Tillbridge Solar

Tillbridge Solar Project

EN010142

Volume 6
Environmental Statement

Appendix 12-7: Arboricultural Impact Assessment Part 1 of 3
Document Reference: EN010142/APP/6.2

Regulation 5(2)(a)
Infrastructure Planning (Applications: Prescribed Forms and Procedure) Regulations 2009

April 2025
Revision Number: 01

tillbridgesolar.com

@: info@tillbridgesolar.com T: 0800 046 9643

Table of Contents

Figures

Tables

Executive Summary

i. In total, the following tree feature categories as per BS5837:2012 (Ref 6) have the potential to be removed or part removed to facilitate the Scheme:

- part of one tree group and one individual tree of high quality (category A);
- one individual tree, one tree group and part of two woodlands of moderate quality (category B);
- five individual trees, part of five tree groups, two hedgerows and part of 47 hedgerows of low quality (category C); and
- two individual trees and one tree group identified as unsuitable for retention (category U) as a living tree for more than ten years in the context of the current land use.

ii. Where part of a group of trees is to be removed the final extent of tree loss is to be determined on site by an arboriculturist who will assess the suitability and stability of retained trees.

iii. The design has been developed to minimise impacts to trees, especially those of the greatest quality and value. This assessment identifies a reasonable worst case of tree loss to facilitate the Scheme and the detailed design will seek to further avoid or reduce impacts to trees where feasible.

iv. Tree feature loss (including hedgerows included within the tree survey) to facilitate the Principal Site represents circa 9,986m^2 or 1% of the total tree canopy cover surveyed with 99% of surveyed canopy cover retained. All surveyed tree features to be removed are within the Order limits.

v. Potential worst case canopy cover loss for the Cable Route Corridor, passing places, bell mouths and visibility splays, based on NTM mapping, is calculated at approximately 4,219.5m^2.

vi. An indicative worst case scenario cable route has been shown on the Tree Protection Plan (**Annex C**). This route has been selected to indicatively show a worst case scenario positioning of a route (i.e., one that does not avoid tree loss), formed of a 40m wide corridor. The total tree loss from this indicative worst case cable route alignment, based on NTM mapping, is approximately 6,227.1m^2.

vii. No veteran or ancient trees are to be removed and this will be secured via the **Framework Construction Environment Management Plan (CEMP) [EN010142/APP/7.8]**.

viii. Three Tree Preservation Orders (TPOs) are identified within the Order limits with several immediately adjacent (Marton 1965 and Brampton 1965 (Ref 31)) and apply to un-surveyed tree features within and adjacent to the Cable Route Corridor. No Conservation Areas are identified. No impacts to trees protected by TPOs are anticipated (based on TPO information available at the time of writing).

ix. No trees have been identified for pruning at this stage. The final requirement for pruning will be reviewed and identified at the detailed design stage and will be confirmed in an Arboricultural Method Statement. The Arboricultural Method Statement will be secured via the **Framework CEMP [EN010142/APP/7.8]**.

x. Incursions into the canopy or root protection area (RPA) of retained trees is predominantly limited to permanent or temporary access, bell mouth and passing place construction. Construction access will utilise existing hard surfaced access routes or where new access is required, will be achieved with ground protection to preserve tree roots and soil structure.

xi. New electrical connections will be positioned to avoid the RPA of retained trees where possible and where within an RPA will be installed by hand (working around significant roots) or by trenchless techniques.

1. Introduction

1.1.1 This appendix to **Chapter 12: Landscape and Visual Amenity** of this Environmental Statement (ES) **[EN010142/APP/6.1]** presents the assessment of the likely arboricultural impacts of the Tillbridge Solar Project (hereafter referred to as 'the Scheme'). This assessment includes consideration of the likely direct and indirect impacts to trees as a result of the Scheme and how impacts may be mitigated.

1.1.2 Arboriculture is interrelated with other environmental effects. This report should therefore be read in conjunction with:

a. **Chapter 3: Scheme Description** of this ES **[EN010142/APP/6.1]**;

b. **Chapter 9: Ecology and Nature Conservation** of this ES **[EN010142/APP/6.1]**; and

c. **Chapter 12: Landscape and Visual Amenity** of this ES **[EN010142/APP/6.1]**.

1.1.3 This appendix is also supported by the following annexes:

a. **Annex A: Tree Constraints Plan**;

b. **Annex B: Tree Survey Schedule**;

c. **Annex C: Tree Protection Plan**;

d. **Annex D: Outline Tree Protection Measures**; and

e. **Annex E: Tree Protection Signage**.

1.1.4 This document was updated at Deadline 6 in response to the third written questions received from the Examining Authority. The document references have not been updated from the original submission. For the most up-to-date documents, the reader should access these through the **Guide to the Application [EN010142/APP/1.2(Rev08)]** and Schedule 13 of the **draft DCO [EN010142/APP/3.1(Rev07)]**.

2. Legislation, Policy and Guidance

2.1 Introduction

2.1.1 The Legislation, Policy and Guidance sections of this appendix provides an overview of the relevant legislation, planning policy and technical guidance relevant to the arboricultural assessment.

2.2 Legislation

2.2.1 The law on TPOs is contained within Part VIII of the Town and Country Planning Act 1990 as amended (Ref 22) and in the Town and Country Planning (Tree Preservation) (England) Regulations 2012 (Ref 23) which came into force on 6 April 2012. Section 192 of the Planning Act 2008 (PA 2008) (Ref 14) made further amendments to the Town and Country Planning

Act 1990 which allowed for the transfer of provisions from within existing TPOs to regulations. Part 6 of the Localism Act 2011 (Ref 13) amended section 210 of the Town and Country Planning Act 1990 concerning time limits for proceedings in regard to non-compliance with TPO regulations. A TPO is an order made by a local planning authority in England to protect specific trees, groups of trees or woodlands in the interests of amenity. A Development Consent Order (DCO) can provide an exemption from the need to apply for consent for works to protected trees.

2.2.2 The Forestry Act 1967 (Ref 19) creates the legal framework for the felling of trees in England and also includes provisions for restocking requirements. A licence is required to fell any growing trees unless an exception applies. Exceptions include the removal of less than 5 cubic metres of timber per calendar quarter where no more than 2 metres cubed are sold, felling trees smaller than 8cm diameter or coppicing trees of 15cm diameter, the removal of trees in churchyards, gardens or public open spaces, felling trees to abate a nuisance or prevent a danger, felling trees immediately required to implement full planning consent or DCO approval, felling trees to satisfy an obligation in accordance with an Act of Parliament and tree removals by or necessary tree removals on behalf of a statutory undertaker. Schedule 8 of the PA 2008 amended the Forestry Act wording in relation to TPOs.

2.2.3 The Hedgerow Regulations 1997 (Ref 20) protect agricultural or countryside hedgerows which meet the requirements of an ‘important hedgerow’. These include a minimum length of 20m (or meets another hedge at each end) and a minimum age of at least 30 years. A wide range of other ecological and archaeological/heritage features can constitute an important hedgerow and further advice from a qualified ecologist is recommended in advance of any planned works which could impact established hedgerows on or bordering agricultural or countryside land. Prior to the removal or destruction of a protected hedgerow an application must be made to the Local Planning Authority. Full planning consent and/or a granted DCO is an exemption to this requirement.

2.2.4 The Occupiers Liability Act 1957 (Ref 21) confers a duty on an occupier to take reasonable care to ensure that visitors to their property are safe from harm. In 1984, the scope of the Act was extended to include uninvited visitors including trespassers. This duty to the uninvited is limited to those dangers which the occupier is aware of, those dangers that the uninvited are likely to be foreseeably exposed to (i.e., they will be in the area near hazardous trees) and those dangers from which the occupier could be reasonably expected to take steps to protect visitors (invited or otherwise). The 1957 Act also indicates in section 2(3)(a) that occupiers need to be prepared for the fact that children may not be as risk aware or as careful as adults and finally it includes a consideration of the nature and circumstances of the occupier(s) and the reasonableness of any steps to help prevent injury. Prosecutions under this Act are generally restricted to civil law cases and fall under the tort of negligence.

2.2.5 The Environment Act (2021) (Ref 18) includes strengthened measures to address illegal felling (via the Forestry Act 1967(Ref 19)) and requires highways authorities to consult on tree felling. The Act also includes a legally binding target relating to trees which states:

"Deliver our net zero ambitions and boost nature recovery by increasing tree and woodland cover to 16.5% of total land area in England by 2050."

2.3 National Planning Policy

2.3.1 National Planning Policy relevant to Arboriculture is detailed in the following excerpts.

2.3.2 The Department for Energy Security and Net Zero (2024) Overarching National Policy Statement for Energy (EN-1) (Ref 10) includes specific references to trees. These include the following extracts in relation to ancient woodland, veteran trees and other irreplaceable tree habitats:

"5.4.14 Irreplaceable habitats are habitats which would be technically very difficult (or take a very significant time) to restore, recreate or replace once destroyed, taking into account their age, uniqueness, species diversity or rarity."

"5.4.15 Ancient woodland is a valuable biodiversity resource both for its diversity of species and for its longevity as woodland. Ancient or veteran trees found outside ancient woodland are also particularly valuable. Other types of irreplaceable habitats include blanket bog, limestone pavement, sand dunes, salt marsh and lowland fen."

"5.4.32 Applicants should include measures to mitigate the direct and indirect effects of development on ancient woodland, veteran trees or other irreplaceable habitats during both construction and operational phase."

"5.4.54 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 or veteran trees unless there are wholly exceptional reasons (Footnote 190: for example where the public benefits (including need) of the nationally significant energy infrastructure would clearly outweigh the loss or deterioration of the habitat) and a suitable compensation strategy exists."

2.3.3 In relation to the applicant's assessment the NPS states:

"5.11.27 Existing trees and woodlands should be retained wherever possible. The applicant should assess the impacts on, and loss of, all trees and woodlands within the project boundary and develop mitigation measures to minimise adverse impacts and any risk of net deforestation as a result of the scheme. Mitigation may include the use of buffers to enhance resilience, improvements to connectivity, and improved woodland management. Where woodland loss is unavoidable, compensation schemes will be required, and the long-term management and maintenance of newly planted trees should be secured."

2.3.4 The National Policy Statement for Renewable Energy Infrastructure (EN-3) (Ref 9) includes specific references to trees:

"3.10.91 The applicant should 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. Applicants should also consider opportunities for individual trees within the boundaries to grow on to maturity.

3.10.92 The impact of the proposed development on established trees and hedges should be informed by a tree survey and arboricultural/hedge assessment as appropriate."

2.3.5 The National Planning Policy Framework (NPPF) (2024) (Ref 12) seeks to ensure that new development is sustainable and underlines the importance of Green Infrastructure, of which trees and hedgerows form an integral part. This encompasses a recognition of the importance of trees in relation to the management of air, soil and water quality along with other associated ecosystem services and climate change adaption.

