David Wilson Homes

Barkby Road Junction, Queniborough

Arboricultural Impact Assessment & Method Statement

May 2022

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1.0 INTRODUCTION

1.1 This report has been prepared by FPCR Environment and Design Limited on behalf of David Wilson Homes to present the findings of an Arboricultural Assessment and survey of trees located at the junction between Barkby Road and Queniborough Road, Rugby (hereafter referred to as the site), OS Grid Ref SK 64321 12511.

1.2 The survey was carried out on 24th February 2022.

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 address comments received from Nola O'Donnell, Senior Landscape Officer for Charnwood Borough Council. These comments are in relation to the proposed development of up to 150 dwellings off Barkby Road and highway improvements. The tree survey has therefore focused on any trees present within or bordering the junction that may potentially be affected by the proposed highway works.

1.7 Comments received on 14th December 2021:

TREES

The proposed highway improvements to the crossroad junction of Rearsby Road and Queniborough Road would slice through the existing verges which form the root supporting environment of trees protected by Borough of Charnwood Tree Preservation Order (Land at Rearsby Road/Queniborough Road, Queniborough) 2015, Group G1. Species include sycamore, pine, lime, horse chestnut, maple, robinia and whitebeam. The quality and nature of the tree lined verge needs to be preserved as an essential landscape feature of the main crossroad of the village. However, there was no tree survey or arboricultural method statement submitted to support the proposed junction re-alignment. The indicative retention of some of the trees is therefore in doubt without evidence to demonstrate that the trees could feasibly be retained in a healthy form to protect their long-term viability. Approximately six trees could be affected. Loss of trees at this junction would be highly noticeable disrupting the cadence of trees on The Ringway verge trees are iconic along Rearsby Road and Queniborough Road.

The adverse effect of their removal post-completion would be significant. Any losses could be mitigated by replacement planting which would reduce the adverse effect in the long term e.g., from approx. year 20 onwards. Early significant adverse effect could be further mitigated were semi mature specimens to be used for replacement tree planting. In such a scenario I would suggest fewer trees could be replanted to allow for good distinct canopy formation.

Agreement would be required with LCC on suitable course of action and if any trees are lost, their CAVAT value is likely to be payable by the developer as well as replacement planting.

The proposed junction realignment is likely to require the reduction in levels to that of the existing carriageway. This would substantially impact RPAs of several trees.

The proposed realigned footpath would likely impact trees such as the pine on this side as it would require the reduction in levels.

1.8 The assessment area included all tree cover within influencing distance of the existing road junction within the roadside verges adjacent to the main carriageway. The majority of tree cover was generally of moderate quality housing few defects that would limit future life potential.

Site description

1.9 The site is situated within the centre of the village of Queniborough, at the junction between Rearsby Road, Barkby Road and Queniborough Road. The tree cover comprised of trees situated within the roadside grass verge offering the amenity value to local landscape. A range of species were recorded at various ages.

2.0 PLANNING POLICY

National Planning Policy Framework July 2021

2.1 National Planning Policy is defined by the National Planning Policy Framework (NPPF). This sets out the Government's most current and up to date planning policies for England and how these should be applied. The current NPPF is dated July 2021.

2.2 Paragraphs 10 and 11 of the NPPF state that there is a presumption in favour of sustainable development and states that for decision making, the LPA should be '*c) approving development proposals that accord with an up-to-date development plan without delay'.* In the absence of a development plan or the development plan is out of date, the acting LPA should grant planning consent so far as the development proposals do not breach the policies and guidance outlined in the NPPF.

2.3 In relation to arboriculture, the NPPF also states that:

- *131 'Trees make an important contribution to the character and quality of urban environments and can also help mitigate and adapt to climate change. Planning policies and decisions should ensure that new streets are tree-lined (footnote 50), that opportunities are taken to incorporate trees elsewhere in developments (such as parks and community orchards), that appropriate measures are in place to secure the long-term maintenance of newly planted trees, and that existing trees are retained wherever possible. Applicants and local planning authorities should work with highways officers and tree officers to ensure that the right trees are planted in the right places, and solutions are found that are compatible with highways standards and the needs of different users' (footnote 50: unless, in specific cases, there are clear, justifiable and compelling reasons why this would be inappropriate)*
- *180 (c) 'development resulting in the loss or deterioration of irreplaceable habitats (such as ancient woodland and ancient or veteran trees) should be refused unless there are wholly exceptional reasons (footnote 63) and a suitable compensation strategy exists'.*

  and provides specific guidance that:

- *180 (d) 'development whose primary objective is to conserve or enhance biodiversity should be supported; while opportunities to incorporate biodiversity improvements in and around developments should be encouraged, especially where this can secure measurable net gains for biodiversity'.*

2.4 With reference to paragraph 180 (c), examples of what is deemed to be *'wholly exceptional'* are included within Footnote 63 and provides the examples of '*infrastructure projects (including nationally significant infrastructure projects, orders under the Transport and Works Act and hybrid bills), where the public benefit would clearly outweigh the loss or deterioration of habitat'.*

Statutory Considerations

2.5 Local authorities have a Duty under the Town and Country Planning Act to create Tree Preservation Orders (TPO) in order to protect and preserve specific trees and woodlands that bring significant amenity benefit to a particular site or location. Under a TPO it is a criminal offence to cut down, top, lop, uproot or willfully destroy a tree protected by that Order, or to cause or permit such actions, if carried out without the prior written consent of the acting LPA. Anyone found guilty of such an offence is liable and in serious cases, may result in prosecution and incur an unlimited fine.

2.6 No direct consultation with the Local Planning Authority has taken place, however, it is understood, that there is a Tree Preservation Order, namely Land at Rearsby Road/Queniborough Road, Queniborough 2015, which applies to a number of trees present within the assessment site and therefore statutory constraints apply to the development in respect of trees.

2.7 Information provided on Tree Preservation Orders and Conservation Areas is accurate to the date of this assessment and cannot be assumed to remain unchanged. The last check was carried out on the 18th May 2022.

3.0 SURVEY METHODOLOGY

3.1 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.

3.2 Trees have been assessed as groups 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.

3.3 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. A tree survey 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.

3.4 An assessment of individual trees within groups 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.

Ancient and Veteran Trees

3.5 Veteran trees and Ancient Woodland are important components of the landscape, their importance can be for a number of reasons including that of their ecological, social, cultural and historic value.

3.6 Veteran Trees and Ancient Woodlands are material considerations within the planning process and their importance is specifically recognised within the National Planning Policy Framework (NPPF) 2021 and defines the terms ancient or veteran tree as:

'A tree which, because of its age, size and condition, is of exceptional biodiversity, cultural or heritage value. All ancient trees are veteran trees. Not all veteran trees are old enough to be ancient but are old relative to other trees of the same species. Very few trees of any species reach the ancient life-stage.'[1]

3.7 Various published methodologies are currently available which, due to the complexity and subjectivity of the process of defining and assessing these trees, often have conflicting definitions. This assessment, and the criteria used for defining ancient/veteran trees and the identification of attributable ancient/veteran features, has been based on a range of currently published guidance and resources.

BS5837 Categories

3.8 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).

3.9 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.

3.10 **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.

[1] Ministry of Housing, Communities and Local Government. (2019). *National Planning Policy Framework.* London: Ministry of Housing, Communities and Local Government.

- Certain category U trees can have existing or potential conservation value which may make it desirable to preserve.

3.11 **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.

3.12 **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.

3.13 **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

3.14 Appendix A presents details of any individual trees, groups, hedgerows and woodlands 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.

3.15 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.

3.16 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.

