ARBORICULTURAL IMPACT ASSESSMENT

(INC. TREE SURVEY TO BS 5837:2012)

CLIENT -	Statera Energy Limited
PROJECT -	East Claydon
DOC. REF -	P2892–AIA01 V1
PLANNING REF -	n/a
CREATION DATE -	12/12/2022

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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	P2892-AIA01	V1	12/12/2022
Arb. Site Plan (Existing)	P2892-ASP01.1-.8	V1	12/12/2022
Arb. Site Plan (Proposed)	P2892-ASP02.1-.8	V1	12/12/2022

1. SUMMARY

1.1 PROPOSED DEVELOPMENT

1.1.1 The installation of a new solar farm to include photovoltaic panels, a battery storage system, associated maintenance roadways and perimeter fence, and the installation of a new substation. The site will also include the planting of new woodland screening areas and the installation of 2 new storm water attenuation ponds.

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: 68 individual trees, 11 groups of trees, and 8 hedges.

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 3.7.*

1.4 TECHNICAL DESIGN CONSIDERATIONS

1.4.1 The design team must consider and implement the design advice provided in *Section 3.8* of this document.

1.5 PROVISION OF NEW TREE PLANTINGS

1.5.1 It is recommended that at least 8 tree plantings should be included within the landscaping of the site so as to mitigate against the proposed tree removals.

1.6 CONCLUSION

1.6.1 The table below summarises 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)	-	T41, T42, G10	T63	-
Hedges/shrubs to be removed (* hedges to have sections removed)	-	*H3, *H4	*H5, *H6	-

Trees/groups/hedges to be pruned	-	T59, T64, T65	-	-
Trees to be subjected to RPA incursions (excl. no-dig techniques)	-	T64	-	-
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 East Claydon.

2.2 PROPOSED DEVELOPMENT

2.2.1 The installation of a new solar farm to include photovoltaic panels, a battery storage system, associated maintenance roadways and perimeter fence, and the installation of a new substation. The site will also include the planting of new woodland screening areas and the installation of 2 new storm water attenuation ponds.

2.3 SITE

2.3.1 The site discussed within this report is located at:

East Claydon
MK18 3NJ

2.4 PROJECT CONTACT

Role	Name	Telephone	Email
Arboricultural Consultant	Ben Hallinan	01284 598008	benjamin@lignaconsultancy.co.uk
Arboricultural Consultant	Jennifer Sinclair	01284 598008	jennifer@lignaconsultancy.co.uk

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) (P2892-ASP01.1-.8 V1)
- Arboricultural Site Plan (Proposed) (P2892-ASP02.1-.8 V1)

2.6 DOCUMENTS PROVIDED

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

- Existing Site Plan

- Proposed Site Plan (Claydon BESS Draft Masterplan Detail 11.11.22 LR)

2.7 AUTHOR

2.7.1 Jennifer Sinclair is a technician member of the Arboricultural Association. She has worked in arboriculture for over ten years, including supervisory roles undertaking both domestic and commercial arboricultural work. She possesses a level 3 extended diploma in arboriculture and is currently furthering her academic knowledge by undertaking a level 6 professional diploma in arboriculture. A full CV and list of experience and CPD is available on request.

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: - T41 (*Fraxinus excelsior*), T42 (*Fraxinus excelsior*), G10 (Mixed group) Cat. C: - T63 (*Fraxinus excelsior*)
Impact Appraisal & Mitigation	As part of the proposed scheme, T41, T42 and G10 require removal to facilitate the construction of the proposed substation. Whilst the trees are not visible to the public and only provide a minor arboricultural contribution to the site, they are of moderate value, and owing to the substantial size of the site, there is ample space to offset their removal. *To offset the loss of the Cat. 'B' trees, 8 new tree plantings with a height of 3m+ at time of planting will be required within the site. This will be more than achieved through the planting of the new woodland screen, therefore, making the removal of these trees negligible, and providing the site with an arboricultural net gain.* The removal of T63 is required to facilitate the construction of the proposed roadway. This removal does not require offsetting through new tree plantings.
Significance *(with mitigation)*	Arboricultural net gain

3.2 PARTIAL REMOVAL OF HEDGES

Affected Trees	Cat. B: - H3 (Mixed group), H4 (Mixed group) Cat. C: - H5 (Mixed group), H6 (Mixed group)
Pruning works	H3 requires a section measuring 14m in length to facilitate the construction of the proposed roadway. H4 requires sections measuring ~75m in total removing to facilitate the construction of both the proposed roadway and substation. *Whilst both hedges are of minor arboricultural value, they both possess a significant ecological value for the area, and the removals required will need to be offset to ensure any loss of habitat for the surrounding wildlife is kept to a minimum. Therefore, to offset the loss from both*

	H3 and H4, a new mixed native species hedgerow measuring ~90m in length will need to be established on the site to cover the loss. H5 requires a section measuring 35m in length removing from its easternmost end and H6 requires two sections measuring ~18m in total length removing to facilitate the construction of the proposed roadway. The removals from both H5 and H6 do not require offsetting through new plantings, however, with the proposed new woodland screening a proportion of species planted should be native and bear fruits for the wildlife, this will more than offset the proposed removals. (Exact locations for the removal for H3-H6 can be seen on the associated ASP02)
Significance *(with mitigation)*	Negligible

3.3 TREES TO BE PRUNED AS PART OF THE PROPOSED SCHEME

Affected Trees	Cat. B: - T59, T64, T65 (*Fraxinus excelsior*)
Pruning works	As part of the proposed scheme the aforementioned trees require their tertiary branches lifting to provide 4.5m clearance with the ground. This will ensure adequate clearance below the canopies for vehicular movements and ensure minimal future contention between the trees and the proposed access roadways.
Significance *(with mitigation)*	Negligible

3.4 INSTALLATION OF ROADWAY

Affected Trees	Cat. B: - T64 (*Fraxinus excelsior*)
Impact Appraisal & Mitigation	Due to the layout and positioning of the proposed new access road, T64 will be subjected to a minor RPA incursion of 4%. Due to the small size of the incursion and the moderate tolerance of *Fraxinus* to root loss and disturbance, any long term impact on the health or vitality of the tree is considered to be low. However, to ensure damage is not cause to the tree or it's rooting area, the following must be adhered to: *i) Prior to any construction works being undertaken, tree protection barriers must be installed.* *ii) During the excavation of the subbase, should any roots with a diameter in excess of 20mm be unearthed, they must be pruned back past the face of the subbase with purpose made loppers.*

Significance *(with mitigation)*	Negligible

3.5 IMPLEMENTATION OF PROPOSED SCHEME

Affected Trees	All retained trees
Impact Appraisal & Mitigation	During the construction process, retained trees near to the areas of installation are susceptible to damage from general construction related activities. *In order to reduce the risk of construction damage to trees within a close proximity to installation areas are to have tree protection barriers installed before the commencement of any site works.*
Significance *(with mitigation)*	Negligible

TREE RELATED SHADING AND NUISANCES

3.6 LONG-TERM IMPACT OF RETAINED TREES ON PROPOSED SCHEME

3.6.1 Shading

3.6.1.1 None of the trees observed are considered to possess a significant potential for a negative shading impact on 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.

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:

3.7 PROTECTIVE MEASURES

3.7.1 Tree Protection Barriers

3.7.1.1 Barriers shall be erected, and a construction exclusion zone established, to protect trees near to installation areas during the implementation of the proposed scheme.

3.7.2 Root Pruning

3.7.2.1 During the excavation of the proposed roadway subbase within the RPA of T64, should any roots with a diameter in excess of 20mm be unearthed, they must be pruned back past the face of the subbase with purpose made loppers.

3.8 TECHNICAL DESIGN CONSIDERATIONS

3.8.1 Routing and Installation of Utility Apparatus

3.8.1.1 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.

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

3.8.1.3 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.

3.9 PROVISION OF NEW TREE PLANTINGS

3.9.1 It is recommended that at least 8 tree plantings should be included within the landscaping of the site so as to mitigate against the proposed tree removals.

CONCLUSION

3.10 SUMMARY OF THE DEVELOPMENT'S OVERALL IMPACT

3.10.1 The table below summarises 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)	-	T41, T42, G10	T63	-

Hedges/shrubs to be removed (* hedges to have sections removed)	-	*H3, *H4	*H5, *H6	-
Trees/groups/hedges to be pruned	-	T59, T64, T65	-	-
Trees to be subjected to RPA incursions (excl. no-dig techniques)	-	T64	-	-
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)	-	-	-	

3.10.2 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) (P2892-ASP01.1-.8)
4	Arboricultural Site Plan (Proposed) (P2892-ASP02.1-.8)

APPENDIX 1
TREE SURVEY

APPENDIX 1 – TREE SURVEY

A1.1 SITE VISIT

i) A site visit was undertaken by Jennifer Sinclair of Ligna Consultancy, on the 10/11/2022.