2.3.6 The NPPF also seeks to achieve the protection and enhancement of landscapes and a net gain in biodiversity. Finally, it specifically identifies veteran and ancient trees and woodland as irreplaceable habitat in paragraph 193, stating *"c) 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*".

2.4 Local Planning Policy

2.4.1 Local Planning Authorities (LPA) in the UK have a statutory duty to consider both the protection and planting of trees when considering planning applications. The potential impact of development on all trees (including those not protected by a TPO or other statutory designation) is therefore a material consideration.

2.4.2 The Site is within the planning authority of West Lindsey District Council (WLDC) and Bassetlaw District Council (BDC).

2.4.3 A desktop review BDC's planning policies relating to trees was undertaken on 2 January 2024, including the Bassetlaw Local Plan 2020 – 2037 (Ref 4).

2.4.4 The following excerpts identify specific references to tree retention, protection and mitigation for tree loss within the Bassetlaw Local Plan:

a. *"8.7 Trees, woodland and hedgerows*:

   i. *8.7.3 Policy 41 reaffirms national policy by recognising ancient woodland and ancient, aged or veteran trees as irreplaceable habitats – development resulting in their loss or deterioration will not be supported, unless in exceptional cases where the public benefit would clearly outweigh the loss or deterioration of the habitat.*

   ii. *8.7.4 Tree Preservation Orders (TPOs) legally protect specific trees or groups of trees that provide public amenity, and are particularly useful in protecting the character of Conservation Areas. A TPO is particularly important in controlling the felling and pruning of protected trees or woodlands. Planning permission is required to undertake works to protected trees in accordance with*

national legislation and guidance. New orders will continue to be made where trees of amenity value are at risk.

iii. *8.7.5 This Plan protects trees, woodland and hedgerows from loss. On that basis, Policy 41 requires an appropriate design and layout of new development to protect their ongoing growth, including suitable buffers for root protection. Details should be provided with a planning application. This should include appropriate protection during construction reflecting British Standard 5837:2012 Trees in Relation to Design, Demolition and Construction.*

iv. *8.7.6 In cases where the loss of trees or hedgerows cannot be avoided, a suitable compensation strategy should be secured and implemented via planning conditions or obligations. This will be determined on a case by case basis taking into account the scale, nature and impacts of the development. The compensation must include replacements capable of providing at least equal amenity and ecological value of a local provenance should be provided, preferably on site. The level of detail expected with a planning application should be proportionate to the scale of the proposal and the identified impact.*

v. *8.7.7 All trees provided for through new development will require ongoing management and maintenance to ensure their growth and quality in the long term. The arrangements should be set out in a management plan submitted as part of the planning application, which will be controlled via a planning condition or legal agreement.*

vi. *8.7.8 Further information on planting, management and maintenance will be covered by the Greening Bassetlaw SPD to be published following adoption of the Local Plan.*

b. *POLICY 41: Trees, woodlands and hedgerows*

i. *1. The Council will protect existing trees, woodland and hedgerows and secure additional planting that increases canopy cover in the interests of biodiversity, amenity and climate change adaptation by: a) retaining, protecting and improving woodland and trees subject to Tree Preservation Orders (TPOs), trees within conservation areas, and 'important' hedgerows as defined by the Hedgerows Regulations 1997; b) making Tree Preservation Orders; c) giving consideration to trees and hedgerows both on individual merit as well as their contribution to amenity and interaction as part of a group within the broader landscape setting; d) resisting the loss or deterioration of ancient woodland and ancient or veteran trees unless there are wholly exceptional reasons and a suitable compensation strategy exists; e) seeking contributions to the national tree planting target to contribute to net zero emissions in accordance with Policy ST50.*

ii. *2. Where development would adversely affect trees or hedgerows the application must be accompanied by:*

iii. a) an accurate tree survey and arboriculture assessment, undertaken by an experienced arboriculturist, of all existing trees and hedgerows on site in accordance with BS5837 (Trees in relation to design, demolition and construction – Recommendations) 2012; b) details of protective measures to be put in place during the development to ensure the health and safety of each specimen and hedgerow to be retained; c) an avoidance and mitigation strategy to include replacement planting for specimens of at least equal amenity and ecological value of a local provenance; and d) a detailed management plan providing details of maintenance arrangements for 10 years."

2.4.5 A desktop review of WLDC's planning policies relating to trees was undertaken on 7 September 2023, including the Central Lincolnshire Local Plan (Ref 30).

2.4.6 The following excerpts identify specific references to tree retention, protection and mitigation for tree loss within the Central Lincolnshire Local Plan:

a. "Policy S66: Trees, Woodland and Hedgerows

i. Development proposals should be prepared based on the overriding principle that:

• the existing tree and woodland cover is maintained, improved and expanded; and
• opportunities for expanding woodland are actively considered, and implemented where practical and appropriate to do so.

b. Existing Trees and Woodland

ii. Planning permission will only be granted if the proposal provides evidence that it has been subject to adequate consideration of the impact of the development on any existing trees and woodland found on-site (and off-site, if there are any trees near the site, with 'near' defined as the distance comprising 12 times the stem diameter of the off-site tree). If any trees exist on or near the development site, 'adequate consideration' is likely to mean the completion of a British Standard 5837 Tree Survey and, if applicable, an Arboricultural Method Statement.

iii. Where the proposal will result in the loss or deterioration of:

a) ancient woodland; and/or
b) the loss of aged or veteran trees found outside ancient woodland,

iv. permission will be refused, unless and on an exceptional basis the need for, and benefits of, the development in that location clearly outweigh the loss.

v. Where the proposal will result in the loss or deterioration of a tree protected by a Tree Preservation Order or a tree within a Conservation Area, then permission will be refused unless:

c) there is no net loss of amenity value which arises as a result of the development; or
d) the need for, and benefits of, the development in that location clearly outweigh the loss.

vi. *Where the proposal will result in the loss of any other tree or woodland not covered by the above, then the Council will expect the proposal to retain those trees that make a significant contribution to the landscape or biodiversity value of the area, provided this can be done without compromising the achievement of good design for the site.*

c. *Mitigating for Loss of Trees and Woodland*

i. *Where it is appropriate for higher value tree(s) (category A or B trees (BS5837)) and/or woodland to be lost as part of a development proposal, then appropriate mitigation, via compensatory tree planting, will be required. Such tree planting should be on-site wherever possible and should:*

e) take all opportunities to meet the six Tree Planting Principles (see supporting text); and

f) unless demonstrably impractical or inappropriate, provide the following specific quantity of compensatory trees:

d. *New Trees and Woodland*

i. *Where appropriate and practical, opportunities for new tree planting should be explored as part of all development proposals (in addition to, if applicable, any necessary compensatory tree provision). Where new trees are proposed, they should be done so on the basis of the five Tree Planting Principles. Proposals which fail to provide practical opportunities for new tree planting will be refused.*

ii. *Planting schemes should include provision to replace any plant failures within five years after the date of planting. Planting of trees must be considered in the context of wider plans for nature recovery which seeks to increase biodiversity and green infrastructure generally, not simply planting of trees, and protecting / enhancing soils, particularly peat soils. Tree planting should only be carried out in appropriate locations that will not impact on existing ecology or opportunities to create alternative habitats that could deliver better enhancements for people and wildlife, including carbon storage. Where woodland habitat creation is appropriate, consideration should be given to the economic and ecological benefits that can be achieved through natural regeneration. Any tree planting should use native and local provenance tree species suitable for the location.*

e. *Management and Maintenance*

i. *In instances where new trees and/or woodlands are proposed, it may be necessary for the council to require appropriate developer contributions to be provided, to ensure provision is made for*

appropriate management and maintenance of the new trees and/or woodland.

f. Hedgerows

i. Proposals for new development will be expected to retain existing hedgerows where appropriate and integrate them fully into the design having regard to their management requirements.

ii. Proposals for new development will not be supported that would result in the loss of hedges of high landscape, heritage, amenity or biodiversity value unless the need for, and benefits of, the development clearly outweigh the loss and this loss can be clearly demonstrated to be unavoidable.

iii. Development requiring the loss of a hedgerow protected under The Hedgerow Regulations will only be supported where it would allow for a substantially improved overall approach to the design and landscaping of the development that would outweigh the loss of the hedgerow. Where any hedges are lost, suitable replacement planting or restoration of existing hedges, will be required within the site or the locality, including appropriate provision for maintenance and management."

2.4.7 A tree replacement standard is identified within the Central Lincolnshire Local Plan, shown in **Table 2-1** below. Tree replacements are based on selected standards of a 10/12 cm girth measured at 1m.

Table 2-1: Central Lincolnshire Local Plan Tree Replacement Standard

Trunk diameter (mm) at 1.5m above ground level lost to development	Number of replacement trees (selected standards 10/12 cm girth at 1m) required, per tree lost
75 - 200	1
210 - 400	4
410 – 600	6
610 - 800	9
910 – 1000	10
1000+	11

Source: The Central Lincolnshire Local Plan (2023) (Ref 30)

2.5 Guidance

2.5.1 The arboriculture assessment has been carried out in accordance with the general principles of the following:

a. BS5837:2012 Trees in relation to design, demolition and construction – Recommendations (Ref 4);

b. BS3998: 2010 – Treework – Recommendations (Ref 7);

c. National Joint Utilities Group (NJUG) (2007) Vol 4 Issue 2 – Guidelines for the Planning, Installation and Maintenance of Utility Apparatus in Proximity to Trees (Ref 25);

d. Natural England and Forestry Commission (2022) Ancient woodland, ancient trees and veteran trees: advice for making planning decisions (standing advice) (Ref 26); and

e. Ancient Tree Forum (2013) Ancient and other veteran trees: further guidance on good management (Ref 1).

2.6 Methodology

2.6.1 The tree survey has been based on Ordnance Survey base mapping. Trees have been plotted indicatively with reference to the National Tree Map (NTM) dataset (provided by Bluesky International Ltd), GPS positions, site features and publicly available aerial photography. As such, all positions must be considered as indicative only and the relative distances of features must be measured out on site as required.

2.6.2 The Cable Route Corridor has been subject to a limited walkover tree survey of accessible areas at this stage, with the intention to identify trees of potential ancient and/or veteran status. As such, the majority of trees within the Cable Route Corridor have been considered by a desk study only (utilising NTM data provided by Bluesky International Ltd) as a 'worst case loss scenario', based on a 10m working width. The Applicant contacted WLDC and BDC by email on 5 July 2023 and it was confirmed by both authorities on 28 July 2023 and 10 July 2023 respectively by return email that this high-level approach to tree assessment along the Cable Route Corridor is acceptable.