3.17 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. Hedgerows and substantial internal or boundary hedges (including evergreen screens) have been recorded including lateral spread, height and stem diameter(s). Where trees are present within a hedgerow that are significantly different in character from the remainder, these have been identified and recorded separately.

3.18 For the purposes of this assessment woodland is described as a habitat where *'trees are the dominant plant form. The individual tree canopies generally overlap and interlink, often forming a more or less continuous canopy'*[2].

3.19 Woodlands, however, are not just formed of trees and generally include a great variety of other plants. These will *include 'mosses, ferns and lichens, as well as small flowering herbs, grasses and shrubs'*[3].

3.20 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

3.21 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.

3.22 Where topographical information has not identified the position of trees these have 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.

[2] http://www.countrysideinfo.co.uk/woodland_manage/whatis.html
[3] http://www.countrysideinfo.co.uk/woodland_manage/whatis.html

3.23 As part of this assessment, a Tree Retention Plan has been prepared to show the proposed layout in relation to the existing tree cover allowing 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.

Tree Constraints and Root Protection Areas

3.24 Below ground constraints to future development are represented by the area surrounding the tree containing sufficient rooting volume for the specimen to have the best chance of survival in the long term which is identified as the root protection area (RPA). The RPA has been calculated in accordance with section 4.6 of BS5837 and requires suitable protection in order for the tree to be successfully incorporated into any future scheme.

3.25 Where applicable the shape of the Root Protection Area has been modified to consider the presence of any nearby obstacles (existing or past) which may have restricted root growth and the likely root distribution i.e., the presence of hard standing, structures and underground apparatus.

3.26 Where groups of trees have been assessed, the Root Protection Area has been shown based on the maximum sized tree in any one group and so may exceed the Root Protection Area required for some of the individual specimens within the group. Further detailed inspection of the individual trees forming a group may be required where development impacts upon the group.

3.27 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

3.28 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.

3.29 The statements made in this report regarding defects in assessed trees does not take into account the effects of extreme / adverse weather conditions, changes in land use prior to the site's development as detailed within Section 4.0, unforeseen accidents or anti-social behaviors, 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.

3.30 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.

3.31 It may be necessary during detailed design to undertake further assessment and accurate positioning of woody species within tree groups to assist structural calculations for foundation design of structures in accordance with current building regulations. Knowledge of soil type was not known at the time of this tree assessment. If a current soil survey of the site has taken place then it must be read in conjunction with the results of the tree survey.

3.32 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.

4.0 RESULTS

4.1 A total of twenty-one individual trees were surveyed as part of the Arboricultural Assessment. Trees were surveyed as individual trees and groups of trees where examples are clearly present as per the description. 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.

4.2 Several of the trees have been discussed in more detail following the table, owing to their physical condition or arboricultural significance.

Results Summary

4.3 Tree cover across the site was exclusive to trees situated within roadside verges. The vast majority of tree cover was situated along the east of Rearsby Road and North of Queniborough Road.

4.4 There was a single specimen of high-quality, and the vast majority of the individual tree cover was of moderate arboricultural quality (retention category B). A smaller percentage was recorded as low arboricultural quality (retention category C).

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)	T21	1		0
Category B (Moderate Quality / Value	T3, T4, T5, T6, T9, T11, T13, T14, T16, T17, T18, T19	12		0
Category C (Low Quality / Value)	T1, T2, T7, T8, T10, T12, T15, T20	8		0

4.5 Trees positioned to the West of Rearsby Road included T1 and T2, too early mature sycamores *Acer pseudoplatanus* considered to be of low arboricultural quality. Several pruning wounds were evident on the stems of both trees which had occurred through regular crown lifting to avoid passing vehicles. T2 supported a twin stemmed housing an area of included bark at the union and additional included union at approximately 2 m above ground level to the eastern leader. A number of the wounds had resulted in small branch socket cavities and the upper crown of T2 displayed areas of dieback through lack of leaf cover.

4.6 Trees T3 to T12 stood to the East of Rearsby Road within a grass planting strip separating Rearsby Road from The Ringway which provided access to dwellings to the East of the junction. The trees assessed included six trees considered to be of moderate quality (T3, T4, T5, T6, T9 & T11) and four trees of low quality (T7, T8, T10 & T12).

4.7 T3 was an early mature Austrian pine *Pinus nigra* ssp. Nigra considered to be of good form housing no significant defects. A small twin leader had formed at approximately 14m above ground level.

4.8 T4 was a mature sycamore which had also been crown lifted to approximately 6m leaving numerous pruning wounds some of which had resulted in branch socket cavities.

4.9 T5 was an early mature common lime Tilia x europaea which had formed an asymmetrical crown to the south due to the former presence of a large tree which has since been removed. Pruning had also been carried out to T5 leaving a number of open wounds which would be occluded over time. A new young hornbeam *Carpinus betulus* tree had been planted where the removed tree once stood and at the time of the assessment was referred to locally as a memorial tree.

4.10 T6 was an early mature Norway maple *Acer platanoides* which also supported an asymmetrical crown through the presence of the removed tree. An area of included bark was observed between the primary scaffold branches of the lower crown at approximately 2m above ground level should be monitored to prevent the loss of the lower branch.

4.11 T7 was a mature sycamore which exhibited a sparse and declining crown.

4.12 T8 was a mature horse chestnut Aesculus hippocastanum which had suffered damage to the main stem leaving an area of heartwood exposed to the loss of bark from ground level to approximately 2m to the west side. Areas of necrotic bark and bleeding canker were observed to the side of the stem from 0.6m – 2m above ground level. An open branch socket cavity was observed at 2m above ground level to the south side of the stem.

4.13 T10 was an early mature Norway maple considered to be of poor overall condition due to the number of significant defects. Two bark wounds, one to the south side from 0.5m – 1m by approximately 200mm and additional wound to the west side from 0.1m – 1.2m by approximately 250mm above ground level had left heart wood exposed. Additional heartwood was also exposed through numerous pruning wounds which had led to a number of branch socket cavities at approximately 2m above ground level to the south side. Future life expectancy of T10 was therefore reduced and due to its position further consideration in the future will need to assess its location in relation to Rearsby Road.

4.14 To the south of T11 stood to mature horse chestnut (T11) supporting an asymmetric crown through the presence of living trees. Pruning of branches in the past had led to multiple wounds on the stem and an additional wound on the north side of the stem at approximately 1.5m above ground level was observed to have occluded with bark.

4.15 The crown of T12, common lime, produced and excessive amount of epicormic growth which possibly a sign of ill health caused through stress. Large dead branches were observed within the canopy which again is a symptom of decline. This specimen was considered to be of low quality for the aforementioned reasons.

Photograph 1: Tree cover along Rearsby Road

4.16 Trees T13 – T20 stood within the same grass strip as trees T3 – T12 but were located to the north of Queniborough Road and to the south of The Ringway. Trees along this section were generally in better condition than the trees adjacent to Rearsby Road through the lack of significant defects despite having also been subjected to branch pruning to lift crowns over the adjacent highways and footpaths. All but two trees within this section were of moderate quality housing few significant defects of note.

4.17 T20, a mature Locust tree *Robinia Pseudoacacia*, showed significant dieback amongst the outer canopy with past reduction work removing a number of dead branches and a retrenched inner crown and a large amount of suckers at the base of the tree.

4.18 T19, a mature horse chestnut, had sustained an area of damage from ground level to 1.8 m exposing the heartwood. The wound may have possibly been caused by vertical cracking of a bark through expansion naturally but was approximately 100 mm wide which would seem to suggest physical damage occurring by other means. The remains of a decay fungus, possibly *Cerioporus squamosus* were also observed to the base of the tree. Despite these defects T19 was considered to be of moderate quality and retention category B.