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 categorising 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: 68 individual trees, 11 groups of trees, and 8 hedges.

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	27	39	1
Groups	1	6	2	2
Woodland Groups	-	-	-	-
Hedges	-	4	4	-
Shrubs	-	-	-	-

Table 1 - Table showing category distribution within site.

	Life Stage						
	Young	Semi-Mature	Early-Mature	Mature	Late-Mature	Veteran	Dead
Individual Trees	-	16	9	27	16	-	-
Groups	-	5	2	4	-	-	-
Woodland Groups	-	-	-	-	-	-	-
Hedges	-	6	-	2	-	-	-
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		Populus spp. (Poplar)	18.5	13.5 / 13.5 / 13.5 / 13.5	3	950	Late-Mature	Unable to assess	Good	Estimated stem diameter used due to dense ivy on stem obscuring survey. Multiple small snapped and hung up limbs with a minor amount of deadwood throughout the crown - negligible risk posed.				Good	11.4	408.3	B2
T2		Salix caprea (Goat willow)	9.5	4 / 4 / 4 / 4	3	347	Semi-Mature	Good	Good					Moderate - Good	4.2	54.4	C1
T3		Salix caprea (Goat willow)	10	9 / 9 / 9 / 9	2	500	Mature	Unable to assess	Good	Estimated dimensions used as unable to access tree. Minor deadwood throughout crown - negligible risk posed.				Moderate - Good	6.0	113.1	C1
T4		Salix caprea (Goat willow)	13	9 / 9 / 9 / 9	3.5	689	Late-Mature	Poor	Good	Tree has historically collapsed on eastern side leaving the secondary leader and regrowth. Upright stem has significant cambial damage with potential internal decay - high risk of future failure, currently with a low risk of harm.				Moderate - Good	8.3	214.9	C1
T5		Populus spp. (Poplar)	21	9 / 9 / 9 / 9	6	850	Late-Mature	Unable to assess	Good	Estimated dimensions used as unable to access tree. Unable to visually assess north side of stem, potential of hollowing and decay at 5m due to historic limb failure. Woodpecker holes present and unidentified fungal fruiting body at site of historic limb failure.				Good	10.2	326.9	B2
T6		Salix fragilis (Crack willow)	6.5	7 / 4 / 3 / 4	0.5	550	Late-Mature	Good	Good	Estimated stem diameter used due to dense lower growth. Tree historically failed with mature regrowth. Hollowing of stem - low risk of future failure due to small size of tree. Tree provides good habitat.				-	6.6	136.8	C1
T7		Fraxinus excelsior (Ash)	12.5	4.5 / 4.5 / 4.5 / 4.5	3	388	Semi-Mature	Good	Good					Moderate	4.7	68.2	B2
T8		Populus spp. (Poplar)	16	7 / 7 / 7 / 7		650	Late-Mature	Poor	Good	Estimated dimensions used as unable to access tree. Tree has had historically failed limb on south western side that has left a large cavity in stem that now appears decayed with potential for the hollowing of the main stem. Tree has a high risk of future snap out of tree at this point.	Remove	12 months		Good	7.8	191.1	U
T9		Fraxinus excelsior (Ash)	11	9 / 9 / 9 / 9	3	339	Semi-Mature	Unable to assess	Good	Estimated stem diameter used due to dense lower growth and ivy obscuring survey.				Moderate	4.1	51.8	C1
T10		Acer negundo (Box elder)	14	7 / 7 / 7 / 7	3.5	273	Early-Mature	Good	Fair					Good	3.3	33.7	B2
T11		Salix spp. (Willow)	15	9 / 9 / 9 / 9	2	541	Late-Mature	Unable to assess	Good	Estimated stem diameter used due to dense lower growth.				Good	6.5	132.3	B2
T12		Salix spp. (Willow)	10.5	10 / 7 / 5 / 8	2	650	Late-Mature	Poor	Good	Tree has historically collapsed northwards at base - moderate to high risk of future failure with a current low risk of harm.	Monolith to 4m	Optional		Good	7.8	191.1	C1
T13		Salix spp. (Willow)	14	7.5 / 7.5 / 7.5 / 7.5	4.5	550	Mature	Good	Good	Estimated stem diameter used due to dense lower growth. Tree located next to water filled ditch.				Good	6.6	136.8	B2
T14		Salix spp. (Willow)	13	8 / 7 / 7 / 10.5	2	730	Late-Mature	Unable to assess	Good	Tree heavily leans westward, unable to assess stability of tree due to dense lower growth.				Good	8.8	240.9	C1
T15		Fraxinus excelsior (Ash)	15.5	8 / 8 / 8 / 8	2.5	530	Mature	Good	Good					Moderate	6.4	127.1	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.
T16		Fraxinus excelsior (Ash)	14	7.5 / 7.5 / 7.5 / 7.5	2.5	510	Mature	Good	Good					Moderate	6.1	117.7	B2
T17		Fraxinus excelsior (Ash)	12	6 / 6 / 6 / 6		414	Mature	Good	Good					Moderate	5.0	77.5	B2
T18		Fraxinus excelsior (Ash)	10.5	4.5 / 4.5 / 4.5 / 4.5	3	384	Mature	Good	Good	Estimated dimensions used as unable to access tree.				Moderate	4.6	66.9	C1
T19		Salix spp. (Willow)	9	0.5 / 0.5 / 11 / 11		350	Mature	Poor	Poor	Tree historically collapsed south westward but is regrowing.				Good	4.2	55.4	C1
T20		Populus spp. (Poplar)	21	10.5 / 10.5 / 10.5 / 10.5	4	850	Mature	Good	Good					Good	10.2	326.9	B1
T21		Salix spp. (Willow)	10.5	6.5 / 6.5 / 6.5 / 6.5	1	750	Late-Mature	Poor	Good	Tree has historically collapsed south eastwards. Low risk of future failure due to small size of tree.				Good	9.0	254.5	C1
T22		Fraxinus excelsior (Ash)	11.5	4 / 4 / 4 / 4	3.5	361	Mature	Unable to assess	Good	Estimated stem diameter used due to dense lower growth and ivy obscuring survey.				Moderate	4.3	58.9	C1
T23		Populus spp. (Poplar)	19	10.5 / 10.5 / 10.5 / 10.5	1.5	850	Mature	Unable to assess	Good	Estimated stem diameter used due to dense lower growth and ivy obscuring survey. Unidentified fungal fruiting body on stem at 7m north western side, most likely a Ganoderma species. Large limb on western side snapped out at 9m and hanging - low risk of future snap out on limb. Multiple over extended limbs not considered to be of current structural concern.				Good	10.2	326.9	B1
T24		Populus spp. (Poplar)	17.5	6 / 6 / 6 / 6	6	700	Mature	Good	Good	Minor amount of moderate size deadwood throughout the crown - low risk posed. Significant ivy on stem obscuring survey.				Good	8.4	221.7	B2
T25		Salix spp. (Willow)	18	11 / 11 / 11 / 11	2	950	Late-Mature	Fair	Fair	Stem appears to be in decline with multiple snapped stems. High levels of decay, limited SULE, tree should not be retained long term.	Remove	Optional		Good	11.4	408.3	C1
T26		Salix spp. (Willow)	18	11 / 11 / 11 / 11	3	561	Late-Mature	Fair	Good	Mature regrowth from stump.				Good	6.7	142.5	C1
T27		Salix spp. (Willow)	13	5.5 / 5.5 / 5.5 / 5.5	1.8	370	Semi-Mature	Good	Good	Estimated stem diameter used due to dense lower. Tree historically topped with epicormic regrowth.				Good	4.4	61.9	C1
T28		Quercus robur (English oak)	18	9.5 / 9.5 / 9.5 / 9.5	4	900	Mature	Fair	Good	Significant cambial damage to western side of stem from base to 1.5m (1.5x1m) with horizontal cracking of inner stem although only considered to be of minor structural concern.				Moderate - Good	10.8	366.4	A2
T29		Fraxinus excelsior (Ash)	12	4.5 / 4.5 / 4.5 / 4.5	3	308	Semi-Mature	Good	Good					Moderate	3.7	42.9	B3
T30		Fraxinus excelsior (Ash)	13	5 / 5 / 5 / 5	4	520	Mature	Good	Good					Moderate	6.2	122.3	B3
T31		Salix caprea (Goat willow)	15	9.5 / 9.5 / 9.5 / 9.5		791	Late-Mature	Good	Good	Estimated dimensions used as unable to access tree. Minor deadwood throughout the crown - negligible risk posed.				Moderate - Good	9.5	282.7	B3
