



Newlands Developments

Land at Caldecote Farm, Newport Pagnell

Arboricultural Assessment

May 2021

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CONTENTS

1.0	INTRODUCTION	3
2.0	METHODOLOGY.....	4
3.0	RESULTS.....	7
4.0	ARBORICULTURAL IMPACT ASSESSMENT	9
5.0	NEW TREE AND HEDGEROW PLANTING.....	10
6.0	TREE PROTECTION MEASURES	11

TABLES

Table 1: Summary of Trees by Retention Category

PLANS

Tree Survey Plan (7938-T-01 & 7938-T-02)

Tree Retention Plan (7938-T-03 & 7938-T-04)

APPENDICES

Appendix A: Tree Schedule

Appendix B: Protective Fencing Specifications

1.0 INTRODUCTION

- 1.1 This report has been prepared by FPCR Environment and Design Limited on behalf of Newlands Developments to present the findings of an Arboricultural Assessment and survey of trees located at Land at Caldecote Farm, Newport Pagnell (hereafter referred to as the site), OS Grid Ref SP 875 422.
- 1.2 The site was first surveyed on 18th June 2018 and a re-survey was carried out on 5th March 2021.

Scope of Assessment

- 1.3 The tree survey and assessment of existing trees has been carried out in accordance with guidance contained within British Standard 5837:2012 '*Trees in Relation to Design, Demolition and Construction - Recommendations*' (hereafter referred to as BS5837). The guidelines set out a structured assessment methodology to assist in determining which trees would be deemed either as being suitable or unsuitable for retention.
- 1.4 The guidance also provides recommendations for considering the relationship between existing trees and how those trees may integrate into designs for development; demolition operations and future construction processes so that a harmonious and sustainable relationship between any retained trees and built structures can be achieved.
- 1.5 The purpose of the report is therefore to firstly present the results of an assessment of the existing trees' arboricultural value, based on their current condition and quality and to secondly provide an assessment of impact arising from the proposed development of the site.
- 1.6 This report has been produced to accompany a planning application for a commercial development and has included an assessment of any impact to the tree cover. The survey has therefore focused on any trees present within or bordering the site that may potentially be affected by the future proposals or will pose a constraint to any proposed development.

Site description

- 1.7 Situated to the south of Newport Pagnell and east of Milton Keynes the site comprises a single large triangular field parcel. Monks Way forms the north western boundary, Willen Road the eastern boundary and the M1 forms the south western boundary. Tree cover was restricted to the site boundaries and included a small number of hedgerows and buffer tree groups.
- 1.8 Tree cover along Willen Road and Monks Way was also recorded as part of this assessment to determine any impacts to trees as a result of proposed off site highway improvements.
- 1.9 The presence of any Tree Preservation Orders or Conservation Area designations that may affect the site has yet to be confirmed by Milton Keynes Council. Before any tree works are undertaken confirmation of the presence of the statutory constraints should be sought from the Local Authority.

2.0 METHODOLOGY

- 2.1 The survey of trees has been carried out in accordance with the criteria set out in Chapter 4 of BS5837. The survey has been undertaken by a suitably qualified and experienced arboriculturalist and has recorded information relating to all those trees within the site and those adjacent to the site which may be of influence to any proposals. Trees were assessed for their arboricultural quality and benefits within the context of the proposed development in a transparent, understandable and systematic way.
- 2.2 Trees have been assessed as groups or hedgerows where it has been determined appropriate.
- The term group has been applied where trees form cohesive arboricultural features either aerodynamically, visually or culturally including biodiversity or habitat potential for example parkland or wood pasture.
 - For the purposes of this assessment, a hedgerow is described as any boundary line of trees or shrubs less than 5m wide at the base and are managed under a regular pruning regime.
- 2.3 An assessment of individual trees within groups and hedgerows has been made where a clear need to differentiate between them, for example, in order to highlight significant variation between attributes including physiological or structural condition or where a potential conflict may arise.

BS5837 Categories

- 2.4 Trees have been divided into one of four categories based on Table 1 of BS5837, '*Cascade chart for tree quality assessment*'. For a tree to qualify under any given category it should fall within the scope of that category's definition (see below).
- 2.5 Category U trees are those which would be lost in the short term for reasons connected with their physiology or structural condition. They are, for this reason not considered in the planning process on arboricultural grounds. Categories A, B and C are applied to trees that should be of material considerations in the development process. Each category also having one of three further sub-categories (i, ii, iii) which are intended to reflect arboricultural, landscape and cultural or conservation values accordingly.
- 2.6 **Category (U) – (Red):** Trees which are unsuitable for retention and are 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 within this category are:
- Trees that have a serious irremediable structural defect such that their early loss is expected due to collapse and includes trees that will become unviable after removal of other category U trees.
 - Trees that are dead or are showing signs of significant, immediate or irreversible overall decline.
 - Trees that are infected with pathogens of significance to the health and/ or safety of other nearby trees or are very low quality trees suppressing adjacent trees of better quality.
 - Certain category U trees can have existing or potential conservation value which may make it desirable to preserve.

- 2.7 **Category (A) – (Green):** Trees that are considered for retention and are of high quality with an estimated remaining life expectancy of at least 40 years with potential to make a lasting contribution. Such trees may comprise:
- Sub category (i) trees that are particularly good examples of their species, especially if rare or unusual, or are essential components of groups such as formal or semi-formal arboricultural features for example the dominant and/or principal trees within an avenue.
 - Sub category (ii) trees, groups or woodlands of particular visual importance as arboricultural and / or landscape features.
 - Sub category (iii) trees, groups or woodlands of significant conservation, historical, commemorative or other value for example veteran or wood pasture.
- 2.8 **Category (B) – (Blue):** Trees that are considered for retention and are of moderate quality with an estimated remaining life expectancy of at least 20 years with potential to make a significant contribution. Such trees may comprise:
- Sub category (i) trees that might be included in category A but are downgraded because of impaired condition for example the presence of significant though remediable defects, including unsympathetic past management and storm damage.
 - Sub category (ii) 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.
 - Sub category (iii) trees with material conservation or other cultural value.
- 2.9 **Category (C) – (Grey):** Trees that are considered for retention and are of low quality with an estimated remaining life expectancy of at least 10 years or young trees with a stem diameter below 150mm. Such trees may comprise:
- Sub category (i) unremarkable trees of very limited merit or such impaired condition that they do not qualify in higher categories.
 - Sub category (ii) trees present in groups or woodlands, but without this conferring on them significantly greater collective landscape value or trees offering low or only temporary / transient screening benefits.
 - Sub category (iii) trees with no material conservation or other cultural value.

Tree Schedule

- 2.10 Appendix A presents details of any individual trees, groups and hedgerows found during the assessment including heights, diameters at breast height, crown spread (given as a radial measurement from the stem), age class, comments as to the overall condition at the time of inspection, BS5837 category of quality and suitability for retention and the root protection area.
- 2.11 General observations particularly of structural and physiological condition for example the presence of any decay and physical defect and preliminary management recommendations have also been recorded where appropriate.

Site Plans

- 2.12 The individual positions of trees and groups have been shown on the Tree Survey Plan. The positions of trees are based on a topographical / land survey, as far as possible, supplied by the client. Where topographical information has not identified the position of trees and hedgerows, their relation to any existing surrounding features has been plotted using a global positioning system and aerial photography to provide approximate locations. The crown spread, root protection area and shade pattern (where appropriate) are also indicated on this plan.

