual significant effects of the Scheme following the implementation of embedded/additional mitigation as outlined in **Sections 19.7 and 19.9** of this chapter.

19.10.2 At this stage, the layout of the Scheme has not been finalised and therefore likely residual effects on arboricultural features cannot be confirmed. Likely significant effects on arboricultural features provided in **Table 19.6** will largely be addressed through iterative design and implementation of the embedded mitigation measures listed in paragraph 19.7.3.

19.10.3 Should any likely significant effects remain once the final layout of the Scheme is confirmed, additional mitigation measures during construction such as 'no-dig' or 'limited-dig' hard surfacing within Veteran Tree Buffer Zones, hand digging and lining security fence post holes within Veteran Tree Buffer Zones will be implemented. These measures will aim to minimise harm to arboricultural features and limit the significance of any residual effects to minor (or non-significant). Mitigation measures will be fully detailed in the Outline Arboricultural Method Statement to be submitted with the DCO application.

19.10.4 Provided dust management measures are followed during construction where open cut trenching takes place near the ancient woodlands listed in **Table 19.6** above and appropriate Tree Protection Barriers are maintained during construction to create appropriate Construction Exclusion Zones adjacent to the ancient woodland, negligible effects are anticipated to ancient woodlands. Tree Protection Barriers will be specified in the Outline Arboricultural Method Statement and dust management prescriptions will be included within the OCEMP.

19.11 Cumulative Effects

Cumulative Effects

19.11.1 The ES will consider the potential cumulative effects of the Scheme and other relevant projects within the vicinity of the Scheme on each receptor/resource.

19.11.2 A list of projects that will be considered as part of the cumulative effects assessment can be found in **Volume 3**, **Appendix 2.2** of the PEIR, the list will be reviewed and refined in preparation of the DCO application submission through further consultation and will be presented and assessed in the ES.

19.11.3 For arboriculture, cumulative effects are relevant where arboricultural features within the Study Area may also be impacted by other projects in the local area. For ancient woodlands, cumulative effects are relevant where such woodlands within the Study Area or within 50m of the Study Area may also be impacted by other projects in the local area.

19.11.4 Only two planning applications were found relating to projects within 50m of the Study Area. These are both registered with North Northamptonshire District Council:

- NW/23/00360/FUL – located adjacent to the BESS site at Grendon Lakes, Main Road, Grendon, Northampton, NN7 1JW. The application is for the development of a Battery Energy Storage System (BESS) with associated infrastructure including: access, drainage and landscaping; and
- NW/21/00629/SCQ – located adjacent to the Green Hill BESS site at Land To The East Of Northampton Aquapark (at Grendon Lakes), Main Road, Grendon, Northampton, Northamptonshire. The application details the scope of the required Environmental Impact Assessment (EIA) of a proposed solar farm and associated development.

19.11.5 The first planning application listed above is still being determined by the Local Planning Authority. The application does not impact any of the trees within or adjacent to the Green Hill BESS. It proposes the removal of 10 trees for development purposes alongside significant replacement planting of individual trees, native woodland and native scrub to deliver a net gain of trees and canopy cover.

19.11.6 The second planning application listed above has been determined by the Local Planning Authority. The application is only for deciding the scope required for an Environmental Impact Assessment and contains no details of potential tree impacts.

19.11.7 Following this review of nearby planning applications that could affect the same arboricultural features and woodlands considered in this report, no cumulative effects to arboricultural features are anticipated.

In-Combination Effects

19.11.8 The ES chapter will evaluate the cumulative effects that arise from the combination or interaction of various impacts on a single receptor. This assessment recognises that multiple impacts, when occurring together, may produce a combined effect that is more significant than the sum of the individual effects in isolation. The consideration of in-combination effects will be completed following the detailed assessment which will support the ES.

19.12 Summary

19.12.1 This chapter of the PEIR has identified the existing environment in relation to Arboriculture and the assessment work that has been undertaken to date including high-level tree surveys of the Sites, targeted BS5837:2012 tree surveys of the fields BESS1 and BESS2 at the BESS site and a desk study of the Study Area (including an influencing distance of 50m outside of the Study Area).

19.12.2 A total of 437 arboricultural features (individual trees, groups of trees and woodlands) have been surveyed so far and 39 veteran trees (one of which is ancient) have been recorded across the Sites. No Conservation Areas, Tree Preservation Orders or recorded ancient and veteran trees were found to be present within the Study Area. One ancient woodland is within the Study Area - Barslay Spinney which is located within the Cable Route Search Area. Eight ancient woodlands are located outside but within 50m of the Study Area.

19.12.3 Embedded mitigation measures have been provided to minimise impacts to arboricultural features within the Sites. These include designing solar PV panels and associated infrastructure away from existing trees, tree groups and woodlands using the tree survey data provided in this report. Effects to arboricultural features within the Sites have therefore been scoped out of the ES Chapter with the exception of effects to ancient and veteran trees and ancient woodlands.

19.12.4 Effects to trees within the Cable Route Search Area are scoped into the ES chapter. The final details of the construction methods, working corridors and access roads required for the cabling works have not yet been confirmed and no tree surveys of the Cable Route Search Area have yet been undertaken. A full assessment of the likely effects to arboricultural features in the Cable Route Search Area will be included in the ES Chapter.

