ARBORICULTURAL IMPACT ASSESSMENT

(INC. TREE SURVEY TO BS 5837:2012)

CLIENT -	Statera Energy Limited
PROJECT -	Culham
DOC. REF -	P2891–AIA01 V5
PLANNING REF -	n/a
CREATION DATE -	02/05/2024

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PURPOSE OF DOCUMENT

This document assesses the anticipated impact that the proposed scheme will have on the surrounding tree population, and outlines possible technical design considerations and mitigation measures that should be implemented in order to minimise the overall arboricultural impact.

ARBORICULTURAL DOCUMENT REGISTER

Planning Documents		Version Issued	
Document	Ref.	Current Version	Document Date
Arb. Impact Assessment	P2891-AIA01	V5	02/05/2024
Arb. Site Plan (Existing)	P2891-ASP01	V1	18/11/2022
Arb. Site Plan (Proposed)	P2891-ASP02	V5	02/05/2024

1. SUMMARY

1.1 PROPOSED DEVELOPMENT

1.1.1 The proposed development at Culham is for a 500MW Battery Storage Facility, 296 battery containers would make up the development, along with inverter units, a new substation, attenuation pond, access road and landscaping. The entire site would occupy approximately 34 acres of arable farmland.

1.2 TREE SURVEY

1.2.1 The following woody vegetation was considered to be of note in relation to any development of the site: 52 individual trees, 19 groups of trees, 1 hedge.

1.3 PROTECTION MEASURES

1.3.1 The implementation of tree protection measures will be required to ensure that the site's retained trees remain undamaged. Information as to the requirements of such can be found in *Section 3.5.*

1.4 TECHNICAL DESIGN CONSIDERATIONS

1.4.1 The design team must consider and implement the design advice provided in *Section 3.6* of this document.

1.5 PROVISION OF NEW TREE PLANTINGS

1.5.1 A high number of new tree plantings are proposed as part of the scheme.

1.6 CONCLUSION

1.6.1 The table below summarizes the trees which will be lost, pruned, or protected by special measures during the development project.

	Tree Category			
	A	B	C	U
Trees/groups to be removed (* groups to have sections removed)	-	T2, T3, T4, T5, T6, T7, G5	T17, T18, G6, G7, G11	-
Hedges/shrubs to be removed (* hedges to have sections removed)	-	-	-	-
Trees/groups/hedges to be pruned	-	-	-	-

Trees to be subjected to RPA incursions (excl. no-dig techniques)	-	-	-	-
Trees to be protected through arboricultural measures / supervision (other than barriers and ground protection)	-	-	-	
Trees requiring specialist design considerations (for purposes of minimising arboricultural impact)	-	-	-	

1.6.2 Considering the anticipated arboricultural impact from the construction activities associated with the development of the site, and the implementation of the proposed mitigation measures outlined in this document, the proposed development's arboricultural impact is considered to be **low**

2 GENERAL INFORMATION

2.1 BRIEF

2.1.1 Ligna Consultancy Ltd were instructed by the client, Statera Energy Limited, to undertake a tree survey in accordance with BS 5837:2012 and to prepare an arboricultural impact assessment for the proposed scheme at Culham.

2.2 PROPOSED DEVELOPMENT

2.2.1 The proposed development at Culham is for a 500MW Battery Storage Facility, 296 battery containers would make up the development, along with inverter units, a new substation, attenuation pond, access road and landscaping. The entire site would occupy approximately 34 acres of arable farmland.

2.3 SITE

2.3.1 The site discussed within this report is located at:

Culham
Abingdon,
OX14 3GY

2.4 PROJECT CONTACT

Role	Name	Telephone	Email
Arboricultural Surveyor	Alistair Godfrey	[redacted]	[redacted]

2.5 SCOPE OF REPORT

2.5.1 This report consists of the following:

- Appraisal of arboricultural impact
- Outline of tree protection & mitigation measures

2.5.2 Appendices included with this report are:

- Tree Survey
- Site Photos
- Arboricultural Site Plan (Existing) (P2891-ASP01.0-.7 V1)
- Arboricultural Site Plan (Proposed) (P2891-ASP02.0-.7 V5)

2.6 DOCUMENTS PROVIDED

2.6.1 The following documents were submitted to Ligna Consultancy Ltd for consideration:

- 221202_SL254_L_X_GA_1_Culham_BlockPlan

2.7 AUTHOR

2.7.1 Alistair Godfrey is a tree surveyor. He has worked in arboriculture for over 6 years, initially working with tree surgery firms to carry out domestic tree work operations. He has worked at Cambridge University Botanic Gardens for 3 years on the Tree and Shrub team and has experience with large-scale tree planting projects with the National Trust. He has a level 3 in arboriculture and LANTRA Professional Tree Inspection. Alistair is currently furthering his academic knowledge by undertaking a level 4 ABC qualification in arboriculture with Myerscough College in Preston.

2.7.2 This report has been checked and edited by Benjamin Hallinan MArborA.

2.8 LIMITATIONS

2.8.1 Detailed inspections and recommendations relating to tree condition and health are not included within this report.

2.8.2 Any engineering solutions presented within this document are recommendations for their suitability from an arboricultural viewpoint. The architect and structural engineers should make the final decision on the suitability of the methods advised.

2.8.3 Information provided by third parties, considered in the creation of this report, is assumed to be correct.

2.9 PROTECTED TREES

2.9.1 Details of trees (if any) that are protected by Tree Preservation Orders (TPOs) or are situated within Conservation Area are available upon request.

2.9.2 It is the standard approach of Ligna Consultancy not to obtain this information from the LPA prior to an application, as the LPA will provide details of nearby protected trees as part of the consultation.

2.9.3 It should also be noted that granted planning permission that includes tree work specifications overrides Tree Preservation Orders and Conservation Area protections (approved works only).

2.10 NESTING BIRDS / BATS

2.10.1 Officially, the 'Bird Nesting Season' is between February and August (Natural England). During this time, it is recommended that vegetation works (tree or hedge cutting) or site clearance is avoided if there is a reasonable potential for the disruption of nesting birds.

2.10.2 All parties involved in the management and/or development of a site must actively avoid causing disturbance and disruption to nesting birds. Failure to do this may result in an infringement of the *Wildlife and Countryside Act 1981* and the *European Habitats Directive 1992 / Nesting Birds Directive*.

2.10.3 When tree or vegetation clearance work has to be undertaken during the nesting season, a pre works survey needs to be carried out by a suitably competent person.

2.10.4 Generally, it should be assumed that birds will be nesting in trees, and it is down to the site/project manager that any activities that have the potential to disturb nesting birds are assessed for their suitability and potential impact, and records are kept that show that any works carried out in the management of trees and other vegetation have not disturbed nesting birds.

2.11 SUMMARY OF TERMS

Term	Definition
Species	The type of tree.
Stem	The main woody upright portion of a tree that is supported by the roots and supports the crown.
Branch Spread	The length of a tree's branches from stem to tip measured from the north, east, south and western sides of the crown.
BS 5837	The commonly used name for the official guidance document relating to trees and development *(BS 5837:2012 - Trees in relation to design, demolition and construction – Recommendations)*
Canopy / Crown	The branches, leaves, and reproductive structures extending from the trunk or main stems of a tree/trees.
DBH	Diameter of a tree's stem, measured as per BS 5837:2012
RPA	The root protection area (RPA) is a layout design tool indicating the minimum area around a tree deemed to contain sufficient roots and rooting volume to maintain the tree's viability, and where the protection of the roots and soil structure is treated as a priority.
Facilitation Tree Works	Tree pruning/felling required in order to facilitate the implementation of the proposed development.
Tolerance	The relative tolerance the species can show to construction related activities such as root-loss, soil compaction and other development pressures.
Category (Cat.)	Categorisation of the tree's value based on the methodology shown in Appendix 1, A1.4. This rating takes into account the size, quality, condition, estimated remaining life expectancy and legal status of each tree.

2.12 COPYRIGHT

2.12.1 This report was prepared for use by the Clients and their contractors for planning purposes. The report and its appendices may not be copied, modified, or distributed beyond the necessary parties without the written consent of Ligna Consultancy Ltd.