Tree Constraints and Root Protection Areas

- 2.13 Below ground constraints to future development are represented by tree roots and the soil environment in which they grow which needs to be protected if the tree is to be retained. Tree rooting systems are essential for the uptake of water and nutrients, serving the storage of carbohydrates for the future growth and function of the tree, and form structural anchorage and support for the stem and crown. The perceived rooting area of the tree; referred to as the root protection area (RPA) needs to be protected if the tree is to be retained.
- 2.14 The RPA is a notional area considered to be the minimum zone that must be protected to avoid any adverse impacts on retained trees. The RPA has been calculated in accordance with Annex C, D and Section 4.6 of BS5837:2012 and requires suitable protection in order for the tree to be successfully incorporated into any future scheme. As such, the RPA of existing trees is an important material consideration when considering site constraints and planning development activities.
- 2.15 Whilst it is generally accepted that a trees roots may extend far greater distances than the notional RPA, with the distribution of the root system relating directly to the availability of suitable conditions for growth (namely oxygen, water and nutrients), with roots predominantly located in the upper 1,000 mm of the soil horizon; the RPA offers an accepted protective buffer from development.
- 2.16 Above ground constraints such as the current crown spread of the trees and an illustration of the shade pattern (where appropriate) have been considered and identified within the Tree Survey Plan and Tree Retention Plan indicates their potential area of shading influence.

Considerations and Limitations of the Tree Survey

- 2.17 The survey was completed from ground level only and from within the boundary of the site. Aerial tree inspections or an assessment of the internal condition of the stem/s or branches were not undertaken at this stage as this level of survey is beyond the scope of the initial assessment.
- 2.18 The statements made in this report regarding the assessed trees does not take into account the effects of extreme / adverse weather conditions, changes in land use prior to the site's development, unforeseen accidents or anti-social behaviours, such as vandalism, which occur since the date of the survey. As such, the assessment of tree condition given within applies to the date of survey and cannot be assumed to remain unchanged.

- 2.19 It will be necessary to review all comments and observations made within this report, in accordance with sound arboricultural practice, within two years of the date of survey (unless explicitly stated elsewhere within this report). Further review may also be necessary where site conditions change or works to trees are carried out which have not been specified in detail within this report.
- 2.20 Hedgerows are identified as a Habitat of Principal Importance (HPI) as listed within Section 41 of the Natural Environment and Rural Communities (NERC) Act 2006. The tree survey conducted, in accordance with BS5837, does not assess hedgerows against the Hedgerow Regulations 1997 or specifically from an ecological perspective, and is outside the scope of this assessment.
- 2.21 It may be necessary during detailed design to undertake further assessment and accurate positioning of woody species within tree groups and hedgerows to assist structural calculations for foundation design of structures in accordance with current building regulations. The exact position of individual trees or species included as part of a tree group should be checked and verified on site prior to any decisions for foundation design, tree operations or construction activity being undertaken. Further survey work would be required for calculating foundation depths in accordance with NHBC Chapter 4.2 Building near Trees.

3.0 RESULTS

- 3.1 A total of eleven individual trees, twenty-three groups of trees and eight hedgerows were surveyed as part of the Arboricultural Assessment. Refer to the Tree Survey Plan and Appendix A – Tree Schedule for full details of the trees included in this assessment. The table below summarises the trees assessed. Several of the trees have been discussed in more detail following the table, owing to their physical condition or arboricultural significance.

Table 1: Summary of Trees by Retention Category

	Individual Trees	Total	Groups of Trees	Total
Category U - Unsuitable		0		0
Category A (High Quality / Value)		0	G7	1
Category B (Moderate Quality / Value)	T5, T8, T9	3	G2, G4, G8, G10, G12, G15, G16, G18, G19, G20, G21, G22, H1, H2, H5, H6	16
Category C (Low Quality / Value)	T1, T2, T3, T4, T6, T7, T10, T11	8	G1, G3, G5, G6, G9, G11, G13, G14, G17, G23, G24, H3, H4, H7, H8	15

Site

- 3.2 Tree cover to the west of Willen Road along the boundary with the site was recorded as three tree groups G1, G2 and G5. G1 and G5 both comprised outgrown hedgerows along the boundary of the site. Hawthorn *Crataegus monogyna* was the principal species within both groups which had been planted with close spacing likely with the intention to form a hedgerow. G5 had been recently flail mowed in sections along the road verge to allow for access to a ditch and both groups could in the future be managed by flail mowing to create hedgerows. From an arboricultural perspective, both groups are of low quality and retention Category C.
- 3.3 G2 comprised an area of mixed species buffer planting along a section of embankment which ran down from Willen Road to the site. The group contained ash *Fraxinus excelsior*, common lime *Tilia x europaea* and English oak *Quercus robur* as well as willow species and self-seeded specimens from G1. From an arboricultural perspective G2 was considered to be of moderate quality and retention Category B for its collective landscape and screening value.
- 3.4 Hedgerow H1 extended along the length of the site's south western boundary with the M1. Hawthorn was again the principal species and the hedgerow had been subject to past management having previously been laid and maintained by flail mowing. Existing gaps and a reduced height limited the landscape value of this hedgerow, from an arboricultural perspective and H1 was considered to be of low quality and retention Category C.
- 3.5 Tree cover recorded along the boundary with Monks Way included G3 and G4. Similar to the boundary with Willen Road, G3 comprised of an outgrown hedgerow group of hawthorn which could in the future be maintained as a hedgerow. G4 comprised an area of mixed species buffer planting on a section of embankment which ran down from Monks Way to the site. Containing similar species to those recorded with G2, G4 also contained a number of white poplar *Populus alba* specimens. G4 was assessed as being retention Category B and G3 recorded as retention Category C.

Highway

- 3.6 Tree cover to the east of Willen Road was similar to that recorded to the west and comprised of both outgrown and maintained hedgerows generally considered to be of low quality from an arboricultural perspective.
- 3.7 A single tree group G7, made up of several mature lime trees within the front garden of Caldecote Farm was considered of high quality and retention Category A. G7 which had attained heights of up to 16m displayed no significant defects at the time of the assessment and being situated 4m beyond the boundary would unlikely be affected by any future highway improvements.
- 3.8 Tree cover recorded along Willen Road to the north of the roundabout, included a recently maintained hedgerow to the west of the road considered of low quality and retention Category C and tree cover within the Newport Pagnell Town Sports Club to the east of the road.
- 3.9 Tree cover with the Newport Pagnell Town Sports Club comprised planted specimens of various species which included Norway maple *Acer platanoides*, Raywood Ash *Fraxinus angustifolia* and Hybrid Black Poplar *Populus x canadensis*. This tree cover was considered of moderate quality from an arboricultural perspective, providing screening from the sports club to Willen Road.

- 3.10 T11 and G23 were situated within the grassed verge to the east of Willen Road but outside of the ownership of Newport Pagnell Town Sports Club. This tree cover comprised landscape tree planting which from an arboricultural perspective was of low quality. Tree planting within the centre of the roundabout on Willen Road and Monks Way was recorded as T3 and G9. This tree cover was similarly considered to be of low quality and retention Category C from an arboricultural perspective.