2.6.3 NTM data provided by Bluesky International Ltd uses LiDAR and aerial imagery to estimate tree canopy extent and tree heights. A notional Root Protection Area (RPA) buffer zone based on tree height was subsequently added to each tree feature. This buffer is determined with reference to a database of tens of thousands of surveyed trees which correlates recorded tree heights with recorded tree stem diameter to assign a likely stem diameter range and an estimated RPA is then calculated as per BS5837:2012 (Ref 6) (and is accordingly capped at a radius of 15m).

2.6.4 The survey was otherwise conducted in accordance with the requirements of BS5837:2012 Trees in relation to design, demolition and construction – Recommendations (BS5837:2012) (Ref 6).

2.6.5 The initial fieldwork was undertaken between 2022 and 2023, during which dimensional data and observational information were collected. The fieldwork informing this report has comprised a preliminary, non-intrusive, visual survey undertaken from ground level with the specific intention of evaluating the non-fiscal value, quality and benefits of trees on the Site. A diameter tape measure was used to measure stem diameters where feasible. Average dimensions or dimensional ranges have occasionally been used, where appropriate, to best describe features.

2.6.6 Where further inspection is deemed appropriate to ascertain the condition of the tree or other arboreal features, this has been identified within the preliminary management recommendations.

2.6.7 The RPA is the notional extent of what is considered to be the key rooting area for tree health and function. This is generally depicted as a circle but can be amended to a polygon with an equivalent area in accordance with Section 4.6.2 of BS5837:2012 (Ref 4). The RPA of all surveyed trees is depicted as a circle. The RPA of ancient and veteran tree features has been increased to 15 times the stem diameter measured at 1.5m above ground level, or five metres beyond the canopy extent/drip-line, whichever is greater, as per best practice guidance (Ref 26).

2.6.8 A Tree Constraints Plan showing the position of trees and the spatial constraints associated with them is included as **Annex A** of this report, which corresponds with the Tree Survey Schedule presented in **Annex B**.

2.6.9 The tree categorisation process recommended by BS5837:2012 *(*Ref 4) is summarised in **Table 2-2** below and corresponds with the tree canopy outline shown on the tree constraint plan included as **Annex A** and the information in the Tree Survey Schedule included as **Annex B**.

Table 2-2: BS5837:2012 Tree Categorisation Process.

Tree Category / Sub Category	Definition
Category A	High quality, minimum of 40+ years remaining contribution
Category B	Moderate quality, minimum of 20+ years remaining contribution
Category C	Low quality, minimum of 10+ years remaining contribution
Category U	Unsuitable for retention, <10 years remaining contribution
Sub Category 1	Arboricultural value
Sub Category 2	Landscape value
Sub Category 3	Conservation or cultural value

Source: BS5837:2012 (Ref 4)

2.7 General Arboricultural Principles

General Principles

2.7.1 Trees are dynamic living organisms that provide essential benefits to society and the wider environment. Any development with the potential to impact on trees must take into consideration the value of trees on the site; the impact of any proposed activity along with any potential future conflicts on the site. Suitable measures to safeguard retained trees or mitigate the loss of trees

(to be removed) will need to be fully considered and may be subject to a condition of planning consent or a requirement of DCO consent.

2.7.2 Tree branches and roots frequently grow across site boundaries and off-site trees can pose a significant constraint and should be carefully considered when assessing the developable space within a site.

Below Ground Constraints

2.7.3 Below ground tree roots and the soil environment in which they grow need to be protected if the tree is to be retained. Trees grow in association with fungi and other soil organisms which are of key importance to tree health. Roots are essential for anchorage, the uptake of water and nutrients, and the storage of energy (carbohydrates) for the future growth and function of the tree.

2.7.4 Roots can be damaged by physical severance or wounding (e.g., following excavation of the soil) which can lead to the development of decay and a decline in vitality and/or instability. Raising the soil level can bury tree roots at a depth where suitable conditions for growth are less available. Toxic materials discharged into the soil (such as cement based aggregates, fuel and chemicals) can lead to root death and dysfunction. Soils can be compacted to levels inhospitable to tree growth with even a single pass of machinery, regular pedestrian traffic or the storage of plant and materials. Relieving compaction can be problematic and may require costly remedial works. Changes in drainage/water levels can also have significant long-term impacts for tree health.

2.7.5 The effects of these incursions may take many years to manifest, with a resulting decline in amenity value and potentially the death or failure of the tree. It should be noted that older trees are particularly sensitive to damage and changes in conditions.

2.7.6 The RPA is a notional area considered to be the minimum zone that must be protected to avoid any adverse impacts on retained trees. This area is deemed to be particularly important for tree stability, growth, function and health. However, roots may extend far greater distances, with the distribution of the root system relating directly to the availability of suitable conditions for growth (namely oxygen, water and nutrients). It is generally accepted that tree roots are predominantly located in the upper 1,000 mm of soil; however, roots may develop at deeper levels where conditions allow.

2.7.7 RPAs are calculated as per BS5837:2012 Annex C, D and Section 4.6 in the BS5837:2012 document (Ref 4).

2.7.8 The RPA of the existing tree stock is an important material consideration when considering site constraints and planning development activities. The RPA of significant trees on the Site is shown on the Tree Constraints Plans included as **Annex A**.

2.7.9 The default position must be that all development, including any associated services will occur outside the RPAs of retained trees. Where this is unavoidable, it may be appropriate to use special measures to install structures, services or surfacing within RPAs which allow the protection of

roots and soil structure which are essential for tree growth and keep any incursion to a minimum.

2.7.10 Further steps to improve or increase the useable rooting area available to the tree may also be required.

Soils

2.7.11 On shrinkable clay soil, tree growth can lead to the differential movement of structures as moisture is removed from the soil during the growing season. Soils must be carefully assessed, and any foundations must be installed following the recommendations of *National House Building Council (NHBC) Standards Chapter 4.2: Building Near Trees (2024) (Ref 27)* to avoid potential future damage. Where trees which predate existing structures are to be removed, this can result in heave as the soils are re-wet.

2.7.12 The advice of a suitably qualified engineer must be obtained to inform any potential issue of heave. Specific advice in relation to this issue is beyond the scope of this report.

Above Ground Constraints

2.7.13 Tree stems and branches can restrict available space on the site. Damage or wounding (including excessive pruning) can significantly reduce the amenity contribution of the tree and may lead to the development of dysfunction and decay, with significant long-term implications for tree health. The future impact of existing trees should be carefully considered, including individual species characteristics (such as potential future size, fruit fall, shade etc.) and how the tree will interact with any Scheme and future land use. Annual tree growth can lead to direct damage if stems/branches (or roots) come into physical contact with structures and this must also be taken into consideration.

Trees and Risk in the Context of Development

2.7.14 Tree owners/managers have a legal duty to prevent foreseeable harm. It is generally accepted that this duty can be fulfilled by undertaking proactive inspections of significant trees to identify obvious defects and by taking appropriate remedial action or gaining further advice as appropriate.

2.7.15 Further guidance is available from the National Tree Safety Group (Ref 28).

2.7.16 The tree survey carried out as the basis of this report is primarily for planning purposes, focusing on the quality and benefits of the trees and is not specifically designed to assess the safety of trees on the Site. However, when obvious issues have been identified recommendations have been included in the Tree Survey Schedule (**Annex B**).

2.7.17 The Construction (Design and Management) Regulations (2015) (Ref 16) states that developers and contractors have responsibilities for health and safety as a result of their actions. Should trees be left in an unstable or hazardous condition the Health and Safety Executive (HSE) could seek to prosecute those responsible along with the potential for further Civil claims for damages.

Trees and Wildlife

2.7.18 Full consideration must be given to the presence of species protected under the Wildlife and Countryside Act (1981 - as amended) (Ref 15), the Countryside Rights of Way Act (2000) (Ref 15) and the Conservation of Habitats and Species Regulations (2017) (Ref 17), in particular the presence of roosting bats and nesting birds. It is recommended that wherever possible, significant tree/hedge works take place outside of the typical bird nesting season of March to August.

Tree Works

2.7.19 Any tree surgery recommendations contained within this report are to be undertaken in accordance with BS3998:2010 Tree work – Recommendations (BS3998:2010) (Ref 7) by suitably qualified and insured contractors. Significant pruning works are best undertaken when trees are dormant or outside periods of high functional activity to reduce the overall impact on energy available to the tree for growth and processes. In general, the optimum period for works is between November to February and July to August (subject to the presence of protected species) when the tree is less active and better placed to respond to wounding and a reduction in leaf area.

2.8 Fieldwork Observations

The Site

2.8.1 The Order limits are shown on the Tree Constraints Plan (**Annex A**) and Tree Protection Plans (**Annex C**). The existing land use is typically arable farmland intersected by features typical of arable land in England including access roads and tracks, boundary hedgerows, trees established at irregular intervals or as woodlands and shelterbelts/timber-belts, and drainage ditches and services.

The Trees

2.8.2 The tree survey identified 1,067 tree features, formed of: 651 individual trees, 170 tree groups, 220 hedgerows and 26 woodlands. Of these features, 123 are identified as high quality (category A), 243 as moderate quality (category B), 593 as low quality (category C) and 108 identified as unsuitable for retention as living trees for more than 10 years in the context of the current land use (category U).

2.8.3 Surveyed individual trees show a population distribution asymmetrically weighted towards semi-mature with 48% coverage; early-mature shows 23.9%, mature with 19% and young with 2.9%. Veteran and ancient trees form 6.2% of the total individual tree population identified. This represents an opportunity to increase the total volume of individual young trees (e.g., hedgerow trees, standards established at irregular intervals in pasture etc.,) through new planting. Further opportunities may be sought through the retention of the mature and older age categories where feasible.

2.8.4 Tree genera and species identified on Site are identified in **Table 2-3**.

Table 2-3: Tree genera and species identified within and immediately adjacent to the Order limits.