3 ARBORICULTURAL IMPACT ASSESSMENT

ASSESSMENT & APPRAISAL OF IMPACTS

The following section lists and discusses any aspects of the proposed design and its implementation that has the potential to harm nearby trees, and outlines possible mitigation measures:

3.1 TREES TO BE REMOVED TO FACILITATE THE PROPOSED SCHEME

Affected Trees	Cat. B: T2 (Quercus cerris.), T3 (Quercus cerris.), T4 (Quercus cerris.), T5 (Quercus robur), G5 (Betula pendula), T6 (Quercus cerris.), T7 (Quercus cerris.) Cat. C: G6 (Mixed group), G7 (Mixed group), G11 (Populus spp.), T17 (Quercus robur), T18 (Quercus robur)
Impact Appraisal & Mitigation	8 trees and 4 groups are to be removed as part of the proposed scheme. 6 trees and 1 group (T2, T3, T4, T5, G5, T6, T7) of category 'B' value are to be removed. Owing to their moderate value, mitigation tree planting should be incorporated into the landscaping of the site (see mitigation requirements below). 2 trees and 3 groups (G6, G7, G11, T17, T18) of category 'C' value are to be removed. Owing to their relative small size and low value, no arboricultural mitigation is required. *Owing to the absence of reliable guidance on mitigation tree planting within the arboricultural sector, the guidance within DEFRA and Natural England's BNG 4.0 metric has been used to quantify requirements for mitigation tree planting. This metric is largely based on canopy biomass, and therefore the size of the removed trees is taken into consideration and assumes that the proposed replacement plantings have the potential to reach a DBH of ~30cm within 30 years. The recommendations for replacement planting included a provision for a ≥10% net gain.* *To mitigate against the loss of 6 category 'B' trees, 9 new high-quality heavy-standard trees should be included within the landscaping of the site.* *Mitigation for the removal of groups been calculated on the basis of either a replacement area of whip plantings (to develop into a replacement group) or the required number of heavy-standard tree plantings (i.e. specimen trees) needed to match the lost canopy area after 30 years (methodology: 1 m2 of lost canopy requires 0.006 new heavy-standard tree plantings).*

	To mitigate against the loss of 151 m2 of category 'B' group canopy cover, 2 new high-quality heavy-standard trees or 166.1 m2 of native tree whip plantings should be included within the landscaping of the site.
Significance (with mitigation)	Low

3.2 TREES TO BE PRUNED AS PART OF THE PROPOSED SCHEME

Affected Trees	n/a
Pruning works	No trees require pruning as part of the proposed scheme.
Significance (with mitigation)	Nil

3.3 IMPLEMENTATION OF PROPOSED SCHEME

Affected Trees	All retained trees
Impact Appraisal & Mitigation	During the construction process, all retained trees are susceptible to damage from general construction related activities. *In order to reduce the risk of construction damage to the site's retained trees, tree protection barriers must be installed before the commencement of any site works.*
Significance (with mitigation)	Negligible

TREE RELATED SHADING AND NUISANCES

3.4 LONG-TERM IMPACT OF RETAINED TREES ON PROPOSED SCHEME

3.4.1 Shading

3.4.1.1 None of the trees observed are considered to possess a significant potential for a negative shading impact on any of the proposed solar panels; any tree-related shading of property is expected to be minimal, transient and well within the recommended levels outlined in BRE 209 guidance.

Note - Shading arcs, as discussed in BS 5837, have not been included on the Arb. Site Plans owing to their poor accuracy, and the extreme unlikelihood that the shading will not be within tolerable levels. Ligna Consultancy Ltd have undertaken many detailed shading assessments, and in all situations, light levels have been shown to be well within acceptable levels (BRE 209). Situations where lighting levels may not be suitable are most likely to involve

rows of large dense conifers near to dwellings.

3.4.2 Canopy Growth

3.4.2.1 The layout of the scheme has been designed with consideration of the location and growth potential of nearby trees. Owing to such, no noteworthy contention between tree canopies and solar panels are anticipated.

3.4.3 Nuisances

3.4.3.1 Owing to the tree species present within and around the site, and the layout of the proposed scheme, additional unreasonable tree-related nuisances, such as leaf and fruit-fall, are not thought to exist beyond what might generally be considered as acceptable limits.

MITIGATION PROPOSAL

The following proposals, if approved, should be detailed within an arboricultural method statement and tree protection plan prior to the commencement of any development associated works:

3.5 PROTECTIVE MEASURES

3.5.1 Tree Protection Barriers

3.5.1.1 Barriers shall be erected, and a construction exclusion zone established, to protect all retained trees during the construction of the proposed scheme.

3.6 TECHNICAL DESIGN CONSIDERATIONS

3.6.1 Routing and Installation of Utility Apparatus

3.6.1.1 Wherever possible, utility apparatus should be routed outside of any RPAs. Failing this, services should be routed together in common ducts, with any inspection chambers being located outside of the RPA.

3.6.1.2 Where it is necessary for underground services to intersect an RPA, specialist excavation methods should be used.

3.6.1.3 In such situations, the design team should consult with Ligna Consultancy in order to establish a suitable services route, and specify the specialist excavation method most suitable.

3.6.2 Potential for Subsidence & Heave

3.6.2.1 Where shrinkable sub-soils may be present, the potential for tree related subsidence and/or ground heave (resultant from proposed tree removals) must be considered by a structural engineer prior to

the final specification of foundation depth/type.

3.7 PROVISION OF NEW TREE PLANTINGS

3.7.1 A high number of new tree plantings are proposed as part of the scheme. These far exceed the mitigation requirements.

CONCLUSION

3.8 SUMMARY OF THE DEVELOPMENT'S OVERALL IMPACT

3.8.1 The table below summarizes the trees which will be lost, pruned, or protected by special measures during the development project.

	Tree Category			
	A	B	C	U
Trees/groups to be removed (* groups to have sections removed)	-	T2, T3, T4, T5, T6, T7, G5	T17, T18, G6, G7, G11	-
Hedges/shrubs to be removed (* hedges to have sections removed)	-	-	-	-
Trees/groups/hedges to be pruned	-	-	-	-
Trees to be subjected to RPA incursions (excl. no-dig techniques)	-	-	-	-
Trees to be protected through arboricultural measures / supervision (other than barriers and ground protection)	-	-	-	
Trees requiring specialist design considerations (for purposes of minimising arboricultural impact)	-	-	-	

3.8.2 Considering the anticipated arboricultural impact from the construction activities associated with the development of the site, and the implementation of the proposed mitigation measures outlined in this document, the proposed development's arboricultural impact is considered to be **low**.

4 APPENDICES

4.1 APPENDICES

4.1.1 The following appendices are included within this document:

Appendix	Document
1	Tree Survey
2	Site Photos
3	Arboricultural Site Plan (Existing) (P2891-ASP01.0-.7 V1)
4	Arboricultural Site Plan (Proposed) (P2891-ASP02.0-.7 V5)

APPENDIX 1
TREE SURVEY

APPENDIX 1 – TREE SURVEY

A1.1 SITE VISIT

i) A site visit was undertaken by Alistair Godfrey of Ligna Consultancy, on the 16/11/2022.

A1.2 METHOD OF DATA COLLECTION

i) Data was collected using the recommendations laid out in British Standard 5837:2012 as a guide. All observations were from ground level without detailed or invasive investigations.

ii) Measurements have been calculated using a laser measurer and diameter tape/calipers. Where this was not possible or reasonably practical, measurements have estimated by eye.

iii) The trees were surveyed and assessed impartially and irrespective of the proposed development. Management recommendations should be implemented regardless of any proposed development for reasons of sound arboricultural management or safety.

iv) The method used for categorizing the trees can be seen in section A1.3. This is an improved variation of the method suggested in BS 5837:2012.

v) BS 5837:2012 recommends that better quality (category A and B trees) are retained where possible. Planning permission overrides a Tree Preservation Order and Conservation Area. Furthermore, trees are a material consideration in the UK planning system irrespective of their legal status. Trees in land adjacent to the site are considered where they may be impacted by development; for example, when roots or branches encroach onto the site.

vi) Trees may be recorded as group or woodland where:

- The canopies touch.
- The trees have more group value than individual merit.
- They are part of a formal landscape feature like an avenue.
- It is impractical to record them individually.

vii) Trees within groups or woodlands etc. are recorded individually where it is necessary to distinguish them from others.