4.0 ARBORICULTURAL IMPACT ASSESSMENT

- 4.1 The following paragraphs present a summary of the tree survey and discussion of particular trees and groups recorded in the context of any proposed development in the form of an Arboricultural Impact Assessment in accordance with section 5.4 of BS5837. Any final tree retentions will need to be reconciled with the advice contained within this report.
- 4.2 The AIA has been based upon the Proposed Master Plan and seeks to outline the relationship between the proposals and the existing trees and hedgerows. The Proposed Master Plan shows the proposals for a commercial development with improvements to the surrounding highways to provide vehicular access to the development and pedestrian and cycle links.
- 4.3 A Tree Retention Plan has been prepared to show the proposed layout in relation to the existing tree cover allowing for an assessment of any potential conflicts. The plan also identifies which trees would be required to be removed or retained as part of the proposed development.
- 4.4 Modifications to the roundabout between Willen Road and Monks Way to provide a dual carriageway, with additional turning lanes, would require the removal of the tree cover from along the eastern boundary of the site, including the entirety of G1 (approximately 80m) and G5 (approximately 370m) and a section of G3 (approximately 70m). A section of H2 (approximately 180m) and a section of H3 (approximately 60m) along with T1, from south of A422 and east of the roundabout and existing landscape planting from around the existing roundabout, including T3, T4, T5, T6, and the entirety of tree groups G9, G11 and G23.
- 4.5 New tree planting has been illustrated within the site and adjacent to the new carriageway to provide some mitigation for the tree cover being removed. This new tree planting should propose species similar to those being removed i.e. hawthorn hedgerows with occasional specimen trees to provide direct replacements to the trees being removed and to help integrate the development with the existing retained tree cover.
- 4.6 The proposed highway improvements will also provide better pedestrian/cycle links along Willen Road and Monks Way to the new development. The construction of these pedestrian/cycle ways would require the removal of G17, a group of four trees situated within the existing grass verge east of Willen Road.
- 4.7 The proposals have shown that the moderate quality tree cover along Willen Road including the tree cover within Newport Pagnell Town Sports Club would be retained as part of the development. The proposed highway works have been shown to intrude within the indicative Root Protection Areas of these trees. As such it would be advise that were groundwork are required within the RPA's of retained trees, that this work would be detailed within an Arboricultural Method Statement and be supervised by the projects Arboricultural Consultant.

Discussion

- 4.8 Proposed tree removal is necessary to implement highway improvements determined, from a highway perspective, as being the most appropriate for a development of this size. The removal of this tree cover is unavoidable to facilitate these highway improvements.
- 4.9 Tree cover along the sites south western and north western boundaries would however be retained as part of the development and new tree planting illustrated along the site boundaries and centrally within the site, between proposed commercial units, would increase tree cover on the site and should be considered as positive from an arboricultural perspective.

Tree Management

- 4.10 All retained trees should be subjected to sound arboricultural management as recommended within section 8.8.3 of BS5837 *Post Development Management of Existing Trees*, where there is a potential for public access in order to satisfy the landowner's duty of care. Additionally, inspections annually and following major storms should be carried out by an experienced arboriculturist or arborist to identify any potential public safety risks and to agree remedial works as required.
- 4.11 All tree works undertaken should comply with British Standard 3998:2010 and should therefore be carried out by skilled tree surgeons. It would be recommended that quotations for such work be obtained from Arboricultural Association Approved Contractors as this is the recognised authority for certification of tree work contractors.
- 4.12 All vegetation and, particularly, woody vegetation proposed for clearance should be removed outside of the bird-breeding season (March - September inclusive) as all birds are protected under the Wildlife and Countryside Act, 1981 (as amended) whilst on the nest. Where this is not possible, vegetation should be checked for the presence of nesting birds prior to removal by an experienced ecologist.

5.0 NEW TREE AND HEDGEROW PLANTING

- 5.1 The purpose and function of this new tree planting should be understood from the start of any design stages so that key objectives from a landscape perspective can also be achieved.
- 5.2 The success of any landscaping scheme relies on an adequate provision of a high-quality rooting environment within which trees can thrive and reach their full potential. Planting trees with due care and consideration can, in the long term, provide a greater return on a schemes green investment and ensure trees remain healthy and grow to mature proportions.
- 5.3 The planting of trees within the site should consider the use of appropriately designed planting pits specifically engineered to promote tree health and longevity. The rooting environment will need to provide an adequate volume of quality soil for roots to suitably develop by calculating the amount of available soil volumes needed and selecting species whose mature size is compatible with the site. This is an integral component of the planning stage (Lindsey & Bassuk, 1991).

- 5.4 The landscaping scheme should consider the use of both native tree species (for their low maintenance requirements and nature conservation value) and ornamental species (for their contribution to urban design and amenity value). Species choices should be selected on the basis of their suitability for the final site use. Furthermore, during the design process consultation should be made with the Local Planning Authority to obtain information on their tree strategy and incorporate the planting proposals with any local policies and initiatives and/or Biodiversity Action Plans (BAP) where possible.

6.0 TREE PROTECTION MEASURES

- 6.1 Retained trees will be adequately protected during works ensuring that the calculated root protection area for all retained trees can be appropriately protected through the erection of the requisite tree protection barriers. Measures to protect trees should follow the guidance in BS5837 and will be applied where necessary for the purpose of protecting trees within the site whilst allowing sufficient access for the implementation of the proposed layout. These have been broadly summarised below.