Common Name	Scientific Name
fir species	*Abies spp.*
field maple	*Acer campestre*
Norway maple	*Acer platanoides*
sycamore	*Acer pseudoplatanus*
silver maple	*Acer saccharinum*
maple species	*Acer spp.*
horse chestnut	*Aesculus hippocastanum*
tree of heaven	*Ailanthus altissima*
common alder	*Alnus glutinosa*
monkey puzzle	*Araucaria araucana*
downy birch	*Betula pubescens*
silver birch	*Betula pendula*
birch species	*Betula spp.*
hornbeam	*Carpinus betulus*
sweet chestnut	*Castanea sativa*
blue Atlantic cedar	*Cedrus libani* 'Glauca'
dogwood	*Cornus sanguinea*
hazel	*Corylus avellana*
Turkish hazel	*Corylus colurna*
cotoneaster	*Cotoneaster spp.*
hawthorn	*Crataegus monogyna*
Monterey cypress	*Cupressus macrocarpa*
cider gum	*Eucalyptus gunnii*
spindle	*Euonymus europaeus*
beech	*Fagus sylvatica*
ash	*Fraxinus excelsior*
raywood ash	*Fraxinus angustifolia*
ash species	*Fraxinus sp.*
holly	*Ilex aquifolium*
common walnut	*Juglans regia*
Japanese larch	*Larix kaempferi*

Common Name	Scientific Name
privet	*Ligustrum vulgare*
crab apple	*Malus sylvestris*
apple species	*Malus spp.*
red robin	*Photinia x fraseri* 'Red Robin'
Norway spruce	*Picea abies*
spruce species	*Picea spp.*
Austrian pine	*Pinus nigra*
Scots pine	*Pinus sylvestris*
pine species	*Pinus spp.*
white poplar	*Populus alba*
Lombardy poplar	*Populus nigra* 'Italica'
Aspen	*Populus tremula*
western balsam poplar	*Populus trichocarpa*
hybrid black poplar	*Populus x canadensis*
poplar species	*Populus spp.*
wild cherry	*Prunus avium*
cherry plum	*Prunus cerasifera*
damson	*Prunus domestica*
cherry laurel	*Prunus laurocerasus*
Portugal laurel	*Prunus lusitanica*
blackthorn	*Prunus spinosa*
flowering cherry	*Prunus spp.*
common pear	*Pyrus communis*
holm oak	*Quercus ilex*
sessile oak	*Quercus petraea*
common oak	*Quercus robur*
oak species	*Quercus spp.*
purging buckthorn	*Rhamnus catharticus*
stag's horn sumach	*Rhus typhina*
false acacia	*Robinia pseudoacacia*
white willow	*Salix alba*
goat willow	*Salix caprea*

Common Name	Scientific Name
grey willow	*Salix cinerea*
crack willow	*Salix fragilis*
osier	*Salix viminalis*
weeping willow	*Salix X chrysocoma*
willow species	*Salix spp.*
elder	*Sambucus nigra*
rowan	*Sorbus aucuparia*
wild service tree	*Sorbus torminalis*
yew	*Taxus baccata*
western red cedar	*Thuja plicata*
small-leaved lime	*Tilia cordata*
lime species	*Tilia spp.*
English elm	*Ulmus procera*
Dutch elm	*Ulmus X hollandica*
elm species	*Ulmus spp.*
guelder rose	*Viburnum opulus*
Leyland cypress	*X Cupressocyparis leylandii*

2.8.5 A wide range of species were recorded with around 26% of species identified representing less than 5% of the total individual tree population. This represents good individual tree species distribution to enhance resilience against disease and climate change. Ash (*Fraxinus excelsior*) is identified with a significant weighting in the individual tree population with 47.5% of the total individual tree species distribution, followed by common oak (*Quercus robur)* at 11.2% and field maple (*Acer campestre)* at 4.9%.

2.8.6 Multiple trees on and immediately adjacent to the Order limits are identified as native ash (*Fraxinus excelsior*) with signs and symptoms of ash dieback. Across Britain, the native ash is in significant decline due to the non-native fungus *Hymenoscyphus fraxineus* (ash dieback). Ash trees may have natural immunity to ash dieback however, the majority of the ash population is susceptible (around 80 - >90% of trees). Once infected, ash trees initially showing minor symptoms may decline rapidly over a few years.

2.8.7 Consideration must therefore be made for the monitoring of ash trees on and immediately adjacent to the Order limits and their removal where appropriate. It is recommended that monitoring is undertaken annually in summer during full leaf flush. Ash trees showing late-stage symptoms of ash dieback may become embrittled, either due to degradation/dysfunction of the wood substrate from ash dieback or from secondary pathogens. The

subsequent removal of trees in the late stages of ash dieback may become hazardous to contractors undertaking tree removal. Removal of ash trees prior to this stage is therefore recommended.

2.8.8 Native and naturalised elm trees are susceptible to the non-native fungus *Ophiostoma ulmi* and *O. novo-ulmi*, Dutch elm disease (DED). The fungus is spread by a vector, the elm bark beetle *Scolytus spp*. Dutch elm disease has eliminated the majority of mature elm trees in Britain, with few exceptions.

2.8.9 Where present, this disease is likely to affect the existing elm population, most notably the species of English elm. As such, elm trees should be monitored for signs and symptoms of Dutch elm disease. Where appropriate, trees in decline are recommended for removal where an unacceptable risk to a target is present.

2.8.10 It is generally accepted that a single species should form no more than 10% of an urban forest population, due to the potential risk to canopy cover should that species be lost or significantly impacted (due to climate change, pests and diseases etc). The Scheme therefore represents a significant opportunity to increase the tree species diversity on Site through replanting.

2.8.11 Since the fieldwork, T480 and T504 have been confirmed as removed, likely due to tree condition/risk. These trees are therefore not considered further within this report.

2.9 Statutory and Non Statutory Designations

Statutory Designations

2.9.1 The Applicant contacted West Lindsey District Council on 18 November 2022, 18 September 2023 and 30 October 2023 via email to confirm the presence of any statutory designations relating to trees within or immediately adjacent to the Order limits.

2.9.2 West Lindsey District Council responded by return email on 1 November 2023, confirming the presence of Tree Preservation Orders to the southwest of Marton, in proximity to the Cable Route Corridor. In addition, the Applicant checked West Lindsey District Council's Interactive Map on 13 March 2025 (Ref 31). Three trees subject to Tree Preservation Orders were identified within the Order limits, with several identified immediately adjacent to the Order limits. These Tree Preservation Orders include: Marton 1965 (1 tree) and Brampton 1965 (2 trees) and apply to unsurveyed tree features. These Tree Preservation Order designations are shown approximately on the Tree Constraints (**Annex A**) and Tree Protection Plans (**Annex C**).

2.9.3 It is recommended that prior to any tree works, the status of the trees is checked with West Lindsey District Council.

2.9.4 The Applicant contacted Bassetlaw District Council on 1 December 2023 and 9 January 2024 via email to confirm the presence of any statutory designations relating to trees within or immediately adjacent to the Order limits. It was confirmed by return email on 9 January 2024 that no Tree Preservation Orders or Conservation Areas are present within the Order limits for the authority area of Bassetlaw District Council.

2.9.5 The Applicant checked the Bassetlaw District Council's Interactive Map (Ref 5) on 9 January 2024 and no Conservation Areas were identified within or immediately adjacent to the Order limits. However, it is recommended that prior to any tree works the status of the trees are checked with Bassetlaw District Council.

2.9.6 The Applicant checked DEFRA's Magic Map (Ref 11) on 12 September 2023 for the presence of Sites of Special Scientific Interest (SSSI) within and adjacent to the Order limits which may affect trees and none were identified.

2.9.7 A felling licence may be required by the Forestry Commission to fell more than 5m^3 of timber in any calendar quarter (subject to relevant exemptions full planning or DCO consent, tree safety works, tree works for a statutory undertaking and tree works in gardens, churchyards and designated public open space) (Ref 19).

2.9.8 The Hedgerow Regulations (1997) (Ref 20) protect agricultural or countryside hedgerows which meet the requirements of an 'important hedgerow'. These include a minimum length of 20m (or meets another hedge at each end) and a minimum age of at least 30 years. A wide range of other ecological and archaeological/heritage features can constitute an important hedgerow and further advice from a qualified ecologist is recommended in advance of any planned works which could impact established hedgerows on or bordering agricultural or countryside land. Prior to the removal or destruction of a protected hedgerow an application must be made to the Local Planning Authority. DCO consent is an exemption to this requirement. The status of hedgerows is considered in **Chapter 9: Ecology and Nature Conservation** and **Chapter 8 Cultural Heritage** of this ES **[EN010142/APP/6.1]**.

2.9.9 DCO consent (which specifically identifies the requirements for tree removals) is an exemption from the need to apply for consent for works to trees protected by a TPO for those TPOs made within the Order limits after 10 April 2024, the need to give notice of the intention to undertake works within a Conservation Area and the need to apply for a Felling Licence with the Forestry Commission (to fell more than 5 m^3 in any calendar quarter). Prior to any tree works the status of trees to be removed or pruned must be verified with the Local Planning Authority and the Forestry Commission as appropriate.

Non-Statutory Designations

2.9.10 The Applicant checked DEFRA's Magic Map (Ref 11) on 12 September 2023 for the presence of any non-statutory designations relating to trees such as ancient semi natural woodland or Priority Habitat Inventory designations.

2.9.11 No ancient semi natural woodland or replanted ancient woodland, and wood pasture and parkland were identified within or immediately adjacent to the Order limits. A number of Priority Habitat Inventory designations relating to trees were identified, including Priority Habitat Deciduous Woodland (England) and Priority Habitat Inventory - Traditional Orchards (England), and these are detailed on the Tree Constraints Plan included as **Annex A**.

2.9.12 The Applicant checked the Woodland Trust's Ancient Tree Inventory (Ref 32) on 12 September 2023 for the presence of any recorded notable, veteran or ancient trees within or immediately adjacent to the Order limits and none were identified. However, the Ancient Tree Inventory is not a complete dataset and is reliant on individuals putting trees forward for consideration and inclusion.

2.10 Ancient and Veteran Trees

2.10.1 The importance of ancient and veteran trees is identified in NPS EN-1 (Ref 10).

2.10.2 Despite the importance of veteran and ancient trees in the planning process, the classification of such trees is relatively subjective with no universally accepted criteria to determine status. Various attributes are associated with veteran trees including extensive decay or hollowing, crown retrenchment, large girth, fungi, dead wood etc. The Applicant considers that stem girth associated with maturity for the species and extensive decayed or dead wood habitat are key features in determining veteran tree status. Veteran trees should also be 'survivors' which have reasonable future potential as living trees.

2.10.3 A number of trees with veteran potential and one ancient tree were identified by the tree survey and these are clearly identified on the Tree Constraints Plan (**Annex A**) and Tree Protection Plan (**Annex C**) with an orange star symbol. In accordance with standing advice from Natural England and Forestry Commission (Ref 26) the RPA of veteran and ancient trees has been amended to a radius equivalent to 15 x stem diameter (measured at 1.5m) or canopy spread + 5m (whichever is greatest).

2.10.4 Trees: T9, T56, T57, T73, T114, T127, T205, T213, T280, T288, T290, T292, T297, T300, T347, T367, T407, T423, T439, T452, T494, T537, T554, T882, T1019, T1054, T1055, T1056, T1057, T1058, T1059, T1061, T1062, T1063, T1064, T1065, T1066, T1067, T1070, T1071, G1073 and G1074 are classed as veteran, identified for their mature stem diameter and extensive decay features with good development of functional units showing high vitality (e.g., normal leaf density, quality and a normal branching pattern).

