ARBTECH

BS5837:2012
Trees in relation to design, demolition and construction – Recommendations

Tree Survey

Wessex Solar Power Ltd

Lower Nash Farm,

Pembroke Dock,

Pembrokeshire,

SA72 4SU.

22 June 2020

Author: David Garrick FDSc, MArborA

Introduction

Arbtech Consulting Limited (Arbtech) received written instruction on 16th June 2020 from Wessex Solar Power Ltd to attend Lower Nash Farm, Pembroke Dock Pembrokeshire, SA72 4SU; grid reference, SN 01700 03215 (site) to undertake an arboricultural survey a to BS5837:2012 guidance to assess trees, hedges and major shrub groups growing on and within influencing distance of the site and to produce a Schedule of trees, Tree Constraints Plan, Arboricultural Impact Assessment , Arboricultural Method Statement and Tree Protection Plan.

I am David Garrick, an arboricultural surveyor at Arbtech Consulting Ltd. I undertook the tree survey on 18th June 202 and subsequently have produced this summary of my findings.

I passed the FDSc in Forestry in 2007. I also hold the LANTRA Professional Tree Inspector certification. I benefit from professional industry experience spanning ten years. I also have professional membership with the Arboricultural Association.

The advice below and appended is underwritten by our Professional Indemnity insurance for the business practice of Arboricultural Consultancy in the sum of one million Pounds Sterling in each and every claim.

Table 1: Documents referred to.

Document	Reference No.
Survey base drawing	WE2665-01-2D
LPA pre-app comments	N/A
British Standard 5837:2012	“BS5837”
Tree Survey Schedule	Arbtech TS 01
Tree Constraints Plan	Arbtech TCP 01

Tree Survey

Survey: An arboricultural survey to BS5837 of all trees within impacting distance of the site was undertaken by David Garrick on 18th June 2020.

During the survey I categorised the trees using “Table 1 – Cascade chart for tree quality assessment” of the BS5837:2012 (see Appendix 1).

A total of 12 (twelve) individual trees, 6 (six) groups of trees, 18 (eighteen) hedges and 1 (one) woodland were surveyed. Details for each of the trees surveyed are provided in the Schedule of Trees (see Appendix 2).

Table 2: Documents upon which this tree survey has been based.

Document	Originator	Reference Number	Title
Topo	Azimuth Land Surveys Ltd	WE2665-01-2D	Measured Survey

Limitations: The survey was made at ground level using visual observation only. Detailed examinations, such as climbing inspections and decay detection equipment were not employed, though may form part of the survey's management recommendations. Measurements were taken using specialist tapes, laser and GPS devices. Where this was not possible, measurements are estimated.

Scope: Pre-development tree surveys make arboricultural management recommendations based exclusively upon the individual tree or group of trees condition relative to their present context (*i.e. not in relation to the proposed development*).

Legal Status: No statutory protection check has been performed. BS5837 does not draw any distinction between trees subject to statutory protection, such as a Tree Preservation Order ("TPO"), and those trees without. This is principally because a detailed planning consent overrides any TPO protection. Consequently, we do not seek to offer any comparison between or infer any difference in the quality or importance of TPO trees and other trees.

* For more information on the surveyed trees please see Arbtech Consulting Ltd, Tree Survey Schedule (Appendix 1), Tree Survey Report and Tree Constraints Plan.

Site description

The site consists of farm fields situated to the north of the A477. The site is bordered the A477 to the south, east lane to the east, blackberry lane to the west & further fields to the north.

Figure 1: OS Map (Bing Maps)

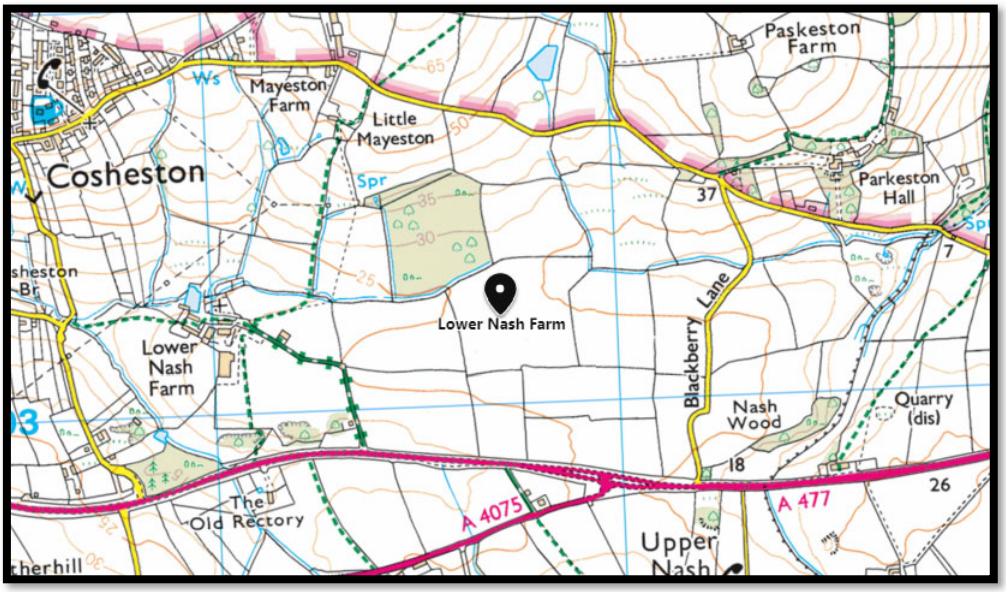

Figure 2: Aerial Image of site (Bing Maps)

The proposed development is for a solar park site.

It is likely that arboricultural impacts can be addressed with arboricultural methodology or minor amendments to the proposal.

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BS5837:2012 Scope

This standard recognises that there can be problems for development close to existing trees which are to be retained, and of planting trees close to existing structures. This standard sets out to assist those concerned with trees in relation to construction to form balanced judgements. It does not set out to put arguments for or against development, or for the removal or retention of trees. Where development, including demolition, is to occur, the standard provides guidance on how to decide which trees are appropriate for retention, on the means of protecting these trees during development, including demolition and construction work, and on the means of incorporating trees into the developed landscape.

Methodology

The methodology used to assess the trees was the British Standard 5837:2012 'Trees in Relation to Construction' tree survey method. The aim of the survey is to establish which trees are moderate and good quality; suitable for retention and justifying protection. And, which trees are low or poor quality; either undesirable or unsuitable to retain and protect.

The tree survey includes all trees included in the land survey red line boundary plan, as well as any that may have been missed, and it should categorize trees or groups of trees, including woodlands for their quality and value within the existing context, in a transparent, understandable and systematic way. Where the arboriculturist has deemed it appropriate, the trees have been tagged with small metal or plastic tags, placed as high as is convenient on the stem of each tree.

Whilst master plan proposals for the development of the site might be available, the trees have been surveyed without taking these into consideration. All detailed design work on site layout should take into consideration the results of the tree survey (and the TCP).

Trees forming groups and areas of woodland (including orchards, wood pasture and historic parkland) are identified and considered as groups where the arboriculturist has determined that this is appropriate, particularly where they contain a variety of species and age classes that could aid long-term management. It is often expedient to assess the quality and value of such groups of trees as a whole, rather than as individuals. However, an assessment of individuals within any group has been undertaken if they are open-grown or if there is a need to differentiate between them.

The quality and value of each tree or group of trees has been recorded by allocating it to one of the four categories; A, B, C, or U (highest to lowest quality respectively). The categories are differentiated on the tree survey plan by colour, or by suffixing the category adjacent to the tree identification number on the TCP.

The survey schedule lists all the trees or groups of trees. The following information is also provided:

I. reference number (to be recorded on the tree survey plan);
II. species (common or scientific names);
III. height in meters (m);
IV. stem diameter in millimeters (mm) at 1.5 m above adjacent ground level or immediately above the root flare for multi-stemmed trees;
V. branch spread in meters taken at the four cardinal compass points;
VI. height of crown clearance above adjacent ground level in meters (m);
VII. age class (Newly planted, Young, Semi-mature, Early mature, Mature, Over mature);
VIII. physiological condition (e.g. good, fair, poor, decline and dead);
IX. structural condition (e.g. good, fair, poor and ivy);
X. preliminary management recommendations, including further investigation of suspected defects that require more detailed assessment and potential for wildlife habitat; and
XI. The retention category referring to the quality and useful contribution in years; **U** = <10yrs; **A** = >40yrs; **B** = >20yrs; **C** = >10yrs. The retention sub category referring to the type of amenity; 1 = Arboricultural; 2 = Landscape; 3 = Cultural including conservation (see Table 1 Cascade chart for tree quality assessment).

Definitions

Arboriculturist

An arboriculturist (or arboricultural consultant) is a person who has, through relevant education, training and experience, gained recognized qualifications and expertise in the field of trees in relation to construction.

Tree Survey

A tree survey should be undertaken by an arboriculturist and should record information about the trees on a site independently of and prior to any specific design for development. As a subsequent task, and with reference to a design or potential design, the results of the survey should be included in the preparation of a tree constraints plan, which should be used to assist with site layout design.

Tree Constraints Plan

A TCP is plan, typically delivered as an AutoCAD drawing (.file format), prepared by an arboriculturist for the purposes of layout design showing the root protection area and representing the effect that the mature height and spread of retained trees will have on layouts through shade, dominance, etc.

Root Protection Area

An RPA is a layout design tool indicating the area surrounding a tree that contains sufficient rooting volume to ensure the survival of the tree, shown in plan form in m².

Construction Exclusion Zone (also termed Tree Protection Zone)

A construction exclusion or tree protection zone is an area based on the RPA (in m²), identified by an arboriculturist, to be protected during development, including demolition and construction work, by the use of barriers and/or ground protection fit for purpose to ensure the successful long-term retention of a tree.

Arboricultural Impact Assessment

This is a study, undertaken by an arboriculturist, to identify, evaluate and possibly mitigate the extent of direct and indirect impacts on existing trees that may arise as a result of the implementation of any site layout proposal.

Tree Protection Plan

A TPP is plan, typically delivered as an AutoCAD drawing (.dwg file format), prepared by an arboriculturist showing the finalized layout proposals, tree retention and tree and landscape protection measures detailed within the arboricultural method statement, which can be shown graphically.

Arboricultural Method Statement

This is a methodology for the implementation of any aspect of development that has the potential to result in loss of or damage to a tree. The AMS is likely to include details of an on-site tree protection monitoring regime.

Recommendations

We have not seen the proposed scheme and make the following recommendation to ensure that there are no irrevocable issues to the proposed retained trees and so that no conditions relating to arboriculture are attached to any planning consent secured; obtain an arboricultural report to include:

a) An arboricultural impact assessment (AIA)

b) An arboricultural method statement (AMS)

c) A tree protection plan drawing (TPP).

Limitations

Trees were inspected from using visual observation from ground level only. Trees were not climbed or inspected below ground level. Inaccessible trees will have best estimates made about the location, physical dimensions and characteristics. Trees have been grouped where BS5837 guides us that it is expedient to do so. Trees have been excluded from the survey if they are found by us to be sufficiently far away from the proposed developable area or if they are outside of the red line boundary plan showing the expectations of our Client for the extent of the survey. BS5837 does not draw any distinction between trees subject to statutory protection, such as a Tree Preservation Order ("TPO"), and those trees without. This is principally because a detailed planning consent overrides any TPO protection. Consequently, we do not seek to offer any comparison between or infer any difference in the quality or importance of TPO trees and other trees.

Appendices

The following documents were released to the Client as appendices to this report:

- Survey Schedule (.pdf)
- Tree Constraints Plan drawing (.dwg & .pdf)

If you require clarification of information contained herein, please do not hesitate to contact us via 01244 661170.

