

ARBORICULTURAL REPORT

- Client: Net Zero Thirty Two Limited
- Site: North Cray Road ESS Sidcup
- Date: 28 March 2025
- **Ref.:** THL-R25-24



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1.0 Introduction

- 1.1 The purpose of this report is to be an aid to the design of the layout of the site. It identifies the better trees and specifies necessary protective measures that are required to keep the trees within the development. It may also give recommendations for remedial work that may be desirable to keep or improve the quality of the trees.
- 1.2 The survey complies with British Standard 5837:2012 *Trees in relation to design, demolition and construction Recommendations.* All significant trees on the site have been inspected including any that may be on the boundary or on adjacent land that may be affected by any development. Included in the schedule of trees are the Root Protections Areas (RPAs) which are designed to give the minimum functionally rooting area to ensure the healthy survival of the retained trees on site. The relevant distance from each tree from which construction work should be excluded by the erection of a Protective Barrier is also listed.
- 1.3 The site visit was on 06 February 2025. Surveyor: Ben Williams. The weather conditions: Clear and dry.

2.0 Limitations of report

- 2.1 The trees were inspected from ground level only and no invasive tools were used.
- 2.2 This report is valid for a period of 2 years as part of the planning application process. Due to the nature of trees the condition may change rapidly and therefore the safety of the trees cannot be guaranteed for the same period.
- 2.3 Trees may affect buildings by indirect influence of their roots on the substrate on which structures are built and by direct action on foundations, drains and other underground services. This report does not attempt to address these issues.
- 2.4 Trees are dynamic structures that can change rapidly and can never be guaranteed 100% safe: even if they were deemed safe on the day of the inspection, they can sometimes suffer damage in adverse weather conditions. All trees should be inspected following any bad weather.



3.0 Method

3.1 The survey was undertaken from ground level and includes all individual significant trees shown in position and numbered on the site plan. Some trees may be surveyed together and put in numbered groups e.g. G1, or woodlands e.g. W1. Hedges will also be listed e.g. H1.

The following information is collected and given in a schedule.

- Number
- Tree Species (Common Name)
- Height in metres
- Stem diameter at 1.5 metre above ground level in millimetres.
- Crown Spread at compass points NSEW in metres.
- Crown clearance (height of lowest branch above ground) in metres.
- First significant branch height (in metres) and direction (NSEW).
- Age Class (Young, Middle-aged, Mature, Over mature and Veteran)
- Physiological Condition (Good, Fair, Poor or Dead). This is an overall assessment of the health of the tree based on leaf size, colour, density, annual growth increments and die-back or dead wood.
- Structural Condition (comments on decay, cavities, disease and other defects and issues that will affect its suitability for retention).
- Recommendations (These are based on the previous two categories and may include pruning or removal amongst other recommendations).
- Estimated Remaining Contribution (in years <10, 10+, 20+, 40+)
- Category Grading:
 - **U**= Low valued tree (may be unsuitable for retention due to its poor condition or less than 10 years contribution).
 - **A**= High quality tree of good form with at least 40 years contribution.

B= Moderate quality tree with 20>40 years contribution.

 C= Low quality tree (usually of poor form or condition). Also, trees of less the 150mm stem diameter (these may be considered for relocation). Category C trees should not be considered as a planning constraint.

Subcategory:

- 1 = mainly Arboricultural Merit
- 2= mainly Landscape Merit
- 3= mainly Cultural or Conservation Merit



4.0 Trees and Construction: General overview

- 4.1 Trees are large dynamic organisms that have basic requirements to survive. The obvious part of the tree is the trunks and branches with the leaves that are essential for survival and these are easily damaged by machines etc. This damage though is easily avoided and obvious when it occurs. They have roots that anchor the tree into the ground but also take up moisture and oxygen as well as nutrients from the soil. Most tree roots are in the upper 0.5 metres of the soil and can extend well beyond the extent of the trees leafy canopy. Roots are easily damaged during any construction process although sometimes the immediate effect is not obvious. The main threats from construction work come from:
 - a) Compaction of the soil prevents gaseous exchange and water drainage.
 - b) Roots being severed or crushed.
 - c) Drainage being affected by alteration of levels and installation of trenches for services.
 - d) Physical damage to branches and trunks.
 - e) Poisoning of trees with contamination from fuel and oil leaks from machinery, run off from concrete mixers or other toxic materials used during construction.