4.19 T21 was an early mature London *Platanus x hispanica* situated to the south of the Queniborough Road and Barkby Road junction within an area of open grass. The crown was brought be spreading and supported by three major primary branches from approximately 1.3m of ground level. No significant defects were observed at the time of the assessment and therefore T21 was considered retention category A.

Photograph 2: Tree cover along Queniborough Road

Ancient and Veteran Trees

4.20 None of the assessed trees were considered as ancient or veteran trees in accordance with accepted methodologies and guidance.

5.0 ARBORICULTURAL IMPACT ASSESSMENT

5.1 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.

5.2 The AIA has been based upon the Proposed Access Junction Layout drawing: ADC1659-DR-002 Rev P3 and seeks to outline the relationship between the proposals and the existing trees. The drawing shows the proposals for highway improvements in the form of a left-hand turn lane from Rearsby Road, localised widening and increased radiuses and a new footpath link from Rearsby Road. An overlay of the layout has been incorporated in the Tree Retention Plan to assist in identifying the relationship and any potential conflicts between the proposals and the existing trees.

5.3 Given the position of the tree cover and existing highway infrastructure, it is possible to retain the vast majority of the trees and incorporate them into the new highway improvement proposals.

5.4 To provide a left-hand turn lane from Rearsby Road the existing carriageway will be widened. These works will utilise the existing footpath which will minimise the extent of encroachment into the current grass verge. The alignment of the new highway will encroach into the existing verge by 0.5m. Whilst this will impact upon rooting material from the adjacent trees, the potential impacts are considered to be minimal. Excavation should be carried out in accordance with the Arboricultural Method Statement below.

5.5 If these works are carried out under the supervision of an Arboricultural Clerk of Works, then the impacts to retained trees are not considered to be detrimental to the long-term health and successful retention.

Photograph 3: Approximate line of proposed highway

Photograph 4: Approximate line of proposed highway next to T11 to T13

5.6 The removal of T12, a low-quality common lime tree is recommended due to the close proximity of the widened highway to the base of this tree. The current declining health of this tree means that any potential impacts will be greater to the long-term health. The loss of this tree from within the current street scene is not considered to be detrimental on arboricultural grounds and would benefit the future growth of the surrounding trees of high quality.

5.7 The widening of the highway and footpath along the western side of Rearsby Road will require the removal of T1 & T2. These low-quality sycamore trees are currently close to the existing highway infrastructure and will require ongoing management regardless of the development which will restrict the future longevity of these trees. The removal is not considered to be detrimental in comparison to retention of tree cover to the east.

5.8 The alignment of a footpath link to the north of T6 will pass through the calculated rooting area of both T5 & T6 and is in close proximity of the newly planted memorial tree. The construction will require the use of a cellular confinement system to allow passage over the roots without impacting these trees. There will be the requirement for some excavation to tie into existing levels.

Photograph 5: Approximate location of Cellular Confinement Footpath

Tree Management

5.9 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 arboriculturalist or arborist to identify any potential public safety risks and to agree remedial works as required.

5.10 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.

5.11 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.

General Design Principles in Relation to Retained Trees

5.12 The routing of below ground services should also be considered with regard to the retained trees. As recommended by the guidance given in section 7.7 of BS5837 services, where possible, should not encroach within the Root Protection Areas of retained trees. If below-ground services are proposed within a Root Protection Area, modifications to the alignment of the service route may need to be made in order to minimise adverse effects on root stability and overall tree health.

5.13 Consideration may also need to be given to the potential for tree roots of newly planted trees and hedgerows to affect or compromise the future services. As far as feasible, it would be preferable that proposed services near both the existing and any new planting should be ducted for ease of access and maintenance and grouped together to minimise any future disturbance.

6.0 ARBORICULTURAL METHOD STATEMENT

6.1 This Arboricultural Method Statement (AMS) has been prepared by FPCR Environment and Design Limited on behalf of David Wilson Homes to provide the methods of protection and pruning requirements for retained trees located at the Barkby Road, Queniborough (hereafter referred to as 'the site').

6.2 This AMS outlines the methodology by which construction will be undertaken in order to safeguard trees during the construction of proposed development. This method statement sets out a definitive account for the treatment of retained trees during construction and specifies industry approved construction methods.

6.3 The detail and requirements of this Method Statement comprise commitments to complete the construction phase of the development in a specific manner and will inform the production of all relevant tender documents and instructions to contractors.

6.4 **Failure to adhere to the correct sequence, manner and timing of operations detailed in this Method Statement may result in irremediable damage to trees or disturbance to retained tree cover. Retained trees are protected by planning law and reckless damage or tree removal could result in the serving of a stop notice or prosecution by the Local Planning Authority.**

Planning Consent

6.5 This AMS is submitted to provide reassurances to Charnwood Borough Council that proposed highway alterations will not have detrimental impacts to existing trees.

Limitations

6.6 The Method Statement is concerned solely with arboricultural issues related to the site referenced only.

6.7 Any changes in ground level, or excavations near to tree roots not detailed within this AMS has the potential of adversely affecting the stability and physical condition of the retained trees and as such further examinations would be required.

6.8 The timescales for the construction program are not absolute. The timescales set out in this AMS are based on all supplied preliminary information available at the time of writing and is subject to change. As such, the processes set out in the AMS may need to be reviewed and amended to suit as required.

7.0 PROTECTION REQUIREMENTS

Specific Protection Requirements

7.1 To provide tree protection requirements the following table provides a summary of the specific requirements of the AMS and how evidence of its action shall be provided.

Table 3: Condition Requirements and Evidence of Action

Condition Reference	Evidence of Action
Updated Tree Schedule, Tree Survey Plans and Retention Plans	A tabulated Tree Schedule has been provided as Appendix A of this AMS and details species; height; canopy spread; stem diameter; age class and overall condition / health. This has been used to formulate positioning of fencing and to assess the need for any facilitation pruning. An updated Tree Survey and Retention plan/s have been provided in the Impact Assessment which has been supplied alongside this AMS.
Tree Protection details in the form of a Tree Protection Plan (TPP)	A Tree Protection Plan have been produced and accompany the AMS. The plans show: • Trees to be retained (green) • Extent of calculated Root Protection Areas (blue circle) • Overlaid development proposals for reference • The position of Primary / Fixed Tree Protection fencing (pink line) • Measurements and Annotations for ease of interpretation (pink text) • Arboricultural Supervision during demolition (Red dashed lines) • Extent of Cellular Confinement System (pink hatch) The Tree Protection Plan has been annotated for ease of interpretation.

Condition Reference	Evidence of Action
Tree protection prior to / during construction as indicated on the Tree Protection Plan (TPP)	Specific Tree Protection Plans produced for the construction works (drwg.no. 8151-T-03). Tree Protection erected to specification – dimensions shown on plans and specification shown in Appendix C2. Protective Fencing Signage (Appendix B) to be firmly affixed to fencing. Arboricultural supervision shall be conducted for demolition works within RPA of retained trees – as indicated on the Tree Protection Plans. Pre-commencement site meeting, toolbox talks, periodic site supervision and reporting shall be carried out to ensure compliance.
'Arboricultural Method Statement and Tree Protection Plan assessing any impacts that arise and demonstrating that any retained trees can be protected'	Site supervision requirements provided. This shall also include supervision of all works within the RPA's of retained trees. Task Specific Arboricultural Method Statements (Appendices C) have been provided for each of the relevant stages of the development. These are provided in the form of 'pull out' sheets to be shared with each of the relevant contractors. These 'pull out sheets are to be kept on file in the site office for reference and shared with relevant contractors as part of the site induction. The pull-out sheets are edged as per the contents page of this AMS for ease of identification.