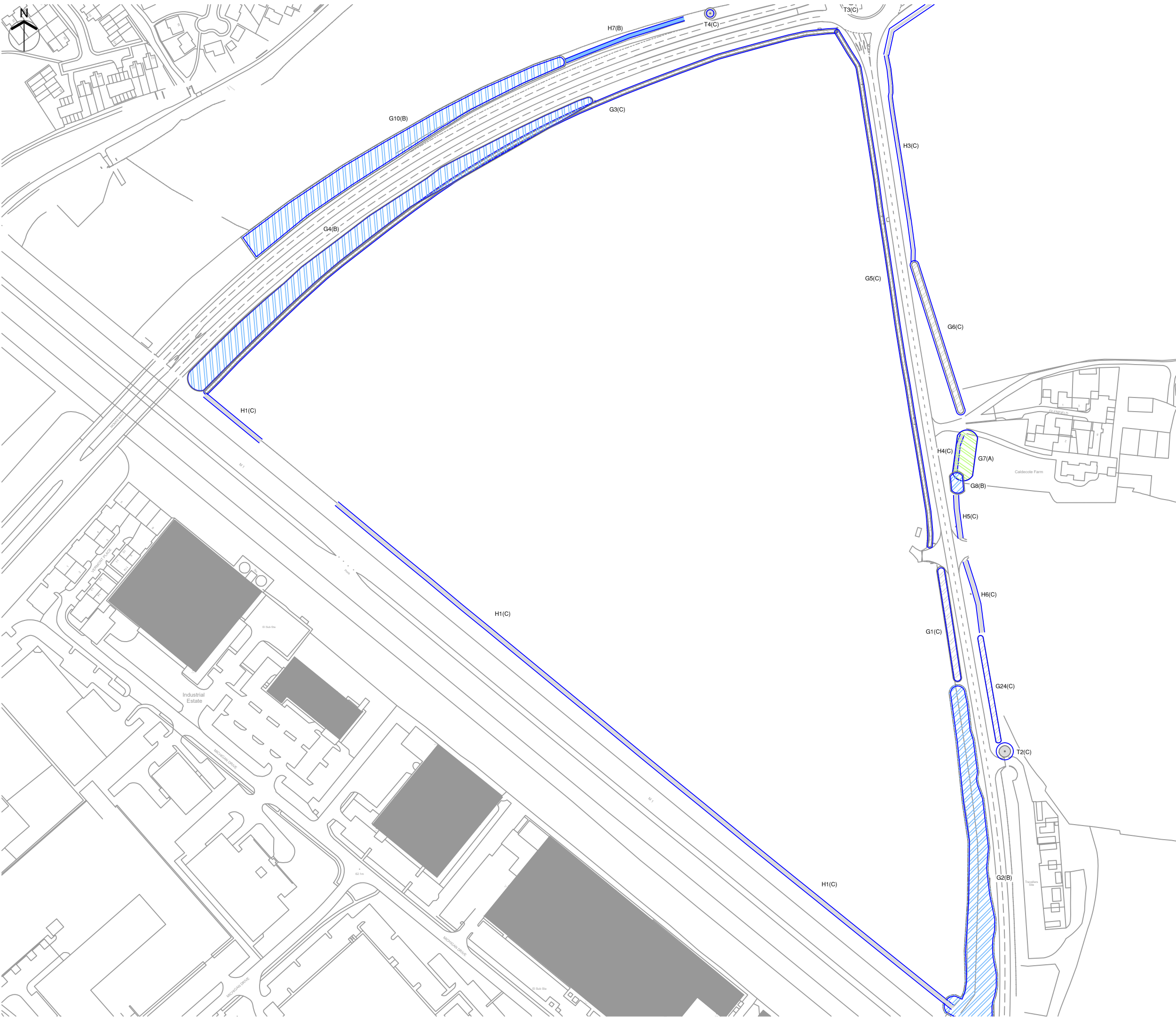
General Information and Recommendations

- 6.2 All trees retained on site will be protected by suitable barriers or ground protection measures around the calculated RPA, crown spread of the tree or other defined constraints of this assessment as detailed by section 6 and 7 of BS5837.
- 6.3 Barriers will be erected prior to commencement of any construction work and before demolition including erection of any temporary structures. Once installed, the area protected by fencing or other barriers will be regarded as a construction exclusion zone. Fencing and barriers will not be removed or altered without prior consultation with the Project Arboriculturalist.
- 6.4 Any trees that are not to be retained as part of the proposals should be felled prior to the erection of protective barriers. Particular attention needs to be given by site contractors to minimise damage or disturbance to retained specimens.
- 6.5 Confirmation that tree protective fencing or other barriers have been set out correctly should be gained prior to the commencement of site activity.

Tree Protection Barriers

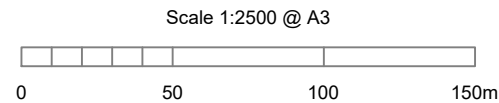
- 6.6 Tree protection fencing should be fit for the purpose of excluding any type of construction activity and suitable for the degree and proximity of works to retained trees. Barriers must be maintained to ensure that they remain rigid and complete for the duration of construction activities on site.
- 6.7 In most situations, fencing should comprise typical construction fencing panels attached to scaffold poles driven vertically into the ground. For particular areas where construction activity is anticipated to be of a more intense nature, supporting struts, acting as a brace should be added and fixed into position through the application of metal pins driven into the ground to offer additional resistance against impacts.

- 6.8 Where site circumstances and the risk to retained trees do not necessitate the default level of protection an alternative will be specified appropriate to the level / nature of anticipated construction activity. The recommended methods of fencing specifications for this site have been illustrated in Appendix B.
- 6.9 It may be appropriate on some sites to use temporary site offices, hoardings and lower level barrier protection as components of the tree protection barriers. Details of the specific protection barriers for the site can be provided should the application be approved, as part of a site specific Arboricultural Method Statement for a Reserved Matters application and in accordance with the guidance contained within BS5837. Protection outside the exclusion zone
- 6.10 Once the areas around trees have been protected by the barriers, any works on the remaining site area may be commenced providing activities do not impinge on protected areas.
- 6.11 All weather notices should be attached to the protective fencing to indicate that construction activities are not permitted within the fenced area. The area within the protective barriers will then remain a construction exclusion zone throughout the duration of the construction phase of the proposed development. Protection fencing signs can be provided upon request.
- 6.12 Wide or tall loads etc should not come into contact with retained trees. Banksman should supervise transit of vehicles where they are in close proximity to retained trees.
- 6.13 Oil, bitumen, cement or other material that is potentially injurious to trees should not be stacked or discharged within 10m of a tree stem. No concrete should be mixed within 10m of a tree. Allowance should be made for the slope of ground to prevent materials running towards the tree.
- 6.14 No fires will be lit where flames are anticipated to extend to within 5m of tree foliage, branches or trunk, taking into consideration wind direction and size of fire.
- 6.15 Notice boards, telephone cables or other services should not be attached to any part of a retained tree.
- 6.16 Any trees which need to be felled adjacent to or are present within a continuous canopy of retained trees, must be removed with due care (it may be necessary to remove such trees in sections).



KEY

- Category U - Trees / Groups Unsuitable for Retention (BS 5837:2012)
- Category A - Trees / Groups of High Quality (BS 5837:2012)
- Category B - Trees / Groups of Moderate Quality (BS 5837:2012)
- Category C - Trees / Groups of Low Quality (BS 5837:2012)
- Hedgerow (Colour indicates BS5837:2012 Category)
- Root Protection Area (The RPA has been altered where appropriate to reflect underground constraints)
- Individual / Group Number and BS5837:2012 Category



NOTES

All dimensions to be verified on site. Do not scale this drawing, use figured dimensions only. All discrepancies to be clarified with project Arboriculturalist. Drawing to be read in conjunction with Arboricultural Assessment and Appendix A - Tree Schedule.

Drawing has been produced in colour and is based on digital information in .dwg format, aerial images and/or GPS location where appropriate. A monochrome copy should not be relied upon. The exact position of individual trees or species included as part of a tree group, woodland or hedgerow should be checked and verified on site prior to any decisions for foundation design, tree operations or construction activity being undertaken. Further survey work would be required for calculating foundation depths.

Trees are living organisms that change over time, the condition of all trees illustrated herein, are to be checked by the project Arboriculturalist should works commence 12 months after the date of this survey.

SOME TREES MAY BE SUBJECT TO STATUTORY CONSTRAINTS. IT IS THEREFORE ADVISED THAT NO WORKS SHOULD BE UNDERTAKEN TO ANY TREES ILLUSTRATED HEREIN WITHOUT FIRST OBTAINING THE RELEVANT AUTHORISATION TO DO SO UNLESS AGREED AS PER THE APPROVED PLANS THROUGH PLANNING CONSENT.

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KEY

Category U - Trees / Groups Unsuitable for Retention
(BS 5837:2012)

Category A - Trees / Groups of High Quality
(BS 5837:2012)

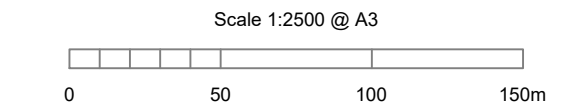
Category B - Trees / Groups of Moderate Quality
(BS 5837:2012)

Category C - Trees / Groups of Low Quality
(BS 5837:2012)

Hedgerow
(Colour indicates BS5837:2012 Category)

Root Protection Area (The RPA has been altered
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C	13.05.19	Revision	EC
D	08.03.21	Update	EC

rev	date	description	by
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masterplanning

environmental assessment

landscape design

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ecology

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client
Newlands Development

project
Land at Caldecote Farm
Newport Pagnell

drawing title
TREE SURVEY PLAN
NORTH

scale
1:2500 @ A3

drawn
EC

date
March 2021

drawing number
7938-T-02

rev
D



KEY

Tree/Group to be Retained

Tree/Group to be Removed to facilitate the proposals

Hedgerow Proposed to be Retained

Hedgerow Proposed to be Removed

Root Protection Area
(Shown for retained trees only)

T1 (A)
G1 (A)

Individual / Group Number and BS Category

Scale 1:2500 @ A3

0

50

100

150m

NOTES

All dimensions to be verified on site. Do not scale this drawing, use figured dimensions only. All discrepancies to be clarified with project Arboriculturalist. Drawing to be read in conjunction with Arboricultural Assessment and Appendix A - Tree Schedule.

Drawing has been produced in colour and is based on digital information in .dwg format, aerial images and/or GPS location where appropriate. A monochrome copy should not be relied upon. The exact position of individual trees or species included as part of a tree group, woodland or hedgerow should be checked and verified on site prior to any decisions for foundation design, tree operations or construction activity being undertaken. Further survey work would be required for calculating foundation depths.

Trees are living organisms that change over time, the condition of all trees illustrated herein, are to be checked by the project Arboriculturalist should works commence 12 months after the date of this survey.