Yours Sincerely,

David Garrick FDSc, MArborA
Arboricultural Consultant
dg@arbtech.co.uk
07712 323699

Appendix 1: Table 1 Cascade chart for tree quality assessment

BS5837:2012 Trees in relation to design, demolition and construction – Recommendations

Table 1 Cascade chart for tree quality assessment

Category and definition	Criteria (including subcategories when appropriate			Identification on plan
Trees unsuitable for retention (see Note)				
Category U Those in such a condition that they cannot realistically be retained as living trees in the context of the current land use for longer than 10 years	• Trees that have serious, irremediable, structural defect, such that their early loss is expected due to collapse, including those that will become unviable after removal of other category U trees (e.g. where, for whatever reason, the loss of companion shelter cannot be mitigated by pruning) • Trees that are dead or are showing signs of significant, immediate, and irreversible overall decline • Trees infected with pathogens of significance to the health and/or safety of other trees nearby, or very low quality trees suppressing adjacent trees of better quality *NOTE Category U trees can have existing or potential conservation value which might be desirable to preserve; see 4.5.7.*			Dark red
	1 Mainly arboricultural qualities	**2 Mainly landscape qualities**	**3 Mainly cultural values, including conservation**	
Trees to be considered for retention				
Category A **Trees of high quality** with an estimated remaining life expectancy of at least 40 years	Trees that are particularly good examples of their species, especially if rare or unusual; or those that are essential components of groups or formal or semi-formal arboricultural features (e.g. the dominate and/or principal trees within an avenue)	Trees, groups or woodlands of particular visual importance as arboricultural and/or landscape features	Trees, groups or woodlands of significant conservation, historical, commemorative or other value (e.g. veteran trees or wood-pasture)	Light green
Category B **Trees of moderate quality** with an estimated remaining life expectancy of at least 20 years	Trees that might be included in category A, but are downgraded because of impaired condition (e.g. presence of significant though remedial defects, including unsympathetic management and storm damage), such that they are unlikely to be suitable for retention of beyond 40 years; or trees lacking the special quality necessary to merit the category A designation	Trees present in numbers, usually growing as groups or woodlands, such that they attract a higher collective rating than they might as individuals; or trees occurring as collectives but situated so as to make little visual contribution to the wider locality	Trees with material conservation or other cultural value	Mid blue
Category C **Trees of low quality** with an estimated remaining expectancy of at least 10 years, or young trees with a stem diameter below 150mm	Unremarkable trees of very limited merit or such impaired condition that they do not qualify in higher categories	Trees present in groups or woodlands, but without this conferring on them significantly greater collective landscape value; and/or trees offering low or only temporary/transient landscape value	Trees with no material conservation or other cultural value	Grey

Appendix 2: Schedule of Trees

BS5837:2012 Tree Survey

Arbtech Consulting Ltd
Unit 3 Well House Barns
Chester Road
Chester
CH4 0DH
Phone: 01244 661170
http://arbtech.co.uk

Client: Wessex Solar Power Ltd
Project: Lower Nash Farm, Pembroke Dock Pembrokeshire, SA72 4S
Survey Date: 18/06/2020 - 19/06/2020
Surveyor: David Garrick

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Tree and Tag No / Species	Hght (m)	Stems No	Stems Ø (mm)	Crown Spread (m)	Crown Clear (m)	Age	RP A (m²) R (m)	Phys Condition	Structural Condition	Preliminary Recommendations / Survey Comment	Cat ERC
G1											
Various *See comments for details*	11	1	440	N 5 1 E 5 1 S 5 1 W 5 1		EM	A: 87.6 R: 5.28	Fair	C: Fair S: Good B: Good	Linear group of 5 trees along field boundary. Species include Ash, Sycamore & oak	**B.2** 20+ yrs
G2											
Various *See comments for details*	13	1	600	N 6 3 E 6 3 S 6 3 W 6 3		M	A: 162.9 R: 7.2	Good	C: Fair S: Good B: Fair	Boundary hedge. Species includes elder, hazel, hawthorn, maple	**B.1.2** 20+ yrs
G3											
Common Oak *Quercus robur*	14	1	680	N 6 2 E 6 2 S 6 2 W 6 2		M	A: 209.2 R: 8.16	Good	C: Fair S: Good B: Good	Linear group of mature trees along field boundary.	**B.1.2** 20+ yrs
G4											
English Elm *Ulmus procera*	10	1	320	N 4 2 E 4 2 S 4 2 W 4 2		EM	A: 46.3 R: 3.83	Fair	C: Fair S: Fair B: Good	Linear group along field boundary. Group has been outcompeted by neighbouring trees	**C.2** 10+ yrs

Age Classifications: N Newly planted; Y Young; SM Semi-mature; EM Early Mature; M Mature; OM Over Mature

Condition: C Crown; S Stem; B Basal area

Stems: Ø Diameter; (Eq) Equivalent stem diameter using BS5837:2012 definition

ERC: Estimated Remaining Contributio

Tree and Tag No Species	Hght (m)	Stems No	Stems Ø (mm)	Crown Spread (m)	Crown Clear (m)	Age	RP A (m²) R (m)	Phys Condition	Structural Condition	Preliminary Recommendations Survey Comment	Cat ERC
G5											
Various *See comments for details*	13	1	460	N 6 E 6 S 6 W 6	3 3 3 3	EM	A: 95.7 R: 5.51	Fair	C: Fair S: Good B: Good	3 trees situated on field boundary. Species includes ash & prunus	**B.1** 20+ yrs
G6											
Various *See comments for details*	14	1	600	N 6 E 6 S 6 W 6	3 3 3 3	M	A: 162.9 R: 7.2	Fair	C: Fair S: Good B: Good	Situated on field boundary. Mature screen planting. Species predominantly ash & oak	**B.1** 20+ yrs
H1											
Various *see comments for details*	2	1	100	N 2 E 2 S 2 W 2	0 0 0 0	SM	A: 4.5 R: 1.19	Good	C: Fair S: Fair B: Fair	Boundary hedge. Species includes elder, hazel, hawthorn, maple	**C.2** 10+ yrs
H2											
Various *see comments for details*	2	1	100	N 2 E 2 S 2 W 2	0 0 0 0	SM	A: 4.5 R: 1.19	Good	C: Fair S: Fair B: Fair	Boundary hedge. Species includes elder, hazel, hawthorn, maple	**C.2** 10+ yrs
H3											
Various *see comments for details*	2	1	100	N 2 E 2 S 2 W 2	0 0 0 0	SM	A: 4.5 R: 1.19	Good	C: Fair S: Fair B: Fair	Boundary hedge. Species includes elder, hazel, hawthorn, maple	**C.2** 10+ yrs
H4											
Various *see comments for details*	2	1	100	N 2 E 2 S 2 W 2	0 0 0 0	SM	A: 4.5 R: 1.19	Good	C: Fair S: Fair B: Fair	Boundary hedge. Species includes elder, hazel, hawthorn, maple	**C.2** 10+ yrs

Age Classifications: N Newly planted; Y Young; SM Semi-mature; EM Early Mature; M Mature; OM Over Mature

Condition: C Crown; S Stem; B Basal area

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H5											
Various *see comments for details*	2	1	100	N 2 0 E 2 0 S 2 0 W 2 0		SM	A: 4.5 R: 1.19	Good	C: Fair S: Fair B: Fair	Boundary hedge. Species includes elder, hazel, hawthorn, maple	**C.2** 10+ yrs
H6											
Various *see comments for details*	2	1	100	N 2 0 E 2 0 S 2 0 W 2 0		SM	A: 4.5 R: 1.19	Good	C: Fair S: Fair B: Fair	Boundary hedge. Species includes elder, hazel, hawthorn, maple	**C.2** 10+ yrs
H7											
Various *see comments for details*	2	1	100	N 2 0 E 2 0 S 2 0 W 2 0		SM	A: 4.5 R: 1.19	Good	C: Fair S: Fair B: Fair	Boundary hedge. Species includes elder, hazel, hawthorn, maple	**C.2** 10+ yrs
H8											
Various *see comments for details*	2	1	100	N 2 0 E 2 0 S 2 0 W 2 0		SM	A: 4.5 R: 1.19	Good	C: Fair S: Fair B: Fair	Boundary hedge. Species includes elder, hazel, hawthorn, maple	**C.2** 10+ yrs
H9											
Various *see comments for details*	2	1	100	N 2 0 E 2 0 S 2 0 W 2 0		SM	A: 4.5 R: 1.19	Good	C: Fair S: Fair B: Fair	Boundary hedge. Species includes elder, hazel, hawthorn, maple	**C.2** 10+ yrs
H10											
Various *see comments for details*	2	1	100	N 2 0 E 2 0 S 2 0 W 2 0		SM	A: 4.5 R: 1.19	Good	C: Fair S: Fair B: Fair	Boundary hedge. Species includes elder, hazel, hawthorn, maple	**C.2** 10+ yrs

Age Classifications: N Newly planted; Y Young; SM Semi-mature; EM Early Mature; M Mature; OM Over Mature

Condition: C Crown; S Stem; B Basal area

Stems: Ø Diameter; (Eq) Equivalent stem diameter using BS5837:2012 definition

ERC: Estimated Remaining Contributio

Tree and Tag No Species	Hght (m)	Stems No	Stems Ø (mm)	Crown Spread (m)	Crown Clear (m)	Age	RP A (m²) R (m)	Phys Condition	Structural Condition	Preliminary Recommendations Survey Comment	Cat ERC
H11											
Various *see comments for details*	2	1	100	N 2 0 E 2 0 S 2 0 W 2 0		SM	A: 4.5 R: 1.19	Good	C: Fair S: Fair B: Fair	Boundary hedge. Species includes elder, hazel, hawthorn, maple	**C.2** 10+ yrs
H12											
Various *see comments for details*	2	1	100	N 2 0 E 2 0 S 2 0 W 2 0		SM	A: 4.5 R: 1.19	Good	C: Fair S: Fair B: Fair	Boundary hedge. Species includes elder, hazel, hawthorn, maple	**C.2** 10+ yrs
H13											
Various *see comments for details*	2	1	100	N 2 0 E 2 0 S 2 0 W 2 0		SM	A: 4.5 R: 1.19	Good	C: Fair S: Fair B: Fair	Boundary hedge. Species includes elder, hazel, hawthorn, maple	**C.2** 10+ yrs
H14											
Various *see comments for details*	2	1	100	N 2 0 E 2 0 S 2 0 W 2 0		SM	A: 4.5 R: 1.19	Good	C: Fair S: Fair B: Fair	Boundary hedge. Species includes elder, hazel, hawthorn, maple	**C.2** 10+ yrs
H15											
Various *see comments for details*	2	1	100	N 2 0 E 2 0 S 2 0 W 2 0		SM	A: 4.5 R: 1.19	Good	C: Fair S: Fair B: Fair	Boundary hedge. Species includes elder, hazel, hawthorn, maple	**C.2** 10+ yrs
H16											
Various *see comments for details*	2	1	100	N 2 0 E 2 0 S 2 0 W 2 0		SM	A: 4.5 R: 1.19	Good	C: Fair S: Fair B: Fair	Boundary hedge. Species includes elder, hazel, hawthorn, maple	**C.2** 10+ yrs

Age Classifications: N Newly planted; Y Young; SM Semi-mature; EM Early Mature; M Mature; OM Over Mature