T32		Fraxinus excelsior (Ash)	6.5	4 / 4 / 4 / 4	3	250	Semi-Mature	Good	Good	Estimated stem diameter used due to dense surrounding growth. Significant presence of deadwood throughout the crown - currently low risk of harm will turn to high risk if targets below. Multiple snapped scaffold limbs with 1 hung up within crown.				Moderate	3.0	28.3	C1
T33		Salix babylonica (Weeping willow)	14	6.5 / 6.5 / 6.5 / 6.5	1.5	519	Mature	Good	Good	Mature regrowth from coppice on edge of water filled ditch.				Moderate - Good	6.2	121.7	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.
T34		Salix fragilis (Crack willow)	12	3 / 4 / 7 / 8.5	1.5	320	Semi-Mature	Fair	Good	Estimated stem diameter used as unable to access tree. Tree heavily leans westward with a moderate risk of future failure and low risk of harm. Regrowth from 2m pollarded stump.				-	3.8	46.3	C1
T35		Fraxinus excelsior (Ash)	6.5	3 / 3 / 3 / 3	3	301	Early-Mature	Good	Good	Estimated stem diameter used due to dense surrounding growth.				Moderate	3.6	41.0	C1
T36		Fraxinus excelsior (Ash)	7	3 / 3 / 3 / 3	2	196	Early-Mature	Good	Fair	moderate amount of minor size deadwood throughout the crown - negligible risk posed.				Moderate	2.4	17.5	C1
T37		Fraxinus excelsior (Ash)	11.5	6 / 7 / 7 / 4.5	2	550	Mature	Unable to assess	Fair	Estimated stem diameter used due to dense surrounding growth. Significant presence of deadwood throughout the crown - currently low risk of harm will turn to high if targets below. Multiple snapped scaffold limbs with 1 hung up within crown. Cavity and splitting of secondary leader union at 4.5m - high risk of future failure. Tree has limited SULE but the tree provides a good habitat.	Monolith to 4m.	24 months		Moderate	6.6	136.8	C1
T38		Fraxinus excelsior (Ash)	6.5	3 / 3 / 3 / 3	1.5	224	Early-Mature	Good	Good					Moderate	2.7	22.6	C1
T39		Fraxinus excelsior (Ash)	13	4 / 4 / 4 / 4	3	420	Mature	Fair	Fair	Estimated stem due to dense surrounding growth. Tree in early stages of decline with a significant amount of minor deadwood, potential for Chalara to be present.	Consider a heavy pollard or monolith tree to retain for habitat.	Optional		Moderate	5.0	79.8	C1
T40		Quercus robur (English oak)	10	3 / 4 / 2 / 3.5	3	500	Mature	Fair	Dead/Dying	Standing dead tree engulfed in ivy, whilst tree has no arboricultural value it does provide a good ecological habitat.				Moderate - Good	6.0	113.1	B3
T41		Fraxinus excelsior (Ash)	11.5	5 / 5 / 5 / 5	3	550	Late-Mature	Fair	Good	Estimated stem diameter due to dense surrounding growth. Minor deadwood throughout crown - negligible risk posed. Cavity in main stem from 3m-6m, highly likely used as habitat. Tree has a high ecological value.			Remove	Moderate	6.6	136.8	B1
T42		Fraxinus excelsior (Ash)	11.5	7 / 7 / 7 / 7	3	630	Late-Mature	Poor	Fair	Estimated stem due to dense surrounding growth. Old inonotus fungal fruiting body on base of tree on northern side . Stem has a cavity and hollowing with internal decay. Stem historically snapped out with mature epicormic regrowth with potentially weak unions. Tree offers significant habitat.			Remove	Moderate	7.6	179.6	B1
T43		Fraxinus excelsior (Ash)	11	4.5 / 4.5 / 4.5 / 4.5	3	246	Semi-Mature	Good	Fair	Tree has significant amount of minor to moderate size deadwood throughout crown - tree is most likely affected by Chalara.				Moderate	3.0	27.4	C1
T44		Fraxinus excelsior (Ash)	11	4.5 / 4.5 / 4.5 / 4.5	3	400	Semi-Mature	Good	Good	Minor deadwood throughout crown - negligible risk posed.				Moderate	4.8	72.4	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		Fraxinus excelsior (Ash)	12.5	7 / 7 / 7 / 7	2.5	500	Mature	Good	Fair	Estimated stem diameter used due to dense surrounding growth and ivy engulfing stem and inner crown obscuring survey. Top has historically snapped or died leaving only lateral branches with a moderate amount of minor size deadwood throughout the crown - negligible risk posed.				Moderate	6.0	113.1	B2
T46		Fraxinus excelsior (Ash)	12	1 / 1 / 6.5 / 6	3	500	Late-Mature	Poor	Dead/Dying	Tree in significant decline with dead top, cavity in main stem and significant deadwood with no future potential as tree, however, tree does provide significant ecological value.	Monolith to 5m	12 months		Moderate	6.0	113.1	B2
T47		Fraxinus excelsior (Ash)	13	6 / 6 / 6 / 6	3	405	Mature	Good	Good	Estimated stem diameter due to dense surrounding growth. Minor deadwood throughout crown - negligible risk posed.				Moderate	4.9	74.1	B2
T48		**Same as last	10	3.5 / 3.5 / 3.5 / 3.5	3.5	202	Mature	Good	Good	Cavity in base of tree, growth from old rotten stump - low risk of future failure due to small size of tree. Minor deadwood throughout crown - negligible risk posed.				-	2.4	18.5	C1
T49		Fraxinus excelsior (Ash)	11	4.5 / 4.5 / 4.5 / 4.5	3	252	Semi-Mature	Good	Good	Minor deadwood throughout crown - negligible risk posed.				Moderate	3.0	28.7	C1
T50		Quercus robur (English oak)	7.5	5 / 2 / 2 / 3.5	1	210	Early-Mature	Good	Good	Estimated stem diameter used as unable to access tree.				Moderate - Good	2.5	20.0	C1
T51		Populus spp. (Poplar)	12	7.5 / 7.5 / 7.5 / 7.5	3	670	Mature	Good	Good	Estimated stem diameter used as unable to access tree. Minor deadwood throughout crown - negligible risk posed.				Good	8.0	203.3	B2
T52		Quercus robur (English oak)	10	0.5 / 0.5 / 1.5 / 1	1	110	Early-Mature	Good	Good					Moderate - Good	1.3	5.5	C1
T53		Quercus robur (English oak)	9.5	4 / 4 / 4 / 4	2	205	Semi-Mature	Good	Good					Moderate - Good	2.5	19.0	C1
T54		Quercus robur (English oak)	9.5	4.5 / 4.5 / 4.5 / 4.5	3	206	Semi-Mature	Good	Good					Moderate - Good	2.5	19.2	C1
T55		Quercus robur (English oak)	10	4 / 5 / 4 / 5	3	220	Semi-Mature	Good	Good					Moderate - Good	2.6	21.9	C1
T56		Salix spp. (Willow)	11	5.5 / 5.5 / 5.5 / 5.5	2	800	Late-Mature	Poor	Fair	Hollowing and decaying of main stem - moderate risk of future failure with a low risk of harm. Mature regrowth from historic pollard at 3m.				Good	9.6	289.5	C1
T57		Malus sylvestris (Crab apple)	8.5	3 / 3 / 5 / 3	2	150	Mature	Good	Good	Estimated stem diameter used due to dense surrounding growth and significant ivy on stem obscuring survey.				Moderate - Good	1.8	10.2	C1
T58		Fraxinus excelsior (Ash)	16.5	5 / 10 / 10 / 10	2	622	Mature	Good	Good	Minor deadwood throughout crown - negligible risk posed.				Moderate	7.5	174.8	B1
T59		Fraxinus excelsior (Ash)	13	8.5 / 8.5 / 8.5 / 8.5	2	530	Mature	Unable to assess	Good	Estimated stem diameter used due to dense surrounding growth. Potentially inonotus on north side of stem at 2m in cavity, unable to identify as unable to access tree. Below main stem forking potential for decay and potential for future failure of secondary leader, upper stem is hollow although not considered to be of current structural concern.			Crown lift tertiary branches to provide 4.5m clearance with the ground.	Moderate	6.4	127.1	B1