The main consequences of the above in terms of damage are:

- i) Compaction kills roots by preventing oxygen and water take-up.
- ii) Severance can lead to pathogenic fungi invading the tree and in the worst cases, it can also lead to instability.
- iii) Loss of vitality caused by the above can dramatically affect the life span of the tree.
- iv) Damage to the crown can also lead to disease and instability in the worst cases.

5.0 Protection of the trees that are retained

5.1 BS 5837:2012 is intended to give recommendations to protect the trees during development and ensure their survival following the demolition or construction work. To achieve this there are two main considerations. The first is to protect the roots of the trees and the second to protect the upper parts of the trees, the trunk and branches.



- 5.2 The main tool to achieve the above is to create "Construction Exclusion Zones" (CEZ) around the trees. These are based on the "Root Protection Area" or RPA as calculated in BS 5837:2012. The RPAs for all the trees are included in the survey schedule. The RPA may be adjusted to consider existing ground constraints such as roads, buildings or walls. This will be done based on the surveyors' experience and qualification on a tree by tree basis.
- 5.3 To achieve an effective "Construction Exclusion Zone" (CEZ) it is necessary to erect a protective barrier along the edge of the RPA's. The details of this fencing are shown in Figure 2 or 3, which is included as an appendix (B) to this report. The barrier should be erected a minimum distance from each tree, this minimum distance is provided as a radius in the Survey Schedule and shown on the plan. It is essential that this barrier is well anchored into the ground to prevent it being moved. It is acceptable to use "Herras" fencing in concrete or rubber feet and appropriately back braced in areas where site circumstances and the associated risk of damaging incursion into the RPA are low.
- 5.4 The Tree Protective Fencing should be installed before any construction work takes place. This includes demolition, site clearance and drainage work.
- 5.5 Notices should be fixed to the fencing warning personnel not to enter. They should read "CONSTRUCTION EXCLUSION ZONE NO ACCESS". An example of this is attached in appendix (B).
- 5.6 In some circumstances, and only with agreement from the LPA, it may be necessary to work within the RPA. In these circumstances the barrier may need to be realigned and ground protection used even for access on foot. If vehicular access is required, then this will have to be specifically designed to prevent compaction and agreed in writing.
- 5.7 If the LPA agree to work within the RPA, then any excavation work would have to be done by hand and usually supervised by the Arboriculturalist. Drives or access roads will also require a specific Method Statement and include "No-Dig" construction methods.



- 5.8 Some operations such as the use of cranes for construction or demolition will need to be carefully organised and supervised to avoid accidental damage to the branches and stems of the retained trees. It may be advisable where damage is inevitable to carry out facilitation pruning to avoid initial conflict. This would have to be agreed by the Arboriculturalist and the LPA.
- 5.9 Trees should not be used to support notices and under no circumstances should nails, screws or bolts be driven into the trees. Likewise, trees should not be used to support cables or lights.
- 5.10 Care should be taken to avoid the discharge of any material that could contaminate the soil within 15 metres of any tree. This would include washings from cement mixers, fuel or oil storage etc. This distance may need to be extended if the ground slopes towards the tree.

6.0 Arboricultural Methods

- 6.1 The Arboriculturalist or the Local Authority Tree Officer should be consulted if there are any unforeseen issues in relation to any tree on site, including any unexpected work within the Root Protection Areas.
- 6.2 All tree work should be carried out by skilled professionals, and it is recommended that contractors are selected from the Approved List of Arboricultural Association Contractors. This can be obtained from <u>www.trees.org.uk</u>
- 6.3 All tree work should be carried out to the latest standards based on BS 3998: 2010 'Recommendations for Tree Work'.

7.0 Wildlife and Timing of Operations

7.1 Many animals including bats and birds are given special protection under the Wildlife and Countryside Act 1981(as amended) and the Countryside and Rights of Way Act 2001 amongst other legislation.



- 7.2 **Bats**. It is an offence to "intentionally or recklessly disturb a bat" or "damage, destroy or block the access to the resting place of any bat". An assessment of trees on the site for "suitability for bats" is an essential part of the pre-planning stage. If bats are found or even reported to have used the trees for roosts, then it is essential that a specialist in this field is contacted for advice. Natural England should be contacted on 0300 060 3900 or through www.naturalengland.org.uk for details of suitable specialists. It may be that a European Protected Species Habitat Regulations Licence is required before work can continue. Following advice, it is usual that work to trees with potential for bat roosts is best done from late August to early October. March through to April is also suitable but there may be conflict with nesting birds. (see below)
- 7.3 **Birds**. It is an offence to disturb, injure or kill any bird whilst it is at or building a nest. This includes damage to or removal of the actual nest whilst it is in use or being built. Tree works that could lead to the above should therefore be avoided during the months of March through until August.
- 7.4 To avoid problems with either, it would be advisable to programme all necessary site clearance work and tree pruning from late August to the early October.