A1.3 SURVEY KEY & GLOSSARY OF TERMS

Term	Definition
Ref.	Tree reference number
Tag	Physical tag attached to some trees with unique identification number (not the same as Ref.)
Species	The trees' scientific and common name
Height	The measured/estimated height of the tree (measured in metres)
Branch Spread	The length of a tree's branches from stem to tip measured from the north, east, south and western sides of the crown.
Crown Clearance	Crown clearance is the measurement of height between the trees branches in the outer third of its crown and the floor. Crown clearance has only been recorded where it is considered to be of relevance to the proposed scheme. The height of the first significant branch is also generally recorded and is discussed where relevant.
DBH	Diameter of a trees' stem, measured as per BS 5837:2012
RPA	The root protection area (RPA) is a layout design tool indicating the minimum area around a tree deemed to contain sufficient roots and rooting volume to maintain the tree's viability, and where the protection of the roots and soil structure is treated as a priority.
Life Stage	A quantification of a trees' state of physical maturity: • Young • Semi-mature • Early-Mature • Mature • Late-mature • Veteran • Dead
Structural	Summary statement relating to the structural condition of a tree: • Good (no apparent problems / normal optimal condition for a tree of its species.) • Fair (minor problems, no instabilities) • Poor (major problems, potential instabilities) • Unstable (extreme problems, likely to result in failure)
Vitality	Summary statement relating to the overall observed vitality of a tree: • Good (no apparent problems / normal optimal vitality for a tree of its species) • Fair (minor / temporary reduction in tree vitality) • Poor (major reduction in tree vitality, often with some branch dieback) • Dead / Dying (extreme / total reduction in tree vitality)
General Management Recommendations	Remedial tree works recommended regardless of whether the site is developed or not.
Facilitation Tree Works	Tree pruning/felling required in order to facilitate the implementation of the proposed development.
Development Related Tree Works	Tree works that are required as part of the proposed scheme.
Tolerance	The relative tolerance the species can show to construction related activities such as root-loss, soil compaction and other development pressures.
Cat.	Categorisation of the tree's value based on the methodology shown in A1.4. This rating takes into account the size, quality, condition, estimated remaining life expectancy and legal status of each tree.

A1.4 TREE CATEGORISATION METHODOLOGY

Category and definition	Criteria / Subcategories			Label on plan
	1 – Mainly arboricultural qualities	2 – Mainly landscape qualities	3 – Mainly cultural values/conservation	
Trees worthy of being a material constraint:				
Category A Trees of high quality, capable of providing a significant contribution to local amenity (usually large in size) and that generally possess an estimated remaining life expectancy of 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 dominant 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)	Cat. A
Category B Trees of moderate quality and with an estimated remaining life expectancy of 20+ years, that are capable of providing a notable contribution to local amenity but are lacking the condition of category A trees (usually medium to large in size).	Trees that might be included in category A, but are downgraded because of impaired condition (e.g. presence of significant though remediable defects, including unsympathetic past management and storm damage); 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	Cat. B
Trees worthy of material consideration:				
Category C Trees of a low quality, small size, or incapability to be protected within the legal framework. These trees generally possess an estimated remaining life expectancy of 10+ years.	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 benefits	Trees with no material conservation or other cultural value	Cat. C
Trees unsuitable for retention owing to condition:				
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 a 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			Cat. U

A1.5 SUMMARY OF DATA

i) The following woody vegetation was considered to be of note in relation to any development of the site: 52 individual trees, 19 groups of trees, 1 hedge.

ii) The following tables show the category distribution and life stage of the trees distributed within the site:

	Tree Category			
	A	B	C	U
Individual Trees	1	43	8	-
Groups	3	8	8	-
Woodland Groups	-	-	-	-
Hedges	-	-	1	-
Shrubs	-	-	-	-

Table 1 - Table showing category distribution within site.

	Life Stage						
	Young	Semi-Mature	Early-Mature	Mature	Late-Mature	Veteran	Dead
Individual Trees	-	7	25	19	1	-	-
Groups	-	8	4	7	-	-	-
Woodland Groups	-	-	-	-	-	-	-
Hedges	-	1	-	-	-	-	-
Shrubs	-	-	-	-	-	-	-

Table 2 - Table showing life stage distribution within the site.

Ref.	Tag	Species	Height (m)	Crown (N/E/S/W)	Crown Clearance (m)	DBH (mm)	Life Stage	Structural	Vitality	Additional Notes	General Management Recommendations	Priority	Development Related Tree Works	Tolerance	RPA Radius (m)	RPA Area (m^2)	Cat.
T1		Quercus robur (English oak)	9	4.5 / 4.5 / 4.5 / 4.5	0.5	396	Early-Mature	Good	Good	Stem bifurcates at 0.5m, then bifurcates again at 2m.				Moderate - Good	4.8	71.0	B2
T2		Quercus cerris. (Turkey Oak)	15	8 / 8 / 8 / 8	1	535	Early-Mature	Good	Good	Stem separates in to multiple leaders at 2m. Minor deadwood in crown - not of concern.			Remove	-	6.4	129.5	B1
T3		Quercus cerris. (Turkey Oak)	15	8 / 8 / 8 / 8	1	678	Mature	Good	Good	Stem bifurcates at ground level in to 2 main leaders. Multi-stemmed tree. Dense vegetation around the tree. This includes brambles, nettles and small shrubs or saplings. Minor deadwood in crown - not of concern.			Remove	-	8.1	208.2	B1
T4		Quercus cerris. (Turkey Oak)	12	4 / 4 / 4 / 4	1	500	Early-Mature	Good	Good	Stem separates in to multiple leaders at 2m. Dense vegetation around the tree. This includes brambles, nettles and small shrubs or saplings. Estimated dimensions used due to access restrictions. Minor deadwood in crown - not of concern.			Remove	-	6.0	113.1	B1
T5		Quercus robur (English oak)	8	4 / 4 / 4 / 4	1	420	Early-Mature	Good	Good	Minor deadwood in crown - not of concern. On the north side of the crown, the tree has been crown lifted to 2 metres.			Remove	Moderate - Good	5.0	79.8	B2
T6		Quercus cerris. (Turkey Oak)	14	4.5 / 4.5 / 4.5 / 4.5	1	500	Early-Mature	Good	Good	Minor deadwood in crown - not of concern. Estimated dimensions used due to access restrictions. Dense vegetation around the tree. This includes brambles, nettles and small shrubs or saplings.			Remove	-	6.0	113.1	B1
T7		Quercus cerris. (Turkey Oak)	14	4.5 / 4.5 / 4.5 / 4.5	1	500	Early-Mature	Good	Good	Minor deadwood in crown - not of concern. Estimated dimensions used due to access restrictions. Dense vegetation around the tree. This includes brambles, nettles and small shrubs or saplings.			Remove	-	6.0	113.1	B1
T8		Quercus cerris. (Turkey Oak)	10	5.5 / 5.5 / 5.5 / 5.5	1	421	Early-Mature	Good	Good	Growing in group of saplings. Growing alongside of a concrete roadway. Crown lifted to approx 2m on roadway side. Tree separates in to 3 main stems at 1 metre.				-	5.0	80.1	B2
T9		Acer pseudoplatanus (Sycamore)	11	2.5 / 2.5 / 2.5 / 2.5	1	225	Early-Mature	Good	Good	Tree growing in group of mixed saplings. Multi-stemmed tree. Growing alongside concrete roadway.				Moderate	2.7	22.9	C1
T10		Quercus cerris. (Turkey Oak)	9	5.5 / 5.5 / 5.5 / 5.5	2	424	Early-Mature	Fair	Good	Stem bifurcates at 0.5m. Bark included union - not of concern at this point in time. Snapped branches.	Remove snapped branches.	Optional		-	5.1	81.5	B2
T11		Quercus cerris. (Turkey Oak)	4.5	4 / 4 / 4 / 4	0.5	320	Early-Mature	Fair	Good	Stem separates in to multiple leaders at 1 metre.				-	3.8	46.3	C1
T12		Quercus cerris. (Turkey Oak)	9	5.5 / 5.5 / 5.5 / 5.5	0.5	350	Early-Mature	Fair	Good	Epicormic growth at base of tree.	Remove epicormic growth.	Optional		-	4.2	55.4	B2
T13		Quercus cerris. (Turkey Oak)	10	5.5 / 5.5 / 5.5 / 5.5	0.5	310	Early-Mature	Good	Good	Concrete roadway running close to tree.				-	3.7	43.5	B2

