

# TREE SURVEY REPORT – Rev C

for

Land adjacent to Eldridge Close, Stickling Green, Clavering, Saffron Waldon.



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Arboricultural Report including Arboricultural Implications Assessment

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#### References

- British Standards 5837:2012 Trees in relation to design, demolition and construction Recommendations
- British Standards 3998:2010 Tree Work Recommendations
- NJUG 4 Vol 10 NJUG Guidelines for the Planning, Installation and maintenance of Utility apparatus in proximity to trees
- Appendix 1 Tree Survey Plan showing Tree Quality CategoriesAppendix 2 Plan showing Root Protection Areas
- Appendix 3 Tree Protection Plan

# 1.0 INTRODUCTION

- 1.1 This report was commissioned by Richstone Properties in relation to the proposed development on land adjacent to Eldridge Close, Stickling Green, Clavering, Saffron Waldon, Essex. The report details all trees over 75mm at 1.5m above ground level that are relevant to the siting of the proposed development. The position of the trees on the site is illustrated at **Appendix 1** on the site plan and information about the tree stock and its current condition is given. It will assist the planning process by discussing the impact that the proposals will have on the existing tree stock.
- 1.2 An Arboricultural Impact Assessment is included which details the constraints placed on the proposed development from the rooting area of the trees below ground and above ground by virtue of their size and position. A tree protection plan is also given which demonstrates how the trees to be retained can be adequately protected throughout the construction operations.

# 2.0 SITE VISIT

- 2.1 The site visit was undertaken on 22.04.2020 and the information reviewed in May 2022. The trees were surveyed visually, externally and from ground level only. No samples or internal decay detection readings were taken for further analysis. All dimensions have been measured unless stated otherwise. Weather conditions at the time of the survey were clear and dry.
- 2.2 An existing site layout plan and proposed site layout was made available at the time of the tree survey.

# 3.0 SOILS

3.1 A full laboratory soil assessment has not been provided. The British Geological Survey digital geological map for this part of Essex show that the soils of the site comprise of lime-rich loamy and clayey soils with impeded drainage. The sedimentary bedrock was formed in the Cretaceous Period when the local environment was dominated by warm chalk seas.

The soils are likely therefore to be shrinkable as there is clay present; however, this should be checked by a structural engineer prior to the foundations being designed.

#### 4.0 TREE SURVEY DATA

In accordance with BS 5837:2012, the characteristics of trees over 75mm stem diameter measured at 1.5m above ground level have been recorded and they have been categorised in accordance with Table 1 of BS5837: 2012. The following tree data tables should be read in conjunction with the annotated site plan shown at **Appendix 1** and the key on page 6.

Tree Number	Height (m)	DBH (mm)	Branch Spread (m)			Clearance above ground	Age	Remaining Contribution (Years) and	Comments and management	BS 5837 Category and	RPA	Radial Distances for RPAs (m)	
and Species			N	s	E	w	level (m)	Class	s Physiological Condition	recommendations	Recommendations Necessary for Development	(m²)	from Centre of Stem
H1 Conifer sp. Field Maple & Elm.	7	-	2	2	-	-	_	м	Fair 20+	Conifer hedge with Field Maple growing on the field side. Close-boarded fence screens lower section of the hedge and there is a large Elm stump at the western end of the hedge in poor condition. Hedge has been allowed to grow up on field side with little maintenance.	C When building close to the RPA, care to be exercised and industry guidelines (BS 5837:1012) adhered to.	-	As shown.
H2 Elm, Prunus sp, Acer campestre, Crataegus monogyna	10	-	-	-	5	5	-	EM	Poor >10	Hedge is largely made up of elm with other mixed natives. The hedge has sections where the elm has died back which means that there is standing deadwood. The hedge is tall and composed of a line of poorly formed trees growing closely to one another.	C Reduce height of deadwood to 3m max to lower risk associated with falling deadwood in public open space and gardens.	-	As shown.

G1 Ash, Sycamore, Horse Chestnut,	>22	-	-	-	_	-	_	М	Fair 20+	Growing in the top NE corner of the Site, some of this group is growing within the garden of Affeneys. These are of mixed quality and form due to their proximity to one another. Some crown raising has been undertaken to open views into the field. RPA calculations approximate due to inaccessibility.	B When building close to the RPA, care to be exercised and industry guidelines (BS 5837:1012) adhered to.	-	As shown.
G2 Elm	>15	>860	-	-	-	-	_	М	Fair 20+	Growing on the field edge and in the gardens of Summer House and Brockhams. The trees vary in size and age, but greatest DBH is 860. Overall form compromised due to proximity of other trees and field side hedge growing underneath. Heavily clad in ivy, but overall crown shape good. Rare to find elm of this size and age. RPA calculations approximate due to inaccessibility.	B Unaffected by proposals.	335	10.5
G3 Willow, Birch, Sycamore	>16		-	-	-	-	-	м	Good 20+	Growing in the gardens of Saffrons and Timberscombe, the trees appear to be growing well with good overall form. RPA calculations approximate due to inaccessibility.	B Unaffected by proposals.	-	As shown.