Condition: C Crown; S Stem; B Basal area

Stems: Ø Diameter; (Eq) Equivalent stem diameter using BS5837:2012 definition

ERC: Estimated Remaining Contributio

Tree and Tag No Species	Hght (m)	Stems No	Stems Ø (mm)	Crown Spread (m)	Crown Clear (m)	Age	RP A (m²) R (m)	Phys Condition	Structural Condition	Preliminary Recommendations Survey Comment	Cat ERC
H17											
Various *see comments for details*	2	1	100	N 2 E 2 S 2 W 2	0 0 0 0	SM	A: 4.5 R: 1.19	Good	C: Fair S: Fair B: Fair	Boundary hedge. Species includes elder, hazel, hawthorn, maple	C.2 10+ yrs
H18											
Various *see comments for details*	2	1	100	N 2 E 2 S 2 W 2	0 0 0 0	SM	A: 4.5 R: 1.19	Good	C: Fair S: Fair B: Fair	Boundary hedge. Species includes elder, hazel, hawthorn, maple	C.2 10+ yrs
W1											
Various *see comments for details*	15	1	650	N 6 E 6 S 6 W 6	2 2 4 2	M	A: 191.2 R: 7.8	Good	C: Fair S: Good B: Good	Predominantly ash & oak woodland with buckthorn understory	B.1.2 20+ yrs
1											
English Elm *Ulmus procera*	10	1	260	N 3 E 1 S 3 W 4	1 1 1 1	EM	A: 30.6 R: 3.12	Fair	C: Fair S: Fair B: Good	Situated on field boundary. Crown suppressed by neighbouring trees	C.1 10+ yrs
2											
English Elm *Ulmus procera*	10	1	330	N 5 E 3 S 5 W 4	2 1 2 1	EM	A: 49.3 R: 3.96	Good	C: Fair S: Fair B: Good	Situated on field boundary. Crown suppressed by neighbouring trees.	B.1 20+ yrs
3											
English Elm *Ulmus procera*	10	2	305 (Eq)	N 4 E 2 S 3 W 3	2 1 2 1	EM	A: 42 R: 3.65	Fair	C: Fair S: Good B: Good	Situated on field boundary. Crown suppressed by neighbouring trees	C.1 10+ yrs

Age Classifications: N Newly planted; Y Young; SM Semi-mature; EM Early Mature; M Mature; OM Over Mature

Condition: C Crown; S Stem; B Basal area

Stems: Ø Diameter; (Eq) Equivalent stem diameter using BS5837:2012 definition

ERC: Estimated Remaining Contributio

Tree and Tag No Species	Hght (m)	Stems No	Stems Ø (mm)	Crown Spread (m)	Crown Clear (m)	Age	RP A (m²) R (m)	Phys Condition	Structural Condition	Preliminary Recommendations Survey Comment	Cat ERC
4											
English Elm *Ulmus procera*	15	2	531 (Eq)	N 5 E 5 S 5 W 5	4 2 4 2	M	A: 127.5 R: 6.37	Good	C: Fair S: Fair B: Good	Situated on field boundary. 2 co-dominant stems from base	**B.1** 20+ yrs
5											
Sycamore *Acer pseudoplatanus*	15	1	660	N 7 E 7 S 7 W 7	3 3 3 3	M	A: 197.1 R: 7.92	Good	C: Fair S: Good B: Good	Situated on field boundary. Epicormic growth at base of stem	**B.1.2** 20+ yrs
6											
Common Ash *Fraxinus excelsior*	16	1	830	N 8 E 8 S 8 W 6	4 3 4 5	M	A: 311.7 R: 9.96	Fair	C: Fair S: Good B: Good	Situated on field boundary. Sparsely foliated	**B.1.2** 20+ yrs
7											
Common Ash *Fraxinus excelsior*	8	2	553 (Eq)	N 3 E 2 S 3 W 4	4 4 4 4	M	A: 138.4 R: 6.63	Decline	C: Poor S: Ivy B: Fair	Situated on field boundary. Dieback throughout crown	**U** <10 yrs
8											
Common Ash *Fraxinus excelsior*	10	1	580	N 5 E 6 S 5 W 5	3 3 3 3	M	A: 152.2 R: 6.96	Poor	C: Fair S: Good B: Good	Situated on field boundary. Apical dieback within crown consistent with ash dieback	**C.1** 10+ yrs
9											
Common Ash *Fraxinus excelsior*	16	1	880	N 8 E 8 S 8 W 8	4 4 4 4	M	A: 350.4 R: 10.56	Fair	C: Fair S: Good B: Fair	Previously snapped out limbs. Major deadwood in crown	**B.1.2** 20+ yrs

Age Classifications: N Newly planted; Y Young; SM Semi-mature; EM Early Mature; M Mature; OM Over Mature

Condition: C Crown; S Stem; B Basal area

Stems: Ø Diameter; (Eq) Equivalent stem diameter using BS5837:2012 definition

ERC: Estimated Remaining Contributio

Tree and Tag No Species	Hght (m)	Stems No	Stems Ø (mm)	Crown Spread (m)	Crown Clear (m)	Age	RP A (m²) R (m)	Phys Condition	Structural Condition	Preliminary Recommendations Survey Comment	Cat ERC
10											
Common Ash *Fraxinus excelsior*	15	1	790	N 8 E 7 S 7 W 7	4 4 2 4	M	A: 282.4 R: 9.48	Fair	C: Fair S: Good B: Good	Situated on field boundary. Minor deadwood (<50mm) in crown	**B.1.2** 20+ yrs
11											
Common Oak *Quercus robur*	11	1	740	N 5 E 6 S 5 W 5	3 3 3 3	M	A: 247.8 R: 8.88	Fair	C: Fair S: Fair B: Good	Situated on field boundary. Stem leans east. Previously snapped out limbs within crown	**B.1** 20+ yrs
12											
Common Oak *Quercus robur*	10	1	640	N 6 E 6 S 6 W 6	2 2 2 2	M	A: 185.3 R: 7.68	Good	C: Fair S: Good B: Good	Situated on field boundary. Single straight stem	**B.1** 20+ yrs

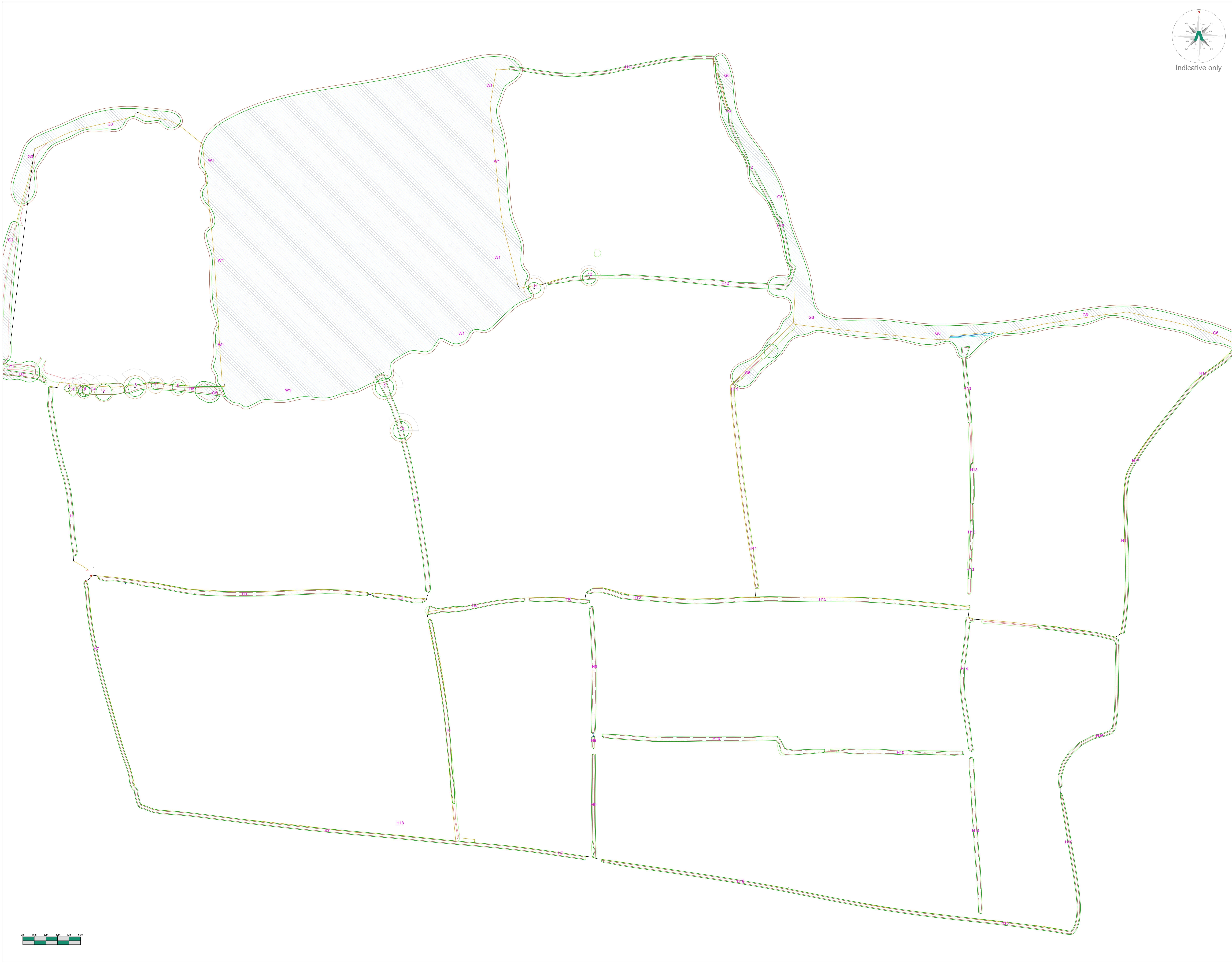
Age Classifications: N Newly planted; Y Young; SM Semi-mature; EM Early Mature; M Mature; OM Over Mature

Condition: C Crown; S Stem; B Basal area

Stems: Ø Diameter; (Eq) Equivalent stem diameter using BS5837:2012 definition

ERC: Estimated Remaining Contributio

Appendix 3: Tree Constraints Plan



Tree Categories

Trees are categorised in accordance with the cascade chart in Table 1 of the British Standard BS 5837:2012 'Trees in relation to design, demolition and construction - Recommendations'

Category 'U' - Trees in such condition that they cannot realistically be retained as living trees in context of the current land use for longer than 10 years.
Category 'A' - Trees of high quality with an estimated remaining life expectancy of at least 40 years.
Category 'B' - Trees of moderate quality with an estimated remaining life expectancy of at least 20 years.
Category 'C' - Trees of low quality with an estimated remaining life expectancy of at least 10 years, or young trees with a stem diameter below 150mm.

Root Protection Area

In order to avoid damage to the roots or rooting environment of retained trees, the Root Protection Areas (RPAs) should be plotted around each of the category A, B and C trees. This is a minimum area in m² which should be left undisturbed around each retained tree.

The RPA is calculated using the British Standard BS 5837:2012 'Trees in relation to design, demolition and construction - Recommendations.

The calculated RPA is capped to 707m², which is the equivalent to a circle with a radius of 15m. Where there appears to be restrictions to root growth the root protection area is reshaped to more accurately reflect the likely distribution of the roots.

Tree Survey Report

Please refer to Arbtech Consulting Ltd. Tree Survey Report and Tree Schedule for full details on all surveyed trees, hedgerows and major shrub groups.
All trees were surveyed and categorised in accordance with the guidance as set out in the British Standard BS5837:2012 Tree in relation to design, demolition and construction - Recommendations.

We make the following recommendation to ensure that no conditions relating to arboriculture are attached to any planning consent secured: obtain and arboricultural report to include:

a) An arboricultural impact assessment (AIA);
b) An arboricultural method statement (AMS); and
c) A tree protection plan (TPP).