8.0 Planning Considerations

- 8.1 Full planning consent that includes any proposed tree works usually overrides the requirement to get specific permission, even for trees that are within a Conservation Area or protected by a Tree Preservation Order.
- 8.2 If work is to be carried out prior to planning consent being sought, then it may be necessary to apply for permission separately. In a Conservation Area it is a requirement to give Six Weeks Written Notice of any intended works. In the case of a TPO an application is required to the LPA on a 1APP form; in this case it may take 8-10 weeks before permission is given. In the case of protected dead trees, 5 working days' notice prior to the removal of the tree(s) must be given to the LPA. In the case of protected trees that pose 'an immediate risk of serious harm' the statutory exception allows only for those works that are 'urgently necessary' to remove the risk and nothing exceeding this unless agreed in advance with the LPA. The LPA should be notified 'as soon as practicable after the works become necessary' along with the reasons for carrying out the work.



9.0 Arboricultural Impact Assessment

- 9.1 A total of 10 trees, 1 group, and 11 hedges were included in the survey. All trees, groups, and hedges are listed in the survey schedule and shown on plan THL-1293 attached to this report.
- 9.2 The proposed development is for an Energy Storage System (ESS) as shown on plan THL-1293-2.
- 9.3 No trees will require removal to allow for the development. A buffer between the development and the trees will be maintained to ensure no encroachment into the RPA of any tree.
- 9.4 The development will use the existing access to the site. To allow for improved access to the development area, H5 and H6 will be cut back to widen the access road.
- 9.5 All retained trees will require protection during the construction work to make sure that they are not damaged. This can be achieved by creating a Construction Exclusion Zone (CEZ), using barriers to exclude vehicles, personnel and materials, details of this are found in section 5 of this report.
- 9.6 The suggested position of the Tree Protection Barriers is shown on plan THL-1293-3 but should be discussed on site with the agreement of the LPA Tree Officer. It is essential that they are erected prior to any works commencing on site and remain in situ until completion of the works.
- 9.7 The new perimeter fence will act as suitable tree and hedge protection if it is erected prior to any other work being carried out on site, this would mean additional tree protection barriers are not necessary.

Tree Heritage Ltd

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28/03/2025

BS 5837:2012

Table 1 Cascade chart for tree quality assessment

Category and definition	Criteria (including subcategories where appropriate)											
Trees unsuitable for retention	(see Note)											
Category U	• Trees that have a serious, irremediabl	e, structural defect, such that their early loss is	expected due to collapse,	Red								
Those in such a condition that they cannot realistically	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)											
be retained as living trees in	• Trees that are dead or are showing signs of significant, immediate, and irreversible overall decline											
the context of the current land use for longer than	 Trees infected with pathogens of significance to the health and/or safety of other trees nearby, or very low quality trees suppressing adjacent trees of better quality 											
	NOTE Category U trees can have existing or potential conservation value which it might be desirable to preserve; see 4.5.7 .											
	1 Mainly arboricultural qualities	2 Mainly landscape qualities	3 Mainly cultural values, including conservation									
Trees to be considered for ret	ention											
Category A	Trees that are particularly good	Trees, groups or woodlands of particular	Trees, groups or woodlands	Light Green								
Trees of high quality with an estimated remaining life expectancy of at least 40 years	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)	visual importance as arboricultural and/or landscape features	of significant conservation, historical, commemorative or other value (e.g. veteran trees or wood-pasture)	•								
Category B	Trees that might be included in	Trees present in numbers, usually growing	Trees with material	Mid Blue								
Trees of moderate quality with an estimated remaining life expectancy of at least 20 years	category A, but are downgraded because of impaired condition (e.g. presence of significant though remediable defects, including unsympathetic past management and storm damage), such that they are unlikely to be suitable for retention for beyond 40 years; or trees lacking the special quality necessary to merit the category A designation	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	conservation or other cultural value	•								
Category C	Unremarkable trees of very limited	Trees present in groups or woodlands, but	Trees with no material	Grey								
Trees of low quality with an estimated remaining life expectancy of at least 10 years, or young trees with a stem diameter below 150 mm	ment or such impaired condition that they do not qualify in higher categories	without this conferring on them significantly greater collective landscape value; and/or trees offering low or only temporary/transient landscape benefits	conservation or other cultural value									