SOME TREES MAY BE SUBJECT TO STATUTORY CONSTRAINTS. IT IS THEREFORE ADVISED THAT NO WORKS SHOULD BE UNDERTAKEN TO ANY TREES ILLUSTRATED HEREIN WITHOUT FIRST OBTAINING THE RELEVANT AUTHORISATION TO DO SO UNLESS AGREED AS PER THE APPROVED PLANS THROUGH PLANNING CONSENT.

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project

Land at Caldecote Farm
Newport Pagnell

drawing title

TREE RETENTION PLAN
SOUTH

scale

1:2500 @ A3

drawn

EC

date

March 2021

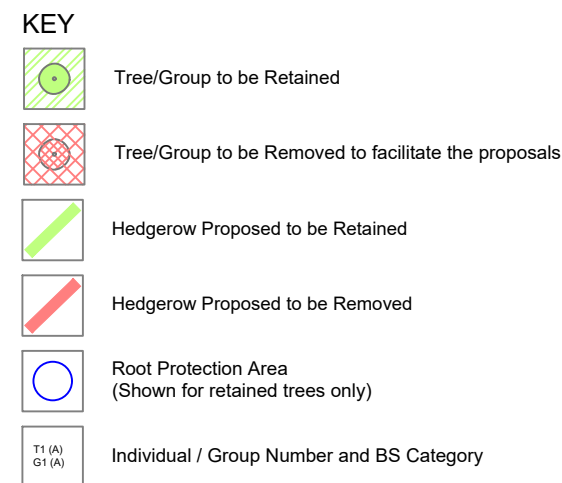
drawing number

7938-T-03

rev

H

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A number line representing distance in meters (m). The line starts at 0 and ends at 150. Major tick marks are labeled at 0, 50, 100, and 150. The segment between 0 and 50 is further divided into 5 equal sub-segments by smaller tick marks, indicating intervals of 10m.

All dimensions to be verified on site. Do not scale this drawing, use figured dimensions only. All discrepancies to be clarified with project Arboriculturalist. Drawing to be read in conjunction with Arboricultural Assessment and Appendix A - Tree Schedule.

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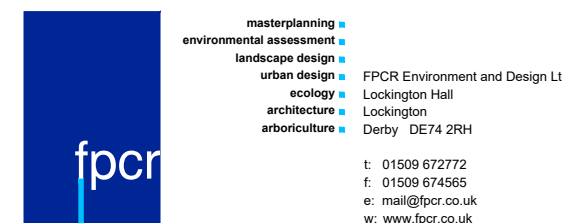
Trees are living organisms that change over time, the condition of all trees illustrated herein, are to be checked by the project Arboriculturalist should works commence 12 months after the date of this survey.

ALL TREES MAY BE SUBJECT TO STATUTORY CONSTRAINTS. IT IS THEREFORE ADVISED THAT NO WORKS SHOULD BE UNDERTAKEN TO ANY TREES ILLUSTRATED HEREIN WITHOUT FIRST OBTAINING THE RELEVANT AUTHORISATION TO DO SO UNLESS AGREED AS PER THE APPROVED PLANS THROUGH PLANNING CONSENT.

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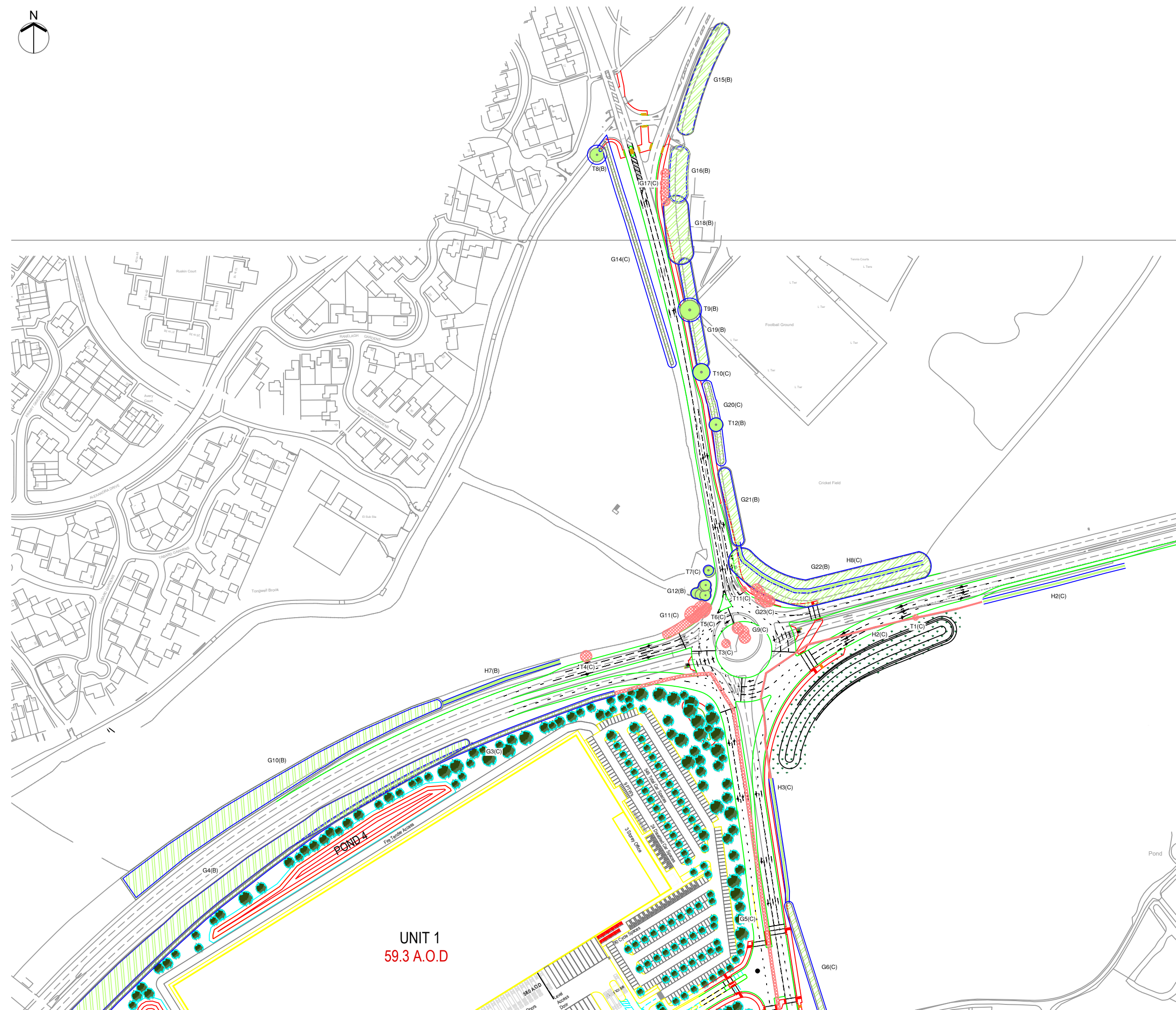
project
Land at Caldecote Farm
Newport Pagnell