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.
T60		Fraxinus excelsior (Ash)	13	4 / 4 / 4 / 4	3	220	Semi-Mature	Good	Good	Estimated stem diameter used. Moderate amount of minor size deadwood throughout crown, with reactive growth, potentially tree affected by Chalara.				Moderate	2.6	21.9	C1
T61		Fraxinus excelsior (Ash)	8	3 / 3 / 3 / 3	2.5	210	Early-Mature	Good	Good	Estimated stem diameter used. Moderate amount of minor size deadwood throughout crown, with reactive growth, potentially tree affected by Chalara.				Moderate	2.5	20.0	C1
T62		Fraxinus excelsior (Ash)	14	6 / 6 / 6 / 6	2	480	Mature	Fair	Poor	Estimated stem diameter used due to dense surrounding growth. Tree is in a significant state of decline with no future potential. Multiple inonotus brackets and woodpecker hole at 5m. Significant amount and sized deadwood, whilst the tree is of a low arboricultural value the tree posses a high ecological value.				Moderate	5.8	104.2	B2
T63		Fraxinus excelsior (Ash)	11	6 / 6 / 6 / 6	2.5	407	Semi-Mature	Good	Good	Estimated stem diameter used due to dense lower growth. Minor deadwood throughout crown - negligible risk posed.			Remove	Moderate	4.9	74.8	C1
T64		Fraxinus excelsior (Ash)	12	5.5 / 5.5 / 5.5 / 5.5	3	510	Mature	Fair	Fair	Estimated stem diameter used due to dense lower growth. Significant cavity in main stem on southern side at 2-5m from historic secondary leader failure. Tree is of low arboricultural value but provides good ecological value.			Crown lift tertiary branches to provide 4.5m clearance with the ground.	Moderate	6.1	117.7	B2
T65		Fraxinus excelsior (Ash)	11	7 / 7 / 7 / 7	3	460	Mature	Good	Good	Estimated stem diameter due to dense surrounding growth. Minor deadwood throughout crown - negligible risk posed. Top of tree historically failed leaving decaying stubs - not of current concern.			Crown lift tertiary branches to provide 4.5m clearance with the ground.	Moderate	5.5	95.7	B2
T66		Fraxinus excelsior (Ash)	10.5	5 / 5 / 5 / 5	3	230	Semi-Mature	Good	Good	Estimated stem diameter used due to dense lower growth.				Moderate	2.8	23.9	C1
T67		Fraxinus excelsior (Ash)	11	4.5 / 4.5 / 4.5 / 4.5	3	274	Early-Mature	Good	Good					Moderate	3.3	33.9	C1
T68		Fraxinus excelsior (Ash)	7	3.5 / 3.5 / 3.5 / 3.5	3	140	Early-Mature	Good	Good	Estimated dimensions used as unable to access tree.				Moderate	1.7	8.9	C1
G1		Mixed group	5.5	1.5 / 1.5 / 1.5 / 1.5		100	Early-Mature	Good	Good	Well maintained hedge with young elms. Minor deadwood throughout group - negligible risk posed. Whilst group is of low arboricultural value it provides high ecological value.				-	1.2	4.5	B2
G2		Mixed group	6.5	2 / 2 / 2 / 2		110	Semi-Mature	Good	Good	Line of scrubby trees along edge of field. Lower portion maintained as hedgerow. Whilst group posses a low arboricultural value it provides a high ecological value . Minor deadwood throughout crown - negligible risk posed.				-	1.3	5.5	B3
G3		Ulmus spp. (Elm)	8	3 / 3 / 3 / 3		120	Early-Mature	Good	Good	Cluster of dead elms.	Monolith to 3m and leave for habitat.	Optional		-	1.4	6.5	U
G4		Populus spp. (Poplar)	22.5	10 / 10 / 10 / 10		600	Mature	Good	Good	estimated dimensions used as group located on adjacent site				Good	7.2	162.9	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.
G5		Mixed group	7.5	2.5 / 2.5 / 2.5 / 2.5		120	Mature	Good	Good	Group of hawthorn, black thorn, elder, field maple and young willow along edge of ditch. Minor deadwood throughout group- negligible risk posed . Whilst group is of low arboricultural value it does possess moderate ecological value.				-	1.4	6.5	B2
G6		Mixed group	22	11 / 11 / 11 / 11	2	600	Mature	Good	Good	Group of poplars and willow running along edge of field. Minor ivy on base and stems with minor deadwood throughout group - negligible risk posed . Multiple trees have overextended limbs but not considered to be of current structural concern.				-	7.2	162.9	B1
G7		Salix spp. (Willow)	14	9.5 / 9.5 / 9.5 / 9.5	2.5	260	Semi-Mature	Good	Good	Minor deadwood throughout crown - negligible risk posed.				Good	3.1	30.6	C1
G8		Mixed group	21	10 / 10 / 10 / 10	2.5	750	Mature	Good	Good	Group of mature oak and poplar with younger trees consisting of hawthorn, blackthorn and elm. Minor deadwood throughout group - low risk posed. Group offers high ecological value.				-	9.0	254.5	A3
G9		Mixed group	11	4 / 4 / 4 / 4	3	163	Semi-Mature	Good	Good	Group consisting of 1 ash tree and 1 elm tree. Elm tree is dead/ dying and not suitable for long term retention. Ash has minor deadwood throughout the crown - negligible risk posed.	Remove elm tree.	Optional		-	2.0	12.0	C1
G10		Mixed group	13	4.5 / 4.5 / 4.5 / 4.5		200	Semi-Mature	Good	Good	Group consisting of ash, hawthorn, poplar and oak. Minor deadwood throughout group - negligible risk posed.			Remove	-	2.4	18.1	B3
G11		Ulmus spp. (Elm)	10	1.5 / 1.5 / 1.5 / 1.5		120	Semi-Mature	Fair	Dead/Dying	Group of 5 dead stems - low risk posed.				-	1.4	6.5	U
H1		Mixed group	2	1 / 1 / 1 / 1			Semi-Mature	Good	Good	Well maintained mixed species hedgerow along edge of field. Whilst the hedge is of low arboricultural value it possesses a moderate ecological value.				-			B3
H2		Mixed group	3	1.5 / 1.5 / 1.5 / 1.5			Semi-Mature	Good	Good					-			B3
H3		Mixed group	3	1 / 1 / 1 / 1			Semi-Mature	Good	Good				Remove section measuring ~14m in length to facilitate the construction of the proposed roadway. (See ASP02 for exact location)	-			B3
H4		Mixed group	2	2 / 2 / 2 / 2		50	Semi-Mature	Good	Good	Well maintained mixed species hedgerow along edge of field. Whilst the hedge is of low arboricultural value it possesses a moderate ecological value.			Remove section measuring ~14m in length to facilitate the construction of the proposed roadway. Remove section measuring ~11m in length to facilitate the construction of the proposed roadway. Remove ~50m section to facilitate the construction of the proposed sub station. (See ASP02 for exact location)	-	0.6	1.1	B3
H5		Mixed group	3	1.5 / 1.5 / 1.5 / 1.5		40	Semi-Mature	Good	Good	Mixed species hedgerow with young elm saplings.			Remove section measuring 34m in length from north easternmost end.	-	0.5	0.7	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.
H6		Mixed group	1.5	1 / 1 / 1 / 1		30	Mature	Good	Good	Well maintained mixed species hedgerow along edge of field. Whilst the hedge is of low arboricultural value it possesses a moderate ecological value.			Remove 1 section measuring ~12m in length and 1 section measuring 5m in length to facilitate the construction of the proposed roadway. (See ASP02 for exact locations).	-	0.4	0.4	C1
H7		Mixed group	3	1.5 / 1.5 / 1.5 / 1.5		30	Semi-Mature	Good	Good	Well maintained hedgerow along edge of field.				-	0.4	0.4	C1
H8		Mixed group	2	1.5 / 1.5 / 1.5 / 1.5		50	Mature	Good	Good	Well maintained hedge along boundary consisting of black thorn, hawthorn and elm.				-	0.6	1.1	C1