ARBTECH

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https://arbtech.co.uk, 01244 661170

Project:	Lower Nash Farm, Pembroke Dock, Pembrokeshire, SA72 4SU
Client:	Wessex Solar Power Ltd
Drawing:	Tree Constraints Plan
Based on:	WE2665-01-2D

Drawing No:	Rev:	
Arbtech TCP 01		
Date:	Scale:	Drawn:
Jun 2020	1:100 0@ A0	DCG

Key:

Tree Nos.:	1	Tree Canopies:		Trunks:	
RPAs:		Category 'U' trees:		Category 'B' trees:	
Category 'B' groups:		Category 'C' trees:		Category 'C' groups:	
Generic notional shading arc:					

All dimensions should be checked on site. No dimensions are to be scaled from this drawing.
Please notify us of any discrepancies found. Arbtech Consulting Ltd. cannot be held responsible for inaccuracies in the base drawing in which this plan is based.
This drawing is designed to reflect the principles of the layout or design only, and relates only to the protection of retained trees.
This drawing is not to be read as a definitive part of the engineering or construction designs or method statement. An architect or structural engineer should be contacted over any matters of construction, detailing or specification and for any standards or regulatory requirements relating to proposed structures, hard surfacing or underground services.
This drawing was produced in colour - a monochrome copy should not be relied upon.

Document Production Record

Document number	Editor	Signature	Position	Issue number	Date
Arbtech TSR 01	David Garrick		Consultant	1	22/06/2020

Limitations

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ARBTECH

BS5837:2012
Trees in relation to design, demolition and construction – Recommendations

Arboricultural Method Statement

Blackberry Lane Solar Park

Blackberry Lane,

Pembroke Dock,

Pembrokeshire,

SA72 4SU.

16 November 2020

Author: Aran Nearn FdSc MArborA

Table of Contents

If this report has been released electronically the appendices referred to herein can be found in the annexed zip folder/s as .pdf files. If this report has been released in hard copy the appendices will be bound into the back of this report. Plans are annexed separately as A0, A1, A2 or A3 as appropriate.

Introduction

Arbtech Consulting Limited (Arbtech) received written instruction on 16th June 2020 from Wessex Solar Power Ltd to attend Blackberry Lane Solar Park, Blackberry Lane, Pembroke Dock, Pembrokeshire, SA72 4SU (site) to undertake an arboricultural survey a to BS5837:2012 guidance to assess trees, hedges and major shrub groups growing on and within influencing distance of the site and to produce a Schedule of Trees, Tree Constraints Plan, Arboricultural Impact Assessment, Arboricultural Method Statement and Tree Protection Plan.

Executive Summary

This report describes the extent and effect of the proposed development at Site on individual trees and groups of trees within and adjacent to the site.

Figure 1: Site location (Bing Maps)

Trees within the site were surveyed; using a methodology guided by British Standard 5837:2012 'Trees in relation to design, demolition and construction – Recommendations' ("BS5837").

Subsequently, this report has been produced, balancing the layout of the proposed development against the competing needs of trees. This report comprises all of the requisite elements of an arboricultural implications assessment, method statement and supporting plans.

Checklist for Submission to Local Planning Authority

Tree survey	✓
Tree constraints plan	✓
Arboricultural impact assessment	✓
Arboricultural method statement	✓
Tree protection plan	✓

This report and its appendices follow precisely the strategy for arboricultural appraisal intended to provide local planning authorities with evidence that trees have been properly considered throughout the development process.

It is the conclusion of this report that the overall quality and longevity of the amenity contribution provided for by the trees and groups of trees within and adjacent to the site will not be adversely affected as a result of the local planning authority consenting to the proposed development. It is considered that any issues raised in this report, or beyond the scope of it can be dealt with by planning conditions.

General Information

Client: Wessex Solar Power Ltd

Site: Blackberry Lane Solar Park, Blackberry Lane, Pembroke Dock, Pembrokeshire, SA72 4SU.

Brief proposal description: Construction of Solar Farm.

Table 1: Documents referred to.

Document	Reference No.
Topographical survey drawing	WE2665-01-2D
Proposed layout drawing	Site Boundary and Indicative Layout
British Standard 5837:2012	"BS5837"
Arboricultural Impact Assessment	Arbtech AIA 01A
Tree Protection Plan	Arbtech TPP 01A

Tree Survey

Survey: An arboricultural survey to BS5837 of all trees within impacting distance of the site was undertaken by David Garrick of Arbtech Consulting on 18th June 2020.

A total of 12No individual trees, 6No groups of trees, 18No hedges and 1No woodland were surveyed. Details for each of the trees surveyed are provided in the Tree Survey Schedule (see **Appendix I**)

Table 2: Documents upon which this tree survey has been based

Document	Originator	Reference Number	Title
Topo	Azimuth Land Surveys Ltd	WE2665-01-2D	Measured Survey

Limitations: The survey was made at ground level using visual observation only. Detailed examinations, such as climbing inspections and decay detection equipment were not employed, though may form part of the survey's management recommendations. Measurements were taken using specialist tapes, laser and GPS devices. Where this was not possible, measurements are estimated.

Scope: Pre-development tree surveys make arboricultural management recommendations based exclusively upon the individual tree or group of trees condition relative to their present context (*i.e. not in relation to the proposed development*).

Legal Status: No statutory protection check has been performed. BS5837 does not draw any distinction between trees subject to statutory protection, such as a Tree Preservation Order (TPO), and those trees without. This is principally because a detailed planning consent overrides any TPO protection. Consequently, we do not seek to offer any comparison between or infer any difference in the quality or importance of TPO trees and other trees.

* For more information on the surveyed trees please see Arbtech Consulting Ltd, Tree Survey Schedule (Appendix I), Tree Survey Report and Tree Constraints Plan.

Arboricultural Impact Assessment

Table 3: Documents upon which this assessment has been based

Document	Originator	Reference Number	Title
Topo	Azimuth Land Surveys Ltd	WE2665-01-2D	Measured Survey
Site Plan	Wessex Solar Energy	-	Site Boundary and Indicative Layout

There are a number of issues that may need to be addressed in an arboricultural impact assessment between the trees and the proposed development, these are as follows:

- The effect and extent of the proposed development within the root protection areas (RPAs) of retained trees;
- The potential conflicts of the proposed development with canopies of retained trees; and
- The likelihood of any future remedial works to retained trees beyond which would have been scheduled as a part of usual management.

Table 4: Impacts upon the RPAs of retained trees

Tree Number	Species	Structure	Incursion
9	Ash	Fencing	RPA
G6	Various	Fencing	RPA
H4	Various	Fencing	RPA
H5	Various	Fencing	RPA
H12	Various	Fencing	RPA
H13	Various	Fencing	RPA

These impacts can be seen on the Arboricultural Impact Assessment drawing number Arbtech AIA 01A.

Trees to be removed

The implementation of this development requires the removal of **no** trees.

Conclusion

The proposed construction works of the new development will have no adverse impact on the local tree stock. As such I see no arboricultural or landscape reasons why this scheme shall not proceed subject to the appropriate conditions.

Arboricultural Method Statement

The purpose of this method statement is to demonstrate how any aspect of the development that has potential to result in loss or damage to a tree may be implemented and provide an adequate level of protection for those trees that are to be retained during the proposed works.

Details of key site personnel, including site / project manager will be submitted to the Council's Tree Officer prior to the commencement of site works.

This method statement is to be approved and agreed to in writing by all key personnel prior to the commencement of site works.

No site personnel are to be present and no demolition, site clearance, building work or delivery of materials is to occur until the protective measures are in accordance with this method statement and the Tree Protection Plan drawing number Arbtech TPP 01A.

Protective measures shall be in accordance with this method statement and the Tree Protection Plan; drawing number Arbtech TPP 01A will remain unaltered and in situ, unless otherwise specified, for the entire duration of the construction.

Table 7: Documents upon which this assessment has been based

Document	Originator	Reference Number	Title
Topo	Azimuth Land Surveys Ltd	WE2665-01-2D	Measured Survey
Site Plan	Wessex Solar Energy	-	Site Boundary and Indicative Layout

Tree Works

No tree work has been specified in this report as it is not required. However, if any unforeseen tree work is required post commencement, it is to be undertaken in accordance with British Standard BS 3998:2010 - Recommendations for tree work.

All arising's are to be removed and the site is to be left as found. Care is to be taken of the ground around retained trees to make sure that it does not become compacted as a result of tree surgery operations.

No equipment or vehicles such as timber lorries, tractors, excavators or cranes shall be parked or driven beneath the crowns of any retained trees, to prevent subsequent compaction and root death.

Protected Species (general informative for tree works)

British fauna enjoys a level of statutory protection. Undertaking tree work can impact upon some species directly. Bats and nesting birds shall be considered when undertaking tree works. The below information is not intended to be exhaustive but gives a brief overview of the protection afforded to these two groups of animals.

Conservation Status of British Bats

The general consensus in Britain and Europe is that virtually all bat species are declining and vulnerable. Our understanding of population status is poor as there is very little historical data for most bat species. Certain species, such as the horseshoe bats, are better understood and have well documented contractions in range and population size.

Given this general picture of decline in UK Government within the UK Biodiversity Action Plan has designated five species of bats as priority species (greater and lesser horseshoe bats, barbastelle, Bechstein's and pipistrelle). These plans provide an action pathway whereby the maintenance and restoration of the former populations levels are investigated.

Legal Status of British Bats

Given the above position all British bats as well as their breeding sites and resting places enjoy national and international protection.

All bat species in the UK are fully protected under the Wildlife and Countryside Act 1981 (as amended) through inclusion in Schedule 5. All bats are also listed on Annex IV (and some on Annex II) of the EC Habitats Directive giving further, European protection. Taken together the act and Conservation of Habitats and Species Regulations 2012 (as amended)* make it an offence to; intentionally or deliberately kill, injure or capture (take) bats;

- Deliberately disturb bats (whether in a roost or not);
- Damage, destroy or obstruct access to bat roosts;
- Possess or transport a bat or any part of a bat, unless acquired legally;
- Sell, barter or exchange bats, or parts of bats

The legislation although not strictly affording protection to foraging grounds does protect roost sites. Bat roosts are protected at all times of the year whether or not bats are present. Any disturbance of a roost due to development must be licenced.

**the regulations that delivered by the UK's commitments to the Habitats Directive.*

Breeding birds

All nesting birds are protected under the Wildlife and Countryside Act (as amended) 1981, which makes it an offence to intentionally kill, injure or take any wild bird or take, damage or destroy its nest whilst in use or being built, or take or destroy its eggs. Furthermore, a number of birds enjoy further protection under that Act and are listed on Schedule 1 of the Act. These further protected birds are also protected from disturbance and it may be necessary to operate “no-go” buffer zones around such nests – typically out to 100m.

Planning policy guidance on the treatment of species identified as priorities under the biodiversity action programme suggests that local authorities should take measures to protect the habitats of these species from further decline through policies in local development documents and should ensure that they are protected from the adverse effects of development, where appropriate, by using planning conditions or obligations. The conservation of these species should be promoted through the incorporation of beneficial biodiversity designs within developments.

Site Management

The site manager will be responsible for briefing and inducting all personnel who will be working on any stage of this development and especially those who will be working within or adjacent to the canopies or RPAs of retained trees; and will make them aware of, and provide a copy of this method statement and tree protection plan drawing number Arbtech TPP 01A; this is to include but not exclusively the movement and or operation of plant, excavations, unloading deliveries, mixing and or pouring of cement and concrete.

The site manager will be responsible for the day to day running and protection of all retained trees and for liaising with the project arborist about any tree related matters and prior to any works that may or will affect the RPAs or canopies of retained trees; this is to include but not exclusively the movement and or operation of plant, excavations, unloading deliveries, mixing, pouring and storage of all caustic materials that may cause harm to retained trees.

Any incidents of damage to retained trees or of tree protection measures will be documented by the site manager who will then report these incidents to the project arboriculturalist immediately and make sure that works within this area cease until the project arborist has had an opportunity to inspect the damage and where appropriate, agree a mitigation plan with the local planning authority tree officer.

The site manager may designate another person to take charge of briefing and inducting process of new site personnel or visitors in his absence.

If the site manager is replaced or is absent from site for more than three consecutive working days, the project arborist will be informed, and a pre-start meeting will be held with the new or acting site manager.