drawing title
TREE RETENTION PLAN
NORTH

scale drawn date
1:2500 @ A3 EC March 2021

drawing number
7938-T-04 rev
H

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Appendix A - Tree Schedule

Measurements	Age Classes	Quality Assessment of BS Category	ULE (relates to BS Category)
Height - Measured using a digital laser clinometer (m)	YNG: Establishing, typically with good vigour and fast growth rates and strong apical dominance; c. less than 1/3 life expectancy	Category U - Trees 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.	<10 years
Stem Dia. - Diameter measured (mm) in accordance with Annex C of the BS5837	SM: Semi-mature trees less than 1/3 life expectancy	Category A - Trees of high quality with an estimated remaining life expectancy of at least 40 years.	40+ years
Crown Radius - Measured using a digital laser clinometer radially from the main stem (m)	EM: Established, typically vigorous and increasing in apical height and lateral spread; 1/3 - 2/3 life expectancy. Offers landscape significance	Category B - Trees of moderate quality with an estimated remaining life expectancy of at least 20 years.	20-40 years
Abbreviations est - Estimated stem diameter avg - Average stem diameter for multiple stems upto - Maximum stem diameter of a group	M: Fully established over 2/3 life expectancy, generally good vigour and achieving full height potential with crown still spreading	Category C - Trees of low quality with an estimated remaining life expectancy of at least 10 years, or young trees with a stem diameter below 150mm.	10-20 years
	OM: Fully mature, at the extremes of expected life expectancy, vigour decreasing, declining or moribund	Sub-categories: (i) - Mainly arboricultural value (ii) - Mainly landscape value (iii) - Mainly cultural or conservation value	
	V: biological, cultural or aesthetic value comprising niche saproxylic habitat. Individuals of large proportions (stem girth) in comparison to trees of the same species/surviving beyond the typical age range for their species.	The BS category particular consideration has been given to the following: • The presence of any structural defects in each tree/group and its future life expectancy • The size and form of each tree/group and its suitability within the context of a proposed development • The location of each tree relative to existing site features e.g. its screening value or landscape features • Age class and life expectancy	

Structural Condition	Physiological Condition
Good - No significant structural defects	Good - No significant health problems
Fair - Structural defects that can be remediated	Fair - Symptoms of ill-health that can be remediated
Poor - Significant defects beyond remediation, present a risk of failure in the foreseeable future	Poor - Significant ill-health. Unlikely the tree will recover in the long term
Dead - Dead tree with structural integrity of tree severely compromised	Advanced Decline / Dead - Advanced state of decline and unlikely to recover or Dead

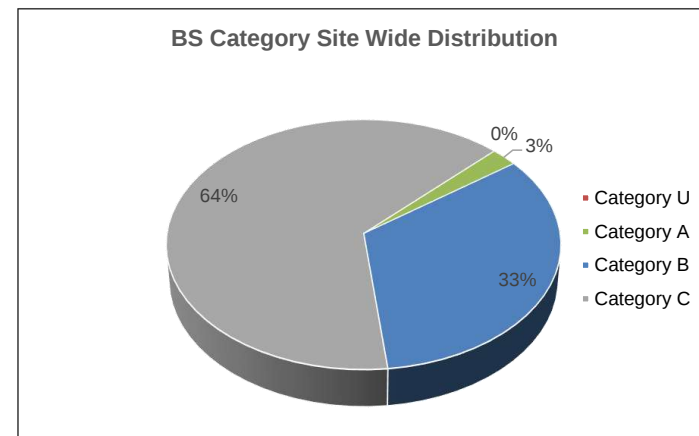
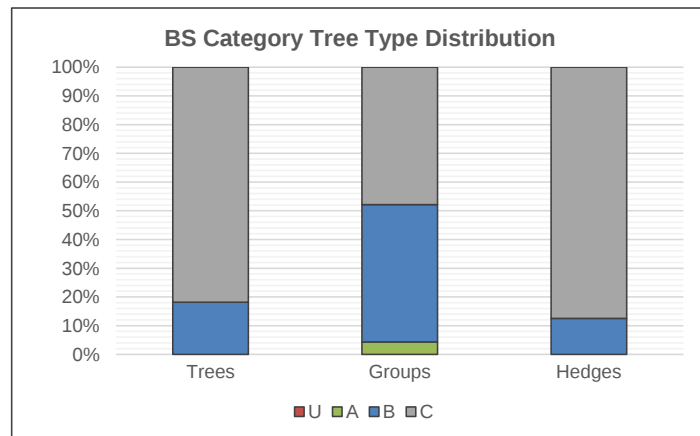
Root Protection Area (RPA)
• The RPA Radius column provides the extent of an equivalent circle from the centre of the stem (m). • The RPA is calculated using the formulae described in paragraph 4.6.1 of British Standard 5837: 2012 and is indicative of the rooting area required for a tree to be successfully retained. Tree roots extend beyond the calculated RPA in many cases and where possible a greater distance should be protected. • Where veteran trees have been identified the RPA has been calculated in accordance with Natural England guidance i.e. 15x the stem diameter, uncapped.

Appendix Summary

	Individual Trees	Totals	Tree Groups and Hedgerows	Totals
Category U		0		0
Category A		0	G7	1
Category B	T5, T8, T9	2	G2, G4, G8, G10, G12, G15, G16, G18, G19, G20, G21, G22, H1, H2, H5, H6	12
Category C	T1, T2, T3, T4, T6, T7, T10, T11	9	G1, G3, G5, G6, G9, G11, G13, G14, G17, G23, G24, H3, H4, H7, H8	18
	Total	11	Total	31

BS Category Tree Type Distribution displays the proportion of trees assessed in each type to enable a better understanding of the category distribution.

BS Category Site Wide Distribution shows the proportion of trees assessed in each category across the whole site which allows an interpretation of the site's overall quality.



Tree No	Species	Height	Stem Dia.	Crown Radius	Age Class	Overall Condition	Structural Condition	RPA	RPA Radius	BS5837 Cat
INDIVIDUAL TREES										
T1	Ash Fraxinus excelsior	6	200	2	SM	F	Outgrown hedgerow specimen Branch stubs evident Flail damage evident Pruning wounds noted	18	2.4	C (i)
T2	Leyland Cypress Cupressocyparis leylandii	14	500	4	M	F	Planted specimen on top of made up bund Characteristic for species Low crown form Multi leadered form	113	6.0	C (i)
T3	Silver Birch Betula pendula	9	185	3	EM	F	Planted specimen within centre of roundabout Low crown form Pruning wounds noted Exposed roots at base with mowing damage	15	2.2	C (i)
T4	Ash Fraxinus excelsior	8	220	4	SM	F	Self speeded specimen with grass verge Characteristic for species Low crown form Multi leadered form	22	2.6	C (i)
T5	Ash Fraxinus excelsior	11	380	6	EM	F	Self speeded specimen with grass verge Low crown form Minor dead wood evident in the crown (<75mm) Browsing damage noted on main stem Bark wounds noted from 0.5 up to 1.5m with heartwood exposed Pruning wounds noted	65	4.6	C (i)
T6	Ash Fraxinus excelsior	11	350	6	EM	P / F	Self speeded specimen with grass verge Browsing damage noted on main stem Bark wounds noted from 0.5 up to 1m with heartwood exposed Basal suckers present Major and minor dead wood evident in the crown Pruning wounds noted	55	4.2	C (i)
T7	Ash Fraxinus excelsior	13	300	N - 2 S - 5 E - 5 W - 2	EM	F	Self speeded specimen within soil mound Minor dead wood evident in the crown (<75mm) Debris at base Pruning wounds noted Suppressed crown form	41	3.6	C (i)
T8	Ash Fraxinus excelsior	16	430 260 260	5	M	F	Characteristic for species Dense ivy cover on main stem Minor dead wood evident in the crown (<75mm) Multi stemmed from base Situating offsite	145	6.8	B (i)

Tree No	Species	Height	Stem Dia.	Crown Radius	Age Class	Overall Condition	Structural Condition	RPA	RPA Radius	BS5837 Cat
T9	Hybrid Black Poplar Populus x canadensis	25	est 700	7	M	G	Characteristic for species Minor dead wood evident in the crown (<75mm) Situated offsite Unable to gain access Small hung up dead branch within crown	222	8.4	B (i)
T10	Ash Fraxinus excelsior	16	Over ivy 300 300 250 140	6	M	F	Branch stubs evident Broken branches evident Dense ivy cover obscured main stem Low crown form Minor dead wood evident in the crown (<75mm) Multi stemmed from base	119	6.1	C (i)
T11	Ash Fraxinus excelsior	7	220	2	SM	P	Bark wounds noted on main stem at base heartwood exposed Minor dead wood evident in the crown (<75mm) Pruning wounds noted High crown form due to past pruning Unsuitable for long term retention	22	2.6	C (i)
T12	Common Lime Tilia x europaea	10	400	5	EM	G	Flail damage to western crown with broken branches Situated off site beyond boundary fence Unable to access base	72	4.8	B