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 – Looking westwards at the site.

APPENDIX 2 – SITE PHOTOGRAPHS

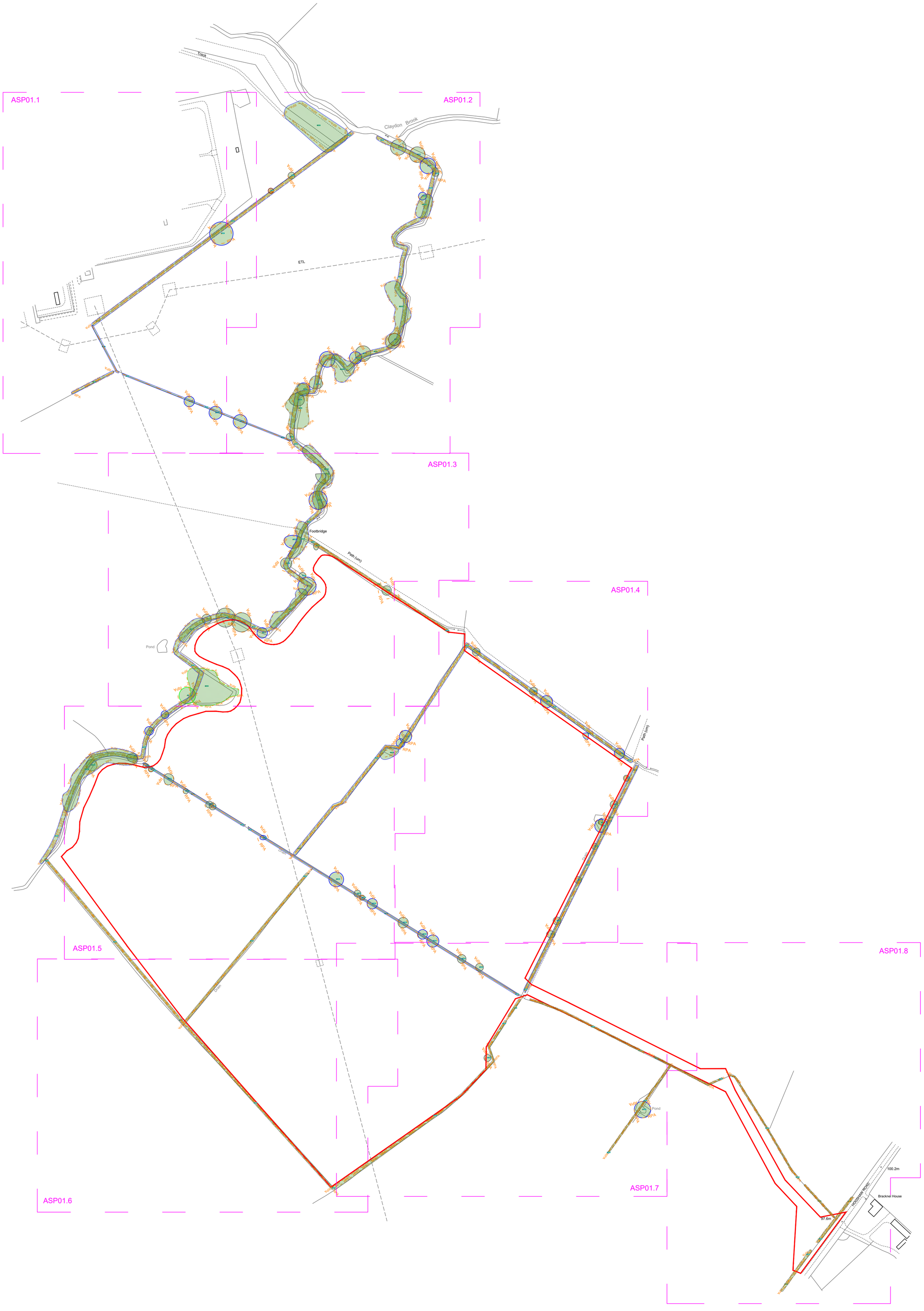
Figure 2 – Looking northwards towards the site.

Figure 3 – Looking eastwards towards the site.

Figure 4 – Looking northwards towards H5.

Figure 5 – Looking northwards towards G5 and G6.

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.

RPA	**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:	East Claydon
Client:	Statera Energy Limited
Drawing:	Arboricultural Site Plan (Existing) (.0)
Drawing Ref:	P2892-ASP01.0
Rev:	V1
Date:	13/12/2022
Scale:	N/A - A1
Drawn By:	J. Sinclair & B. Hallinan
Based on:	Existing Site Plan

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RPA	**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:	East Claydon
Client:	Statera Energy Limited
Drawing:	Arboricultural Site Plan (Existing) (.1)
Drawing Ref: P2892-ASP01.1	Rev: V1 / Date: 13/12/2022
Scale: 1:500 - A1	Drawn By: J. Sinclair & B. Hallinan
Based on:	Existing Site Plan

Claydon Brook

ETL

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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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

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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.

RPA	**Root Protection Area (RPA)**: The notional area around each tree which should be left undisturbed during the development of the site
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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:	East Claydon
Client:	Statera Energy Limited
Drawing:	Arboricultural Site Plan (Existing) (.2)
Drawing Ref: P2892-ASP01.2	Rev: V1 / Date: 13/12/2022
Scale: 1:500 - A1	Drawn By: J. Sinclair & B. Hallinan
Based on:	Existing Site Plan

All dimensions should be checked on site. No dimensions to be scaled from this drawing. Please notify us of any discrepancies found. Ligna Consultancy 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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This drawing was produced in colour - a monochrome copy should not be relied upon.

Use of This Document

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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: East Claydon			
Client: Statera Energy Limited			
Drawing: Arboricultural Site Plan (Existing) (.3)			
Drawing Ref: P2892-ASP01.3	Rev: V1	Date: 13/12/2022	
Scale: 1:500 - A1		Drawn By: J. Sinclair & B. Hallinan	
Based on: Existing Site Plan			

All dimensions should be checked on site. No dimensions to be scaled from this drawing. Please notify us of any discrepancies found. Ligna Consultancy 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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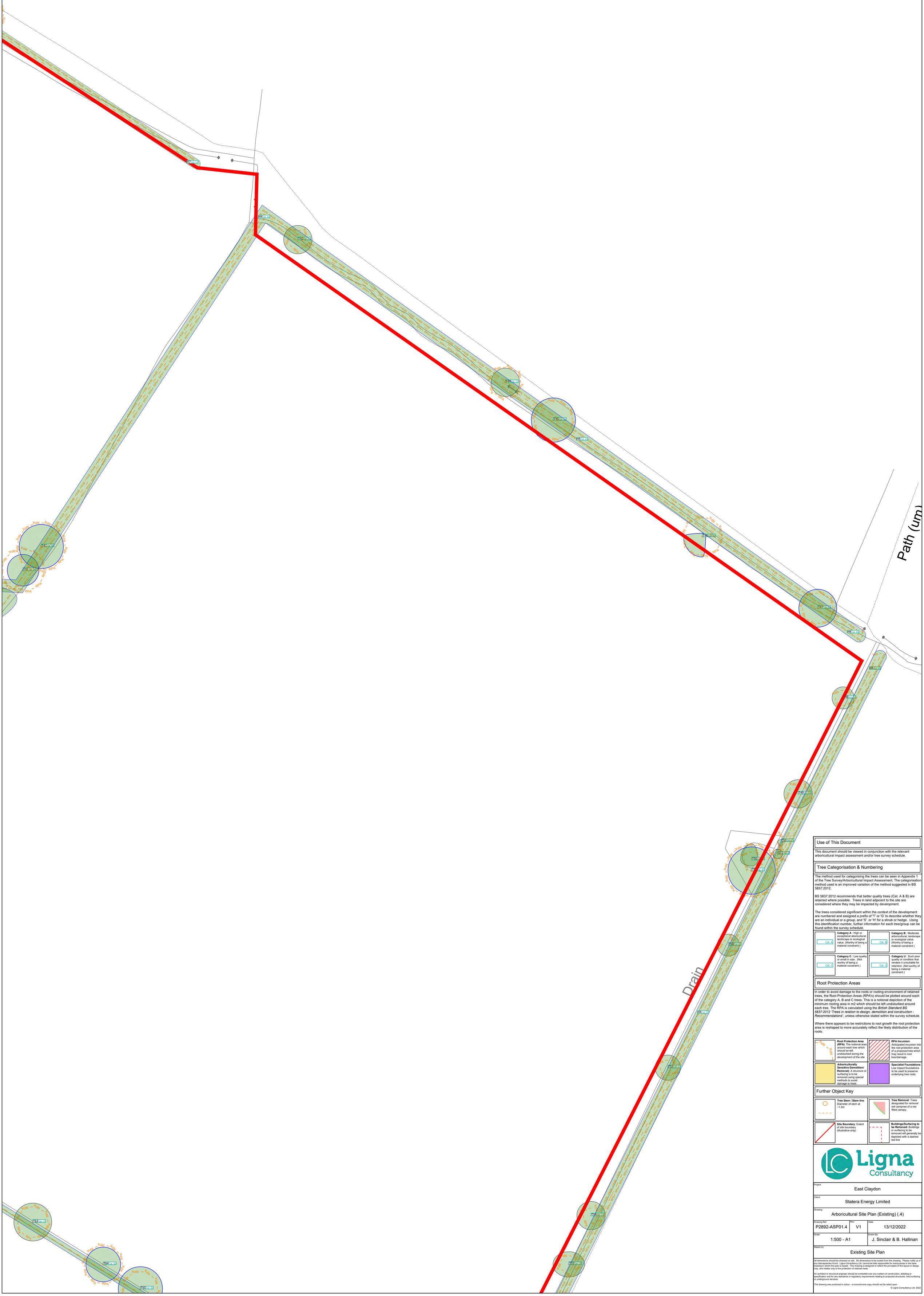

Use of This Document

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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: East Claydon

Client: Statera Energy Limited

Drawing: Arboricultural Site Plan (Existing) (.4)

Drawing Ref:	Rev:	Date:
P2892-ASP01.4	V1	13/12/2022

Scale:	Drawn By:
1:500 - A1	J. Sinclair & B. Hallinan

Based on: Existing Site Plan

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

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Specialist Foundations: Low impact foundations to be used to preserve underlying tree roots.