2.10.5 T541 has been identified as ancient for the species due to its large stem diameter.

2.10.6 Buffer zones for ancient and veteran features are provided in the **Table 2-4** below.

Table 2-4: Ancient and veteran tree features identified on and immediately adjacent to the Order limits and the applied buffer zone.

Tree Feature ID	Buffer Zone (m)	Tree Feature ID	Buffer Zone (m)
T9	18m	T537	16m
T56	14m	T541	11m
T57	12m	T554	21m

Tree Feature ID	Buffer Zone (m)	Tree Feature ID	Buffer Zone (m)
T73	20m	T882	13m
T114	11m	T1019	12m
T127	14m	T1054	11m
T205	14m	T1055	13m
T213	11m	T1056	12m
T280	17m	T1057	9m
T288	10m	T1058	11m
T290	13m	T1059	12m
T292	14m	T1061	10m
T297	13m	T1062	20m
T300	14m	T1063	15m
T347	12m	T1064	12m
T367	14m	T1065	10m
T407	24m	T1066	13m
T423	16m	T1067	10m
T439	17m	T1070	13m
T452	14m	T1071	11m
T494	30m	G1073	7m
T537	16m	G1074	15m

2.10.7 The buffer zones represent a minimum standoff distance; where feasible, buffer zones should be increased to minimise any potential negative secondary impacts (such as dust, runoff etc). Where this is not feasible, and impacts could have a negative effect, specialist mitigation must be applied, to minimise and mitigate any potential negative impacts to the veteran or ancient tree features.

3. The Scheme

3.1.1 The Scheme will comprise the construction, operation (including maintenance), and decommissioning of ground-mounted solar photovoltaic (PV) arrays. The Scheme will also include associated development to support the solar PV arrays.

3.1.2 The Scheme is made up of the Principal Site, the Cable Route Corridor and works to the existing National Grid Cottam Substation. The Principal Site comprises the solar PV arrays, electrical substations, grid balancing

infrastructure, cabling and areas for landscaping and ecological enhancement.

3.1.3 The associated development element of the Scheme includes but is not limited to access provision; a Battery Energy Storage System (BESS), to support the operation of the ground mounted solar PV arrays; the development of on-site substations; underground cabling between the different areas of solar PV arrays; and areas of landscaping and biodiversity enhancement.

3.1.4 The Scheme also includes a 400kV underground Cable Route Corridor of approximately 18.5km in length connecting the Principal Site to the National Electricity Transmission System (NETS) at the existing National Grid Cottam Substation. The Scheme will export and import electricity to the NETS.

3.1.5 A full description of the Scheme is included in **Chapter 3: Scheme Description** of the Environmental Statement **[EN010142/APP/6.1]**. An overview of the Scheme and its environmental impacts is provided in the Environmental Statement **Non-Technical Summary [EN010142/APP/6.4]**.

4. Arboricultural Impact Assessment

4.1 Purpose

4.1.1 This impact assessment sets out the likely principal direct and indirect impacts of the Scheme on the trees on or immediately adjacent to the Order limits and suitable mitigation measures to allow for the successful retention of significant trees or to compensate for trees to be removed, where appropriate.

4.1.2 The following details assumptions utilised for this assessment:

a. Fencing within the Principal Site stops at hedgerows and continues beyond mitigation requirements for partial hedgerow removals for fencing installation;

b. A 2m buffer adjacent to partial removals of hedgerows and tree groups has been applied within the Principal Site to allow for working space, with exception to existing roads where any removals specified show up to the immediate land use boundary;

c. Working zones are only shown for change of land uses, where there is no assumed change from an existing land use, this is considered zero impact;

d. The cables (i.e. 33kV) within the Principal Site will be micro-sited to avoid the RPAs of retained trees where feasible to reduce potential tree impacts;

e. A 30m buffer has been applied to the Cable Route Corridor where no fenceline is present; where a fenceline is present, all trees within the fenceline boundary are shown as removed. Where trenchless crossings are proposed, trees in immediate proximity are shown as retained;

trees present at open trench crossing have been shown as removed. This approach is considered as a worst case scenario. Micro-siting the Cable Route Corridor to reduce tree impacts will be carried out where feasible to reduce potential tree impacts;

f. Passing places are shown as worst case scenario removals, based on NTM data. The final location of passing places will be adjusted at the detailed design stage to reduce tree impacts; and

g. Where NTM data trees occur within visibility splays, it is assumed that the position and significance of trees will be assessed at the detailed design stage to determine any necessary trees loss and/or pruning works to facilitate installation and use.

4.1.3 A brief summary of trees to be removed, tree works and incursions related to the Scheme are detailed within **Table 4-1**.

Table 4-1: Summary of Removals, Incursions and Pruning to Facilitate the Scheme

Impact	Category A	Category B	Category C	Category U
Trees to be removed to facilitate the Scheme	G1046 (part) and T436.	T61, G679, W739 (part), W744 (part),	T41, T314, T322,T341, T518, H561 (part), H569 (part), H570 (part), H571 (part), H585 (part), H587 (part), H598 (part), H599 (part), H603 (part), H605 (part), H617 (part), H618, H625 (part), H626 (part), H629 (part), H634 (part), H637 (part), H638 (part), G643 (part), H645 (part), H655 (part), G660 (part), G669 (part), G672 (part), H675 (part), H734 (part), H740 (part), G742 (part), H788 (part), H790, H802 (part), H803 (part), H808 (part), H843 (part), H851 (part), H854 (part), H861 (part), H870 (part), H878 (part), H880 (part), H926 (part), H930 (part), H939 (part), H941 (part), H945 (part), H950 (part), H951 (part), H952 (part), H954 (part), H965 (part), H966 (part), H969 (part), H975 (part) and H977 (part).	T182, T325 and G642 (part).
Total	Part of One Group and One Individual Tree.	One Individual Tree, One Group and Part of Two Woodlands.	Five Individual Trees, Part of Five Groups, Two Hedgerows and Part of 47 Hedgerows.	Two Individual Trees and Part of One Group.
Unsurveyed Tree Features to be Removed for the Current Cable Route Alignment			**~4,219.5m^2**	

Impact	Category A	Category B	Category C	Category U
Unsurveyed Tree Features to be Removed for Indicative 'Worst Case' Cable Route Alignment			~6,227.1m^2	
Trees which may require some incursion into their construction exclusion zone to allow the Scheme.	T53, T127, T396, T444, T453, T460, T534, T537, T541, T545, T546, T547, T549, T553 T554, and T884.	T441, T451, T456, T514, T536, T542, T550, T555, W767 and G844.	H609, H768 H772 and H866	T544 and T551.
Total	Sixteen Individual Trees	Eight Individual Trees, One Group and One Woodland.	Four Hedgerows.	Two Individual Trees.
Trees to be pruned to facilitate the Scheme	-	-	-	-
Total	**0**	**0**	**0**	**0**

4.2 Trees to be Removed

4.2.1 In total, part of one tree group and one individual tree of high quality (category A); one individual tree, one tree group and part of two woodlands of moderate quality (category B); five individual trees, part of five tree groups, two hedgerow and part of 47 hedgerows of low quality (category C); and two individual trees and part of one group identified as unsuitable for retention (category U) as a living tree for more than 10 years in the context of the current land use have the potential to be removed or part removed to facilitate the Scheme.

4.2.2 A summary of removals of surveyed tree features by canopy area is shown in **Table 4-2** below.

Table 4-2: Summary Tree Features Removals for Surveyed Tree Features by Area.

Surveyed Tree Feature Canopy Cover Area (m^2)	Total Removed Canopy Cover Area (m^2)	Percentage (%) of Surveyed Tree Population Removed by Area
923,677m^2	9,986m^2	1%

4.2.3 Potential worst case canopy cover loss for the Cable Route Corridor, passing places, visibility splays and bell mouths, based on NTM mapping, is calculated at approximately 4,219.5m^2. The majority of trees to be removed based on NTM mapping are located wholly within the Order limits. Passing places will be located to avoid tree impacts where feasible at the detailed design stage.

4.2.4 An indicative worst case scenario cable route has been shown on the Tree Protection Plan (**Annex C**). This route has been selected to indicatively show a worst case scenario positioning of a route (i.e., one that does not avoid tree loss), formed of a 40m wide corridor. The total tree loss from this indicative worst case cable route alignment, based on NTM mapping, is ~6,227.1m^2.

4.2.5 The development of tree groups and woodlands facilitates shelter to individuals as the group/woodland collectively acts to reduce dynamic loading (e.g., wind) within. As such, partial removal of groups and woodlands, notably at windward edges (south/southwest) may increase exposure to trees which were previously sheltered (companion shelter). Sudden increases in exposure by partial removals to trees otherwise un-adapted to the change may result in an increased likelihood for tree failure. This likelihood is determined by numerous factors including but not limited to: the stand density, total tree height, soils, climate, aspect and topography.

4.2.6 Where part of a group of trees is to be removed, the final extent of tree loss is to be determined on Site by an arboriculturist who will assess the suitability and stability of retained trees.

4.2.7 Tree loss of moderate quality (category B) and low quality (category C) tree features are predominantly for either construction facilitation access (e.g., widening of tracks) and/or for the installation of the cables (e.g., where the cables intersects an existing hedgerow). One tree group (G1046) identified as high quality (category A) is to be part removed to facilitate a visibility splay. One individual tree identified (T436) as high quality (category A) is to be removed to facilitate access.

4.2.8 No veteran or ancient trees are to be removed and this will be secured via the **Framework CEMP [EN010142/APP/7.8]**.

4.2.9 No impacts to trees protected by TPOs are anticipated (based on TPO information available at the time of writing).

4.2.10 The design has been developed to minimise loss or impacts to trees, especially those of the greater quality and value. Tree loss is assessed as a worst case (Rochdale Envelope) (excluding the retention of all ancient and veteran trees) to allow flexibility in the final alignment of the Scheme within the Order limits. Where possible the detailed design will be developed to further avoid or minimise impacts to trees and in practice this is likely to reduce the level of reported arboricultural impacts. Notably, for micro-siting the Cable Route Corridor and internal cables around existing trees.

4.2.11 All of the trees to be removed are within the Order limits. All of the remaining recorded trees can be retained and protected.

4.2.12 The impacts of tree removals will be mitigated with a high-quality scheme of new tree planting and associated landscaping works as detailed and secured in the **Framework Landscape and Ecological Management Plan (LEMP) [EN010142/APP/7.17]**, which will represent an opportunity to enhance the quality, benefits and resilience of trees within the Order limits.