APPENDIX A: TREE SURVEY SCHEDULE

KEY:

Measurements	Life Stage	Physiological Condition	Category Grading	Symbols
Height - Metres Stem Diameter - Millimetres at 1.5m above ground level Branch Spread - Metres (North, South, East and West) Crown Clearance - Metres RPA Radius - Metres Estimated Remaining Contribution - Years FSB - First Significant Branch - Metres	Y - Young SM - Semi-Mature EM - Early Mature M - Mature OM - Over-Mature V - Veteran	G - Good F - Fair P - Poor D - Dead	 A - High (green) B - Moderate (blue) C - Low (grey) U - Poor/Trees for removal (red) Sub-Categories: 1 - Mainly Arboricultural value 2 - Mainly Landscape value 3 - Mainly Cultural value 	< - Less than ~ - Approximately > - Greater than
RPA - Root protection area (equivalent to a circle	with a radius 12x the stem diamet	ter measured at 1.5m above ground i	level)	

Tree	Species	Hoight	Stem	Branch Spread				Crown	FSB Height	Life	Phys.	Structural	Bacommondations	Estimated	Category	RPA
Ref.	Species	Height	Diameter	N	S	Е	w	Clearance	+ Direction	Stage	Condition	Condition	Recommendations	Contribution	Grading	Radius
T1	Crataegus monogyna (Hawthorn)	3	180	2	2	2	2	0.5	0.5(W)	М	Good		No work required.	20+	B1	2.16
T2	Crataegus monogyna (Hawthorn)	3	180	2	2	2	2	0.5	0.5(W)	М	Good		No work required.	20+	B1	2.16
Т3	Aesculus hippocastanum (Horse Chestnut)	12	650	7	7	7	7	1	2(SE)	М	Good	Minor deadwood in crown.	No work required.	20+	B1	7.8
T4	Juglans regia (Walnut)	10	350, 300, 350, 250	7	7	7	7	2	1(S)	М	Fair	Decay present in stem. Multiple stems at ground level.	No work required.	20+	B1	7.56
T5	Acer platanoides (Norway Maple)	10	350	4	4	4	4	2	2(E)	Μ	Fair	Poor shape/form. Major deadwood in crown.	No work required.	10+	C1	4.2
T6	Juglans regia (Walnut)	12	700	6	6	6	6	2	1(S)	Μ	Fair	Ivy on stem. Unable to inspect stem due to Ivy. Decay present in stem. Major deadwood in crown.	No work required.	10+	C1	8.4
Τ7	Fraxinus excelsior (Ash)	12	300, 350, 250, 300	7	7	7	7	1	3(N)	М	Fair	Ivy on stem. Unable to inspect stem due to Ivy. Multiple stems at ground level. Major deadwood in crown.	No work required.	10+	C1	7.25
Т8	Acer pseudoplatanus (Sycamore)	14	450, 400, 400, 200	7	7	7	7	3	3(E)	М	Good		No work required.	20+	B1	9

Tree	Species	Unight	Stem	Branch Spread			d	Crown I	FSB Height Life	Life	Life Phys.	Structural	Decommondations	Estimated	Category	RPA
Ref.	Species	Height	Diameter	N	S	Е	w	Clearance	+ Direction	Stage	Condition	Condition	Recommendations	Contribution	Grading	Radius
Т9	Acer pseudoplatanus (Sycamore)	14	250, 250	4	2	4	4	3	3(E)	М	Good	Crown distorted due to group pressure.	No work required.	10+	C1	4.25
T10	Acer pseudoplatanus (Sycamore)	14	400, 200, 200, 300, 250	7	7	7	7	3	3(E)	М	Good	Multiple stems below 1.5m.	No work required.	20+	B1	7.51
G1	Populus serotina (Hybrid Black Poplar)	14	450	4	4	4	4	3	3(N)	М	Good		No work required.	20+	B1	5.4
H1	Chamaecyparis Iawsoniana (Lawson Cypress)	8	300	4	4	4	4	2	1(E)	М	Fair		No work required.	10+	C1	3.6
H2	Crataegus monogyna (Hawthorn), Sambucus nigra (Elder), Fraxinus excelsior (Ash), Acer pseudoplatanus (Sycamore)	3	200	2	2	2	2	0.5	0.5(N)	М	Good		No work required.	40+	A1	2.4
НЗ	Crataegus monogyna (Hawthorn), Sambucus nigra (Elder), Fraxinus excelsior (Ash), Acer pseudoplatanus (Sycamore)	1.5	200	1.5	1.5	1.5	1.5	0.5	0.5(N)	М	Good		No work required.	40+	A1	2.4