General Condition Requirements

7.2 This AMS, the appended Task Specific Method Statements and accompanying Tree Protection Plans should be reproduced in their entirety in colour and copies should be kept on file in the site office for reference.

7.3 The relevant contractors should be provided any Task Specific Method Statements appended as part of this AMS, where relevant to their work.

7.4 The Site Manager will read this AMS. It will be the responsibility of the Site Manager to ensure its compliance throughout the construction processes.

7.5 All operations will be monitored by the Site Manager, and they will be responsible for ensuring that any sub-contractors do not carry out any process or operation which is likely to impact adversely upon any retained tree or hedge.

7.6 The contractor carrying out each task specific to their work shall be responsible for ensuring the AMS is adhered to at all times, The Site Manager is to ensure there is a monitoring regime for the maintenance of tree protection adopted on site.

8.0 TREE PROTECTION METHODOLOGY

Pre-commencement Tree Work

8.1 All agreed works will need to be undertaken prior to the main construction activities commencing and so that tree protection fencing can be erected in the positions demonstrated on the Tree Protection Plans.

8.2 Appendix C1 outlines all the required pre-commencement tree work. Those trees which will be removed to facilitate the approved development layout are not detailed within the appendix.

8.3 All tree works undertaken will comply with *British Standard 3998 'Tree Work - Recommendations' (2010)* and be carried out by skilled tree surgeons preferably those approved by the Arboricultural Association (AA). The AA is the recognised authority for certification of tree work contractors. To become an Approved Contractor a company must satisfy the Associations Professional Committee of its consistently high standard of tree work.

8.4 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.

Tree Protection Programme – Construction Phase

8.5 The key stages where tree protection are to be implemented along with the requirements for site supervision have been outlined in the following sections and within the relevant tables.

8.6 The timing of these stages may be subject to alteration in line with any future amendments of the construction program and as such, it is important to emphasise that the timeframe is designed to be flexible to accommodate these alterations whilst ensuring the protection of the trees on site.

Table 4: Timelines of Tree Protection for Construction Works

Timetable	Actions	Arboricultural Clerk of Works (ACoW) requirements	Task Specific Method Statement / Appendix reference
Pre-commencement site meeting	Pre-commencement site meeting prior to the start of construction works on site including earthworks. Timeline of construction processes to be shared with ACoW and changes made to the AMS as required.	Site meeting / Toolbox talk by ACoW (refer to Section 8.7) to ensure that the AMS has been read by the relevant person, including the Site Manager and Tree Surgeon. Site Manager to provide working Gantt Chart or Timetable of construction processes and to ensure that Tree Protection measures have been included. ACoW to check that copies of Task Specific Arboricultural Method Statements (located in Appendix C) are present.	AMS 8151-T-01 8151-T-02 8151-T-03 Appendix A Appendix B Appendix C1 Appendix C2 Appendix C3 Appendix C4 Appendix D Appendix E
During Pre-commencement site meeting	Tree Protection Fencing positions to be marked out and pegged (where applicable) by the ACoW to ensure that all fencing is erected in the correct positions.	ACoW to assist with measuring out distances from trees in accordance with the Tree Protection Plans. Photos of evidence to be taken for auditing purposes.	8151-T-02 8151-T-03 Appendix A Appendix C1 Appendix C2
Tree Works Complete			

Timetable	Actions	Arboricultural Clerk of Works (ACoW) requirements	Task Specific Method Statement / Appendix reference
Dates in line with construction program	Check fencing has been erected.	ACoW to check that all Tree Protective Fencing has been erected and is of the required type and specification (as per Appendix C2 and as specified in Section 3.0 of the AMS). Any contingencies or action points required shall be outlined.	8151-T-03 Appendix A Appendix C2
	Supervision of Earthworks where required The cutting of roots shall not entirely be avoidable during these works. As such any roots located / identified during these works shall be pruned back to the face of the trench as they became exposed. Roots shall be wrapped with hessian material, which is to be kept damp, until the area can be back filled with topsoil.	Exact supervision requirements to be determined during Pre-commencement site meeting-see below	Appendix C3
	Tree Protective Fencing position and suitability checked by ACoW. Compliance with AMS checked and recorded.	Record of visit to be completed by ACoW and a copy is to be handed to Site Manager and LPA upon request.	Tablet based Auditing App (Arboricultural Clerk of Works use only)
Earthworks Completed			

Timetable	Actions	Arboricultural Clerk of Works (ACoW) requirements	Task Specific Method Statement / Appendix reference
Dates in line with construction program	Supervision of Cellular Confinement System for footpath link.	ACoW to be present to supervise installation of the system/s once an engineer has approved the specification. Details of supervision shall be recorded, and photographic evidence shall be collected during the installation. This can be shared with the LPA upon request. Record of visit to be completed by ACoW and a copy is to be handed to Site Manager. Continuous checks that the Tree Protection Induction Record has been completed shall be made. ACoW to be present to ensure that no major / structural roots are severed or unnecessarily damaged. An assessment shall be made prior to any decision on cutting toots is made.	8151-T-03 Appendix C4 Refer to engineer's drawings and specifications provided by the supplier Tablet based Auditing App (Arboricultural Clerk of Works use only)
Footpath Install Completed			
Dates in line with construction program	Periodic compliance inspections accompanied by robust auditing of visits. Tree Protective Fencing position and suitability checked by ACoW. Compliance with AMS checked and recorded.	Record of visit to be completed by ACoW and a copy is to be handed to Site Manager and LPA upon request.	Tablet based Auditing App (Arboricultural Clerk of Works use only)
Construction Works Completed			

Timetable	Actions	Arboricultural Clerk of Works (ACoW) requirements	Task Specific Method Statement / Appendix reference
Dates in line with construction program	Removal of Tree Protective Fencing	ACoW to check if all Tree Protective Fencing has been removed and in doing so no damage has occurred to retained trees and hedgerows.	
Tree Protection Program Completed			

Arboricultural Supervision

Appointment of Arboricultural Clerk of Works

8.7 The Site Manager / Project Manager will be responsible for appointing the Arboricultural Clerk of Works in advance of any operations detailed in this Method Statement and in any instance where full compliance cannot be guaranteed i.e., where construction works within areas fenced off to protect trees may be required.

FPCR Arboricultural Consultant Contact Details

FPCR Arboricultural Consultant: Tom Bennett

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Contact Number: 01509 672772 / 07957641779

8.8 An overview of the specific involvement of the Arboricultural Clerk of Works has been provided in Tables 1 and 2.

8.9 An initial site meeting prior to starting any construction works, implementing tree surgery and erection of tree protection fencing, shall be a requirement of this AMS. At the meeting the Site Manager and Arboricultural Clerk of Works will discuss the methodology and various tree protection measures to be implemented subject to approval by the LPA.

8.10 A toolbox talk will also be given to the Site Manager and any on site operatives on the day of the meeting. The purpose of this toolbox talk will be to inform the Site Manager and Operatives of how to protect all retained trees. The toolbox talk shall then be repeated by the Site Manager when new external trades / Contractors commence work on site.

8.11 The toolbox talk shall focus on informing Contractors on the following topics:

- The protection of trees is a requirement of planning approval and failure to comply could result in in stop notices being applied or fines;
- How trees can be harmed on development sites;
- How the trees on this site will be protected by tree protection fencing and ground protection;
- Discussion on particular methods of working near the trees as outlined in this Method Statement;

- How to report an issue before it becomes a problem;

8.12 Evidence of the toolbox being carried out shall be collected. This evidence can be viewed at any time by the Arboricultural Clerk of Works and shared with both the client and the LPA upon request. A periodic review shall be conducted to ensure continued compliance.