4.3 Tree Works

4.3.1 Tree removals to facilitate the Scheme are detailed in the Tree Survey Schedule included as **Annex B**. No additional pruning has been identified at this stage. The final requirement for any pruning will be reviewed and confirmed at the detailed design stage.

4.3.2 All tree work is to follow the principles of BS3998: 2010 Treework – Recommendations (Ref 6) and must be carried out by suitably qualified contractors. The Arboricultural Association provides a list of contractors who meet these requirements. This is commitment and this will be secured via the **Framework CEMP [EN010142/APP/7.8]**.

4.3.3 Should the requirement for additional tree works be identified, this will be discussed with an arboriculturist and no works will be undertaken without the consent of the Local Planning Authority, and this will be secured via the **Framework CEMP [EN010142/APP/7.8]**.

4.4 Veteran and Ancient Trees

4.4.1 Development impacts to ancient and veteran tree features are summarised in **Table 4-3**.

4.4.2 In total, four veteran trees (T127, T537, T541 and T554) are subject to unavoidable buffer zone incursions, required for permanent access.

4.4.3 The proposed permanent access routes within the four buffer zones are currently utilised for agricultural access, likely subject to significant compaction from heavy agricultural machinery.

4.4.4 To mitigate against a potential negative impact to veteran tree physiological and structural health through the alteration of soil properties from access (these being mechanical resistance, aeration, fertility and moisture), all access within buffer zones will be micro-sited to be positioned as far from tree stems as possible. All access within the buffers, when not on existing hard surfacing, will utilise ground protection to an engineering specification such as a no dig installation, proprietary three dimensional cellular raft system, installed on the existing ground level. The raft system will be designed to tolerate the maximum loading required. The three dimensional raft system will protect the buffer zones through the distribution of loading forces over a larger area of the subgrade-base interface, resulting in lower vertical stress and reduced deformation of the subgrade (Ref 3). This will ensure that tree roots and soil structure will be robustly protected and existing growing conditions will be maintained.

Table 4-3: Veteran and Ancient Tree Development Impacts Summary.

Tree Feature ID	Direct Development Impact
T9	No impact.
T56	No impact.
T57	No impact.
T73	No impact.
T114	No impact.
T127	Permanent access.
T205	No impact.
T213	No impact.
T280	No impact.
T288	No impact.
T290	No impact.
T292	No impact.
T297	No impact.
T300	No impact.
T347	No impact.
T367	No impact.

Tree Feature ID	Direct Development Impact
T407	No impact.
T423	No impact.
T439	No impact.
T452	No impact.
T494	No impact.
T537	Permanent access.
T541	Permanent access.
T554	Permanent access.
T882	No impact.
T1019	No impact.
T1054	No impact.
T1055	No impact.
T1056	No impact.
T1057	No impact.
T1058	No impact.
T1059	No impact.
T1061	No impact.
T1062	No impact.
T1063	No impact.
T1064	No impact.
T1065	No impact.
T1066	No impact.
T1067	No impact.
T1070	No impact.
T1071	No impact.
G1073	No impact.
G1074	No impact.

4.4.5 Ancient and veteran trees will be protected from indirect impacts (such as dust) via careful management of materials and the use of screens where appropriate.

4.4.6 An Arboricultural Method Statement will be developed to address the potential for these direct and indirect impacts. This will be developed post consent and is secured via the **Framework CEMP [EN010142/APP/7.8]**.

4.5 Incursions within the RPA or Canopy Spread

4.5.1 In total, sixteen individual trees of high quality (category A); eight individual trees, one tree group and one woodland of moderate quality (category B); four hedgerows of low quality (category C); and two individual trees identified as unsuitable for retention (category U) have RPA and/or canopy spread incursions. Incursions within the buffer zones of veteran trees are identified in **Section 4.4**.

4.5.2 RPA incursions are predominantly to facilitate temporary or permanent construction access. Access will be micro-sited to be as far from tree bases as feasible. Where existing access routes are to be used for the Scheme but no change from the existing use is required (e.g., no change in the width, height or ground loading of vehicle use), such situations are not considered as RPA incursions for the purposes of this assessment.

4.5.3 Where access is utilising existing hard surfacing which requires amelioration within RPAs, the existing wearing course and levels to the subbase may be removed by plant working from either suitable ground protection (**Annex D.2**) or from existing hard surfacing. Where feasible, the existing subbase is to be utilised and ameliorated by hand only. Any protruding roots into the subbase are to be retained and bridged by utilising sand with no salts, where required (or equivalent). Where the subbase cannot be retained and/or ameliorated, the use of a no dig installation, proprietary three dimensional cellular raft system (or equivalent) will likely be required.

4.5.4 Access within RPAs will utilise appropriate ground protection when not positioned on existing hard surfacing, specified to dissipate the greatest load likely to occur. As set out in section 6.2.3.3 of BS5837:2012 (Ref 6) the following ground protection measures will be appropriate:

a. Suitable ground protection for pedestrian only access will comprise a single thickness of scaffold boards set on a compressible layer of 100mm of woodchip on a geotextile separation layer;

b. Pedestrian operated plant up to two tonnes in weight would require the use of a proprietary ground protection system (such as Ground Guards or Eve Trakway or equivalent) set on a minimum depth of 150mm woodchip or sharp sand; and

c. Heavier loads will require ground protection to an engineering specification in conjunction with arboricultural advice (such as the utilisation of a no dig installation, proprietary three-dimensional cellular raft system).

4.5.5 Three trees subject to TPOs are identified within the Order limits; including a single tree located along an existing track leading into the Cable Route Corridor west of the A165 and two trees within the Cable Route Corridor itself. These trees will be retained and protected with suitable tree protection fencing. Cable routing will be designed to avoid these trees. Any access routes will be diverted, where possible, to avoid the RPAs of retained trees. Where access cannot be diverted entirely outside of the RPAs, this will be achieved without damage to the RPAs through the use of suitable ground protection to protect roots and soil structure.

4.5.6 An Arboricultural Method Statement will be developed to address RPA incursions. This will be developed post consent and is secured via the **Framework CEMP [EN010142/APP/7.8]**.

Tree Protection

4.5.7 Retained trees are vulnerable to damage from construction activities which can include physical damage to stems and branches following impacts with plant. Root severance following trenching, root death or dysfunction following damage to soil structure (caused by the movement of people or machinery on unsurfaced ground) or via the spillage of materials toxic to tree health. The default position is that the RPA and Canopy spread of trees to be retained will form an effective Construction Exclusion Zone, secured with robust fencing where no access will be permitted. Where access is necessary within this area special measures such as the use of ground protection and arboricultural supervision are generally required.

4.5.8 Outline tree protection measures are considered in **Annex D** of this report. An Arboricultural Method Statement will be developed to address the detailed design, to set out the phasing of site operations, the finalised tree protection measures for the Scheme, and to provide detail on how sensitive elements of work are to be achieved in proximity to retained trees. This will be developed post consent and is secured via the **Framework CEMP [EN010142/APP/7.8]**.

4.5.9 Issues to be addressed by the Method Statement are listed in the Conclusion of this report.

4.6 Site Organisation, Storage and Use of Materials, Plant and Machinery.

4.6.1 All construction site facilities including compounds and areas for storage will be located outside of the RPA or crown spread of retained trees, including those not specifically covered in this report. Space is likely to be constrained on the Site and will need to be carefully considered.

4.6.2 The proposed construction compound locations and laydown areas are shown on the Tree Protection Plan in **Annex C**. The Construction Exclusion Zones identified on the Tree Protection Plan must be fully respected and their location and significance is to be highlighted to all site staff and contractors during the formal site briefings.

4.6.3 The use, mixing and washing of materials can lead to run off or inadvertent spillage into tree root zones. Many substances often used on construction sites can be toxic to tree roots (such as concrete, fuels, salts, builders sand and herbicides) and can result in the death of tree roots and beneficial soil organisms and can have a significant impact on the future health and appearance of the tree.

4.6.4 The storage of materials and arising's can result in an effective raised soil level. This buries tree roots at depths where air and water are less available and can lead to the decline or death of the tree.

4.6.5 For these reasons the storage of materials and any washing, mixing or refuelling will take place in agreed allocated areas at least 5m from the edge of the RPA of retained trees (unless otherwise agreed with the project arboriculturist).

4.6.6 Any slope effect must be taken into account and where there is a potential for run off, heavy duty polythene sheeting and sandbags must be in place as bunding to prevent toxic materials reaching RPAs.

4.6.7 Particular care is required where high sided vehicles, long reach machinery and plant with jibs, booms and counterweights are to operate with in proximity to retained trees. A banksman will be used where the movement of plant or long reach machinery occurs within 5m of any part of a retained tree to ensure no damage is sustained.

4.7 Tree Planting

4.7.1 Existing areas of unsurfaced ground must be protected during the construction phase if they are to be re-used for new plantings. Protection can be achieved using fit for purpose ground protection measures as set out in BS5837:2012 Section 6.2.3 (Ref 6) or by creating a fenced exclusion zone. Where protection is not feasible, soil amelioration or replacement works will be required to ensure suitable growing conditions for new trees to fully establish.

4.7.2 Where new trees are to be planted, the minimum planting distances detailed in Table A.1 of BS5837:2012 (Ref 6) must be adhered to along with project specific offsets to prevent direct damage to services and structures from future tree growth.

4.7.3 New tree planting should be implemented in accordance with the guidance set out in BS8545:2014 Trees: from nursery to establishment in the landscape – Recommendations (Ref 8).

4.8 Services

4.8.1 No detailed information in relation to services has been made available at this stage however, new electrical connections are required close to or within the RPAs of retained trees for the Cable Route Corridor and the Interconnecting Cable Corridor.

4.8.2 The final routing of electrical connections within the proposed corridors will be adjusted where feasible as part of the detailed design to avoid retained tree RPAs.

4.8.3 The general principles outlined below will apply.

a. Where existing services become redundant within the RPA of a retained tree, the default position must be that they be decommissioned and left in situ. Where this is not feasible the following principles are to be observed.

b. Existing services are to be removed by winching out from an access/inspection chamber located outside of an RPA. It may be

acceptable to fill redundant pipe work with an inert material or undertake pipe bursting where necessary within the RPA of retained trees.

c. Excavation to install services has the potential to result in unacceptable root severance which could result in instability, dysfunction or the death of trees. Repeated incursions are particularly damaging and must be avoided by bundling services wherever possible. The default position will therefore be that all services be routed outside of the RPA of retained trees.