Tree	Spacias	Hoight	Stem	Branch Spread			d	Crown	FSB Height L	Life	Life Phys.	Structural	Pasammandations	Estimated	Category	RPA
Ref.	Species	Height	Diameter	N	S	Е	w	Clearance	+ Direction	Stage	Condition	Condition	Recommendations	Contribution	Grading	Radius
H4	Crataegus monogyna (Hawthorn), Sambucus nigra (Elder), Fraxinus excelsior (Ash), Acer pseudoplatanus (Sycamore)	1.5	200	1.5	1.5	1.5	1.5	0.5	0.5(N)	Μ	Good		No work required.	20+	B1	2.4
H5	Crataegus monogyna (Hawthorn), Sambucus nigra (Elder), Fraxinus excelsior (Ash), Acer pseudoplatanus (Sycamore)	3	200	2	2	2	2	0.5	0.5(N)	М	Good		No work required.	40+	A1	2.4
H6	Crataegus monogyna (Hawthorn), Sambucus nigra (Elder), Fraxinus excelsior (Ash), Acer pseudoplatanus (Sycamore)	3	200	2	2	2	2	0.5	0.5(N)	Σ	Good		No work required.	40+	A1	2.4
H7	Crataegus monogyna (Hawthorn), Sambucus nigra (Elder), Fraxinus excelsior (Ash), Acer pseudoplatanus (Sycamore)	3.5	200	2.5	2.5	2.5	2.5	0.5	0.5(N)	М	Good		No work required.	40+	A1	2.4

Tree	Spacias	Hoight	Stem	Branch Spread				Crown	FSB Height Life	Life	Phys.	Structural	Pacammandations	Estimated	Category	RPA
Ref.	Species	Height	Diameter	Ν	s	Е	w	Clearance	+ Direction	Stage	Condition	Condition	Recommendations	Contribution	Grading	Radius
H8	Crataegus monogyna (Hawthorn), Prunus spinosa (Blackthorn)	4	150	3	з	з	3	0.5	0.5(N)	Μ	Fair	Not maintained.	No work required.	10+	C1	1.8
H9	Crataegus monogyna (Hawthorn), Prunus spinosa (Blackthorn)	4	150	3	3	3	3	0.5	0.5(N)	Μ	Fair	Not maintained.	No work required.	10+	C1	1.8
H10	Crataegus monogyna (Hawthorn), Prunus spinosa (Blackthorn)	5	200	4	4	4	4	0.5	0.5(N)	Μ	Fair	Not maintained.	No work required.	10+	C1	2.4
H11	Crataegus monogyna (Hawthorn), Prunus spinosa (Blackthorn)	5	200	4	4	4	4	0.5	0.5(N)	Μ	Fair	Not maintained.	No work required.	10+	C1	2.4

Appendix B i





Figure 2 Default specification for protective barrier



PROTECTIVE FENCING. THIS FENCING MUST BE MAINTAINED IN ACCORDANCE WITH THE APPROVED PLANS AND DRAWINGS FOR THIS DEVELOPMENT.



TREE PROTECTION AREA KEEP OUT !

TREES ENCLOSED BY THIS FENCE ARE PROTECTED BY PLANNING CONDITIONS

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



Notes:

 Contractors are advised to check all dimensions against the tree schedule. Tree canopies are symbolic only and are representative of the average spread; this may not represent the true outline. Note that the tree stem may not sit centrally to canopy. Tree stems are symbolic only and are representative of the tree category; this does not represent the stem diameter - see schedule for details.
 The original of this drawing was produced in colour - a monochrome copy should not be relied upon.







Where the site circumstances and associated risk of damaging incursion into the RPA do not necessitate the default level of protection, an alternative specification should be prepared by the construction team in consultation with the project arboriculturist and, where relevant, agreed with the local planning authority.