19.12.5 The ES Chapter for Arboriculture will be supported by a Preliminary Arboricultural Impact Assessment and Outline Arboricultural Method Statement. This will include the results of the further tree surveys required which include targeted BS5837:2012 tree surveys of areas of potential tree removal or effects and a walkover of the Cable Corridor (once determined) for ancient and veteran trees. Tree survey constraints will continue to inform the design of the Scheme and encourage a sensitive layout that minimises adverse arboricultural effects.

References

Ref.1 Forestry Commission (30 April 2020). Operations Note 046b – Restocking Woodland Following Loss of Ash Due to Ash Dieback.

Ref.2 Ministry of Housing, Communities and Local Government (December 2023). National Planning Policy Framework.

Ref.3 Department for Energy Security and Net Zero (March 2023). Overarching National Policy Statement for Energy (EN-1). Available at: https://assets.publishing.service.gov.uk/media/64252f3b60a35e00120cb158/NPS_EN-1.pdf

Ref.4 Department for Energy Security and Net Zero (March 2023). National Policy Statement for Renewable Energy Infrastructure (EN-3). Available at: https://assets.publishing.service.gov.uk/media/64252f5f2fa848000cec0f52/NPS_EN-3.pdf

Ref.5 West Northamptonshire Joint Planning Unit. (Adopted December 2014). West Northamptonshire Joint Core Strategy Local Plan (Part 1).

Ref.6 North Northamptonshire Joint Planning Unit. (Adopted July 2016). North Northamptonshire Joint Core Strategy 2011-2031.

Ref.7 Borough Council of Wellingborough and East Northamptonshire Council. (Adopted June 2013). Trees and Landscape Supplementary Planning Document.

Ref.8 Milton Keynes Council. (Adopted March 2019). Plan:MK 2016-2031.

Ref.9 Natural England and Forestry Commission. (Published 14 January 2022). Guidance – Ancient woodland, ancient trees and veteran trees: advice for making planning decisions. Available at: https://www.gov.uk/guidance/ancient-woodland-ancient-trees-and-veteran-trees-advice-for-making-planning-decisions

Ref.10 Natural England. Ancient Woodland. Available at: https://naturalengland-defra.opendata.arcgis.com/datasets/Defra::ancient-woodland-england/about

Ref.11 The Woodland Trust. Ancient Tree Inventory. Available at: https://ati.woodlandtrust.org.uk/tree-search/

Ref.12 Ministry of Housing, Communities and Local Government, Ministry of Housing, Communities & Local Government (2018 to 2021) and Department for Levelling Up, Housing and Communities (Published 6 March 2014). Tree Preservation Orders and Trees in Conservation Area. Available at: https://www.gov.uk/guidance/tree-preservation-orders-and-trees-in-conservation-areas

Ref.13 BSI Standards Publication (April 2012). BS5837:2012 Trees in relation to design, demolition and construction – Recommendations.

Ref.14 Ancient Tree Forum and The Woodland Trust. Ancient Tree Guide No. 4 – What are ancient, veteran and other trees of special interest? Available at: https://www.ancienttreeforum.org.uk/wp-content/uploads/2015/02/ancient-tree-guide-4-definitions.pdf

Ref.15 Natural England (2000). Veteran Trees: A Guide to Good Management (IN13). Chapter 2. Available at: https://publications.naturalengland.org.uk/publication/75035

Ref.16 North Northamptonshire Council. Interactive Mapping. Available at: https://www.northnorthants.gov.uk/applications-appeals-and-enforcement/view-planning-applications-and-mapping/view-planning-mapping

Ref.17 West Northamptonshire Council. Interactive Mapping. Available at: https://westnorthants.cloud.cadcorp.com/WebmapPublic/Map.aspx?MapName=WNCMap

Ref.18 Milton Keynes City Council. My Maps. Available at: https://mapping.milton-keynes.gov.uk/mymiltonkeynes.aspx

Ref.19 The Woodland Trust. Ancient Tree Inventory. Available at: https://ati.woodlandtrust.org.uk/tree-search/?v=2607524&ml=map&z=13&nwLat=52.66835171878944&nwLng=1.1227987236328296&seLat=52.59270959124916&seLng=1.4510152763672046

Ref.20 DEFRA. MAGIC Maps. Available at: https://magic.defra.gov.uk/magicmap.aspx

Ref.21 The Tree Council (June 2020). Ash Dieback Disease – A Guide for Tree Owners. Available at: https://treecouncil.org.uk/wp-content/uploads/2020/06/Tree-Council-Ash-dieback-tree-owners-guide-FINAL.pdf

Ref.22 Ministry of Housing, Communities and Local Government, Ministry of Housing, Communities & Local Government (2018 to 2021) and Department for Levelling Up, Housing and Communities (6th March 2014). Guidance – Tree Preservation Orders and Trees in Conservation Areas. Available at: https://www.gov.uk/guidance/tree-preservation-orders-and-trees-in-conservation-areas

Ref.23 Ministry of Housing, Communities and Local Government, Ministry of Housing, Communities & Local Government (2018 to 2021) and Department for Levelling Up, Housing and Communities (23rd July 2019). Guidance – Historic Environment. Available at: https://www.gov.uk/guidance/conserving-and-enhancing-the-historic-environment