Further Object Key

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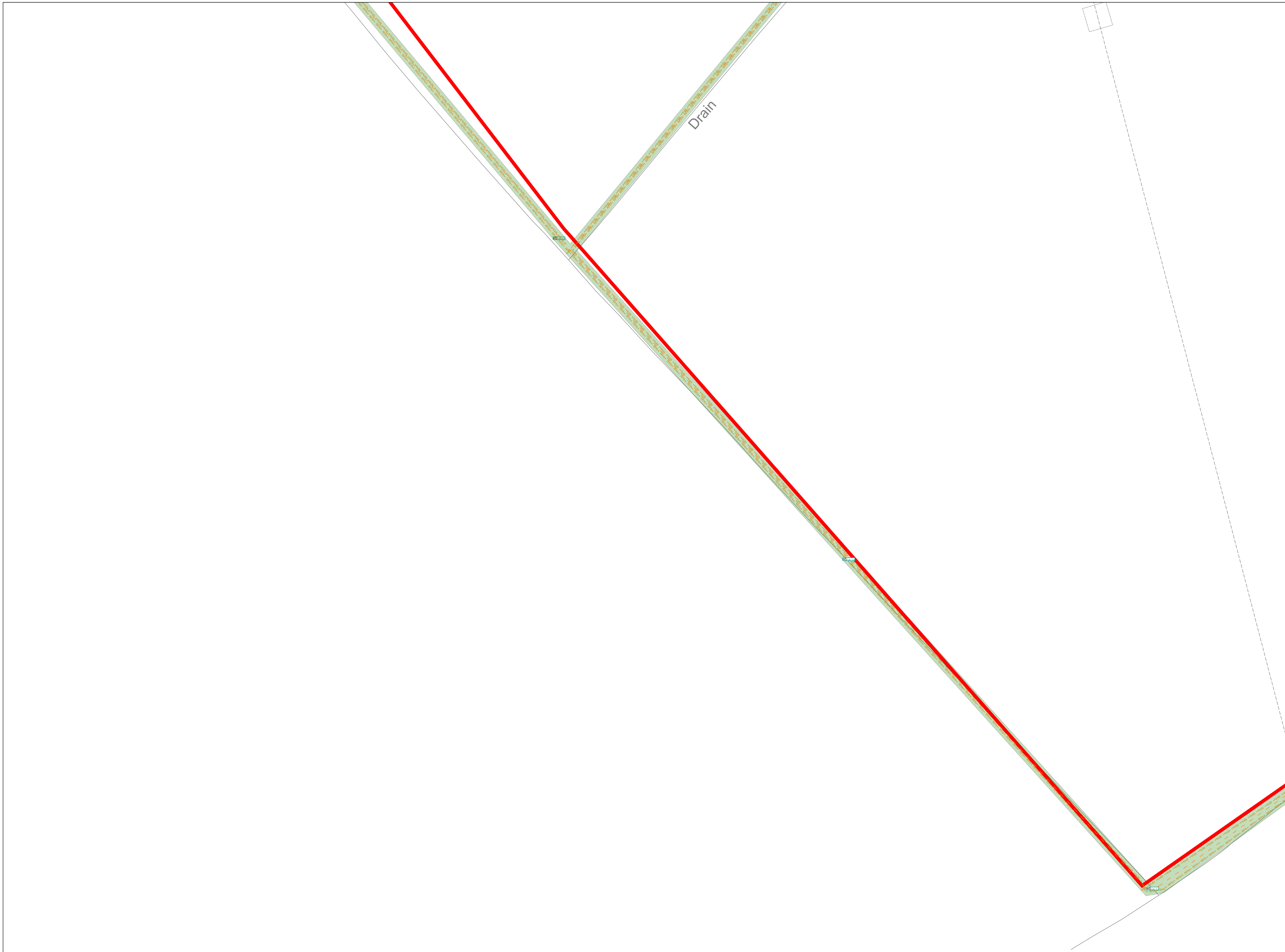
Buildings/Surfacing to be Removed: Buildings / surfacing to be removed will generally be depicted with a dashed red line

Ligna Consultancy

Project:	East Claydon
Client:	Statera Energy Limited
Drawing:	Arboricultural Site Plan (Existing) (.5)
Drawing Ref: P2892-ASP01.5	Rev: V1
Date: 13/12/2022	
Scale: 1:500 - A1	Drawn By: J. Sinclair & B. Hallinan
Based on: Existing Site Plan	



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.

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Ligna Consultancy

Project: East Claydon		
Client: Statera Energy Limited		
Drawing: Arboricultural Site Plan (Existing) (.6)		
Drawing Ref: P2892-ASP01.6	Rev: V1	Date: 13/12/2022
Scale: 1:500 - A1		Drawn By: J. Sinclair & B. Hallinan
Based on: Existing Site Plan		

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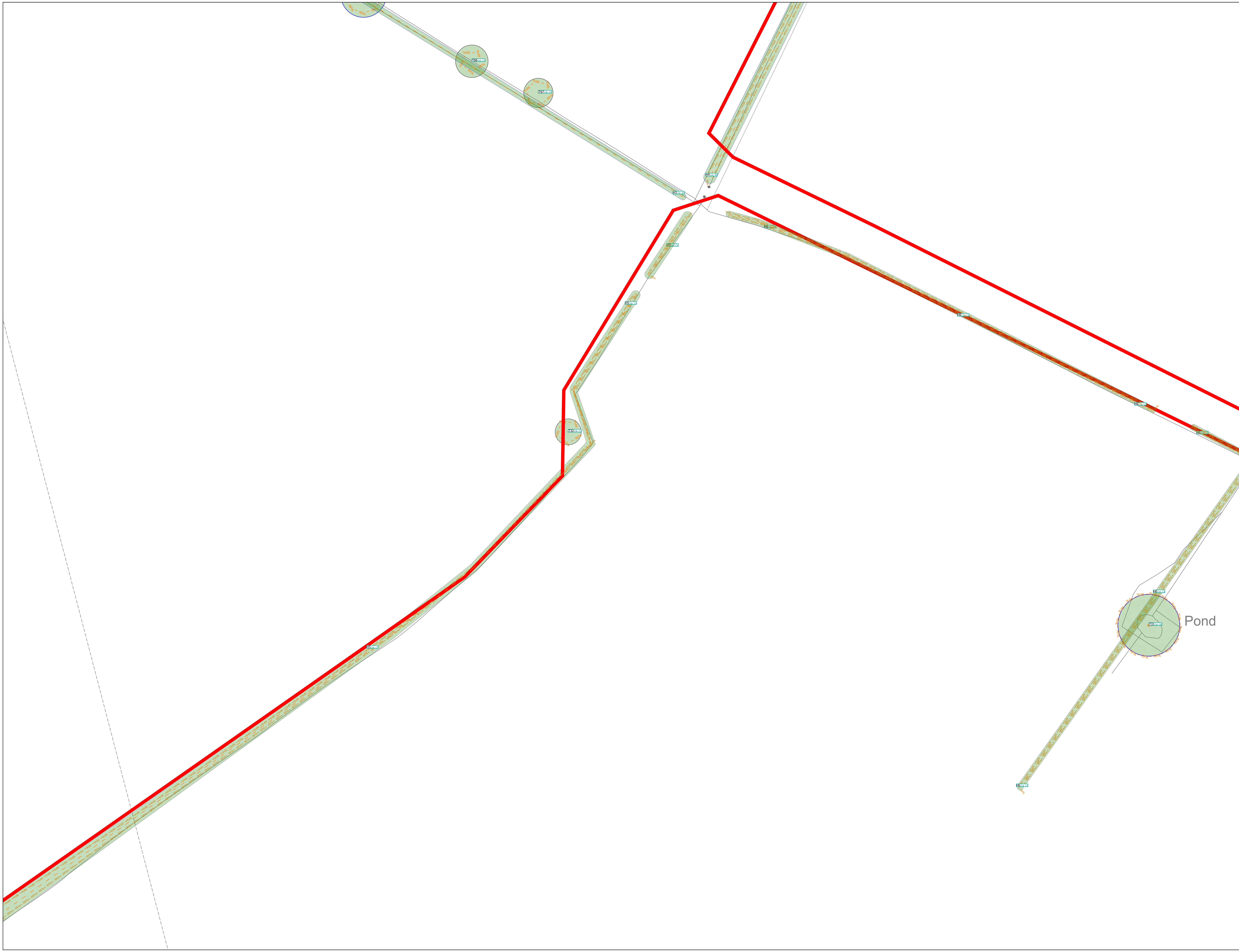

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Ligna Consultancy

Project: East Claydon		
Client: Statera Energy Limited		
Drawing: Arboricultural Site Plan (Existing) (.7)		
Drawing Ref: P2892-ASP01.7	Rev: V1	Date: 13/12/2022
Scale: 1:500 - A1	Drawn By: J. Sinclair & B. Hallinan	
Based on: Existing Site Plan		