8.13 The Arboricultural Clerk of Works will periodically verify compliance with this AMS and sign-off elements of the work as various stages of the development commence. This shall be recorded using an online form which the Arboricultural Clerk of Works can share with the client and LPA.

8.14 The Arboricultural Clerk of Works will be responsible for specifying any tree work requirements and shall assist in, where required, the appointment of a suitably qualified Arboricultural Contractor to undertake the removal and pruning of trees.

Key Appointment, Supervision and Monitoring Stages of the Arboricultural Clerk of Works

8.15 The following stages of supervision shall be required:

- Pre-commencement site meeting and Toolbox talk to be carried out.
- Marking trees to be removed and to be pruned with the appointed tree contractor where relevant **(pre-commencement meeting)**
- Walking the site with the Site Manager / Fencing Contractor to measure out the locations of the fencing **(pre-commencement meeting)**
- Arboricultural Clerk of Works to be present to supervise excavation within the RPA of trees **(to follow pre-commencement meeting)**
- Arboricultural Clerk of Works to be present to supervise installation of Cellular Confinement System **(to follow pre-commencement meeting)**
- Full auditing of these visits / supervision requirements to be carried out **(ongoing)**
- Ongoing visits in accordance with Table 2 to inspect the tree protection fencing and compliance with the AMS. Any other arboricultural matters arising which are unforeseen will need to be discussed with the Arboricultural Clerk of Works during these visits to decide the most appropriate course of action.
- After each site visit a short report/record will be compiled which will be sent to the client and local authority upon request as a record of evidence.

Specific Tree Protection Measures

8.16 For each of the works required a Task Specific Method Statement has been provided outlining the action required. These Method Statements have been provided in chronological order and have been produced as ‘pull out’ sheets to be kept on record in the site office and handed to the appropriate contractors during site inductions.

8.17 The methodologies accompanying this AMS have been provided as separately titled appendices for ease of identification. These include:

- Appendix C1: Tree Contractor - Tree Work Methodology
- Appendix C2: Fencing Contractor – Working Methodology
- Appendix C3: Excavation Under Supervision – Working Methodology
- Appendix C4: Installation of No-dig Construction or Cellular Confinement System

General Tree Protection Measures

8.18 This section details non-specific precautionary measures to be applied at all times.

8.19 No trees will be removed or pruned during construction other than those detailed within this method statement. Any proposed deviation from the tree removal and retention presented in this document must be discussed with the project Arboricultural Consultant prior to implementation.

8.20 All the retained trees will need to be adequately protected during works. Measures to protect these trees should follow the best practice principles set out in *BS5837: Trees in Relation to Construction Recommendations (2012).* These have been broadly summarised below.

8.21 No Root Protection Areas will be affected by excavation works, storage of materials, plant or machine access, other than as described by this Method Statement.

8.22 Site compounds, Portakabins, Containers and other temporary buildings can in some cases be used in root protection area if prior consent is agreed by the acting local planning authority. The method for installing the buildings and an assessment of whether temporary ground protection is required is to be agreed with the project Arboriculturalist and specified prior to installation.

8.23 No materials or soils are to be stored within the Root Protection Area of the retained trees.

8.24 Oil, bitumen, cement or other material that is potentially injurious to trees will not be stacked or discharged within 10m of a tree stem. No concrete mixing will be done within 10m of a tree. Allowance will be made for the slope of ground to prevent materials running towards the tree.

8.25 Wide or tall loads etc. should not come into contact with retained trees. Banks man should supervise transit of vehicles where they are in close proximity to retained trees.

8.26 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.

8.27 Notice boards, telephone cables or other services will not be attached to any part of a retained tree.

8.28 If unexpected large roots (>25mm diameter) are encountered during excavation for construction works the arboricultural consultant should be contacted immediately. No exposed roots will be left uncovered. They will be covered over as soon as possible to minimise the risk of drying out and dying.

8.29 As recommended within section 8.8.3 of BS5837 Post Development Management of Existing Trees, all retained trees should be subjected to sound arboricultural management where there is public access in order to satisfy the landowner's duty of care.

Removal of Tree Protection Measures and Protective Fencing

8.30 Following the completion of all construction works and in agreement with the project arboriculturist the tree protection fencing will be removed carefully as to avoid causing root disturbance.

9.0 CONCLUSIONS

9.1 Provided that the protection methods in this AMS are followed on site, there shall be no unnecessary or adverse Arboricultural impacts.

9.2 The loss of a single, low-quality tree is not deemed detrimental

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)
- Root Protection Area (The RPA has been altered where appropriate to reflect underground constraints)
- T1 (A) G1 (A) — Individual / Group Number and BS5837:2012 Category

Scale 1:2000 @ A3

0 50 100m

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.

rev	date	description	by
-	08.03.2022	First Issue	TCB

masterplanning
environmental assessment
landscape design
urban design
ecology
architecture
arboriculture

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client
David Wilson Homes

project
Barkby Road Junction
Queniborough

drawing title
TREE SURVEY PLAN

scale	drawn/checked	date
1:2000 @ A3	TCB/HR	March 2022

drawing number
8151-T-01

rev
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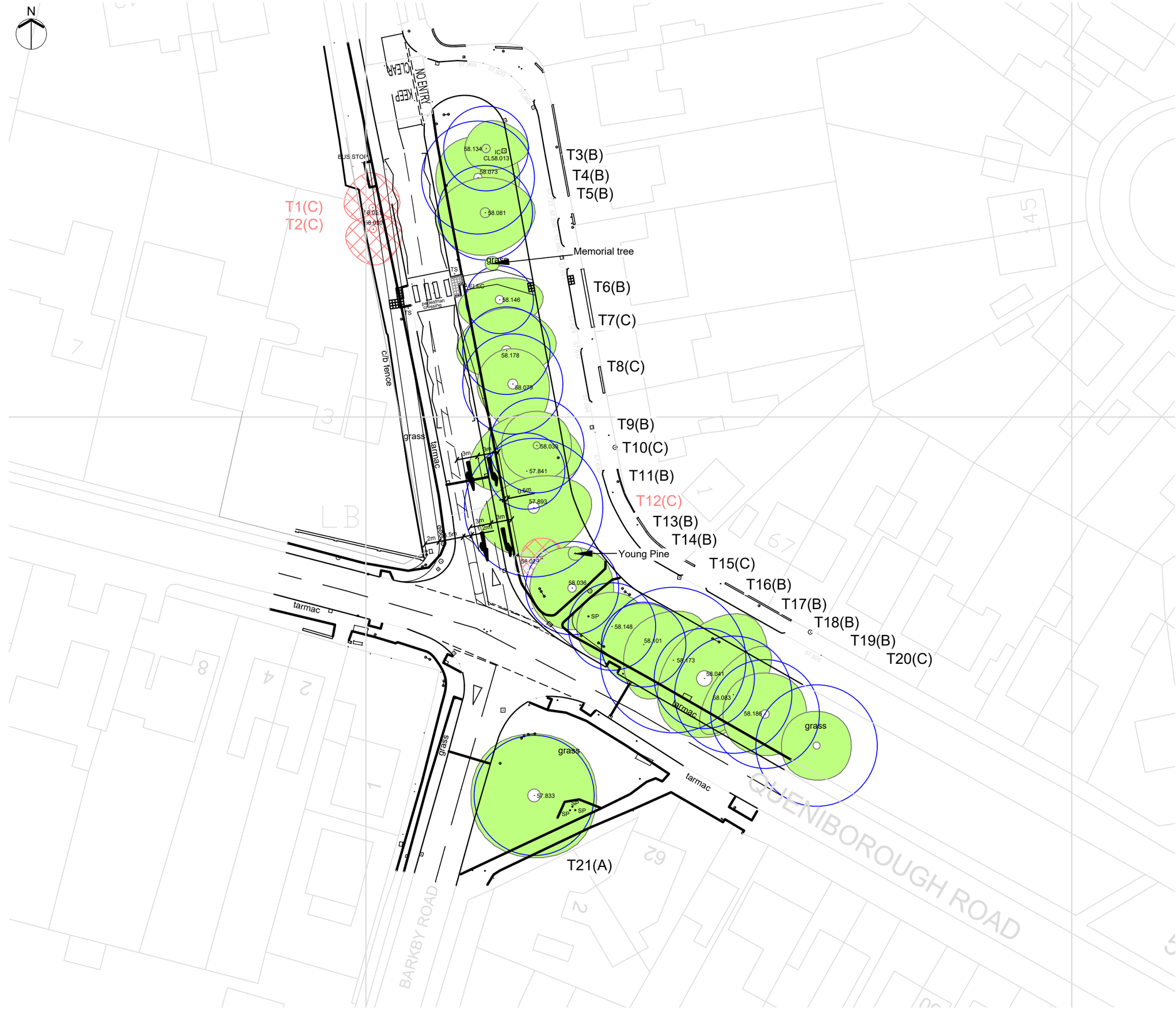
CAD file: K:\8100\8151\ARB\Barkby Road Junction\Plans\Tree Survey Plan.dwg