It is the responsibility of the site manager to ensure that the planning conditions attached to the planning consent are adhered to at all times and that a monitoring regime and supervision of any works within or adjacent to the RPAs are adopted.

If at any time pruning works are required other than those previously approved, permission must be sought from the LPA tree officer and once permission is granted they are to be carried out by a suitably qualified person in accordance with BS3998:2010 Tree work – Recommendations.

Prohibition

- Mechanical digging or scraping is not permitted within a defined root protection area or within areas cordoned off by protective barrier fencing.
- No access will be permitted within the protected areas;
- No materials, equipment or debris will be stored within any of the fenced areas, or against the fencing;
- Fires are not permitted within 10m of any vegetation.
- Leaning objects against or attaching of objects to a tree is not permitted.
- Machinery, plant and vehicles are not permitted to be washed down within 10m of vegetation.
- Chemicals and materials are not to be transported, stored, used or mixed within a root protection area or within areas cordoned off by protective barrier fencing.
- Cement silos, mixing site to be situated within a bunded area to prevent pillage/leaking of chemicals harmful to trees. These areas are to be sited well clear of protected trees.
- Refuelling of plant or machinery is prohibited within 10m of the construction exclusion zones.
- It is essential that allowance shall be made for the slope of the ground so that damaging materials such as concrete washings, mortar or diesel oil cannot run towards trees.
- Where machinery is to be used within 5m of retained tree canopies a banks man will be required at all times whilst setting up, moving or operating within this distance of retained trees canopies.
- Storage of all caustic material and chemicals are to be situated well clear of protected areas and preferably on lower ground if slopes are present, or to be situated within a bonded area to prevent any spills or leaks entering the ground.

Sequencing of works

A logical sequence of events is to be observed and shall be phased as follows.

Table 9: Sequence of Events

Stage	Event
Stage 1	Pre-commencement site meeting
Stage 2	Installation of protective measures in accordance with the approved tree protection plan/s
Stage 3	Site set up
Stage 4	Undertake and complete construction works
Stage 5	Undertake external landscaping works outside of the construction exclusion zones
Stage 6	Removal of all machinery and materials from site
Stage 7	Dismantle and removal of protective measures
Stage 8	Undertake external landscaping works within the construction exclusion zones
Stage 9	Sign off from project arboriculturalist

Protective Measures

Protective measures are to be installed immediately following the completion of the tree works and are to be sited and aligned in accordance with the tree protection plan (Arbtech TPP 01A) prior to the commencement of any works or the introduction of any machinery or material to site.

Upon installation of the protective measures around the retained trees the project arboriculturalist will visit the site to inspect and document the position and specifications of the protective measures.

In the event that the protective measures and their positions do not comply with this arboricultural method statement document number Arbtech AMS 01A (**16 November 2020**) and tree protection plan drawing number Arbtech TPP 01A, the project arboriculturalist shall inform the client and fencing contractor so adjustments can be made.

When the protective measures comply with document number Arbtech AMS 01A (**16 November 2020**) and tree protection plan drawing number Arbtech TPP 01A, the project arboriculturalist will sign off the protective measures in writing to the client and will send a copy to the fencing contractor, site agent and local authority tree officer.

If the protective measures become damaged or there is any accident or emergencies involving trees, these areas are to be cordoned off immediately with high visibility plastic mesh fencing. The site agent is to photograph and document the damage and inform the project arboriculturalist immediately after the incident and all work within in this area is to cease until the project arboriculturalist has made a visit to the site. Any and all damaged sections of protective measures shall be replaced within 48 hours of the initial incident.

The protected area is sacrosanct and will not be invaded by the storage of materials, mixing of concrete or other products, accessed by machinery, equipment or pedestrians or in any other way disturbed by construction activity.

The protective measures will remain in place until the completion of stage 6 (see **Sequencing of Works**), there after they will be carefully dismantled only with the agreement of the project arboriculturalist and or the local authority tree officer.

The proposed site boundary measures are to be installed and retained for the duration of the development. If for any reason the proposed boundary measures are not to be used protective barrier fencing is to be installed along the line of the boundaries and is only to be removed upon the written permission of the project arboriculturalist or LPA tree officer upon the completion of the development or immediately prior to the installation of the permanent boundary measures.

No equipment, vehicles or plant shall operate beyond the tree protection fencing. Booms, hoists and rigs shall be kept as far away from the canopies of retained trees at all times. Where it is necessary to operate within 5m of a tree canopy, it will be done with the utmost caution and under the control of a banks man. Damage to trees will be considered a breach of this tree protection plan, which in turn could be a breach of planning permission.

Protective Barrier Fencing

Protective barrier fencing shall be appropriate for the intensity and proximity of the development to protect trees where development activity is in close proximity. It is proposed that deer fencing will be installed, to the contractors specification and will remain in place as protective fencing. If for any reason this is not installed or sections are missing, one of the following specifications will be employed.

Default specification: To comprise either 2.4m wooden site hoarding; or a 2.3m high scaffold framework, well braced to resist impacts, with uprights to be spaced at a maximum of 3.0m intervals and driven into the ground by a minimum of 600mm. On to this, standard anti-climb welded mesh panels are to be securely fixed to each other with at least two scaffold clamps and to the scaffold frame work with wire.

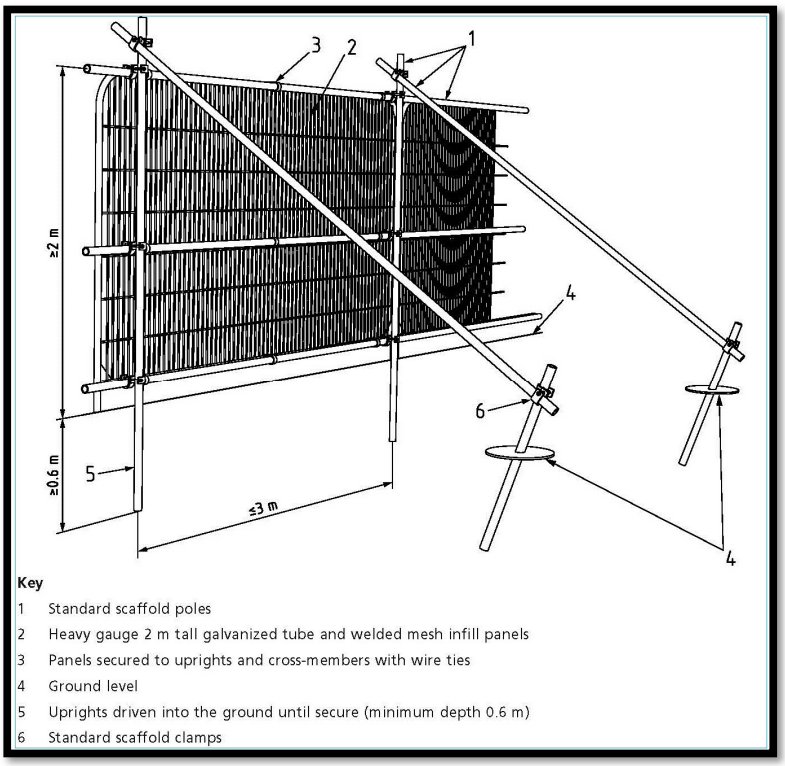

Figure 2: BS5837:2012 - Figure 2, Default specification for protective barriers.

Secondary specification: To comprise of 2m tall welded mesh panels on rubber or concrete feet. Panels are to be joined together using a minimum of two anti-tamper couplers, installed so that they can only be removed from inside the fence. The panels shall be supported on the inner side by stabiliser struts, which shall be attached to a base plate and secured with ground pins.

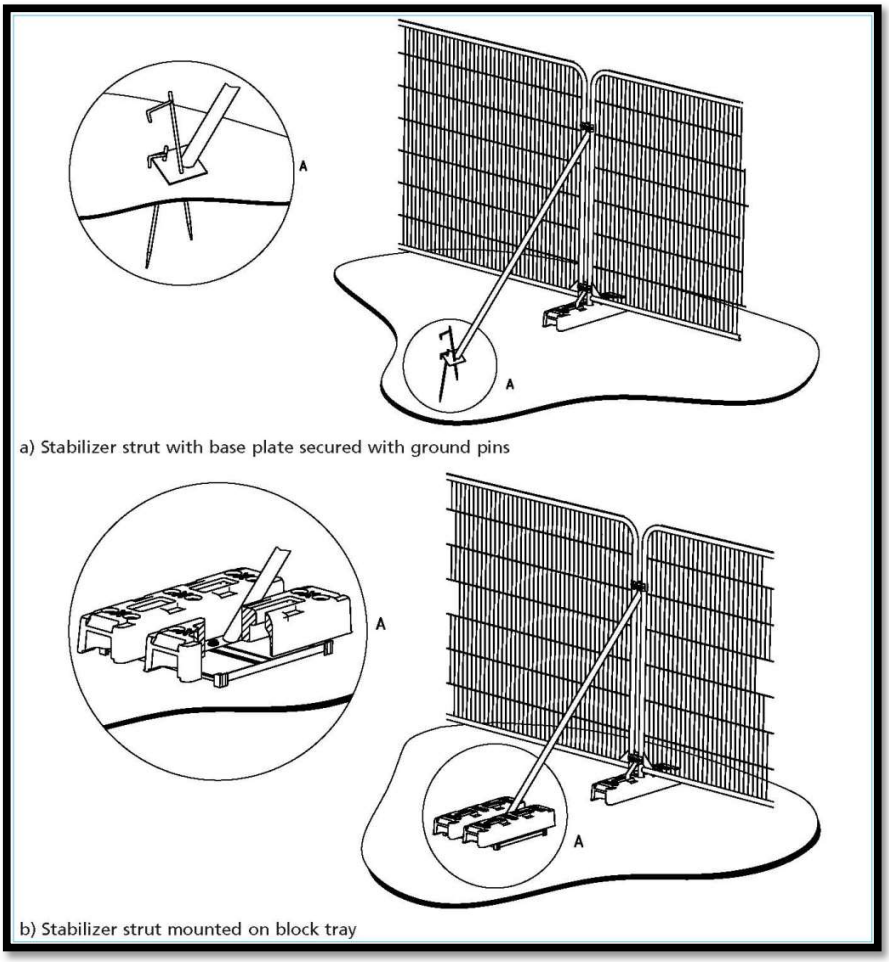

Figure 3: BS5837:2012 - Figure 3, Examples of above-ground stabilising systems.

Signage denoting the words "*tree protection area*" at 5.0m intervals shall be fixed to the protective barrier fencing (See Appendix II).

Protective fencing to be removed ONLY with the written permission of the arboricultural consultant and approval of the local planning authority (LPA).

Demolition

Prior to the required demolition of any existing site features, tree protection measures are to be in place as per Arbtech Consulting Ltd. tree protection plan document number Arbtech TPP 01A and have been signed off. A copy of the demolition method statement, if relevant, must have been submitted and approved by the project arboriculturalist and LPA tree officer, to ensure that there is no conflict with this method statement.

Any demolition work within or immediately adjacent to RPAs or canopies of retained trees is to be undertaken under the direct on-site supervision of an arboriculturalist.

Existing Underground Services

Existing services within the site shall be retained where ever possible. Where existing services within RPAs require upgrading, the upmost care must be taken to minimise disturbance, and where feasible trenchless techniques are to be employed, and only where necessary shall open excavations be considered.

Construction

Prior to the construction of the proposed Solar Farm, a copy of the construction method statement shall have been submitted and approved by the project arboriculturalist and LPA tree officer, to ensure that there is no conflict with this method statement.

All excavations and construction work within or immediately adjacent to RPAs or canopies of retained trees is to be undertaken under the direct on-site supervision of an arboriculturalist.

Foundations Design

The proposed development does not impact upon any of the retained trees and as such will require no specialist construction methodology.