#### <u>Key to terms</u>.

- Identification numbers have been used and correspond to the site plan shown at Appendix 1.
- Vegetation type has been categorized as one of the following: Tree (T), Hedge (H), Shrub (S), Group (G), Stump (ST)
- Species are listed by common and botanical name where appropriate.
- Where possible, measurements have been made in accordance with the conventions detailed below. Where this was not possible, due to site conditions or the vegetation being in third party ownership, dimensions have been estimated. \* Indicates estimated measurement.
- Height has been estimated to the nearest half metre.
- Stem diameter (of single stem trees and multi stemmed trees) has been measured at 1.5m and recorded in millimetres. Where this was not possible the actual height where the diameter was measured is recorded. GL = Ground Level.
- Crown spread has been recorded in metres.
- Age class has been recorded as follows:
  - Y Young recently planted or establishing tree that could be transplanted without specialist equipment, i.e. up to 12-14cms-stem girth.
  - S/M Semi mature. An established tree but one that has not reached its potential ultimate height and has significant growth potential.
  - **E/M** Early mature. A tree reaching its ultimate potential height, whose growth rate is slowing down but will increase in stem diameter and crown spread and has a safe life expectancy.
  - M Mature. A mature specimen with limited potential for any significant increase in size but with a reasonable safe life expectancy.
  - **O/M** Over mature. A senescent or moribund specimen with a limited safe life expectancy. Possibly also containing significant structural defects with attendant safety and/or duty of care implications.
- Physiological Condition has been recorded as Good, Fair or Poor.
- Recommendations for tree management have been based on current Arboricultural Best Practice as set out by the Arboricultural profession and all relevant publications.
- The comments made with regard to the health of the trees within this report were correct at the time of inspection. Trees are dynamic structures and changes can occur in response to biological, mechanical or environmental changes at any time.

#### 5.0 TREE QUALITY ASSESSMENT

#### 5.1 <u>Tree Quality Assessment</u>

Three groups of trees and two hedges on site have been surveyed for planning purposes and catagorised according to BS5837: 2012 as a guide to their condition. They are coloured on the plan attached at **Appendix 1** to indicate their category and the colours are explained in the key of the plan. Table 1 indicates whether the tree is to be removed or retained as part of the proposed layout. The full tree quality assessment chart, which gives a more detailed explanation of the definition of the subcategories, has been attached at **Appendix 2**.

#### Category A Trees

Trees in category A are of high quality with an estimated remaining life expectancy of at least 40 years. In this case there are no category A trees.

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**Photo 01.** The tree mix in Group 1 is composed of Ash, Sycamore and Horse Chestnut. These are largely growing in the garden of Affeneys and on the field edge. The proposals fall just outside the RPA and therefore care needs to be taken to ensure that disturbance to the trees roots is minimised. The fact that topsoil is regularly cultivated means that the roots are less likely to extend greatly into this area as much as they might otherwise

The trees in G1 are categorised as B as although they have amenity value as part of a treed landscape, their age and proximity to each other means that their form is compromised and subsequently their structural integrity and potential life expectancy.



**Photo 02.** Group 2 is a closely growing group of Elms. Mature elms are an unusual sight and therefore have an elevated level of importance as a landscape feature. The fact that they are close to one another means that their overall form is affected. Heavily overgrown with ivy.



**Photo 03.** Growing in gardens of properties adjacent to the south-east corner of the Site, these mature specimens are in good condition, but the willows have some structural defects which has resulted in the group being classified as a B.

These trees are of moderate quality with an estimated remaining life expectancy of at least 20 years. They have been downgraded because of impaired condition such that they may be unsuitable for retention for beyond 40 years.

#### Category C Trees



**Photo 04.** H1 is on the northern edge of the Site and is a conifer hedge growing in the garden of Elearon House. The bottom half of the hedge is obscured by a close-boarded timber fence, within which there is a Field Maple growing and an elm to the western end, which is growing from the base.



**Photo 05.** H2 is growing on the western edge of the Site and has several elms within it, with standing deadwood, re-shooting from the base. There are also other mixed native species forming an under-storey filtering views to the landscape beyond.