KEY

- Tree/Group to be Retained
- Tree/Group proposed to be removed subject to relevant permissions
- Root Protection Area (Shown for retained trees only)
- T1 (A) G1 (A) — Individual / Group Number and BS Category
- T1 (A) G1 (A) — Individual / Group Number to be Removed and BS 5837:2012 Category

Scale 1:2000 @ A3

0 50 100m

NOTES

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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.

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-	18.05.2022	First Issue	TCB

fpcr

masterplanning
environmental assessment
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project
Barkby Road Junction
Queniborough

drawing title
TREE RETENTION PLAN

scale	drawn/checked	date
1:2000 @ A3	TCB/HR	May 2022

drawing number
8151-T-02

rev
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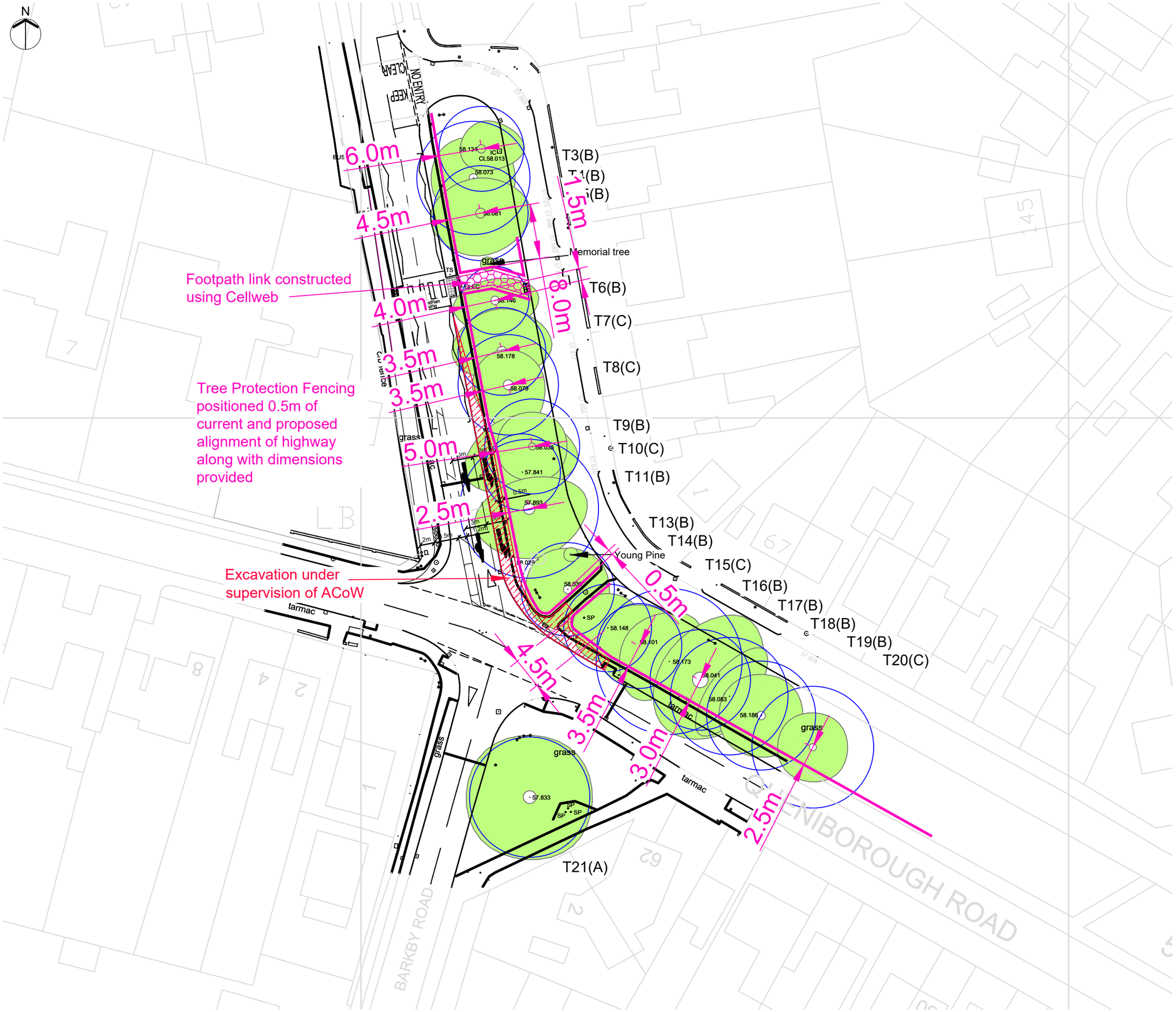

KEY

- Tree/Group to be Retained
- Root Protection Area (Shown for retained trees only)
- T1 (A) G1 (A) — Individual / Group Number and BS Category
- 6.0m — Line of Protective Barriers (and distance from tree or retained structure)
- Area of Permanent No-Dig Footpath Cellweb construction
- Area of excavation under supervision of ACoW

Scale 1:2000 @ A3

0 50 100m

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.

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project
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drawing title
TREE PROTECTION PLAN

scale	drawn/checked	date
1:2000 @ A3	TCB/HR	May 2022

drawing number
8151-T-03

rev
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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	

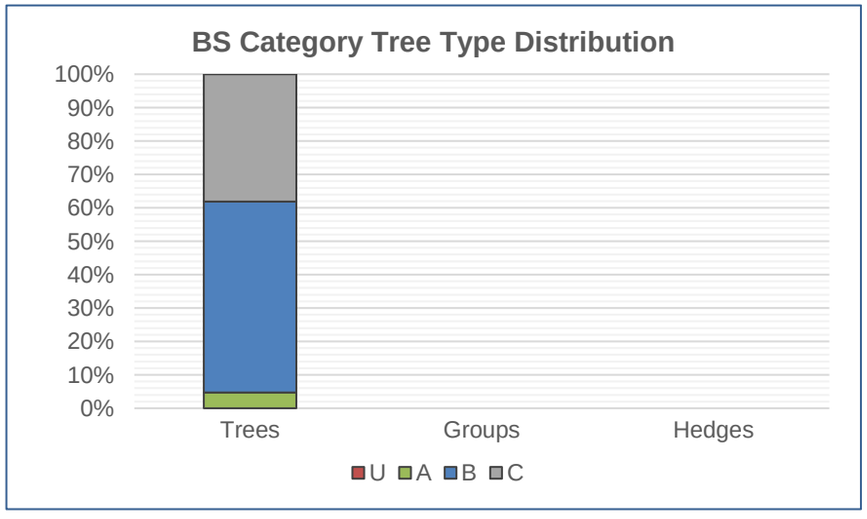
Structural Condition	Physiological Condition
Good - No significant structural defects	**Good -** No significant health problems
Fair - Structural defects that can be remediated	**Fair -** Symptoms of ill-health that can be remediated
Poor - Significant defects beyond remediation, present a risk of failure 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.