Boundary fences

Proposed fence posts within the RPAs of Groups G6, H5 & H12 are to be excavated manually (see Manual excavation), individual posts will require moving to prevent damage of roots 25mm or greater in diameter.

Services

Detailed drawings of proposed underground services are not available at this time; hence it is not possible to identify any specific potential impacts associated with the scheme at this stage.

Existing services within the site shall be retained where ever possible. Where existing services within RPAs require upgrading, the upmost care must be taken to minimise disturbance, and where feasible trenchless techniques are to be employed, and only where necessary shall open excavations be considered.

Where new services are to be introduced into the site they shall be located outside of RPAs, where they will not interfere with tree roots. If any excavations are required within the RPAs all trenches are to be excavated by hand and radially to the tree trunks under direct on-site arboricultural supervision and are to be carried out under NJUG guidelines.

Final positions of any proposed services shall be verified and approved by the arboricultural consultant and local authority tree officer before implementation.

New Underground services

Trenching for installation of underground services and drainage routes could sever any roots that may be present and as such adversely affects the health of the tree. For this reason, particular care shall be taken in routing and methods of installation of all underground services. All underground services and drainage routes shall be located so that no excavations are required within RPAs.
Where it has been impossible to keep underground services from passing through RPAs or within close proximity to trees, these sections are to be installed in one of three ways in accordance with the guidance set out in National Joint Utilities Group guidelines (NJUG 4), under on site arboricultural supervision.

Trenchless Techniques

There are three main types of trenchless techniques, these include, guided and unguided boring and pipe replacement by lining or bursting. These allow for the installation, maintenance or renewal of underground services, without the disturbance of soil in which roots are likely to be growing. Starting and receiving pits for the boring machinery are to be located outside of the RPAs of any retained trees, with the bore depth being maintained at a minimum depth of 600mm below the existing ground level.
Techniques involving external lubrication of the equipment shall use no material other than water as other lubricants could contaminate the soil (e.g. oil, bentonite, etc.).

Manual Excavation

Excavation within RPAs will be undertaken by hand under direct on-site arboricultural supervision of the required depth of the foundation; Or to a minimum of 600mm deep of any excavation, whether for proposed foundations, hard surfacing or underground services. The total depth of the manual excavation will be determined by the arboriculturalist whilst on site.

The soil is to be loosened with the aid of a fork or pick axe and then cleared with the aid of an Air-spade, Air-vac and or shovel. Any roots found will be cleanly severed by the arboricultural consultant with either a hand saw or secateurs.

Any roots found with a diameter of less than 25mm shall be cleanly severed by the arboricultural consultant. Any roots of 25mm and above shall be excavated around without damaging them; the arboricultural consultant shall decide if it's feasible or necessary to retain the root, if not it shall be severed.

The edge of the excavation closest to the trees will be covered with damp hessian to prevent soil collapse or contamination by concrete.

Soil beneath the depth may be sheet piled, regular piled or excavated deeper. Machinery may be used for this providing that it is situated outside of the RPA or has appropriate ground protection in place to move around on and work upon.

Broken Trench – Hand Dug

This technique combines both trenchless techniques and manual excavation where excavation is unavoidable. Excavations shall be limited to where there is clear access around and below the roots. All trenches shall be excavated by hand with the same precautions taken as for manual excavation. Open section of trench shall only be large enough to allow access for linking to the next section.

Landscaping

Landscaping around retained trees may only be carried out once all tree protection measures have been removed (planting, turfing, fencing etc.).

All excavations within the Root Protection Areas shall be undertaken by hand and without reducing current ground levels unless it is agreed in writing with the LPA. At no time is the use of a rotavator permitted within the RPAs of retained tree.

Any tree roots discovered will be left in-situ and shall not be cut or otherwise damaged. Where possible, the soil structure within the Root Protection area shall be preserved.

No works will be carried out within the RPAs of any trees if the soil moisture is of such a level that soil compaction may be likely. Shall the soil become compacted or has poor structure which would hinder the development of the existing trees and plants or any new plantings the arboriculturalist shall be consulted about soil decompaction techniques.

Monitoring and Supervision

Where trees have been identified within this method statement and tree protection plan drawing number Arbtech TPP 01A for retention, there shall be an auditable system of arboricultural monitoring. This is to extend to arboricultural supervision whenever demolition or construction activity is to take place within or adjacent to any canopy or RPA.

The development's tree protection measures are to be monitored and all demolition and construction works to be undertaken within or adjacent to the RPAs of retained trees are to be supervised by project arboriculturalist, who shall be retained to record and report observations to the council at appropriate intervals. A site-specific record sheet is shown at Appendix III.

Pre-commencement site meeting

Prior to the commencement of any works or machinery and materials arriving on site a pre-commencement site meeting involving the project arborist, land owner or agent, site manager, contractors and engineer (as appropriate) and the relevant LPA officers will be held to ensure that all aspects of the arboricultural method statement and tree protection are understood and for all parties to swap contact details (see **Appendix IV**).

Monitoring and supervision schedule

The initial monitoring visit will be to check that the tree protective measures are in the correct location and as specified within the approved method statement; if so to sign off their installation.

Thereafter monitoring visits are to take place at regular intervals, to ensure that tree protection measures remain in place and are functioning as designed or whenever necessary to undertake works to be carried out under arboricultural supervision. The frequency of the monitoring visits is to be determined with the LPA tree officer at the pre-commencement site meeting.

A record of all arboricultural monitoring and supervision visits will be kept, and any faults will be logged, this will then be copied to the site agent, developer and local planning authority in a digital format.

If during the course of the development, it is necessary for areas to be re-designed so that they would require changes to the approved arboricultural method statement or tree protection plan and so affecting retained trees the project arborist and LPA tree officer will be invited to attend a site meeting with all relevant parties. Prior to any changes being implemented these must have been approved in writing by the LPA tree officer.

Supervised activities

The arboricultural consultant will be required to attend site to directly supervise all demolition and construction works that are to be undertaken within or adjacent to the RPAs of all retained trees and will be advised a minimum of 72 hours prior to the commencement of any works that require his attendance, these will include:

1. Pre-commencement site meeting.
2. Location of protective measures.
3. Manual excavation for the installation of fence posts, within the RPAs of retained trees.
4. Any demolition and or excavations within or adjacent to RPAs, including foundations, hard surfacing or underground services (a non-exhaustive list).
5. Arboricultural sign off and removal of protective measures.

Completion meeting

Once all construction works have been completed all materials and machinery has been removed from site the project arborist shall be informed and will invite the LPA tree officer to meet on site to discuss the process and discuss any final remedial works that may be required and to sign the development off so that the protective measures may be removed.

Arboricultural Impacts

Impacts	Nos. of trees
Trees to be removed	0
Groups / Hedges to be removed (Partial removal of groups)	0 (0)
Trees with proposed incursions into RPAs	1
Groups / Hedges with proposed incursions into RPAs	5
Trees that will require pruning	0
Groups / Hedges that will require pruning	0
Trees to be transplanted	0
Groups / Hedges to be transplanted	0

No.	Species	Proposed structure	Incursion
9	Ash	Fencing	RPA
G6	Various	Fencing	RPA
H4	Various	Fencing	RPA
H5	Various	Fencing	RPA
H12	Various	Fencing	RPA
H13	Various	Fencing	RPA

No. of individual trees to be removed

U	A	B	C
0	0	0	0

No. of groups / hedges to be removed

U	A	B	C
0 (0)	0 (0)	0 (0)	0 (0)

( ) = Partial removal of a groups

Arboricultural Method Statement

All tree work is to be undertaken in accordance with British Standard Please refer to Arbtech Consulting Ltd. Tree Schedule, Arboricultural Method Statement and Tree Protection Plan, for full details of all surveyed trees and how all aspects of the development maybe implemented without detriment to retained trees.

ARBTECH

Unit 3, Well House Barns, Chester, CH4 0DH
https://arbtech.co.uk, 01244 661170

Project:
Blackberry Lane Solar Park, Blackberry Lane, Pembroke Dock, Pembrokeshire, SA72 4SU

Client:
Wessex Solar Power Ltd

Drawing:
Arboricultural Impact Assessment

Based on:
Site Boundary and Indicative Layout

Drawing No:		Rev:
Arbtech AIA 01		A
Date:	Scale:	Drawn:
Nov 2020	1:1000 @ A0	AJN

Key:

Tree Nos.: 1	Tree Canopies:	Trunks:
RPAs:	Category 'U' trees:	Category 'B' trees:
Category 'B' groups:	Category 'C' trees:	Category 'C' groups:
Existing Site:	Proposed Site:	Proposed Fencing:
Incursion - Structures:		

All dimensions should be checked on site. No dimensions are to be scaled from this drawing.
Please notify us of any discrepancies found. Arbtech Consulting Ltd. cannot be held responsible for inaccuracies in the base drawing in which this plan is based.
This drawing is designed to reflect the principles of the layout or design only, and relates only to the protection of retained trees.
This drawing is not to be read as a definitive part of the engineering or construction designs or method statement. An architect or structural engineer should be contacted over any matters of construction, detailing or specification and for any standards or regulatory requirements relating to proposed structures, hard surfacing or underground services.
This drawing was produced in colour - a monochrome copy should not be relied upon.

Appendix I: Tree Survey Schedule

BS5837:2012 Tree Survey

Arbtech Consulting Ltd
Unit 3 Well House Barns
Chester Road
Chester
CH4 0DH
Phone: 01244 661170
http://arbtech.co.uk

Client: Wessex Solar Power Ltd
Project: Lower Nash Farm, Pembroke Dock Pembrokeshire, SA72 4S
Survey Date: 18/06/2020 - 19/06/2020
Surveyor: David Garrick

ARBTECH

Tree and Tag No / Species	Hght (m)	Stems No	Stems Ø (mm)	Crown Spread (m)	Crown Clear (m)	Age	RP A (m²) R (m)	Phys Condition	Structural Condition	Preliminary Recommendations / Survey Comment	Cat ERC
G1											
Various *See comments for details*	11	1	440	N 5 1 E 5 1 S 5 1 W 5 1		EM	A: 87.6 R: 5.28	Fair	C: Fair S: Good B: Good	Linear group of 5 trees along field boundary. Species include Ash, Sycamore & oak	**B.2** 20+ yrs
G2											
Various *See comments for details*	13	1	600	N 6 3 E 6 3 S 6 3 W 6 3		M	A: 162.9 R: 7.2	Good	C: Fair S: Good B: Fair	Boundary hedge. Species includes elder, hazel, hawthorn, maple	**B.1.2** 20+ yrs
G3											
Common Oak *Quercus robur*	14	1	680	N 6 2 E 6 2 S 6 2 W 6 2		M	A: 209.2 R: 8.16	Good	C: Fair S: Good B: Good	Linear group of mature trees along field boundary.	**B.1.2** 20+ yrs
G4											
English Elm *Ulmus procera*	10	1	320	N 4 2 E 4 2 S 4 2 W 4 2		EM	A: 46.3 R: 3.83	Fair	C: Fair S: Fair B: Good	Linear group along field boundary. Group has been outcompeted by neighbouring trees	**C.2** 10+ yrs

Age Classifications: N Newly planted; Y Young; SM Semi-mature; EM Early Mature; M Mature; OM Over Mature