Ref.	Tag	Species	Height (m)	Crown (N/E/S/W)	Crown Clearance (m)	DBH (mm)	Life Stage	Structural	Vitality	Additional Notes	General Management Recommendations	Priority	Development Related Tree Works	Tolerance	RPA Radius (m)	RPA Area (m^2)	Cat.
T14		Quercus cerris. (Turkey Oak)	8	5.5 / 3 / 5.5 / 5.5	0.5	309	Early-Mature	Good	Good	Large limbs have been removed on east side of the tree.				-	3.7	43.3	B2
T15		Quercus cerris. (Turkey Oak)	9	5.5 / 5.5 / 5.5 / 5.5	0.5	385	Early-Mature	Good	Good					-	4.6	67.1	B2
T16		Quercus cerris. (Turkey Oak)	8	5.5 / 5.5 / 5.5 / 5.5	1	358	Early-Mature	Good	Good	Two trees growing as one tree.				-	4.3	58.0	B2
T17		Quercus robur (English oak)	8	4.5 / 4.5 / 4.5 / 4.5		374	Semi-Mature	Good	Good	Multi-stemmed tree. Minor deadwood in crown - not of concern.			Remove	Moderate - Good	4.5	63.2	C1
T18		Quercus robur (English oak)	8	4.5 / 4.5 / 4.5 / 4.5		280	Semi-Mature	Good	Good	Multi-stemmed tree. Minor deadwood in crown - not of concern.			Remove	Moderate - Good	3.4	35.4	C1
T19		Quercus robur (English oak)	9	4 / 4 / 4 / 4	1	470	Mature	Good	Good					Moderate - Good	5.6	99.9	B2
T20		Quercus robur (English oak)	9	4 / 4 / 4 / 4	1	369	Mature	Good	Good	Minor deadwood in crown - not of concern. Stem bifurcates at 1 metre.				Moderate - Good	4.4	61.5	B2
T21		Quercus robur (English oak)	9	5.5 / 5.5 / 5.5 / 5.5	1	422	Mature	Good	Good	Minor deadwood in crown - not of concern. Multi-stemmed tree.				Moderate - Good	5.1	80.6	B2
T22		Quercus robur (English oak)	9	4 / 4 / 4 / 4	1	330	Mature	Good	Good	Track running to west of the tree. Minor deadwood in crown - not of concern. Growing in group. Dense vegetation around the tree. This includes brambles, nettles and small shrubs or saplings.				Moderate - Good	4.0	49.3	B2
T23		Quercus robur (English oak)	9	4 / 4 / 4 / 4	1	360	Mature	Good	Good	Track running to west of the tree. Minor deadwood in crown - not of concern. Growing in group. Dense vegetation around the tree. This includes brambles, nettles and small shrubs or saplings. Stem separates in to multiple leaders at 1.5m.				Moderate - Good	4.3	58.6	B2
T24		Tilia x Europaea (Common Lime)	5	3 / 3 / 3 / 3	1.5	397	Semi-Mature	Fair	Good	Multi-stemmed tree. Bark included union - not of concern at this point in time. Crown lifted on track side to 3m.				-	4.8	71.3	C1
T25		Quercus robur (English oak)	5	4.5 / 4.5 / 4.5 / 4.5	1	375	Early-Mature	Good	Good	Track running to south east of the tree. Crown lifted to 3m on track side.				Moderate - Good	4.5	63.6	B2
T26		Quercus robur (English oak)	10	5 / 5 / 5 / 5	1	580	Early-Mature	Good	Good	Minor deadwood in crown - not of concern. A few poor pruning cuts - not of concern at this point in time.				Moderate - Good	7.0	152.2	B2
T27		Quercus robur (English oak)	3.5	3 / 3 / 3 / 3	0.5	139	Semi-Mature	Good	Good	Multiple small semi-mature saplings of Quercus robur, with a few Crataegus monogyna. Minor deadwood in crown - not of concern.				Moderate - Good	1.7	8.8	C1

Ref.	Tag	Species	Height (m)	Crown (N/E/S/W)	Crown Clearance (m)	DBH (mm)	Life Stage	Structural	Vitality	Additional Notes	General Management Recommendations	Priority	Development Related Tree Works	Tolerance	RPA Radius (m)	RPA Area (m^2)	Cat.
T28		Quercus robur (English oak)	20.5	11.3 / 11 / 11.5 / 7.6	5	1395	Late-Mature	Fair	Good	Outlier to group on western side. Maize field to the south of the tree. Multiple leaders from about 3m. Major deadwood in crown. Historic structural failiures. Plow line to south at 7 metres from the stem. Possible change of use of field to north and south. Fungal fruiting body found broken off at base of tree. Unknown origin. Early stage Pseudoinonotus dryadeus. Some butressing around the stem - not of concern at this point in time. Small cavities on stem - not of concern at this point in time.				Moderate - Good	16.7	880.4	A1
T29		Tilia x Europaea (Common Lime)	10	5 / 5 / 5 / 5		300	Early-Mature	Good	Good	Roadway running to the north of the tree. Epicormic growth at base of tree. Minor deadwood in crown - not of concern. Estimated dimensions used due to access restrictions.				-	3.6	40.7	B2
T30		Aesculus hippocastanum (Horse chestnut)	12	5.5 / 5.5 / 5.5 / 5.5	1.5	640	Mature	Good	Good	Roadway running to the north of the tree. Minor deadwood in crown - not of concern. Large cavity from Historic structural failiure - not of concern at this point in time. Canopy lifted on roadside to 2.5m.				Moderate - Good	7.7	185.3	B2
T31		Tilia x Europaea (Common Lime)	12	5 / 5 / 5 / 5		610	Mature	Good	Good	Roadway running to the north of the tree. Minor deadwood in crown - not of concern. Stem bifurcates at 2 metres. Bark included union which has fused together - not of concern at this point in time. Canopy lifted on roadside to 2.5m.				-	7.3	168.3	B2
T32		Aesculus hippocastanum (Horse chestnut)	12	8.5 / 8 / 8.5 / 6	1.5	680	Mature	Good	Good	Roadway running to the north of the tree. Minor deadwood in crown - not of concern. Bulges in tertiary branches caused by bacterial infection - not of concern at this point in time. Some exsudates on/ from pruning wounds. Canopy lifted on roadside to 2.5m.				Moderate - Good	8.2	209.2	B2
T33		Aesculus hippocastanum (Horse chestnut)	12	8.5 / 8.5 / 8.5 / 8.5	1.5	760	Mature	Good	Good	Roadway running to the north of the tree. Minor deadwood in crown - not of concern. Stem bifurcates at 1.8 metres. Canopy lifted on roadside to 2.5m.				Moderate - Good	9.1	261.3	B2
T34		Tilia x Europaea (Common Lime)	12	5 / 5 / 5 / 5		700	Mature	Good	Good	Roadway running to the south of the tree. Epicormic growth at base of tree. Minor deadwood in crown - not of concern. Estimated dimensions used due to access restrictions. Canopy lifted on roadside to 2.5m.				-	8.4	221.7	B2