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Further Object Key

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Ligna Consultancy

Project: East Claydon

Client: Statera Energy Limited

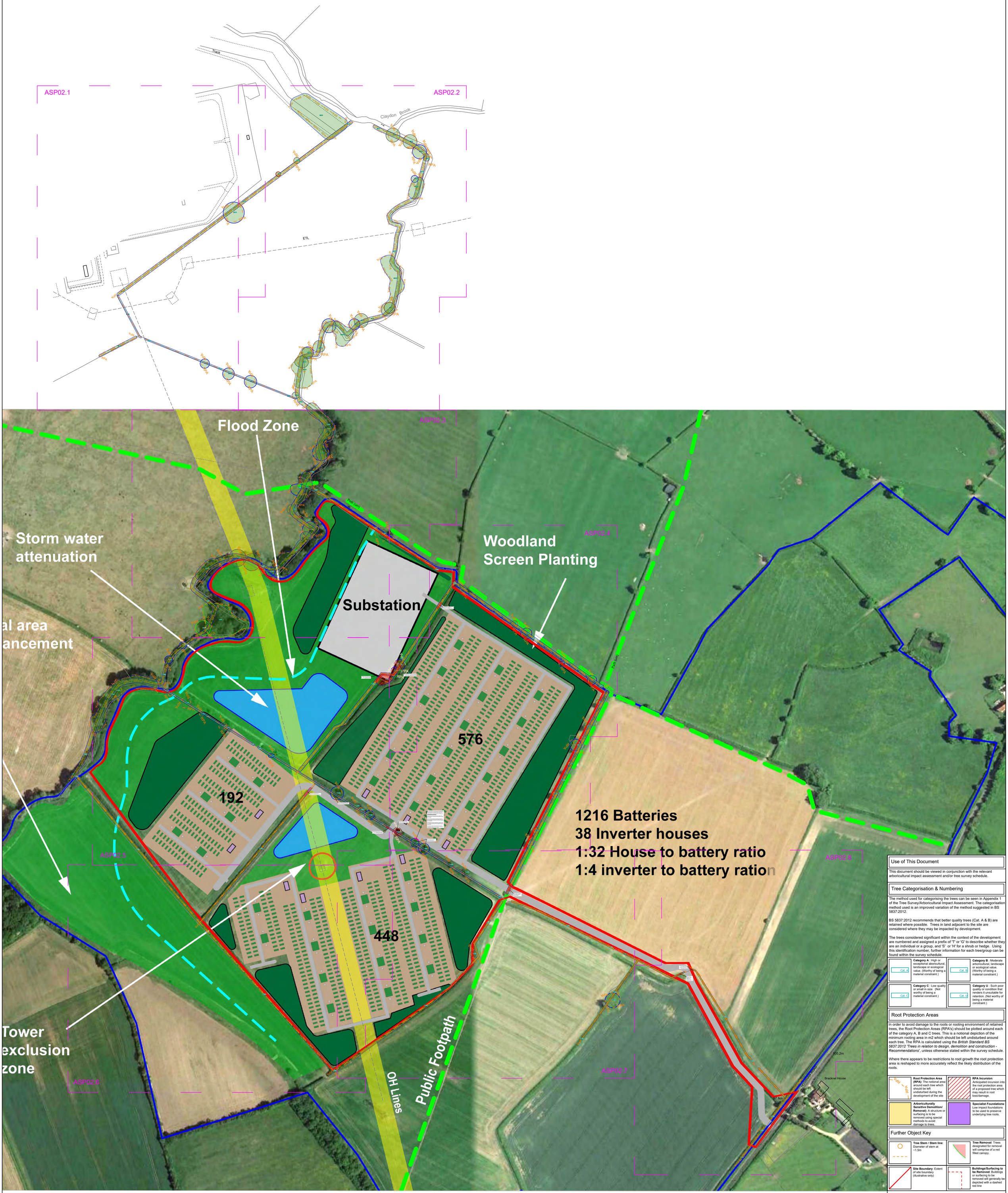
Drawing: Arboricultural Site Plan (Existing) (.8)

Drawing Ref:	Rev:	Date:
P2892-ASP01.8	V1	13/12/2022

Scale:	Drawn By:
1:500 - A1	J. Sinclair & B. Hallinan

Based on: Existing Site Plan

APPENDIX 4
ARB. SITE PLAN (PROPOSED)



Use of This Document

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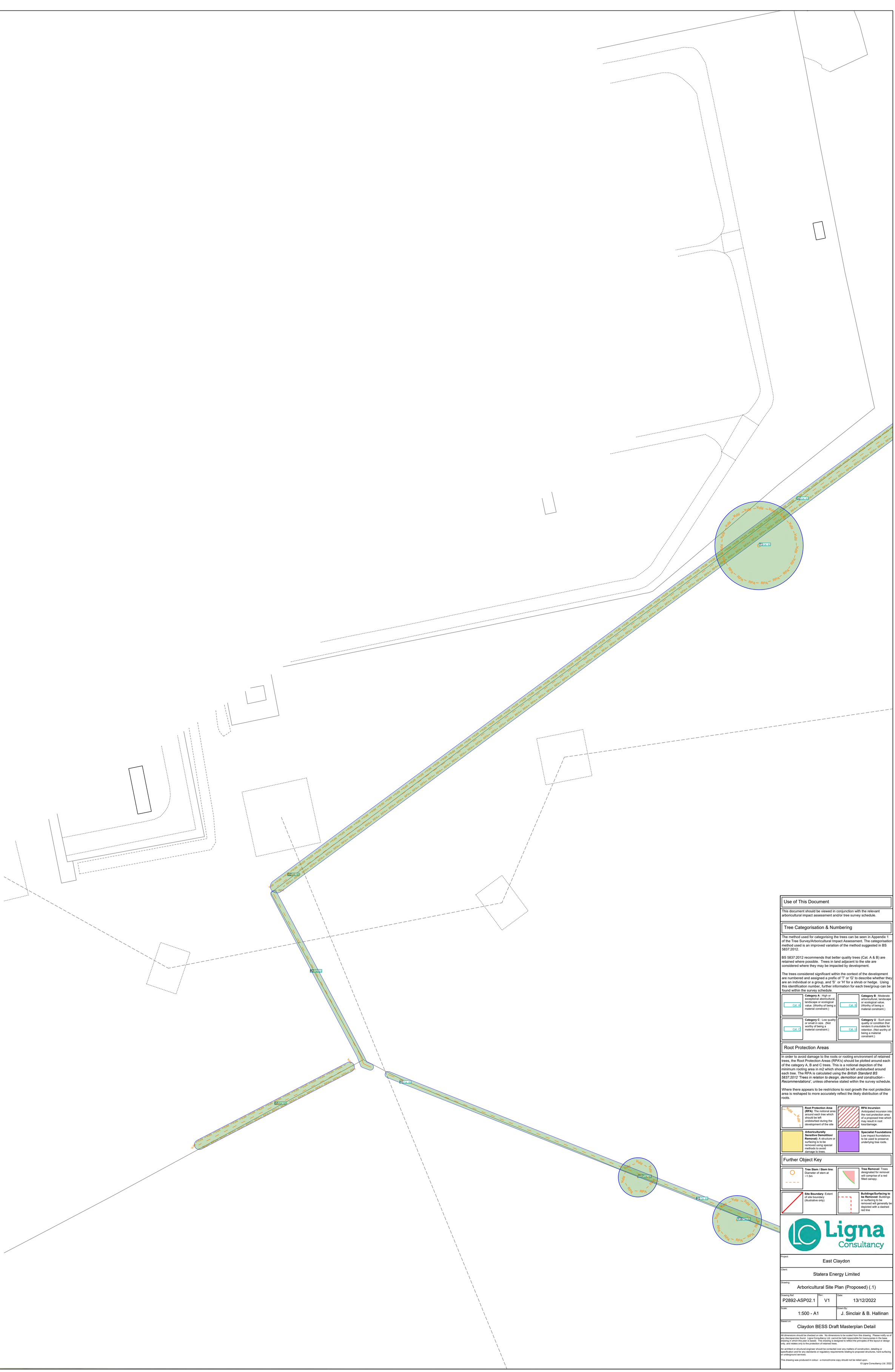
Ligna Consultancy

Project:	East Claydon
Client:	Statera Energy Limited
Drawing:	Arboricultural Site Plan (Proposed) (.0)
Drawing Ref: P2892-ASP02.0	Rev: V1
Date:	13/12/2022
Scale:	N/A - A1
Drawn By:	J. Sinclair & B. Hallinan
Based on:	Claydon BESS Draft Masterplan Detail



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Ligna Consultancy

Project: East Claydon

Client: Statera Energy Limited

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

Drawing Ref:	Rev:	Date:
P2892-ASP02.1	V1	13/12/2022

Scale:	Drawn By:
1:500 - A1	J. Sinclair & B. Hallinan

Based on: Claydon BESS Draft Masterplan Detail

Claydon Brook

ETL

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.