Condition: C Crown; S Stem; B Basal area

Stems: Ø Diameter; (Eq) Equivalent stem diameter using BS5837:2012 definition

ERC: Estimated Remaining Contributio

Tree and Tag No Species	Hght (m)	Stems No	Stems Ø (mm)	Crown Spread (m)	Crown Clear (m)	Age	RP A (m²) R (m)	Phys Condition	Structural Condition	Preliminary Recommendations Survey Comment	Cat ERC
G5											
Various *See comments for details*	13	1	460	N 6 E 6 S 6 W 6	3 3 3 3	EM	A: 95.7 R: 5.51	Fair	C: Fair S: Good B: Good	3 trees situated on field boundary. Species includes ash & prunus	**B.1** 20+ yrs
G6											
Various *See comments for details*	14	1	600	N 6 E 6 S 6 W 6	3 3 3 3	M	A: 162.9 R: 7.2	Fair	C: Fair S: Good B: Good	Situated on field boundary. Mature screen planting. Species predominantly ash & oak	**B.1** 20+ yrs
H1											
Various *see comments for details*	2	1	100	N 2 E 2 S 2 W 2	0 0 0 0	SM	A: 4.5 R: 1.19	Good	C: Fair S: Fair B: Fair	Boundary hedge. Species includes elder, hazel, hawthorn, maple	**C.2** 10+ yrs
H2											
Various *see comments for details*	2	1	100	N 2 E 2 S 2 W 2	0 0 0 0	SM	A: 4.5 R: 1.19	Good	C: Fair S: Fair B: Fair	Boundary hedge. Species includes elder, hazel, hawthorn, maple	**C.2** 10+ yrs
H3											
Various *see comments for details*	2	1	100	N 2 E 2 S 2 W 2	0 0 0 0	SM	A: 4.5 R: 1.19	Good	C: Fair S: Fair B: Fair	Boundary hedge. Species includes elder, hazel, hawthorn, maple	**C.2** 10+ yrs
H4											
Various *see comments for details*	2	1	100	N 2 E 2 S 2 W 2	0 0 0 0	SM	A: 4.5 R: 1.19	Good	C: Fair S: Fair B: Fair	Boundary hedge. Species includes elder, hazel, hawthorn, maple	**C.2** 10+ yrs

Age Classifications: N Newly planted; Y Young; SM Semi-mature; EM Early Mature; M Mature; OM Over Mature

Condition: C Crown; S Stem; B Basal area

Stems: Ø Diameter; (Eq) Equivalent stem diameter using BS5837:2012 definition

ERC: Estimated Remaining Contributio

Tree and Tag No Species	Hght (m)	Stems No	Stems Ø (mm)	Crown Spread (m)	Crown Clear (m)	Age	RP A (m²) R (m)	Phys Condition	Structural Condition	Preliminary Recommendations Survey Comment	Cat ERC
H5											
Various *see comments for details*	2	1	100	N 2 0 E 2 0 S 2 0 W 2 0		SM	A: 4.5 R: 1.19	Good	C: Fair S: Fair B: Fair	Boundary hedge. Species includes elder, hazel, hawthorn, maple	**C.2** 10+ yrs
H6											
Various *see comments for details*	2	1	100	N 2 0 E 2 0 S 2 0 W 2 0		SM	A: 4.5 R: 1.19	Good	C: Fair S: Fair B: Fair	Boundary hedge. Species includes elder, hazel, hawthorn, maple	**C.2** 10+ yrs
H7											
Various *see comments for details*	2	1	100	N 2 0 E 2 0 S 2 0 W 2 0		SM	A: 4.5 R: 1.19	Good	C: Fair S: Fair B: Fair	Boundary hedge. Species includes elder, hazel, hawthorn, maple	**C.2** 10+ yrs
H8											
Various *see comments for details*	2	1	100	N 2 0 E 2 0 S 2 0 W 2 0		SM	A: 4.5 R: 1.19	Good	C: Fair S: Fair B: Fair	Boundary hedge. Species includes elder, hazel, hawthorn, maple	**C.2** 10+ yrs
H9											
Various *see comments for details*	2	1	100	N 2 0 E 2 0 S 2 0 W 2 0		SM	A: 4.5 R: 1.19	Good	C: Fair S: Fair B: Fair	Boundary hedge. Species includes elder, hazel, hawthorn, maple	**C.2** 10+ yrs
H10											
Various *see comments for details*	2	1	100	N 2 0 E 2 0 S 2 0 W 2 0		SM	A: 4.5 R: 1.19	Good	C: Fair S: Fair B: Fair	Boundary hedge. Species includes elder, hazel, hawthorn, maple	**C.2** 10+ yrs

Age Classifications: N Newly planted; Y Young; SM Semi-mature; EM Early Mature; M Mature; OM Over Mature

Condition: C Crown; S Stem; B Basal area

Stems: Ø Diameter; (Eq) Equivalent stem diameter using BS5837:2012 definition

ERC: Estimated Remaining Contributio

Tree and Tag No Species	Hght (m)	Stems No	Stems Ø (mm)	Crown Spread (m)	Crown Clear (m)	Age	RP A (m²) R (m)	Phys Condition	Structural Condition	Preliminary Recommendations Survey Comment	Cat ERC
H11											
Various *see comments for details*	2	1	100	N 2 0 E 2 0 S 2 0 W 2 0		SM	A: 4.5 R: 1.19	Good	C: Fair S: Fair B: Fair	Boundary hedge. Species includes elder, hazel, hawthorn, maple	**C.2** 10+ yrs
H12											
Various *see comments for details*	2	1	100	N 2 0 E 2 0 S 2 0 W 2 0		SM	A: 4.5 R: 1.19	Good	C: Fair S: Fair B: Fair	Boundary hedge. Species includes elder, hazel, hawthorn, maple	**C.2** 10+ yrs
H13											
Various *see comments for details*	2	1	100	N 2 0 E 2 0 S 2 0 W 2 0		SM	A: 4.5 R: 1.19	Good	C: Fair S: Fair B: Fair	Boundary hedge. Species includes elder, hazel, hawthorn, maple	**C.2** 10+ yrs
H14											
Various *see comments for details*	2	1	100	N 2 0 E 2 0 S 2 0 W 2 0		SM	A: 4.5 R: 1.19	Good	C: Fair S: Fair B: Fair	Boundary hedge. Species includes elder, hazel, hawthorn, maple	**C.2** 10+ yrs
H15											
Various *see comments for details*	2	1	100	N 2 0 E 2 0 S 2 0 W 2 0		SM	A: 4.5 R: 1.19	Good	C: Fair S: Fair B: Fair	Boundary hedge. Species includes elder, hazel, hawthorn, maple	**C.2** 10+ yrs
H16											
Various *see comments for details*	2	1	100	N 2 0 E 2 0 S 2 0 W 2 0		SM	A: 4.5 R: 1.19	Good	C: Fair S: Fair B: Fair	Boundary hedge. Species includes elder, hazel, hawthorn, maple	**C.2** 10+ yrs

Age Classifications: N Newly planted; Y Young; SM Semi-mature; EM Early Mature; M Mature; OM Over Mature

Condition: C Crown; S Stem; B Basal area

Stems: Ø Diameter; (Eq) Equivalent stem diameter using BS5837:2012 definition

ERC: Estimated Remaining Contributio

Tree and Tag No Species	Hght (m)	Stems No	Stems Ø (mm)	Crown Spread (m)	Crown Clear (m)	Age	RP A (m²) R (m)	Phys Condition	Structural Condition	Preliminary Recommendations Survey Comment	Cat ERC
H17											
Various *see comments for details*	2	1	100	N 2 E 2 S 2 W 2	0 0 0 0	SM	A: 4.5 R: 1.19	Good	C: Fair S: Fair B: Fair	Boundary hedge. Species includes elder, hazel, hawthorn, maple	C.2 10+ yrs
H18											
Various *see comments for details*	2	1	100	N 2 E 2 S 2 W 2	0 0 0 0	SM	A: 4.5 R: 1.19	Good	C: Fair S: Fair B: Fair	Boundary hedge. Species includes elder, hazel, hawthorn, maple	C.2 10+ yrs
W1											
Various *see comments for details*	15	1	650	N 6 E 6 S 6 W 6	2 2 4 2	M	A: 191.2 R: 7.8	Good	C: Fair S: Good B: Good	Predominantly ash & oak woodland with buckthorn understory	B.1.2 20+ yrs
1											
English Elm *Ulmus procera*	10	1	260	N 3 E 1 S 3 W 4	1 1 1 1	EM	A: 30.6 R: 3.12	Fair	C: Fair S: Fair B: Good	Situated on field boundary. Crown suppressed by neighbouring trees	C.1 10+ yrs
2											
English Elm *Ulmus procera*	10	1	330	N 5 E 3 S 5 W 4	2 1 2 1	EM	A: 49.3 R: 3.96	Good	C: Fair S: Fair B: Good	Situated on field boundary. Crown suppressed by neighbouring trees.	B.1 20+ yrs
3											
English Elm *Ulmus procera*	10	2	305 (Eq)	N 4 E 2 S 3 W 3	2 1 2 1	EM	A: 42 R: 3.65	Fair	C: Fair S: Good B: Good	Situated on field boundary. Crown suppressed by neighbouring trees	C.1 10+ yrs

Age Classifications: N Newly planted; Y Young; SM Semi-mature; EM Early Mature; M Mature; OM Over Mature

Condition: C Crown; S Stem; B Basal area

Stems: Ø Diameter; (Eq) Equivalent stem diameter using BS5837:2012 definition

ERC: Estimated Remaining Contributio

Tree and Tag No Species	Hght (m)	Stems No	Stems Ø (mm)	Crown Spread (m)	Crown Clear (m)	Age	RP A (m²) R (m)	Phys Condition	Structural Condition	Preliminary Recommendations Survey Comment	Cat ERC
4											
English Elm *Ulmus procera*	15	2	531 (Eq)	N 5 E 5 S 5 W 5	4 2 4 2	M	A: 127.5 R: 6.37	Good	C: Fair S: Fair B: Good	Situated on field boundary. 2 co-dominant stems from base	**B.1** 20+ yrs
5											
Sycamore *Acer pseudoplatanus*	15	1	660	N 7 E 7 S 7 W 7	3 3 3 3	M	A: 197.1 R: 7.92	Good	C: Fair S: Good B: Good	Situated on field boundary. Epicormic growth at base of stem	**B.1.2** 20+ yrs
6											
Common Ash *Fraxinus excelsior*	16	1	830	N 8 E 8 S 8 W 6	4 3 4 5	M	A: 311.7 R: 9.96	Fair	C: Fair S: Good B: Good	Situated on field boundary. Sparsely foliated	**B.1.2** 20+ yrs
7											
Common Ash *Fraxinus excelsior*	8	2	553 (Eq)	N 3 E 2 S 3 W 4	4 4 4 4	M	A: 138.4 R: 6.63	Decline	C: Poor S: Ivy B: Fair	Situated on field boundary. Dieback throughout crown	**U** <10 yrs
8											
Common Ash *Fraxinus excelsior*	10	1	580	N 5 E 6 S 5 W 5	3 3 3 3	M	A: 152.2 R: 6.96	Poor	C: Fair S: Good B: Good	Situated on field boundary. Apical dieback within crown consistent with ash dieback	**C.1** 10+ yrs
9											
Common Ash *Fraxinus excelsior*	16	1	880	N 8 E 8 S 8 W 8	4 4 4 4	M	A: 350.4 R: 10.56	Fair	C: Fair S: Good B: Fair	Previously snapped out limbs. Major deadwood in crown	**B.1.2** 20+ yrs

Age Classifications: N Newly planted; Y Young; SM Semi-mature; EM Early Mature; M Mature; OM Over Mature