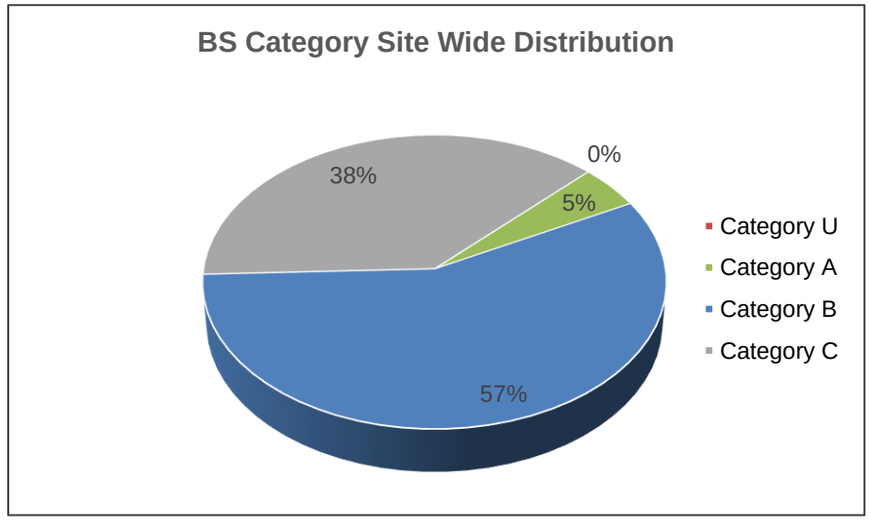
Appendix Summary

	Individual Trees	Totals	Tree Groups and Hedgerows	Totals
Category U		0		0
Category A	T21	1		0
Category B	T3, T4, T5, T6, T9, T11, T13, T14, T16, T17, T18, T19	12		0
Category C	T1, T2, T7, T8, T10, T12, T15, T20	8		0
	Total	21	**Total**	0

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



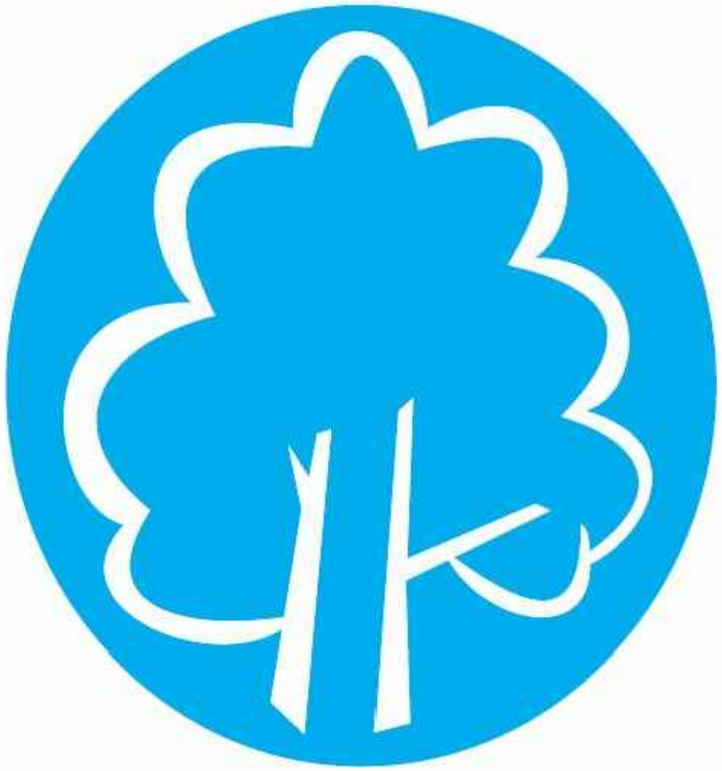
BS Category Site Wide Distribution shows the proportion of trees assessed in each category across the whole site which allows an interpretation of the site's overall quality.



Tree No	Species	Height	Stem Dia.	Crown Radius	Age Class	Overall Condition	Structural Condition	RPA	RPA Radius	BS5837 Cat
INDIVIDUAL TREES										
T1	Sycamore Acer pseudoplatanus	13	310	N - 5 S - 2 E - 4 W - 4	EM	F	Past pruning wounds on stem through crown lift in the past Minor dead wood in the crown Possible excavation in the RPA to the north east side Scale aphid present No obvious defects	43	3.7	C (i)
T2	Sycamore Acer pseudoplatanus	14	410 270	N - 2 S - 5 E - 4 W - 4	EM	F	Twin stemmed from ground level to 5m Included bark union to the eastern leader at 2m above ground level Scale aphid present Past pruning and minor epicormic growth Wound of 120Ø to the north side at 4m above ground level Minor die back of the upper crown Delaminating bark on main stem	109	5.9	C (i)
T3	Austrian Pine Pinus nigra ssp. Nigra	19	500	N - 4 S - 3 E - 6 W - 3	EM	G	Past pruning wounds on stem No obvious defects Minor twin leader at 14m	113	6.0	B (i)
T4	Sycamore Acer pseudoplatanus	17	670	6	M	F	Multiple past pruning wounds with branch socket cavities Scale aphid Minor deadwood present with crown dieback	203	8.0	B (i)
T5	Common Lime Tilia x europaea	17	560	N - 5 S - 6 E - 7 W - 7	EM	G	Past pruning to lift crown Basal suckers present Misshapen crown from tree to south which had been removed Newly planted memorial hornbeam in place of removed tree	142	6.7	B (i)
T6	Norway Maple Acer platanoides	15	400	N - 3 S - 4 E - 6 W - 6	EM	G	Scale aphid Misshapen crown due to removed tree Minor included bark union at 2m above ground level - monitor	72	4.8	B (i)
T7	Sycamore Acer pseudoplatanus	16	520	N - 6 S - 2 E - 7 W - 7	M	F	Sparse canopy Multiple past pruning wounds on the stem- now occluded	122	6.2	C (i)
T8	Horse Chestnut Aesculus hippocastanum	15	590	N - 5 S - 7 E - 5 W - 5	M	P	Major bark wound from ground level to 2m with exposed heart wood Bleeding canker to the east side from 0.6m - 2m above ground level Scale aphid Past pruning and branch stubs	157	7.1	C (i)