These trees are generally of low quality with an estimated remaining life expectancy of at least 10 years. They provide structure to the Site but they are generally unremarkable features with historically limited or poor management and do not qualify in higher categories.

# Category U trees

These trees are in such a condition that they cannot be realistically be retained as living trees in the context of the current land use for longer than 10 years. In this case, there are no trees that fall into this category.

# 6.0 ROOT PROTECTION AREAS

6.1 In accordance with BS5837:2012, the root protection areas (RPA) of the trees have been calculated and shown in the previous table and on the plan attached at **Appendix 3.** This is the minimum area in m<sup>2</sup>, which if being retained, must be left undisturbed around the trees to ensure their safe retention during the development process. It is calculated as an area equivalent to a circle with a radius twelve times stem diameter. Where the tree is growing next to structures such as roads, walls, buildings etc, it would be expected that the shape of the RPA be altered (but not reduced in size) to take into account the area of ground that the roots are most likely exploiting. In some circumstances, the incorporation of hard surfaces and other construction can take place within the RPA.

# 7.0 LEGAL CONSTRAINTS

7.1 The site is not within a Conservation Area. None of the trees are therefore afforded legislative protection.

# 8.0 ARBORICULTURAL IMPLICATIONS ASSESSMENT

# 8.1 Description of Proposed Development

It is proposed to build 32 new one and two storey dwellings. They would be positioned in such a way that there would be limited impact on the RPA of the trees. The rear gardens of the proposed houses would ensure that there is ample room for tree protection during construction in most cases.

# 8.2 Drawings Used

An existing site layout plan was used to show the location of the trees on the Tree Quality Assessment Plan (**Appendix 1**). The root protection areas (**Appendix 2**) are shown without development and the Tree Protection Plan (**Appendix 3**) illustrates the proposals in relation to the trees and the recommended protection.

# 8.3 <u>Trees in Relation to Proposed Development</u>

There are no trees proposed for removal and where possible works within the RPA have been avoided. Some work would be required close to the RPA of H1, H2 and G1 to accommodate the houses, the attenuation pond and the new access road. The ground in this area is already regularly cultivated and therefore there are therefore less likely to be extensive roots in this area due to ploughing etc.

#### 8.4 <u>Tree Surgery Work</u>

It is recommended that a qualified tree surgeon removes any standing deadwood in H2 which may pose a risk to users of the public open space, turning head and the house and garden of Plot 9. All other trees are either not under site ownership or are not in need of work. Where there may be a risk, standing deadwood should be reduced in height to less than 3m, but it does not need to be completely removed as this provides important habitat as part of a wildlife corridor.

#### 8.5 Changes in ground surface and ground level within RPA's

As noted, it is unlikely that there would be any change in ground level within the RPA's, but G1 may experience some excavation near to the RPA due to the garage for Plots 7 and 8. The degree of change is likely to be negligible and therefore any potential impact limited.

#### 8.6 **Tree Protection Detail**

A construction exclusion zone (CEZ) will be designated on site by using protective barriers and ground protection to ensure the safe retention of the trees to be retained. These barriers and ground protection will be in accordance with BS 5837: 2012 and will guard against impact damage to the trunks and branches and will protect the below ground rooting environment so that the soil structure remains viable for root growth and not compacted by construction operations. Where possible, the positions of these barriers should be based on a distance equivalent to the radius of each tree's RPA. The location and type of tree protection to be used is shown on the Tree Protection Plan attached at **Appendix 3**.

<u>Construction Space</u>

Space for construction work, mixing and material storage will be designated on site away from the construction exclusion zone as defined by the protective barriers and ground protection.

Tree Protection During Demolition CEZ is necessary to protect soil structure during construction and the precise location and type of protective barriers and ground protection is shown in Appendix 3. This would ensure that the vegetation on the perimeter of the field is retained.

# 8.7 Infrastructure Detail

<u>Access</u>

An existing access into the field on the southern boundary from Eldridge Close would be used to access the proposed new development. This would not impact on any of the existing vegetation.

#### <u>Services</u>

No specific detail was available at the time of writing. No dig techniques in line with NJUG 4 Guidelines for the Planning, Installation and Maintenance of Utility Apparatus in Proximity to Trees', to be used for installation of services if installed or modified within the RPAs of any retained tree.

To afford the tree roots maximum protection, the following special techniques should be used in order of preference:

- 1. Directional Drill Method Where possible the entry and exit trenches should be located outside the RPA. Where this is not possible, the trench should be opened using root sensitive excavation techniques. Additional ground protection should be installed to prevent compaction of the soil by the drilling rig.
- 2. Open trench system Excavated using root sensitive techniques.