Condition: C Crown; S Stem; B Basal area

Stems: Ø Diameter; (Eq) Equivalent stem diameter using BS5837:2012 definition

ERC: Estimated Remaining Contributio

Tree and Tag No Species	Hght (m)	Stems No	Stems Ø (mm)	Crown Spread (m)	Crown Clear (m)	Age	RP A (m²) R (m)	Phys Condition	Structural Condition	Preliminary Recommendations Survey Comment	Cat ERC
10											
Common Ash *Fraxinus excelsior*	15	1	790	N 8 E 7 S 7 W 7	4 4 2 4	M	A: 282.4 R: 9.48	Fair	C: Fair S: Good B: Good	Situated on field boundary. Minor deadwood (<50mm) in crown	**B.1.2** 20+ yrs
11											
Common Oak *Quercus robur*	11	1	740	N 5 E 6 S 5 W 5	3 3 3 3	M	A: 247.8 R: 8.88	Fair	C: Fair S: Fair B: Good	Situated on field boundary. Stem leans east. Previously snapped out limbs within crown	**B.1** 20+ yrs
12											
Common Oak *Quercus robur*	10	1	640	N 6 E 6 S 6 W 6	2 2 2 2	M	A: 185.3 R: 7.68	Good	C: Fair S: Good B: Good	Situated on field boundary. Single straight stem	**B.1** 20+ yrs

Age Classifications: N Newly planted; Y Young; SM Semi-mature; EM Early Mature; M Mature; OM Over Mature

Condition: C Crown; S Stem; B Basal area

Stems: Ø Diameter; (Eq) Equivalent stem diameter using BS5837:2012 definition

ERC: Estimated Remaining Contributio

Appendix II: Tree Protection Notice

(To be printed at A3 or larger)

Tree Protection Area

KEEP OUT

Do **not** move this fence

(TOWN & COUNTRY PLANNING ACT 1990)
TREES ENCLOSED BY THIS FENCE ARE PROTECTED BY PLANNING CONDITIONS AND/OR ARE THE SUBJECT OF A TREE PRESERVATION ORDER.
CONTRAVENTION OF A TREE PRESERVATION ORDER MAY LEAD TO CRIMINAL PROSECUTION

ANY INCURSION INTO THE PROTECTED AREA MUST BE WITH THE WRITTEN PERMISSION OF THE LOCAL PLANNING AUTHORITY

ARBTECH

Arbtech Consulting Limited.
Unit 3, Well House Barn, Chester Road, Chester, CH4 0DH
www.arbtech.co.uk - 01244 661170

Appendix III: Arboricultural Monitoring and Supervision Sign Off Checklist

Arboricultural Monitoring and Supervision Sign Off Checklist

Blackberry Lane Solar Park, Blackberry Lane, Pembroke Dock, Pembrokeshire, SA72 4SU

Tree Number	Task	Date Completed	Signed (Project arboriculturalist)	Signed (Site Manager)
All	Pre-commencement site meeting			
G6, H5 & H12	Installation for fence post locations			
All	Sign off of the location and specification of the protective measures			
All	Unforeseen excavations within RPAs (if required)			
All	Completion of ground works			
All	Completion of construction			
All	Removal of machinery and materials from site			
All	Dismantle and removal of protective measures			
All	Completion of landscaping			
All	Sign off from project arboriculturalist			

Appendix IV: Contact Details

Name	Position	Company	Contact
	Client		
	Tree Officer		
	Arboricultural Consultant	Arbtech Consulting Ltd.	01244 661170 https://arbtech.co.uk
	Site Manager		
	Main contractor		

Document Production Record

Document number	Editor	Signature	Position	Issue number	Date
Arbtech AMS 01	Aran Nearn		Arboricultural Consultant	01	23/07/2020

Limitations

Arbtech Consulting Ltd has prepared this Report for the sole use of the above-named Client/Agent in accordance with our terms of business, under which our services were performed. No other warranty, expressed or implied, is made as to the professional advice included in this Report or any other services provided by us. This Report may not be relied upon by any other party without the prior and express written agreement of Arbtech Consulting Ltd. The assessments made assume that the sites and facilities will continue to be used for their current purpose without significant change. The conclusions and recommendations contained in this Report are based upon information provided by others and upon the assumption that all relevant information has been provided by those parties from whom it has been requested. Information obtained from third parties has not been independently verified by Arbtech Consulting Ltd.

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Tree Protection Area

KEEP OUT

Do **not** move this fence

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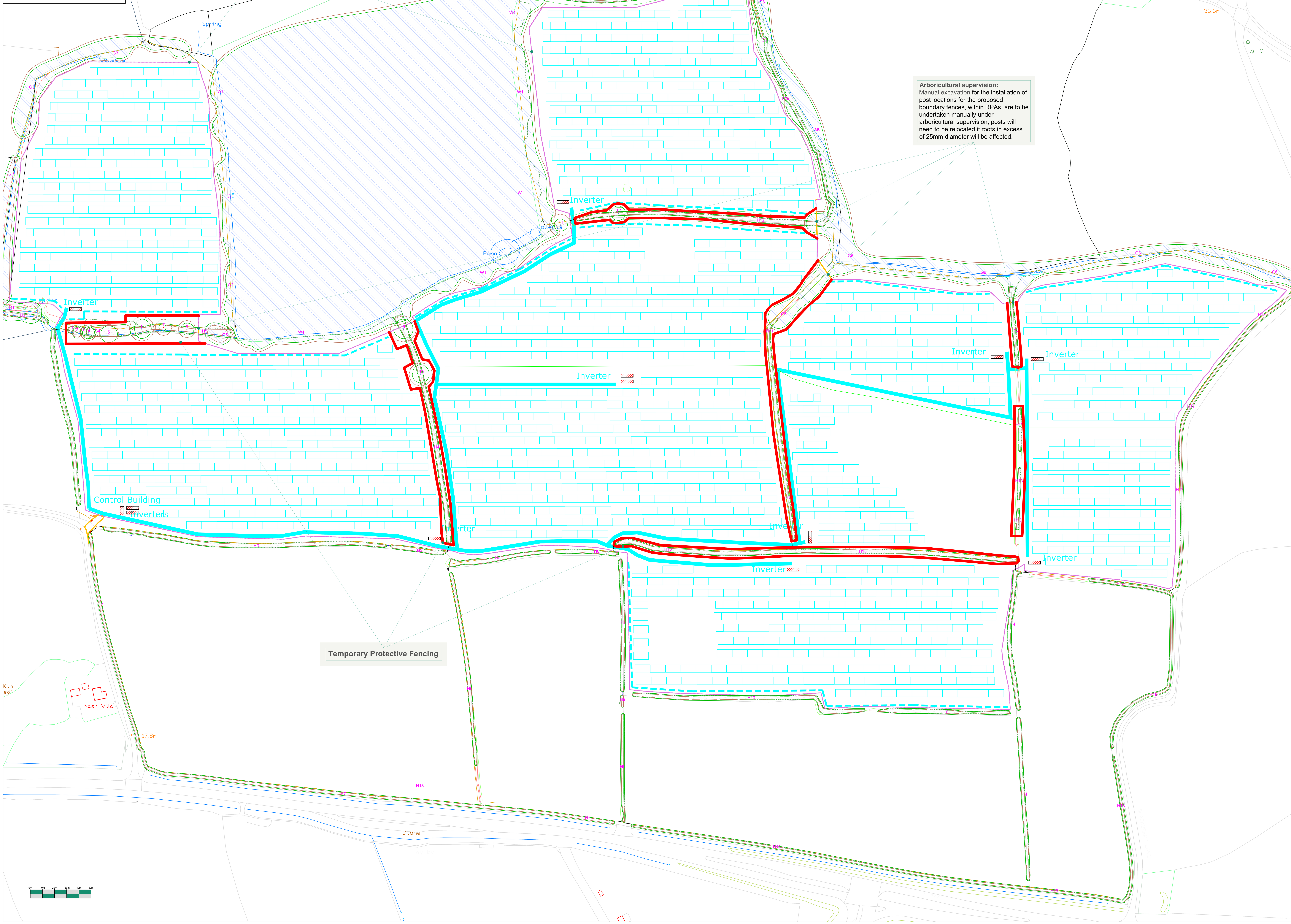
TREES ENCLOSED BY THIS FENCE ARE PROTECTED BY PLANNING CONDITIONS AND/OR ARE THE SUBJECT OF A TREE PRESERVATION ORDER. CONTRAVENTION OF A TREE PRESERVATION ORDER MAY LEAD TO CRIMINAL PROSECUTION

ANY INCURSION INTO THE PROTECTED AREA MUST BE WITH THE WRITTEN PERMISSION OF THE LOCAL PLANNING AUTHORITY

ARBTECH
Arbtech Consulting Limited.
Unit 3, Well House Barn, Chester Road, Chester, CH4 0DH
https://arbtech.co.uk - 01244 661170



Protective Fencing

To be erected prior to the commencement of all works on site, and retained in place throughout construction.

Specification: The protective fencing for this site will comprise of deer fencing to be specified by the construction team. If the deer fencing is not deemed suitable or there are gaps present, one of the following specifications will be employed.

Default specification: To comprise either 2.4m wooden site hoarding; or a 2.3m high scaffolding framework comprising of vertical and horizontal framework, well braced to resist impacts, with uprights to be spaced at a maximum of 3.0m intervals and driven into the ground by a minimum of 600mm. On to this, standard anti-climb welded mesh panels are to be securely fixed to each other with at least two scaffold clamps and to the scaffold framework with wire.

Secondary Specification: To comprise of 2m tall welded mesh panels on rubber or concrete feet. Panels are to be joined together using a minimum of two anti-tamper couplers, installed so that they can only be removed from inside the fence. The panels should be supported on the inner side by stabilizer struts, which should should be attached to a base plate and secured with ground pins.

All weather notices should be erected at regular intervals on the weld mesh panels with words such as "Construction exclusion zone - Keep out".

All weather notices will be displayed at regular intervals on the fencing with words such as "Construction exclusion zone - Keep out". A sign template can be see attached to the top right of the drawing and appended to the Arboricultural Method Statement.

Supervised Excavation

All excavations within and immediately adjacent to RPAs are to be undertaken under direct on-site arboricultural supervision.

Excavations within the RPAs will be initially undertaken by hand under direct on-site arboricultural supervision to a minimum of 600mm deep (to be confirmed by the project arboriculturalist) before mechanical excavation can take place. The soil is to be loosened with the use of a fork or pick and then cleared with a shovel or the aid of an air-spade and air-vac.

If roots in excess of 25mm are discovered the post position will be relocated.

Arboricultural Supervision

The arboricultural consultant will be required to attend site to directly supervise all demolition and construction works that have to be undertaken within the root protection areas. This will include:

1. Pre-commencement site meeting.
2. Location of protective measures.
3. Manual excavation for the installation of fence posts, within the RPAs of retained trees.
4. Any demolition and or excavations within or adjacent to RPAs, including foundations, hard surfacing or underground services (a non-exhaustive list).
5. Arboricultural sign off and removal of protective measures.

Arboricultural Method Statement

Please refer to Arbtech Consulting Ltd. Tree Schedule and Arboricultural Method Statement, for full details on all surveyed trees and how all aspects of the the development maybe implemented without determent to retained trees.

ARBTECH
Unit 3, Well House Barns, Chester, CH4 0DH
https://arbtech.co.uk, 01244 661170

Project:
Blackberry Lane Solar Park,
Blackberry Lane,
Pembroke Dock,
Pembrokeshire,
SA72 4SU

Client:
Wessex Solar Power Ltd

Drawing:
Tree Protection Plan

Based on:
Site Boundary and Indicative Layout

Drawing No:		Rev:
Arbtech TPP 01		A
Date:	Scale:	Drawn:
Nov 2020	1:1000 @ A0	AJN

Key:

Tree Nos.:	1	Tree Canopies:		Trunks:	
RPAs:		Category 'U' trees:		Category 'B' trees:	
Category 'B' groups:		Category 'C' trees:		Category 'C' groups:	
Existing Site:		Proposed Site:		Protective Fencing:	
Temporary Protective Fencing:		Arboricultural supervision - Excavations:			

All dimensions should be checked on site. No dimensions are to be scaled from this drawing.
Please notify us of any discrepancies found. Arbtech Consulting Ltd. cannot be held responsible for inaccuracies in the base drawing in which this plan is based.
This drawing is designed to reflect the principles of the layout or design only, and relates only to the protection of retained trees.
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