Ref.	Tag	Species	Height (m)	Crown (N/E/S/W)	Crown Clearance (m)	DBH (mm)	Life Stage	Structural	Vitality	Additional Notes	General Management Recommendations	Priority	Development Related Tree Works	Tolerance	RPA Radius (m)	RPA Area (m^2)	Cat.
T35		Aesculus hippocastanum (Horse chestnut)	12	8 / 8 / 8 / 8	1.5	630	Mature	Good	Good	Roadway running to the south of the tree. Minor deadwood in crown - not of concern. Stem separates in to multiple leaders at 2.5 metres. Canopy lifted on roadside to 2.5m.				Moderate - Good	7.6	179.6	B2
T36		Aesculus hippocastanum (Horse chestnut)	10	8 / 8 / 8 / 8	1.5	540	Mature	Good	Good	Roadway running to the south of the tree. Minor deadwood in crown - not of concern. Canopy lifted on roadside to 2.5m.				Moderate - Good	6.5	131.9	B2
T37		Tilia x Europaea (Common Lime)	12	5 / 5 / 5 / 5		740	Mature	Good	Good	Roadway running to the south of the group. Epicormic growth at base of tree. Minor deadwood in crown - not of concern. Stem separates in to multiple leaders at 2 metres. Estimated dimensions used due to access restrictions. Canopy lifted on roadside to 2.5m.				-	8.9	247.7	B2
T38		Aesculus hippocastanum (Horse chestnut)	10	8 / 8 / 8 / 8	1.5	630	Mature	Good	Good	Roadway running to the south of the tree. Minor deadwood in crown - not of concern. Stem separates in to multiple leaders at 2.5 metres. Canopy lifted on roadside to 2.5m.				Moderate - Good	7.6	179.6	B2
T39		Quercus robur (English oak)	8	4 / 4 / 4 / 4		375	Semi-Mature	Good	Good	Minor deadwood in crown - not of concern.				Moderate - Good	4.5	63.6	B2
T40		Quercus robur (English oak)	8	4 / 4 / 4 / 4	0.5	370	Semi-Mature	Good	Good	Maize field around tree. Minor deadwood in crown - not of concern.				Moderate - Good	4.4	61.9	B2
T41		Crataegus monogyna (Hawthorn)	8	5 / 5 / 5 / 5		200	Semi-Mature	Good	Good	Maize field around tree. Minor deadwood in crown - not of concern. Epicormic growth at base and stem of tree. Saplings around base of the tree. Estimated dimensions used due to access restrictions.				Moderate - Good	2.4	18.1	C1
T42		Quercus cerris. (Turkey Oak)	11.5	6.5 / 6.5 / 6.5 / 6.5		450	Early-Mature	Good	Good	Minor deadwood in crown - not of concern.				-	5.4	91.6	B2
T43		Quercus robur (English oak)	9	4 / 4 / 4 / 4	1	400	Mature	Good	Good	Railway track running to west of the tree. Growing on railway bank. Multi-stemmed tree. Minor deadwood in crown - not of concern. Growing in group. Dense vegetation around the tree. This includes brambles, nettles and small shrubs or saplings. Estimated dimensions used due to access restrictions.				Moderate - Good	4.8	72.4	B2
T44		Tilia cordata (Small leaved lime)	9	4 / 4 / 4 / 4	0.3	384	Early-Mature	Good	Good	Epicormic growth at base of tree.				Moderate - Good	4.6	66.7	C1

Ref.	Tag	Species	Height (m)	Crown (N/E/S/W)	Crown Clearance (m)	DBH (mm)	Life Stage	Structural	Vitality	Additional Notes	General Management Recommendations	Priority	Development Related Tree Works	Tolerance	RPA Radius (m)	RPA Area (m^2)	Cat.
T45		Quercus robur (English oak)	11	4 / 8 / 4 / 2.5	1	350	Mature	Good	Good	Railway track running to west of the tree. Growing on railway bank. Minor deadwood in crown - not of concern. Growing in group. Dense vegetation around the tree. This includes brambles, nettles and small shrubs or saplings. Stem separates in to multiple leaders at 1.5m. Estimated dimensions used due to access restrictions. Canopy predominantly on the eastern side of the tree.				Moderate - Good	4.2	55.4	B2
T46		Quercus robur (English oak)	11	4 / 8 / 4 / 2.5	1	350	Mature	Good	Good	Railway track running to west of the tree. Growing on railway bank. Minor deadwood in crown - not of concern. Growing in group. Dense vegetation around the tree. This includes brambles, nettles and small shrubs or saplings. Stem separates in to multiple leaders at 1.5m. Estimated dimensions used due to access restrictions. Canopy predominantly on the eastern side of the tree.				Moderate - Good	4.2	55.4	B2
T47		Quercus robur (English oak)	9	4 / 4 / 4 / 4	1	400	Mature	Good	Good					Moderate - Good	4.8	72.4	B2
T48		Quercus cerris. (Turkey Oak)	11.5	5.5 / 5.5 / 5.5 / 5.5	1	320	Early-Mature	Good	Good	Growing in group of saplings. Growing alongside of a concrete roadway. Crown lifted to approx 2m on roadway side.				-	3.8	46.3	B2
T49		Quercus cerris. (Turkey Oak)	11.5	5.5 / 5.5 / 5.5 / 5.5	1	330	Early-Mature	Good	Good	Growing in group of saplings. Growing alongside of a concrete roadway. Crown lifted to approx 2m on roadway side.				-	4.0	49.3	B2
T50		Quercus cerris. (Turkey Oak)	11.5	5.5 / 5.5 / 5.5 / 5.5	1	295	Early-Mature	Good	Good	Growing in group of saplings. Growing alongside of a concrete roadway. Crown lifted to approx 2m on roadway side.				-	3.5	39.4	B2
T51		Quercus cerris. (Turkey Oak)	11.5	5.5 / 5.5 / 5.5 / 5.5	1	240	Early-Mature	Good	Good	Growing in group of saplings. Growing alongside of a concrete roadway. Crown lifted to approx 2m on roadway side.				-	2.9	26.1	B2
T52		Quercus cerris. (Turkey Oak)	11.5	5.5 / 5.5 / 5.5 / 5.5	1	230	Early-Mature	Good	Good	Growing in group of saplings. Growing alongside of a concrete roadway. Crown lifted to approx 2m on roadway side.				-	2.8	23.9	B2
G1		Quercus robur (English oak)	22.5	8 / 8 / 8 / 8	2	650	Mature	Fair	Good	Woodland group to the north east of the site on neighbouring property. Group of mature Quercus robur with other native species. Major deadwood in crown. Low risk of harm and good habitat. Historic structural failiure - not of concern at this point in time. Estimated dimensions used due to access restrictions.				Moderate - Good	7.8	191.1	A1

Ref.	Tag	Species	Height (m)	Crown (N/E/S/W)	Crown Clearance (m)	DBH (mm)	Life Stage	Structural	Vitality	Additional Notes	General Management Recommendations	Priority	Development Related Tree Works	Tolerance	RPA Radius (m)	RPA Area (m^2)	Cat.
G2		Fraxinus excelsior (Ash)	22.5	8 / 8 / 8 / 8	2	450	Mature	Fair	Good	Railway to the west of the group. On neighbouring land. Woodland group to the north west of the site. Group of mature densely planted Fraxinus excelsior with other smaller Chamaecyparis lawsoniana along front of group. Major deadwood in crown. Low risk of harm and good habitat. Historic structural failiure. - not of concern at this point in time. Estimated dimensions used due to access restrictions.				Moderate	5.4	91.6	B1
G3		Quercus robur (English oak)	12	5 / 5 / 5 / 5		300	Mature	Good	Good	Group of predominantly Quercus robur and Quercus cerris. Dense vegetation around the trees. This includes brambles, nettles, common gorse and small shrubs or saplings. Estimated dimensions used due to access restrictions. Some trees are growing on a bank. There is a large opening in the group where gorse has grown.				Moderate - Good	3.6	40.7	B2
G4		Mixed group	8	2 / 2 / 2 / 2		100	Semi-Mature	Good	Good	Group of self set saplings. Species include; Quercus robur, Fraxinus excelsior, Crataegus monogyna. Dense vegetation around the trees. This includes brambles, nettles and small shrubs or saplings.				-	1.2	4.5	C1
G5		Betula pendula (Silver birch)	18	4.5 / 4.5 / 4.5 / 4.5	1	250	Mature	Good	Good	Group of 3 Betula growing as one canopy. Dense vegetation around the trees. This includes brambles, nettles and small shrubs or saplings.			Remove	Poor - Moderate	3.0	28.3	B2
G6		Mixed group	6	3 / 3 / 3 / 3		200	Semi-Mature	Good	Good	Wildlife area. Power substation to the south of the group. Mix of small trees and saplings, including, Crataegus monogyna, Acer pseudoplatanus, Sorbus aucuparia, Betula pendula, Quercus cerris. Dense vegetation around the trees. This includes brambles, nettles and small shrubs or saplings.			Remove	-	2.4	18.1	C1
G7		Mixed group	8	3 / 3 / 3 / 3		200	Semi-Mature	Good	Good	Wildlife area. Concrete access road running to the north of the group. Mix of small trees and saplings, including, Crataegus monogyna, Acer pseudoplatanus, Sorbus aucuparia, Betula pendula, Quercus cerris. Dense vegetation around the trees. This includes brambles, nettles and small shrubs or saplings.			Remove	-	2.4	18.1	C1