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Root Protection Areas

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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.

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: East Claydon

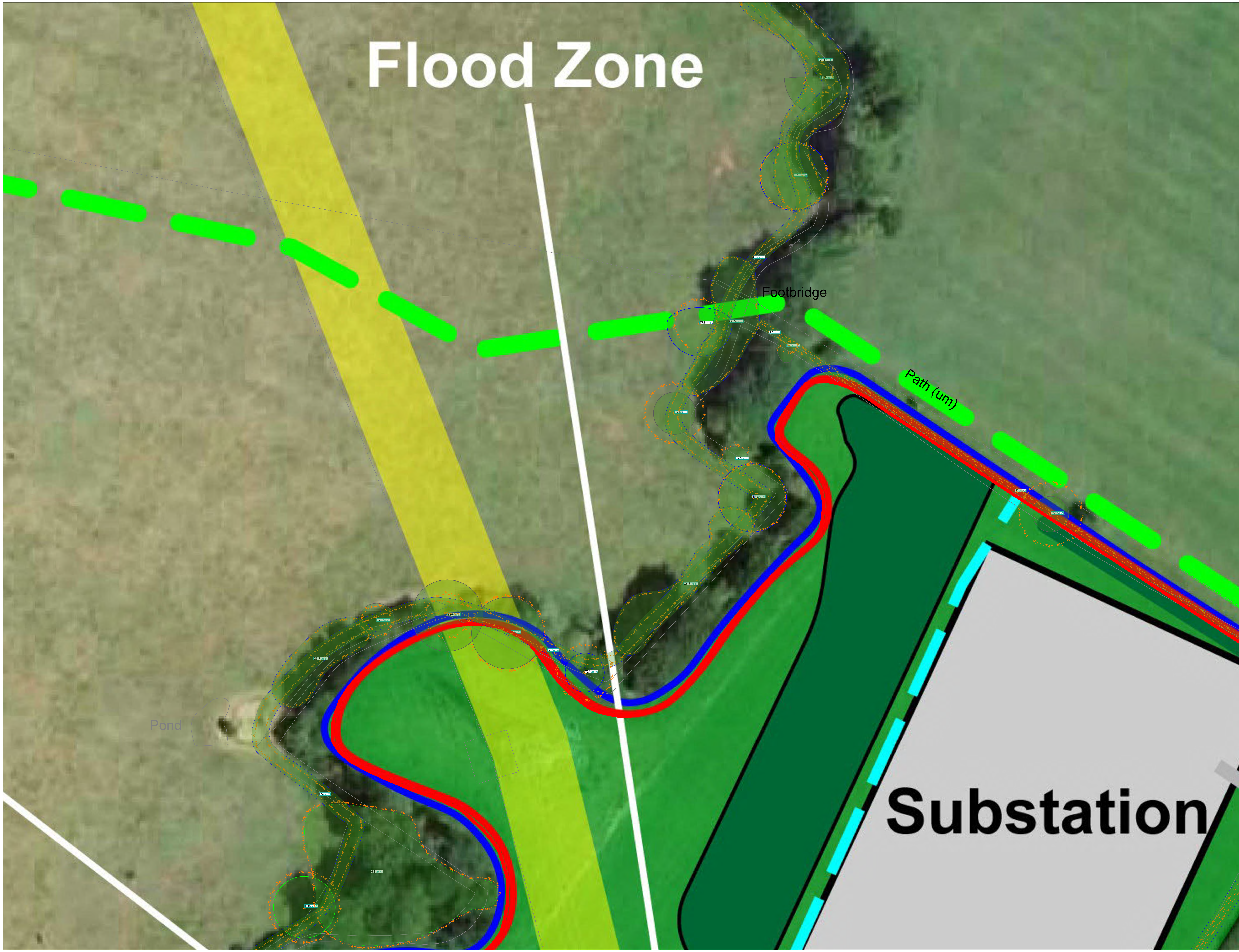
Client: Statera Energy Limited

Drawing: Arboricultural Site Plan (Proposed) (.2)

Drawing Ref:	Rev:	Date:
P2892-ASP02.2	V1	13/12/2022

Scale:	Drawn By:
1:500 - A1	J. Sinclair & B. Hallinan

Based on: Claydon BESS Draft Masterplan Detail



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Ligna Consultancy

Project: East Claydon			
Client: Statera Energy Limited			
Drawing: Arboricultural Site Plan (Proposed) (.3)			
Drawing Ref: P2892-ASP02.3	Rev: V1	Date: 13/12/2022	
Scale: 1:500 - A1		Drawn By: J. Sinclair & B. Hallinan	
Based on: Claydon BESS Draft Masterplan Detail			

All dimensions should be checked on site. No dimensions to be scaled from this drawing. Please notify us of any discrepancies found. Ligna Consultancy 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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This drawing was produced in colour - a monochrome copy should not be relied upon.

Woodland
Screen Planting

ation

Remove section measuring ~11m in length from H4 to facilitate the construction of the proposed roadway.

Removal of T41, T42 and G10 requires offsetting through 8 new trees with a height of 3m+ at time of planting within the site.

576

Removal of T63 does not require offsetting through new tree plantings.

Minor RPA incursion if 4% for T64. Due to the small size of the incursion and the moderate tolerance of Fraxinus to root loss and disturbance, any long term impact on the health or vitality of the tree is considered to be low. However, to ensure damage is not cause to the tree or it's rooting area, the following must be adhered to:

i) Prior to any construction works being undertaken, tree protection barriers and temporary ground protection matting must installed.

ii) Any machinery required must operate externally to the RPA or from atop temporary ground protection matting. The size of the machine must take the surrounding tree canopies into consideration.

iii) During the excavation of the subbase, should any roots with a diameter in excess of 20mm be unearthed, they must be pruned back past the face of the subbase with purpose made loppers.

iv) To prevent chemical cement leachate from poisoning surrounding tree roots, prior to the pouring of concrete, an impermeable membrane must be installed.

Crown lift tertiary branches of T64 and T65 to provide 4.5m clearance with the ground.

Path (unp

12
38

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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: East Claydon

Client: Statera Energy Limited

Drawing: Arboricultural Site Plan (Proposed) (.4)

Drawing Ref:	Rev:	Date:
P2892-ASP02.4	V1	13/12/2022

Scale:	Drawn By:
1:500 - A1	J. Sinclair & B. Hallinan

Based on: Claydon BESS Draft Masterplan Detail

Remove ~50m section of H4 to facilitate the construction of the proposed sub station

Removal of T41, T42 and G10 requires offsetting through 8 new trees with a height of 3m+ at time of planting within the site.

Remove section measuring 34m in length from north easternmost end of H5.

Crown lift tertiary branches of T39 to provide 4.5m clearance with the ground.

Remove section measuring ~14m in length to facilitate the construction of the proposed roadway.

192

Drain

Use of This Document

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Specialist Foundations: Low impact foundations to be used to preserve underlying tree roots.

Further Object Key

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Ligna Consultancy

Project:	East Claydon
Client:	Statera Energy Limited
Drawing:	Arboricultural Site Plan (Proposed) (.5)
Drawing Ref:	P2892-ASP02.5
Rev:	V1
Date:	13/12/2022
Scale:	1:500 - A1
Drawn By:	J. Sinclair & B. Hallinan
Based on:	Claydon BESS Draft Masterplan Detail

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Specialist Foundations Low impact foundations to be used to preserve underlying tree roots.

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Ligna Consultancy

Project:	East Claydon
Client:	Statera Energy Limited
Drawing:	Arboricultural Site Plan (Proposed) (.6)
Drawing Ref: P2892-ASP02.6	Rev: V1 / Date: 13/12/2022
Scale: 1:500 - A1	Drawn By: J. Sinclair & B. Hallinan
Based on:	Claydon BESS Draft Masterplan Detail

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Ligna Consultancy

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Client: Statera Energy Limited		
Drawing: Arboricultural Site Plan (Proposed) (.7)		
Drawing Ref: P2892-ASP02.7	Rev: V1	Date: 13/12/2022
Scale: 1:500 - A1		Drawn By: J. Sinclair & B. Hallinan
Based on: Claydon BESS Draft Masterplan Detail		

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ise to battery ratio
rter to battery ration

Remove section measuring 5m in length from H6 to facilitate the construction of the proposed roadway.

Remove section measuring ~12m in length from H6 to facilitate the construction of the proposed roadway.

100.2m

97.6m

HOGSHAW ROAD

Bracknel

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Ligna Consultancy

Project: East Claydon

Client: Statera Energy Limited

Drawing: Arboricultural Site Plan (Proposed) (.8)

Drawing Ref:	Rev:	Date:
P2892-ASP02.8	V1	13/12/2022

Scale:	Drawn By:
1:500 - A1	J. Sinclair & B. Hallinan

Based on: Claydon BESS Draft Masterplan Detail

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