Group No	Species	Height	Stem Dia.	Crown Radius	Age Class	Overall Condition	Structural Condition	RPA	RPA Radius	BS5837 Cat
GROUPS OF TREES										
G1	Ash Fraxinus excelsior Crack Willow Salix fragilis English Oak Quercus robur Goat Willow Salix caprea Hawthorn Crataegus monogyna Apple Malus domestica English Elm Ulmus procera	5	upto 200	3	EM	P / F	Outgrown un-maintained hedgerow Sparse in sections Dense ivy cover on main stem Occasional self seeded specimen within group Dead and failed trees noted Dutch elm disease Ophiostoma novo-ulmi evident	18	2.4	C (ii)
G2	Ash Fraxinus excelsior Common Lime Tilia x europaea Crack Willow Salix fragilis English Oak Quercus robur Goat Willow Salix caprea	143	avg 250	4	EM	F	Area of buffer planting between site and carriageway Dead trees noted within group Interlocking crowns and etiolated form	28	3.0	B (ii)
G3	Elder Sambucus nigra Hawthorn Crataegus monogyna	6	avg 150	1	EM	P / F	Outgrown un-maintained hedgerow Dense undergrowth within group Occasional self seeded specimen within group Advise laying to improve structure	10	1.8	C (ii)
G4	Ash Fraxinus excelsior Crack Willow Salix fragilis Aspen Populus tremula White Poplar Populus alba	15	upto 300	4	EM	F	Buffer planting between site and carriageway Interlocking crowns and etiolated form	41	3.6	B (ii)

Group No	Species	Height	Stem Dia.	Crown Radius	Age Class	Overall Condition	Structural Condition	RPA	RPA Radius	BS5837 Cat
G5	Elder Sambucus nigra Hawthorn Crataegus monogyna English Elm Ulmus procera	4	avg 150	1	EM	P / F	Outgrown un-maintained hedgerow Dead trees noted within group Occasional self seeded specimens within group Flailed in sections along verge to allow for access to ditch at base of group Dutch elm disease Ophiostoma novo-ulmi evident	10	1.8	C (ii)
G6	Ash Fraxinus excelsior Blackthorn Prunus spinosa English Elm Ulmus procera Dogwood Cornus sanguinea	6	upto 180 180	2	M	F	Outgrown section of hedgerow Previously managed and recently flailed along verge Crossing and rubbing branches Dead trees noted Dense undergrowth at the base Low crown form Multi stemmed and single stem forms Dutch elm disease Ophiostoma novo-ulmi evident	29	3.1	C (ii)
G7	Common Lime Tilia x europaea	16	est 600	7	M	G	Situated offsite within garden of property 4m beyond application boundary Branch stubs evident Minor dead wood evident in the crown (<75mm) Pruning wounds noted	163	7.2	A (ii)
G8	Field Maple Acer campestre	10	250 250	5	M	F	Outgrown hedgerow specimens Dense undergrowth at the base Light ivy cover Low crown form Unable to gain access to base	57	4.2	B (ii)
G9	White Poplar Populus alba	9	upto 300	4	EM	F	3 Planted specimens within centre of roundabout Compacted ground at the base Minor dead wood evident in the crown (<75mm) Pruning wounds noted Exposed roots at base with mower damage	41	3.6	C (ii)

Group No	Species	Height	Stem Dia.	Crown Radius	Age Class	Overall Condition	Structural Condition	RPA	RPA Radius	BS5837 Cat
G10	Ash Fraxinus excelsior Blackthorn Prunus spinosa Elder Sambucus nigra English Oak Quercus robur Hawthorn Crataegus monogyna Sycamore Acer pseudoplatanus Aspen Populus tremula Crab Apple Malus sylvestris Damson Prunus insititia Grey Poplar Populus x canescens Hazel Corylus avellana Dogwood Cornus sanguinea	16	upto 400	6	EM	F	Buffer planting along embankment Hawthorn planted along edge of carriageway Crossing and rubbing branches Dense ivy cover on main stem Dense undergrowth at the base Etiolated form Interlocking crowns	72	4.8	B (ii)
G11	Field Maple Acer campestre Hawthorn Crataegus monogyna English Elm Ulmus procera Italian Alder Alnus cordata	6	upto 250	2	SM / EM	F	Lapsed planting group along carriageway Crossing and rubbing branches Flail damage evident Interlocking crowns Pruning wounds noted Dense undergrowth throughout	28	3.0	C (ii)
G12	Ash Fraxinus excelsior Field Maple Acer campestre	12	upto 300	4	EM	G	Planted copse group Predominantly field maple Interlocking crowns Low crown form Multi leadered form	41	3.6	B (ii)
G13							Number no longer in use			

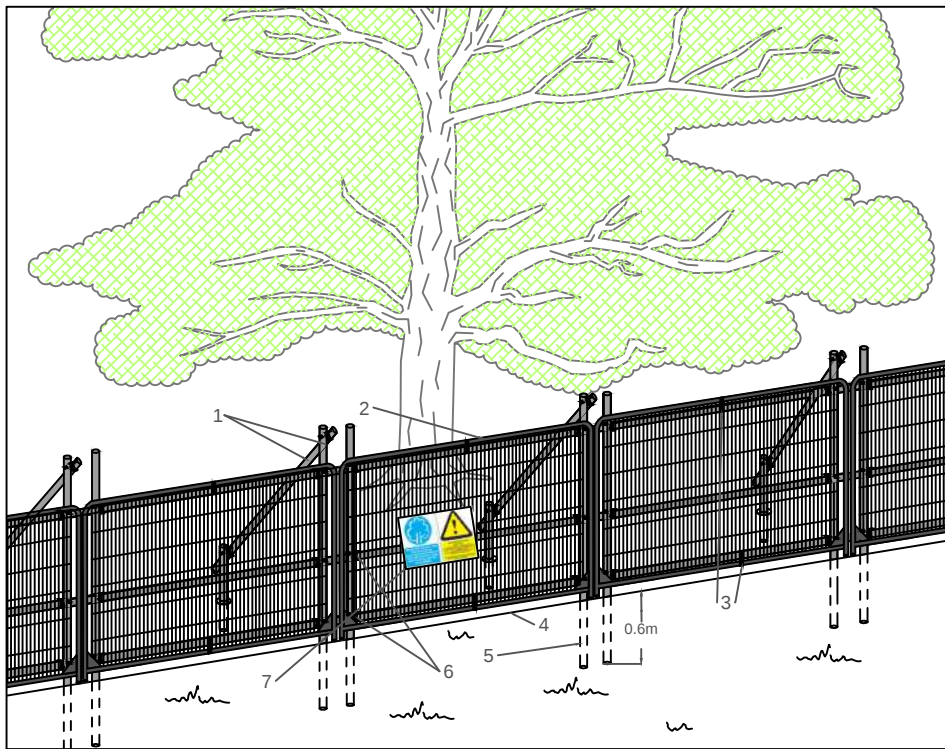
Group No	Species	Height	Stem Dia.	Crown Radius	Age Class	Overall Condition	Structural Condition	RPA	RPA Radius	BS5837 Cat
G14	Ash Fraxinus excelsior Elder Sambucus nigra Hawthorn Crataegus monogyna Apple Malus domestica Rowan Sorbus aucuparia	6	avg 250	1	EM	P	Outgrown hedgerow with sporadic self-seeded trees Dead trees noted Dense ivy cover on main stem Recently flailed and reduced in width Gaps present in hedgerow could be improved through new planting	28	3.0	C (ii)
G15	Ash Fraxinus excelsior Sycamore Acer pseudoplatanus	15	upto 450	6	EM	G	Planted group situated offsite within sports ground 8m spacing Characteristic for species Minor dead wood evident in the crown (<75mm) Pruning wounds noted	92	5.4	B (ii)
G16	Common Lime Tilia x europaea Horse Chestnut Aesculus hippocastanum	16	upto 500	7	M	G	Planted group situated offsite within sports ground Characteristic for species Dense ivy cover on main stem Low crown form Minor dead wood evident in the crown (<75mm) Pruning wounds noted	113	6.0	B (ii)
G17	Apple Malus domestica Rowan Sorbus aucuparia	6	upto 250	3	EM	F	Planted group within grassed verge Characteristic for species Low crown form Pruning wounds noted Mowing damage noted	28	3.0	C (ii)
G18	Hybrid Black Poplar Populus x canadensis Norway Maple Acer platanoides Silver Maple Acer saccharinum	25	upto 800	9	M	F / G	Planted group situated offsite within sports ground Characteristic for species Minor dead wood evident in the crown (<75mm) Single stem forms Storm damage present Unable to gain access to base	290	9.6	B (ii)