Ref.	Tag	Species	Height (m)	Crown (N/E/S/W)	Crown Clearance (m)	DBH (mm)	Life Stage	Structural	Vitality	Additional Notes	General Management Recommendations	Priority	Development Related Tree Works	Tolerance	RPA Radius (m)	RPA Area (m^2)	Cat.
G8		Tilia spp. (Linden)	15	5 / 5 / 5 / 5		450	Mature	Good	Good	Group of Tilia Spp. On neighbouring site outside of site boundary. Fence and roadway between site and trees. Recently been pollarded with good regrowth.				Moderate - Good	5.4	91.6	B2
G9		Mixed group	4	2 / 2 / 2 / 2	0.5	100	Semi-Mature	Good	Good	A group of young saplings approximately 10 years old, forming a hedge/ boundary marker. Densely planted. Species include Quercus robur, Crataegus monogyna, Fraxinus excelsior, Corylus avellana, Cornus sanguinea.				-	1.2	4.5	C1
G10		Quercus robur (English oak)	8	4 / 4 / 4 / 4	1.5	300	Early-Mature	Good	Good	Group of predominantly Quercus robur with occasional Fraxinus excelsior. Dense vegetation around the tree. This includes brambles, nettles and small shrubs or saplings. Estimated dimensions used due to access restrictions. Some trees are growing on a bank. Some snapped branches. Minor deadwood in crown - not of concern.				Moderate - Good	3.6	40.7	B2
G11		Populus spp. (Poplar)	8	3 / 3 / 3 / 3		100	Semi-Mature	Good	Good	Predominantly Poplus Spp, with some smaller saplings of Ulmus Spp. Minor deadwood in crown - not of concern.			Remove	Good	1.2	4.5	C1
G12		Mixed group	6	2 / 2 / 2 / 2		100	Semi-Mature	Good	Good	A group of young saplings with a few larger early mature trees within. Dense vegetation around the trees. This includes brambles, nettles and small shrubs or saplings. Densely planted. Species include Quercus robur, Pinus sylvestris, Crataegus monogyna, Corylus avellana, Cornus sanguinea, Pseudotsuga menziesii, Larix decidua.				-	1.2	4.5	C1
G13		Mixed group	9	5.5 / 5.5 / 5.5 / 5.5		300	Early-Mature	Good	Good	A woodland group of predominantly Quercus cerris with some Prunus avium. Assumed outside of boundary. Estimated dimensions used due to access restrictions.				-	3.6	40.7	B2
G14		Mixed group	8	3 / 3 / 3 / 3		100	Semi-Mature	Good	Good	A group of semi-mature saplings along with some early-mature Quercus robur. Dense vegetation around the trees. This includes brambles, nettles and small shrubs or saplings. Estimated dimensions used due to access restrictions. Species of saplings include; Quercus cerris, Quercus robur, Castanea sativa, Ulmus Spp.				-	1.2	4.5	C1

Ref.	Tag	Species	Height (m)	Crown (N/E/S/W)	Crown Clearance (m)	DBH (mm)	Life Stage	Structural	Vitality	Additional Notes	General Management Recommendations	Priority	Development Related Tree Works	Tolerance	RPA Radius (m)	RPA Area (m^2)	Cat.
G15		Mixed group	8	3.5 / 3.5 / 3.5 / 3.5	1	250	Early-Mature	Good	Good	Mix of Quercus robur and Poplus nigra 'italica'. Moderate size deadwood in crown. A few dead trees in group.				-	3.0	28.3	B2
G16		Quercus robur (English oak)	22.5	8 / 8 / 8 / 8	2	670	Mature	Fair	Good	Group of mature Quercus robur. Major deadwood in crown and large dead upper stems. Lodged failures. Low risk of harm and good habitat. Moderate sized cambial damage on some trees. Historic structural failiures - not of concern at this point in time. Farmer has plowed alongside the group. Maize field to the east of the group.				Moderate - Good	8.0	203.1	A1
G17		Quercus robur (English oak)	22.5	8 / 8 / 8 / 8	2	980	Mature	Fair	Good	Group of mature Quercus robur. Major deadwood in crown. Low risk of harm and good habitat. Historic structural failiures - not of concern at this point in time. Farmer has plowed along the side of group. Maize field to the east of the group.				Moderate - Good	11.8	434.5	A1
G18		Mixed group	2	2 / 2 / 2 / 2			Semi-Mature	Good	Good	Scrub to base of pilon	Remove all scrub under pylon.	Optional		-			C3
G19		Pinus sylvestris (Scots pine)	14	3.5 / 3.5 / 3.5 / 3.5		200	Early-Mature	Good	Good	Group of Pine trees on neighbouring site with a roadway and fence separating it from site boundary.				Good	2.4	18.1	B2
H1		Mixed group	3	2.5 / 2.5 / 2.5 / 2.5		100	Semi-Mature	Fair	Good	Scrubby hedgerow of native species alongside railway. Species include: Ulmus Spp, Crataegus monogyna. Hedge running along railway bank. Sparse in places. Minor deadwood in crown - not of concern. Dense vegetation forming part of hedgerow. This includes brambles, nettles and small shrubs or saplings.				-	1.2	4.5	C3

APPENDIX 2
SITE PHOTOGRAPHS

Note - Below is a selection of site photographs intended for general site context. Should you require supplementary site/tree photographs please contact info@lignaconsultancy.co.uk:

Figure 1 – Southeast of site looking north.

APPENDIX 2 – SITE PHOTOGRAPHS

Figure 2 – Looking southeast from the proposed substation.

Figure 3 – Northeast of the science park looking south.

Figure 4 – T28, G16 and G17 looking west.

Figure 5 – G16 looking northeast.

APPENDIX 2 – SITE PHOTOGRAPHS

Figure 6 – Centre-east of site looking south towards the science park.

Figure 7 - Centre-east of site looking north towards G1.

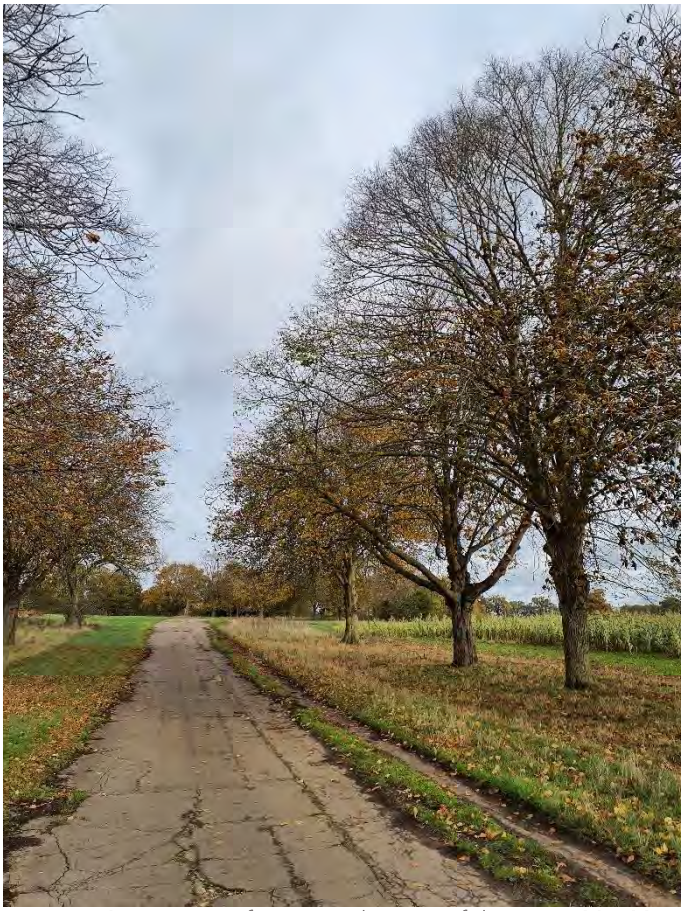


Figure 8 – Avenue of trees on the east of the site. T30-T33.

APPENDIX 2 – SITE PHOTOGRAPHS

Figure 9 – Looking west across the site.