4.8.4 The following general principles will apply and where services must be routed within the RPA of a retained tree this process will be subject to a detailed method statement with approval from the LPA. The principles of the National Joint Utilities Group (NJUG) Volume 4 guidance (Ref 25) must be adhered to.

a. All services must be bundled as far as possible and installed within RPAs using hand/compressed air excavation (e.g., for shallow service runs where all roots >25 mm diameter can be retained and worked around) or trenchless techniques such as Horizontal Directional Drilling (HDD) or impact moling (thrust boring) with all access pits and inspection chambers being located outside of the RPA. The route must run as far from the main stem of a retained tree as possible and must be at a minimum depth so that the upper 2m of the soil profile is undisturbed. The depth of the run may need to be adjusted to account for soil type and species variation and this must be determined subject to the advice of an arboriculturist.

b. Services must be constructed so as to be resistant to ingress by tree roots (both existing trees, and newly planted trees) which could include the use of root barriers where appropriate.

4.8.5 This operation must take place as specified in an Arboricultural Method Statement. This will be developed post consent and is secured via the **Framework Operational Environmental Management Plan (OEMP) [EN010142/APP/7.9].**

4.9 The Future Impact of Retained Trees

4.9.1 The future impact of retained trees in conjunction with the Scheme and future use of the Site has been considered.

4.9.2 Retained trees will require periodic inspection to assess their structural condition and safety. Occasional removal of dead wood or other remedial works to address significant defects may be required in areas of frequent access. This is unlikely to be overly onerous and will be the responsibility of the tree owner.

4.9.3 All tree works recommended in the Tree Survey Schedule (**Annex B**) as a result of the preliminary tree surveys considered trees in the context of the present use of the Site (i.e., prior to development proposals). Where these works are not superseded by proposed tree removal, they should be actioned.

4.9.4 Tree clearance to facilitate access for the Scheme will provide a reasonable clearance for construction and this will form the framework for a clearance during operation which can be maintained on an ad hoc basis. This will not be overly onerous and will not result in future pressure to remove retained trees.

4.9.5 Retained trees have the potential to cast shade on Solar PV Panels and may impair function and output. The design has been developed so that Solar PV Panels are generally set well back from the position of retained trees to reduce or avoid this issue.

4.9.6 Shading arcs equivalent to tree height and formed of a radius from northwest to due east have been plotted on the Tree Constraints Plan (**Annex A**) and the Tree Protection Plan (**Annex C**). Shading arcs show the typical extent of likely shading from trees throughout the day (as the sun moves from east to west in a southerly orientation) but do not illustrate areas subject to constant shade.

4.9.7 Current shading arc radii are based on detailed tree survey height estimates, and estimated heights determined via desk study (for unsurveyed trees) and this is included on the Tree Constraints Plan and Tree Protection Plan. This illustrates that no Solar PV Panels will be subject to significant shading at the time of construction. Estimated mature shading arcs based on data from NHBC (2024) (Ref 27) have been plotted for surveyed tree features and these are represented by magenta lines on the plans.

4.9.8 Where Solar PV Panels would be subject to some degree of shading from individual trees, tree groups or woodlands these are detailed in **Table 4-4** below. Trees which are identified as unsuitable for retention as living trees for more than 10 years in the context of the current land use (category U) have been excluded from this assessment. Although the direct shade from hedgerows has been considered by the design, hedgerows have not been included within this assessment as it is assumed that hedgerow cutting regimes will continue, preventing shade conflicts through future growth.

4.9.9 Shade impacts have been qualitatively assessed from slight, to moderate to high. Three tree groups are likely to cast slight shading to solar PV panels following construction but this shade impact is unlikely to significantly increase in the future.

4.9.10 The remaining identified tree features have the potential to cast only slight shade on Solar PV Panels through future growth with exception to T55, G754 and G804 which may be considered to cast slight to moderate shade on Solar PV Panels.

4.9.11 T55, identified as likely to cast moderate shade in the future through vertical and horizontal growth is identified as a native ash with moderate crown dieback; both the species' crown density and the physiologically reduced condition will likely reduce shade impacts. G804 is identified as native ash which will reduce any shading impact through the species' crown density. Both T55, G754 and G804 are all deciduous reducing the impact of year-round shade provision.

4.9.12 Shading impacts are likely only subject to partial day shading; shade impacts are typically on one side of a tree only (as the sun tracks across the sky) and therefore will be limited to specific times of day only. Shading from deciduous trees will be reduced in winter (when the sun is lowest in the sky and the extent of shade is greatest) following leaf fall. The trees generally implicated in shading of Solar PV Panels are deciduous species which will lose their leaves in winter.

4.9.13 Out of the tree features identified as causing current or with the potential to cause future shade impacts, 20 trees/tree groups/woodlands are identified between the age ranges of early mature to mature. Although early mature to mature age range tree features have the potential to increase in height over time, the heights of those trees which are already mature are less likely to be subject to substantial increases, despite the species' genetic potential for maximal height (as identified by NHBC 2024 (Ref 27)), due to influences by local conditions (such as climate, soils and biological interactions).

4.9.14 On this basis shade from trees immediately following construction and during the operation of the Scheme is not likely to result in significant conflict or future pressure to fell or undertake extensive pruning of retained trees.

Table 4-4: Tree shade of individual trees, tree groups and woodlands summary

Tree Reference	Maturity	Shading at Time of Construction	Potential Shading from Future Growth	Likely Shading Impact
T3	Semi Mature	No	Yes	Slight
T8	Semi Mature	No	Yes	Slight
T18	Early Mature	No	Yes	Slight
T13	Early Mature	No	Yes	Slight
T15	Semi Mature	No	Yes	Slight
T28	Early Mature	No	Yes	Slight
T31	Early Mature	No	Yes	Slight
T33	Early Mature	No	Yes	Slight
T35	Early Mature	No	Yes	Slight
T36	Early Mature	No	Yes	Slight
T39	Early Mature	No	Yes	Slight
T50	Early Mature	No	Yes	Slight
T55	Semi Mature	No	Yes	Moderate
T65	Mature	No	Yes	Slight
T72	Semi Mature	No	Yes	Slight

Tree Reference	Maturity	Shading at Time of Construction	Potential Shading from Future Growth	Likely Shading Impact
T79	Semi Mature	No	Yes	Slight
T82	Semi Mature	No	Yes	Slight
T84	Semi Mature	No	Yes	Slight
T87	Semi Mature	No	Yes	Slight
T88	Young	No	Yes	Slight
T92	Semi Mature	No	Yes	Slight
T97	Semi Mature	No	Yes	Slight
T108	Semi Mature	No	Yes	Slight
T110	Semi Mature	No	Yes	Slight
T112	Semi Mature	No	Yes	Slight
T123	Semi Mature	No	Yes	Slight
T125	Early Mature	No	Yes	Slight
T127	Veteran	No	Yes	Slight
T163	Early Mature	No	Yes	Slight
T169	Semi Mature	No	Yes	Slight
T223	Mature	No	Yes	Slight
T304	Semi Mature	No	Yes	Slight
T307	Early Mature	No	Yes	Slight
T310	Semi Mature	No	Yes	Slight
T319	Semi Mature	No	Yes	Slight
T317	Semi Mature	No	Yes	Slight
T329	Semi Mature	No	Yes	Slight
T354	Mature	No	Yes	Slight
T424	Early Mature	No	Yes	Slight
T431	Semi Mature	No	Yes	Slight
T443	Semi Mature	No	Yes	Slight
T446	Semi Mature	No	Yes	Slight
T447	Semi Mature	No	Yes	Slight
T522	Semi Mature	No	Yes	Slight

Tree Reference	Maturity	Shading at Time of Construction	Potential Shading from Future Growth	Likely Shading Impact
T550	Early Mature	No	Yes	Slight
G565	Young	No	Yes	Slight
W590	Young to Mature	No	Yes	Slight
G635	Young to Semi Mature	No	Yes	Slight
G636	Young to Semi Mature	No	Yes	Slight
W640	Young to Semi Mature	No	Yes	Slight
W644	Young to Semi Mature	No	Yes	Slight
G649	Young to Semi Mature	No	Yes	Slight
W652	Young to Early Mature	No	Yes	Slight
G669	Semi Mature	Yes	Yes	Slight
G672	Semi Mature	Yes	Yes	Slight
G681	Semi Mature	No	Yes	Slight
G727	Semi Mature	No	Yes	Slight
G731	Semi Mature	No	Yes	Slight
G736	Semi Mature to Early Mature	No	Yes	Slight
G738	Semi Mature	No	Yes	Slight
G743	Semi Mature	No	Yes	Slight
G754	Young to Semi Mature	No	Yes	Slight to Moderate
G762	Semi Mature	No	Yes	Slight
G785	Semi Mature	No	Yes	Slight
G804	Semi Mature	Yes	Yes	Slight to Moderate
G850	Semi Mature	No	Yes	Slight

Tree Reference	Maturity	Shading at Time of Construction	Potential Shading from Future Growth	Likely Shading Impact
W865	Young to Semi Mature	No	Yes	Slight
G981	Young to Semi Mature	No	Yes	Slight

5. Summary and Conclusions

5.1.1 In total, part of one tree group and one individual tree of high quality (category A); one individual tree, and one tree group and part of two woodlands of moderate quality (category B); five individual trees, part of five tree groups, two hedgerows and part of 47 hedgerows of low quality (category C); and two individual trees and part of one tree group identified as unsuitable for retention (category U) as a living tree for more than ten years in the context of the current land use have the potential to be removed or part removed to facilitate the Scheme.

5.1.2 Where part of a group of trees is to be removed the final extent of tree loss is to be determined on Site by an arboriculturist who will assess the suitability and stability of retained trees. This operation must take place as specified in an Arboricultural Method Statement as part of and secured by the **Framework CEMP [EN010142/APP/7.8]**.

5.1.3 Tree feature loss (including hedgerows) to facilitate the Scheme represents circa 9,986m^2 or 1% of the total tree canopy cover surveyed with 99% of surveyed canopy cover retained. All tree features to be removed are within the Order limits.

5.1.4 Potential reasonable worst case canopy cover loss for the Cable Route Corridor, passing places, bell mouths and visibility splays, based on NTM mapping, is calculated at approximately 4,219.5m^2.

5.1.5 An indicative worst case scenario cable route has been shown on the Tree Protection Plan (**Annex C**). This route has been selected to indicatively show a worst case scenario positioning of a route (i.e., one that does not avoid tree loss), formed of a 40m wide corridor. The total tree loss from this indicative worst case cable route alignment, based on NTM mapping, is ~6,227.1m^2.

5.1.6 The design has been developed to avoid or minimise tree loss and impacts, especially to those trees of the greatest quality and value.

5.1.7 No veteran or ancient trees are to be removed, this is secured via the **Framework CEMP [EN010142/APP/7.8]**.

5.1.8 Three Tree Preservation Orders (TPOs) are identified within the Order limits with several immediately adjacent (ref: Marton 1965 and Brampton 1965) and this applies to unsurveyed tree features. No Conservation Areas are

identified. No impacts to trees protected by TPOs are anticipated (based on TPO information available at the time of writing).