Any work within RPA's is to be supervised by the project Arboriculturalist at the time of excavation.

#### 8.8 <u>Foundation Design</u>

The foundations will be of conventional means appropriate to the ground conditions and building design.

#### 8.9 Landscaping

The potential is good and there is enough space for a wide range of mixed native species which would complement the wider setting and work with the local landscape character. A landscape scheme as part of the proposals would ensure that any future tree loss on the perimeter of the Site due to natural failure would be compensated for.

#### 8.10 Justification for building within the RPA

Although it is necessary to build close to the RPA of G1, this is largely for the garage, which should not require as deep foundations as the bungalows. The footprint of the bungalow on Plot 8 would extend close to the RPA of H1, but as this is a hedge rather than a tree, the potential likelihood of damage is reduced. This also applies to H2, the RPA of which is close to footprint of Plot 9, the access road and the attenuation areas. Careful layout design has in most cases ensured that the trees would remain safe. Any work close to the RPA of G1, H1 and H2 should not have serious repercussions on the general health of the trees. Any potential damage could be largely mitigated against through good arboricultural practice and where proposals have been designed to avoid building within the RPA's.

# 9.0 CONCLUSIONS

- 9.1 The proposals would not have any effect on amenity value of the trees retained and where possible work has been avoided through the considered layout design. Privacy and screening is likely to be a concern to those living adjacent and it is therefore important that work which would result in the reduction or loss of the trees in the gardens adjoining should be avoided.
- 9.2 The groups of trees on or adjacent to the site appear to be healthy and capable of standing for at least 20 years, but their condition should be monitored as they are living structures and therefore subject to change.
- 9.3 The trees surveyed are not all situated internally to the site but are in many cases visible from the wider locale due to the footpath which runs across the Site. Their retention and management (where required) would ensure that they continue to contribute to the local amenity and treed landscape character.
- 9.4 The proposal requires some excavation of the ground close to the RPA of G1 in particular, but considered design means that the built proposals are just outside the RPA's. It is possible that some minor landscaping works may fall within the RPA's, but since most of the vegetation is healthy, it is therefore considered that they should tolerate any slight changes that occur. Appropriate protective measures will be put in place to ensure that the soil structure remains viable for root growth and is not compacted during the construction operations.
- 9.5 Any work that is required is to be carried out in line with the current British standard for Tree Work BS 3998 by qualified Arborists.
- 9.6 It is therefore concluded that the proposed development would have a limited impact on the existing vegetation. To ensure that this is the case, appropriate tree protection would be used throughout construction.

#### Details within this AIA are considered correct at the time of writing, but modifications may need to be made as more information becomes available.

#### <u>Glossary</u>

Adventitious Growth	New growth arising from dormant or new buds directly from main branches/stems or trunks
Arboriculturist	Person who has, through relevant education, training and experience, gained expertise in the field of trees in relation to construction
Construction Exclusion Zone	Area based on the root protection area from which access is prohibited for the duration of the project.
Root Protection Area (m2)	Layout design tool indicating the minimum area around a tree deemed to contain sufficient roots and rooting volume to maintain the trees viability and where the protection of the roots and soil structure is treated as a priority.
Services	Any above ground or below ground structure or apparatus required for utility provision. E.g. drainage, gas supplies, ground source heat pumps, CCTV and satellite communications.
Stem	Principal above ground structural components of a tree that supports its branches.
Tree Protection Plan	Scale drawing informed by descriptive text where necessary, based upon the finalized proposal showing trees for retention and illustrating the tree and landscape protection measures.

#### CREDENTIALS OF THE AUTHOR

Kirsten Bowden has worked in the landscape profession since 2003. Her experience has been gained from both the public and private sector. She has worked for Hillers Tree Nursery in Hampshire, Daventry District council, The Landscape Partnership and Suffolk County Council. She now works as an independent consultant. In addition to her experience, she holds the following qualifications:

Masters Degree in Landscape Architecture, Heriot-Watt University. (MA Hons) 2003

Chartered Member of The Landscape Institute (CMLI) Dec 2004

Certificate in Landscape History (UEA) 2005

She is also a Technician Member of the Arboricultural Association and completed a level 4 diploma in Arboriculture in September 2017 (Tree Life).



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Site Land Stickling G	adjacent to Eldridg ireen, Clavering, Sat	e Close, fron Waldon.				
Client Richstone Properties						
Drawing Title Tree Quaility Assessment - Appendix 1						
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