Group No	Species	Height	Stem Dia.	Crown Radius	Age Class	Overall Condition	Structural Condition	RPA	RPA Radius	BS5837 Cat
G19	Ash Fraxinus excelsior Blackthorn Prunus spinosa Common Lime Tilia x europaea Norway Maple Acer platanoides English Elm Ulmus procera Raywood Ash Fraxinus angustifolia	15	upto 350	5	EM	G	Planted group situated offsite within sports ground Characteristic for species Minor dead wood evident in the crown (<75mm) Pruning wounds noted Some understorey in sections Flailed along verge to allow for access to ditch at base of group	55	4.2	B (ii)
G20	Blackthorn Prunus spinosa Common Lime Tilia x europaea Hawthorn Crataegus monogyna Rowan Sorbus aucuparia	4	200 200	2	EM / M	F	Planted group situated offsite within sports ground Sporadically spaced along boundary Characteristic for species Flailed along verge Unable to gain access to base Limited screening value	36	3.4	C (ii)
G21	Ash Fraxinus excelsior Norway Maple Acer platanoides Raywood Ash Fraxinus angustifolia	15	upto 350	5	EM	G	Planted group with 9m spacing situated offsite within sports ground Characteristic for species Minor dead wood evident in the crown (<75mm) Pruning wounds noted	55	4.2	B (ii)
G22	Hybrid Black Poplar Populus x canadensis	25	upto 800	9	M	F / G	Planted group situated offsite within sports ground Characteristic for species Minor dead wood evident in the crown (<75mm) Single stem forms Storm damage present Unable to gain access to base	290	9.6	B (ii)
G23	Ash Fraxinus excelsior Blackthorn Prunus spinosa Field Maple Acer campestre	10	avg 200	4	EM	F	Landscape planting within grass verge Crossing and rubbing branches Interlocking crowns Multi stemmed and single stem forms Pruning wounds noted	18	2.4	C (ii)

Group No	Species	Height	Stem Dia.	Crown Radius	Age Class	Overall Condition	Structural Condition	RPA	RPA Radius	BS5837 Cat
G24	Blackthorn Prunus spinosa Hawthorn Crataegus monogyna Crab Apple Malus sylvestris Dogwood Cornus sanguinea	5	avg 120	1.5	EM	F	Outgrown sprawling hedgerow group Dead trees noted Dense undergrowth at the base Light ivy cover Large gaps Limited screening value Dutch elm disease Ophiostoma novo-ulmi evident	7	1.4	C (ii)

Hedge No	Species	Height	Stem Dia.	Crown Radius	Age Class	Overall Condition	Structural Condition	RPA	RPA Radius	BS5837 Cat
HEDGEROWS										
H1	Elder Sambucus nigra Hawthorn Crataegus monogyna English Elm Ulmus procera Dogwood Cornus sanguinea	3	avg 80 80 80	1	EM	F	Maintained outgrown hedgerow Previously laid Sparse in sections Dense undergrowth within hedgerow	9	1.7	C (ii)
H2	Ash Fraxinus excelsior Elder Sambucus nigra Hawthorn Crataegus monogyna Privet Ligustrum ovalifolium Dogwood Cornus sanguinea	1.5	avg 150	0.5	EM	F	Recently flailed Light ivy cover Maintained hedgerow Occasional outgrown ash specimens within hedgerow occasionally sparse in sections predominantly hawthorn	10	1.8	C (ii)
H3	Blackthorn Prunus spinosa Field Maple Acer campestre Hawthorn Crataegus monogyna English Elm Ulmus procera Dogwood Cornus sanguinea	4	avg 120	0.5	EM	F	Outgrown hedgerow recently flailed along verge only Dead trees noted Light ivy cover Predominantly hawthorn Dutch elm disease Ophiostoma novo-ulmi evident	7	1.4	C (ii)
H4	Blackthorn Prunus spinosa Field Maple Acer campestre Hawthorn Crataegus monogyna English Elm Ulmus procera Dogwood Cornus sanguinea	4	avg 120	1.5	EM	F	Outgrown hedgerow Dead trees noted Dense undergrowth at the base Light ivy cover Occasional outgrown elm specimens Occasionally sparse in sections Predominantly hawthorn Dutch elm disease Ophiostoma novo-ulmi evident	7	1.4	C (ii)

Hedge No	Species	Height	Stem Dia.	Crown Radius	Age Class	Overall Condition	Structural Condition	RPA	RPA Radius	BS5837 Cat
H5	Hawthorn Crataegus monogyna	4	avg 150	1	EM	F	Maintained hedgerow Occasionally sparse in sections suppressed by understorey Dense undergrowth at the base Flail damage evident Light ivy cover	10	1.8	C (ii)
H6	Hawthorn Crataegus monogyna	5	avg 150	1	EM	F	Maintained hedgerow Occasionally sparse in sections suppressed by understorey Dead trees noted Dense undergrowth at the base Flail damage evident Gaps present in hedgerow Light ivy cover	10	1.8	C (ii)
H7	Ash Fraxinus excelsior Elder Sambucus nigra Hawthorn Crataegus monogyna Hazel Corylus avellana	5	avg 120	1.5	EM	F	Outgrown hedgerow Predominantly hawthorn Occasional outgrown ash and hazel specimens Dense ivy cover on main stem Dense undergrowth at the base Flailed along edge of carriageway	7	1.4	B (ii)
H8	Hawthorn Crataegus monogyna	4	avg 120	0.5	EM	F	Outgrown maintained hedgerow Suppressed crown form Understorey to tree groups Flail damage evident Gaps present in hedgerow	7	1.4	C (ii)



Standard specification for protective barrier

1. Standard scaffold poles
2. Heavy gauge 2m tall galvanized tube and welded mesh infill panels
3. Panels secured to scaffold frame with wire ties
4. Ground level
5. Uprights driven into the ground until secure (min depth of 0.6m)
6. Standard scaffold clamps
7. Construction Exclusion Zone signs



Above ground stabilising systems

1. Stabiliser strut with base plate secured with ground pins
2. Feet blocks secured with ground pins
3. Construction Exclusion Zone signs

NOTES

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drawing title

APPENDIX B PROTECTIVE FENCING SPECIFICATIONS

CAD file: S:\Arb resources\Basic Templates\Tree Protection\Appendix B - Protective Fencing A4.dwg