5.1.9 Tree loss is assessed as a worst case (excluding the retention of all veteran and ancient trees and those high quality trees which are identified to be retained) to allow flexibility in the final alignment of the Scheme within the Order limits. The design has been reviewed with the project team to ensure where tree retention is proposed that this is achievable, taking into account the likely alignment, working space and methodology.

5.1.10 Where possible the detailed design will be developed to avoid or minimise impacts to trees and in practice this is likely to substantially reduce the level of arboricultural impacts reported. The final level of arboricultural impacts will be confirmed as part of an Arboricultural Method Statement as part of and secured by the **Framework CEMP [EN010142/APP/7.8]**.

5.1.11 No trees have been identified for pruning at this stage. The final requirement for pruning will be reviewed and identified at the detailed design stage and will be confirmed in an Arboricultural Method Statement as part of and secured by the **Framework CEMP [EN010142/APP/7.8]**.

5.1.12 Incursions into the canopy or RPA of retained trees is limited to permanent or temporary access, passing places and bell mouth developments. Construction access will utilise existing hard surfaced access routes or where new access is required, will be achieved with ground protection to preserve tree roots and soil structure.

5.1.13 New electrical connections will be positioned to avoid the RPA of retained trees where possible and where within an RPA will be installed by hand (working around significant roots) or by trenchless techniques.

5.1.14 Tree loss will be mitigated with a robust and high quality scheme of new tree planting as detailed in the **Framework LEMP [EN010142/APP/7.17]** which represents an opportunity to increase the quality, impact, diversity and resilience of the local tree stock.

5.1.15 The current and future growth of trees has been considered, notably in relation to current and probable future shade of solar panels. Due to the design of the Solar PV Site, no significant current or future conflict or pressure to remove or prune trees is anticipated.

5.1.16 Soil structure for areas of new tree planting where the ground is currently unsurfaced will either be protected using ground protection or fenced exclusion zones; or the soil structure will be ameliorated or replaced following the completion of construction works on the Site.

Issues to be Addressed by an Arboricultural Method Statement

a. Pre commencement meeting and site briefing;

b. Order and phasing of operations;

c. Tree works;

d. Tree protection fencing;

e. Ground protection;

f. Site storage and facilities;

g. Movement of people, plant and materials;

h. Enabling works;

i. Construction;

j. Installation of new services and/or diversion of existing services;

k. Hard landscaping;

l. Soft Landscaping; and

m. Removal of tree protection measures.

6. References

Ref 1 Ancient Tree Forum (2013). Ancient and other veteran trees: further guidance on good management. (online) Accessed June 2023.

Ref 2 Arboricultural Association (2018). Guidance Note 2 Application of Biosecurity in Arboriculture (Online). Accessed June 2023.

Ref 3 Arboricultural Association (2020). Guidance Note 12 The Use of Cellular Confinement Systems Near Trees: A Guide to Good Practice. (Online). Accessed January 2024.

Ref 4 Bassetlaw District Council (2021). Bassetlaw Local Plan 2020 – 2037. (Online). Accessed January 2024.

Ref 5 Bassetlaw District Council (2023). Bassetlaw heritage mapping. (Online). Accessed 9 January 2024. Available at: https://www.bassetlaw.gov.uk/planning-and-building/planning-services/conservation-and-heritage/bassetlaw-heritage-mapping/

Ref 6 British Standards Institute (2012). BS5837 Trees in relation to design demolition and construction – Recommendations. BSI; London.

Ref 7 British Standards Institute (2010). BS3998 Tree work – Recommendations. BSI; London.

Ref 8 British Standards Institute (2014). BS8545 Trees: from nursery to independence in the landscape – Recommendations. BSI; London.

Ref 9 Department for Energy Security and Net Zero. (2024). National Policy Statement for Renewable Energy Infrastructure (EN-3). Accessed January 2024. Available at: https://www.gov.uk/government/publications/national-policy-statement-for-renewable-energy-infrastructure-en-3

Ref 10 Department for Energy Security and Net Zero. (2023). Overarching National Policy Statement for Energy (EN-1). Accessed January 2024. Available at: https://assets.publishing.service.gov.uk/media/65bbfbdc709fe1000f637052/overarching-nps-for-energy-en1.pdf

Ref 11 Department for Environment, Food and Rural Affairs (2023). Multi-Agency Geographic Information for the Countryside (MAGIC) website (Online). Accessed September 2023. Available at: https://magic.defra.gov.uk/magicmap.aspx

Ref 12 Department for Levelling Up, Houses and Communities (2024). National Planning Policy Framework (online) Accessed March 2025. Available at: https://www.gov.uk/government/publications/national-planning-policy-framework--2

Ref 13 Localism Act 2011. Accessed January 2024. Available at: https://www.legislation.gov.uk/ukpga/2011/20/contents/enacted

Ref 14 Planning Act 2008. Accessed January 2024. Available at: https://www.legislation.gov.uk/ukpga/2008/29/contents

Ref 15 The Countryside Rights of Way Act. Accessed January 2024. Available at: https://www.legislation.gov.uk/ukpga/2000/37/contents

Ref 16 The Construction (Design and Management) Regulations (2015). Accessed January 2024. Available at: https://www.legislation.gov.uk/uksi/2015/51/contents/made

Ref 17 The Conservation of Habitats and Species Regulations. Accessed January 2024. Available at: https://www.legislation.gov.uk/uksi/2017/1012/contents/made

Ref 18 The Environment Act 2021. Accessed June 2023. Available at: https://www.legislation.gov.uk/ukpga/2021/30/part/6/crossheading/tree-felling-and-planting/enacted
Ref 19 The Forestry Act 1967. Accessed January 2024. Available at: https://www.legislation.gov.uk/ukpga/1967/10?view=extent
Ref 20 The Hedgerow Regulations 1997. Accessed January 2024. Available at: https://www.legislation.gov.uk/uksi/1997/1160/regulation/12/made.
Ref 21 The Occupiers Liability Act 1957. Accessed June 2023. Available at: https://www.legislation.gov.uk/ukpga/Eliz2/5-6/31/section/2
Ref 22 The Town and Country Planning Act 1990 (as amended). Accessed January 2024. Available at: https://www.legislation.gov.uk/ukpga/1990/8/contents.
Ref 23 The Town and Country Planning (Tree Preservation) (England) Regulations 2012. Accessed January 2024. Available at: https://www.legislation.gov.uk/uksi/2012/605/contents/made.
Ref 24 Wildlife and Countryside Act (1981). Accessed January 2024. Available at: https://www.legislation.gov.uk/ukpga/1981/69/contents
Ref 25 National Joint Utilities Group (NJUG) (2007). Vol 4 Issue 2 – Guidelines for the Planning, Installation and Maintenance of Utility Apparatus in Proximity to Trees (Online).
Ref 26 Natural England and Forestry Commission (2022). Ancient woodland, ancient trees and veteran trees: advice for making planning decisions (standing advice) (online) Accessed June 2023. Available at: https://www.gov.uk/guidance/ancient-woodland-ancient-trees-and-veteran-trees-advice-for-making-planning-decisions
Ref 27 National House Building Council (NHBC) Standards, (2024). Chapter 4.2: Building Near Trees.
Ref 28 National Tree Safety Group (NTSG) (2011). Common sense risk management of trees. Forestry Commission.
Ref 29 Wildlife and Countryside Act (1981). Accessed June 2023. Available at: https://www.legislation.gov.uk/ukpga/1981/69/contents
Ref 30 West Lindsey District Council. (2023). The Central Lincolnshire Local Plan. (Online). Accessed September 2023.
Ref 31 West Lindsey District Council. (2025). Search planning Applications using a map. (Online). Accessed 13 March 2025. Available at: https://www.west-lindsey.gov.uk/planning-building-control/planning/view-search-planning-applications/search-planning-applications-using-map .
Ref 32 Woodland Trust (2023). Ancient Tree Inventory website. (Online). Accessed September 2023.

7. Abbreviations/Definitions

Abbreviation/Term	Definition
Ref No	Specific identification number given to each tree or group. T=Tree/H=Hedge/G=Group/W=Woodland.
Species	Common name followed by scientific name shown in *italics.*
RPA	Root Protection Area (As defined by BS5837:2012)
Stem diameter	Diameter of main stem, measured in millimetres at 1.5m above ground level. (MS = Multi-stem tree measured in accordance with BS5837:2012 Annexe C).
Spread	The width and breadth of the crown. Estimated on the four compass points in metres.
Crown clearance	The estimated height (in metres) above ground level of the lowest significant branch attachments.
#	Estimated dimensions.
*	Indicates estimated position of tree (not indicated on topographical survey).
Av	Indicates an average representative measured dimension for the feature.
Category	Categorisation of the quality and benefits of trees on Site as per Table 1 and 2 of BS5837:2012. 1=Arboricultural quality/value 2=Landscape quality/value 3=Cultural quality/value (including conservation)
	A=High quality/value 40yrs+ (light green). B=Moderate quality/value 20yrs+ (mid blue) C=Low quality/value min 10yrs/stem diameter less than 150mm (grey). U=Unsuitable for retention (dark red).
Life stage	**Young (Y):** Newly planted tree 0-10 years. **Semi-Mature (SM):** Tree in the first third of its normal life expectancy for the species (significant potential for future growth in size). **Early Mature (EM):** Tree in the second third of its normal life expectancy for the species (some potential for future growth in size) **Mature (M):** Tree in the final third of its normal life expectancy for the species (having typically reached its approximate ultimate size). **Over Mature (OM):** Tree beyond the normal life expectancy for the species. **Veteran (V):** Tree which is of interest biologically, aesthetically or culturally because of its condition, size or age. **Ancient (A):** trees of an exceptional age for the species.

Abbreviation/Term	Definition
Structural condition	**Good:** No significant structural defects **Fair:** Structural defects which can be resolved via remedial works. **Poor:** Structural defects which cannot be resolved via remedial works. **Dead:** Dead.
Physiological condition	**Good:** Normal vitality including leaf size, bud growth, density of crown and wound wood development. **Fair:** Lower than normal vitality, reduced bud development, reduced crown density, reduced response to wounds. **Poor:** Low vitality, low development and distribution of buds, discoloured leaves, low crown density, little extension growth for the species. **Dead:** Dead **Fair/Good** = Indicates an intermediate condition **Fair – Good** = Indicates a range of conditions (e.g. within a group)
Preliminary management recommendations	Works identified during the tree survey as part of sound arboricultural management, based on the current context of the Site (where relevant reference has been made to tree management based on the potential future context of the site).
DED	Dutch elm disease.
ADB	Ash dieback.
FFB	Fungal fruiting body.
AGL	Above ground level.
SULE	Suitable useful life expectancy