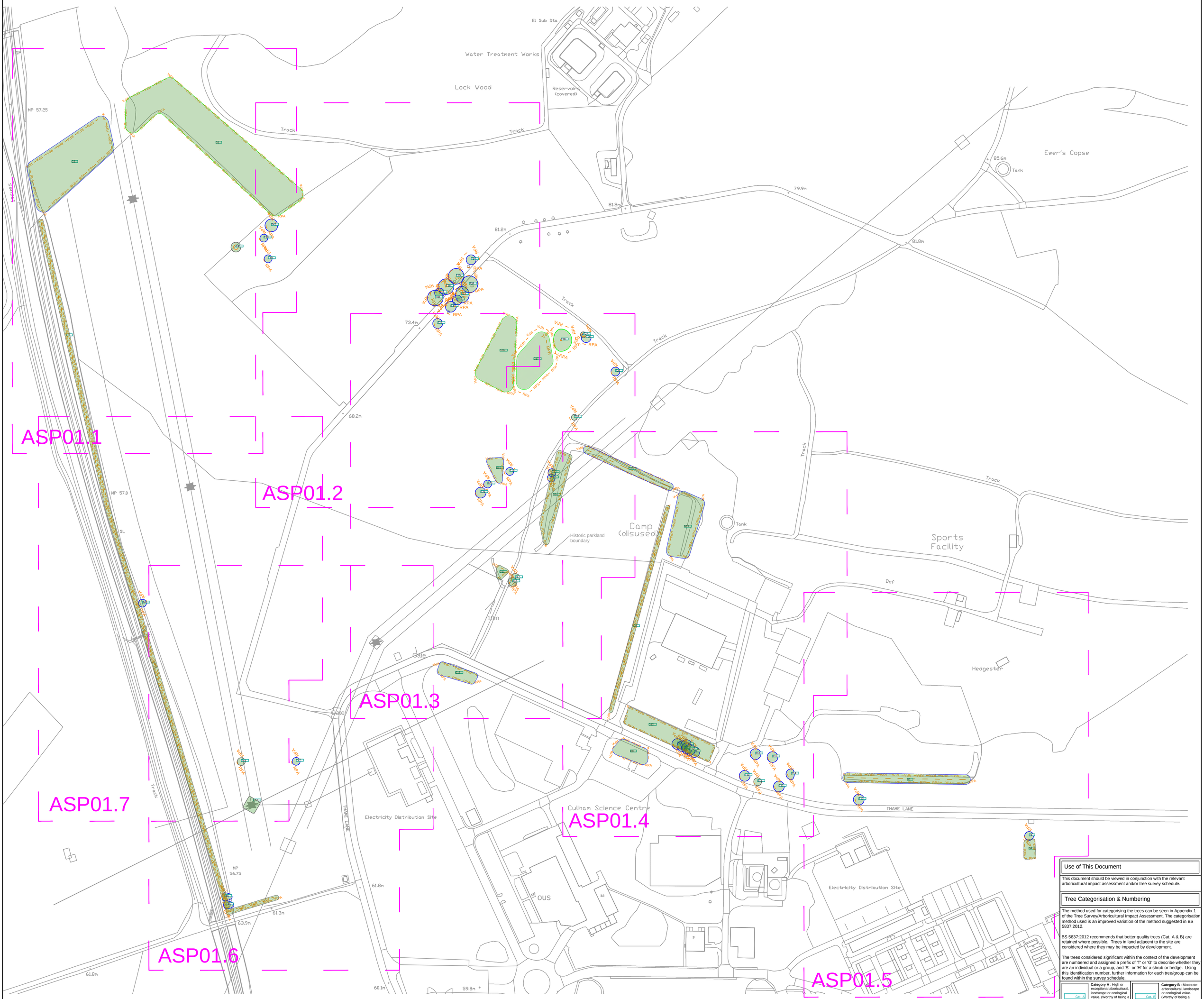
Figure 10 – Looking north towards G1 and G2.

APPENDIX 2 – SITE PHOTOGRAPHS

Figure 11 – Looking west towards H1.

Figure 12 – Pylons at the southwest of the site.

APPENDIX 3
ARB. SITE PLAN (EXISTING)



Use of This Document

This document should be viewed in conjunction with the relevant arboricultural impact assessment and/or tree survey schedule.

Tree Categorisation & Numbering

The method used for categorising the trees can be seen in Appendix 1 of the Tree Survey/Arboricultural Impact Assessment. The categorisation method used is an improved variation of the method suggested in BS 5837:2012.

BS 5837:2012 recommends that better quality trees (Cat. A & B) are retained where possible. Trees in land adjacent to the site are considered where they may be impacted by development.

The trees considered significant within the context of the development are numbered and assigned a prefix of 'T' or 'G' to describe whether they are an individual or a group, and 'S' or 'H' for a shrub or hedge. Using this identification number, further information for each tree/group can be found within the survey schedule.

- Cat. A — **Category A** : High or exceptional aboricultural, landscape or ecological value. (Worthy of being a material constraint.)
- Cat. B — **Category B** : Moderate arboricultural, landscape or ecological value. (Worthy of being a material constraint.)
- Cat. C — **Category C** : Low quality or small in size. (Not worthy of being a material constraint.)
- Cat. U — **Category U** : Such poor quality or condition that renders it unsuitable for retention. (Not worthy of being a material constraint.)

Root Protection Areas

In order to avoid damage to the roots or rooting environment of retained trees, the Root Protection Areas (RPA's) should be plotted around each of the category A, B and C trees. This is a notional depiction of the minimum rooting area in m2 which should be left undisturbed around each tree. The RPA is calculated using the *British Standard BS 5837:2012 'Trees in relation to design, demolition and construction - Recommendations'*, unless otherwise stated within the survey schedule.

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.

- **Root Protection Area (RPA)**: The notional area around each tree which should be left undisturbed during the development of the site
- **RPA Incursion**: Anticipated incursion into the root protection area of a proposed tree which may result in root loss/damage.
- **Arboriculturally Sensitive Demolition/ Removal)**: A structure or surfacing is to be removed using special methods to avoid damage to trees.
- **Specialist Foundations**: Low impact foundations to be used to preserve underlying tree roots.

Further Object Key

- **Tree Stem / Stem line**: Diameter of stem at ~1.5m
- **Tree Removal**: Trees designated for removal will comprise of a red filled canopy.
- **Site Boundary**: Extent of site boundary (illustrative only)
- **Buildings/Surfacing to be Removed**: Buildings or surfacing to be removed will generally be depicted with a dashed red line

Ligna Consultancy

Project: Culham

Client: Statera Energy Limited

Drawing: Arboricultural Site Plan (Existing) (.0)

Drawing Ref:	Rev:	Date:
P2891-ASP01.0	V1	18/11/2022

Scale:	Drawn By:
NTS - A1	Alistair Godfrey

Based on: SL254_L_X_GA_1_Culham_Masterplan_v12

SP

MP 57.25

Track

G1 Cat. A1

G2 Cat. B1

T42 Cat. B2

T39 Cat. B2

T41 Cat. C1

T40 Cat. B2

H1 Cat. C2

Use of This Document

This document should be viewed in conjunction with the relevant arboricultural impact assessment and/or tree survey schedule.

Tree Categorisation & Numbering

The method used for categorising the trees can be seen in Appendix 1 of the Tree Survey/Aboricultural Impact Assessment. The categorisation method used is an improved variation of the method suggested in BS 5837:2012.

BS 5837:2012 recommends that better quality trees (Cat. A & B) are retained where possible. Trees in land adjacent to the site are considered where they may be impacted by development.

The trees considered significant within the context of the development are numbered and assigned a prefix of 'T' or 'G' to describe whether they are an individual or a group, and 'S' or 'H' for a shrub or hedge. Using this identification number, further information for each tree/group can be found within the survey schedule.

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- **Arboriculturally Sensitive Demolition/ Removal)**: A structure or surfacing is to be removed using special methods to avoid damage to trees.
- **Specialist Foundations**: Low impact foundations to be used to preserve underlying tree roots.

Further Object Key

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- **Site Boundary**: Extent of site boundary (illustrative only)
- **Buildings/Surfacing to be Removed**: Buildings or surfacing to be removed will generally be depicted with a dashed red line

Ligna Consultancy

Project: Culham

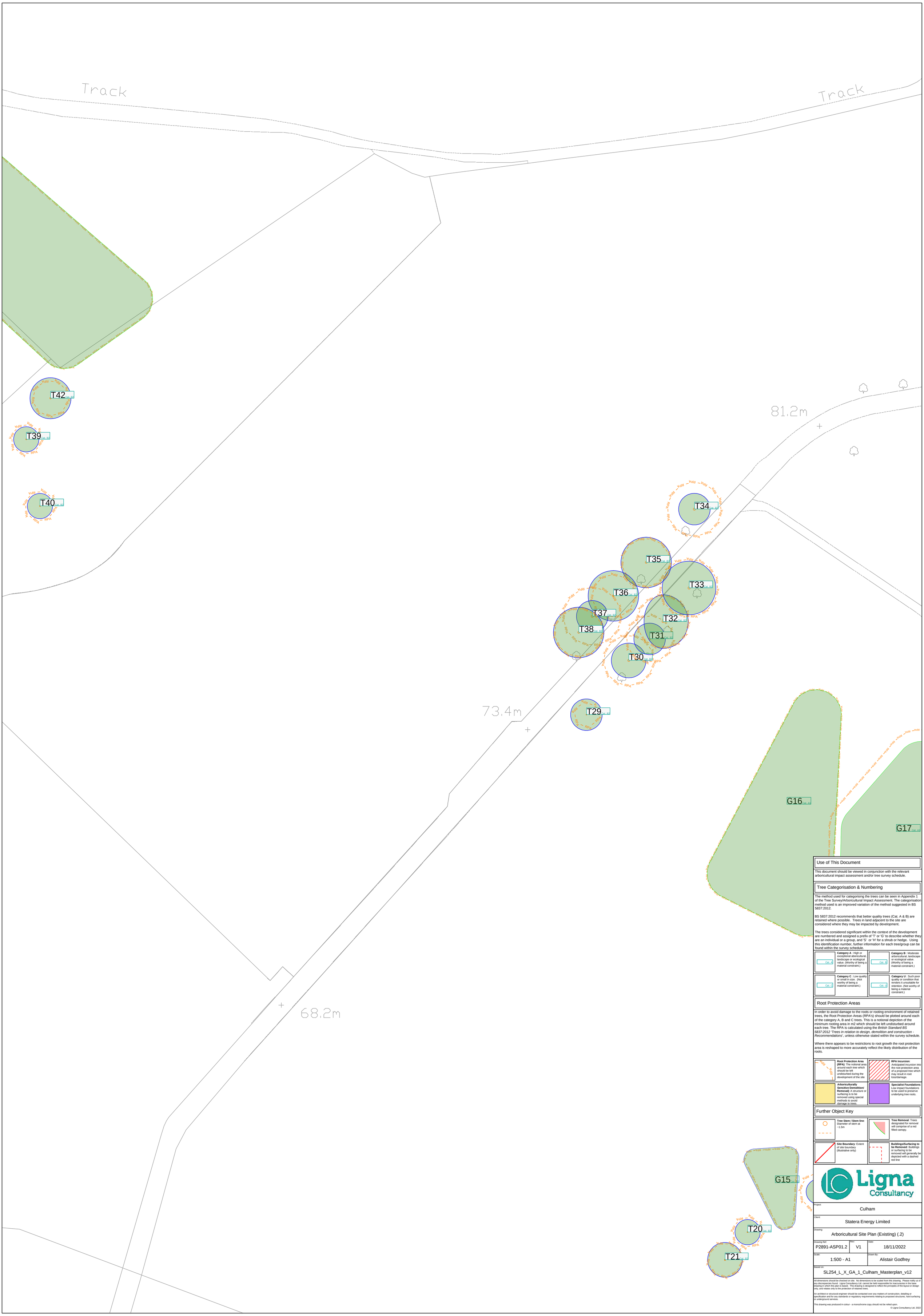
Client: Statera Energy Limited

Drawing: Arboricultural Site Plan (Existing) (.1)

Drawing Ref:	Rev:	Date:
P2891-ASP01.1	V1	18/11/2022

Scale:	Drawn By:
1:500 - A1	Alistair Godfrey

Based on: SL254_L_X_GA_1_Culham_Masterplan_v12



Use of This Document

This document should be viewed in conjunction with the relevant arboricultural impact assessment and/or tree survey schedule.

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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.

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	Arboriculturally Sensitive Demolition/ Removal): A structure or surfacing is to be removed using special methods to avoid damage to trees.
	Specialist Foundations: Low impact foundations to be used to preserve underlying tree roots.

Further Object Key

	Tree Stem / Stem line: Diameter of stem at ~1.5m
	Tree Removal: Trees designated for removal will comprise of a red filled canopy.
	Site Boundary: Extent of site boundary (illustrative only)
	Buildings/Surfacing to be Removed: Buildings or surfacing to be removed will generally be depicted with a dashed red line

Ligna Consultancy

Project:	Culham	
Client:	Statera Energy Limited	
Drawing:	Arboricultural Site Plan (Existing) (.2)	
Drawing Ref: P2891-ASP01.2	Rev: V1	Date: 18/11/2022
Scale: 1:500 - A1		Drawn By: Alistair Godfrey
Based on: SL254_L_X_GA_1_Culham_Masterplan_v12		

Use of This Document

This document should be viewed in conjunction with the relevant arboricultural impact assessment and/or tree survey schedule.

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Ligna Consultancy

Project: Culham

Client: Statera Energy Limited

Drawing: Arboricultural Site Plan (Existing) (.3)

Drawing Ref:	Rev:	Date:
P2891-ASP01.3	V1	18/11/2022

Scale:	Drawn By:
1:500 - A1	Alistair Godfrey

Based on: SL254_L_X_GA_1_Culham_Masterplan_v12

Track

Tank

Camp
(disused)

Historic parkland
boundary

G10

G13

G9

G12 Cat. C1

G8 Cat. B2

T48 Cat. B2

T50 Cat. B2

T49 Cat. B2

T51 Cat. B2

T52 Cat. B2

T8 Cat. B2

T16 Cat. B2

T15 Cat. B2

T10 Cat. B2

T11 Cat. C1

T14 Cat. B2

T12 Cat. B2

Culham Science Centre

Use of This Document

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Ligna Consultancy

Project:	Culham
Client:	Statera Energy Limited
Drawing:	Arboricultural Site Plan (Existing) (.4)
Drawing Ref:	P2891-ASP01.4
Rev:	V1
Date:	18/11/2022
Scale:	1:500 - A1
Drawn By:	Alistair Godfrey
Based on:	SL254_L_X_GA_1_Culham_Masterplan_v12

Hedgester

THAME LANE

Electricity Distribution Site

T13 Cat. B2

T5 Cat. B2

T6 Cat. B1

T7 Cat. B1

T4 Cat. B1

G7 Cat. C1

T1 Cat. B2

G4 Cat. C2

G5 Cat. B2

T2 Cat. B1

T3 Cat. B1

G6 Cat. C1

G3 Cat. B2

RPA

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Ligna Consultancy

Project: Culham

Client: Statera Energy Limited

Drawing: Arboricultural Site Plan (Existing) (.5)

Drawing Ref:	Rev:	Date:
P2891-ASP01.5	V1	18/11/2022

Scale:	Drawn By:
1:500 - A1	Alistair Godfrey

Based on: SL254_L_X_GA_1_Culham_Masterplan_v12

Use of This Document

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Ligna Consultancy

Project:	Culham
Client:	Statera Energy Limited
Drawing:	Arboricultural Site Plan (Existing) (.6)
Drawing Ref:	P2891-ASP01.6
Rev:	V1
Date:	18/11/2022
Scale:	1:500 - A1
Drawn By:	Alistair Godfrey
Based on:	SL254_L_X_GA_1_Culham_Masterplan_v12

MP 57.0

SL

T43 Cat. B2

T44 Cat. C2

G18 Cat. C2

Track

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Ligna Consultancy

Project:	Culham	
Client:	Statera Energy Limited	
Drawing:	Arboricultural Site Plan (Existing) (.7)	
Drawing Ref: P2891-ASP01.7	Rev: V1	Date: 18/11/2022
Scale: 1:500 - A1		Drawn By: Alistair Godfrey
Based on: SL254_L_X_GA_1_Culham_Masterplan_v12		

APPENDIX 4
ARB. SITE PLAN (PROPOSED)