Tree No	Species	Height	Stem Dia.	Crown Radius	Age Class	Overall Condition	Structural Condition	RPA	RPA Radius	BS5837 Cat
T9	Austrian Pine Pinus nigra ssp. Nigra	18	560	5	M	G	Stem lean to the east No major defects	142	6.7	B (i)
T10	Norway Maple Acer platanoides	14	450	N - 8 S - 2.5 E - 8 W - 8	EM	P	Bark wound to the south side from 0.5m - 1m above ground level by 200mm leaving exposed heartwood Bark wound to the west side from 0.1m-1.2m above ground level x 250mm exposed heart wood Past pruning and branch socket cavities at 2m to the south side/ occluded wound to the north from ground level to 0.5m.	92	5.4	C (i)
T11	Horse Chestnut Aesculus hippocastanum	17	820	N - 4 S - 7 E - 8 W - 8	M	G	Past pruning- multiple numbers on the stem	304	9.8	B (i)
T12	Common Lime Tilia x europaea	10	520	3	EM	P	Basal suckers Multiple past pruning wounds Excessive seed production- possibly caused by stress Major dead wood	122	6.2	C (i)
T13	Austrian Pine Pinus nigra ssp. Nigra	18	550	6	EM	G	Lean to the east from ground level Drains are adjacent No major defects	137	6.6	B (i)
T14	Common Lime Tilia x europaea	15	520	5	EM	G	No significant defects Past pruning Basal suckers	122	6.2	B (i)
T15	Horse Chestnut Aesculus hippocastanum	14	500	6	EM	p	Past pruning on stem Sparse crown with epicormic growth	113	6.0	C (i)
T16	Locust Tree Robinia pseudoacacia	15	860	N - 7 S - 7 E - 3 W - 7	M	G	Typical form for species Twin leadered from 2m above ground level Basal suckers and epicormic growth	335	10.3	B (i)
T17	Norway Maple Acer platanoides	17	590	N - 11 S - 8 E - 8 W - 6	M	F	Past pruning on stem Scale aphid Open crown Branch stubs and minor dead wood	157	7.1	B (i)

Tree No	Species	Height	Stem Dia.	Crown Radius	Age Class	Overall Condition	Structural Condition	RPA	RPA Radius	BS5837 Cat
T18	Sycamore Acer pseudoplatanus	17	690	N - 8 S - 7 E - 3 W - 3	EM	G	No obvious defects Minor dead wood	215	8.3	B (i)
T19	Horse Chestnut Aesculus hippocastanum	13	640	5	M	P	Dysfunctional column on south side Delaminated bark on stem from ground level to 1.8m- exposed heart wood Branch stubs to the south side at 3m Past pruning Old Cerioporus squamosus to base	185	7.7	B (i)
T20	Locust Tree Robinia pseudoacacia	10	690	3	M	P	In decline Major and minor deadwood Basal suckers and epicormic growth Past pruning	232	8.6	C (i)
T21	London Plane Platanus x hispanica	17	580 520 460	10	M	G	Spreading form No obvious defects Low canopy Low crown break at 1.3m Epicormic growth	226	8.5	A (i)



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

TREE PROTECTION AREA
KEEP OUT !

(TOWN & COUNTRY PLANNING ACT 1990)
TREES ENCLOSED BY THIS FENCE ARE PROTECTED BY PLANNING CONDITIONS AND/OR ARE THE SUBJECTS OF A TREE PRESERVATION ORDER.
CONTRAVENTION OF A TREE PRESERVATION ORDER MAY LEAD TO CRIMINAL PROSECUTION

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

The following points are to be considered at all times:

1. Protective fencing has been installed at the extent of the calculated root protection area (RPA) - **DO NOT USE OR ACCESS** the ground within the fenced area. This is particularly the case for placement of site offices, stockpiles of soil or fuel and material storage, storing machinery or parking vehicles, debris or building materials or fires.

2. **AVOID** excavations, changes in ground levels or tracking machinery within the fenced area at ALL TIMES. These activities can seriously compromise the long term survival of trees due to the impact on a trees roots.

3. **REPORT** any instances where the fencing has been removed, repositioned, damaged or is not fit for purpose to the Site Manager. This shall help the Site Manager to ensure that the fencing is maintained throughout the construction process. It will also reduce the risk of any staff and contractors accidentally and inadvertently causing damage to trees as a result.

Retained trees are protected by planning law and reckless damage or non consented tree removal could result in the serving of a stop notice or prosecution by the LPA

For more information on Tree Protection please visit the website link https://goo.gl/hpBkTv or scan the QR code on a Smartphone or Tablet.

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Appendix C1: Tree Surgery Contractors – Tree Work Methodology

Table 1: Related Reference Material

Plan Name	Drawing Number
Tree Survey Plan	8151-T-01
Tree Retention Plan	8151-T-02
Tree Protection Plan	8151-T-03
Appendices	**Appendix Title**
Appendix A	Tree Schedule / Tree Works Schedule

The Site Manager and tree surgery contractor must ensure that any necessary consent has been received from the local authority and that no protected species are harmed whilst carrying out site clearance or tree surgery works.

The trees to be removed to facilitate the development will be marked up by the Arboricultural Clerk of Works during the pre-commencement site meeting and, where required, with the tree surgeon present. Highly visible fluorescent paint will be used to assist in identification. A pre-commencement tool box talk will be given and the works will only be carried out once the project ecologist is satisfied that there are no ecological constraints.

The trees to be removed are shown on the Tree Retention Plans (referenced above) as red circles hatched with red criss-crossing lines. A key has been provided on each of the plans to assist with identification.

Works on all trees cannot commence until all pre-commencement conditions have been discharged.

GENERAL TREE PRUNING RECOMMENDATIONS

All works shall be in accordance with BS 3998:2010 '*Tree work. Recommendations'*. Any competent arboriculturist will be aware of this publication and will be able to carry out work to the required standard. Therefore, the use of a competent tree surgery contractor is necessary to comply with this.

Prior to any pruning operations occurring, the tree and its surroundings should be assessed for the presence of any protected species and the timing of works should best avoid the potential for any adverse impact on wildlife. Consideration should be made for the seasonal cycles of species of fauna and flora e.g. nesting birds.

Minor pruning can be carried out at any time of the year however, it is recommended that pruning is avoided when deciduous trees, particularly maples, lime and birch are coming into leaf (Spring). Equally, pruning should be avoided in the autumn months when the trees ability to seal wounds is reduced and thus vulnerability to pathogenic decay fungi is much higher. Pruning in the Autumn depletes valuable energy reserves. This is particularly important if it is necessary to carry out heavy pruning or work on older trees. Pruning should also be avoided during or soon after drought.

Before any tree work operations commence, the method of disposal, utilization or retention of arisings should be prior agreed. Disposal of arising should not involve burning unless other options of disposal are impracticable or, as in the case of Ash Dieback, the material is affected by a diseases or pest for which industry guidance on sanitation dictates.

TREE WORKS SPECIFICATION

Crown lifting / Raising

Trees may require crown lifting in order to facilitate the correct positioning and erection of the Tree Protective Fencing as specified.

Crown lifting is the removal of the lowest branches and/or preparing of lower branches for future removal. Good practice dictates crown lifting should not normally include the removal of large branches growing directly from the main stem of the tree as this can cause large wounds which can become extensively decayed leading to further long-term problems or more short-term biomechanical instability. Crown lifting on older, mature trees should be avoided or restricted to secondary branches or shortening of primary branches rather than the whole removal wherever possible. Crown lifting should be restricted to less than 15% of the live crown height and leave the crown at least two thirds of the total height of the tree.

As a general rule branches should be removed at their point of attachment or shortened to a lateral which is at least 1/3 of the diameter of the removed portion of the branch, and all cuts should be kept as small as possible.

Removal of Epicormic Growth of Basal Suckers

Epicormic growth is the twiggy shoot growth which develops from adventitious buds under the surface of the trees bark. Epicormic growth develops more readily on some species (e.g. lime and sycamore) and is often observed growing from the base or stem of the tree. This can be caused as a result of a reaction to heavy pruning or as a reaction to a decline in the trees health.

Stump Grinding

Within root protection areas (RPA), stumps, shrubs and other vegetation must be removed by hand or using stump grinding machinery to minimize root damage to retained trees. Where poisoning of stumps is specified, this must be carried out by competent operatives. Only chemicals approved for this purpose and used in accordance with the manufacturer's instructions will be used.

No stumps are to be excavated due to the potential to damage existing rooting material of retained trees.

Appendix C3: Excavation Under Supervision – Working Methodology

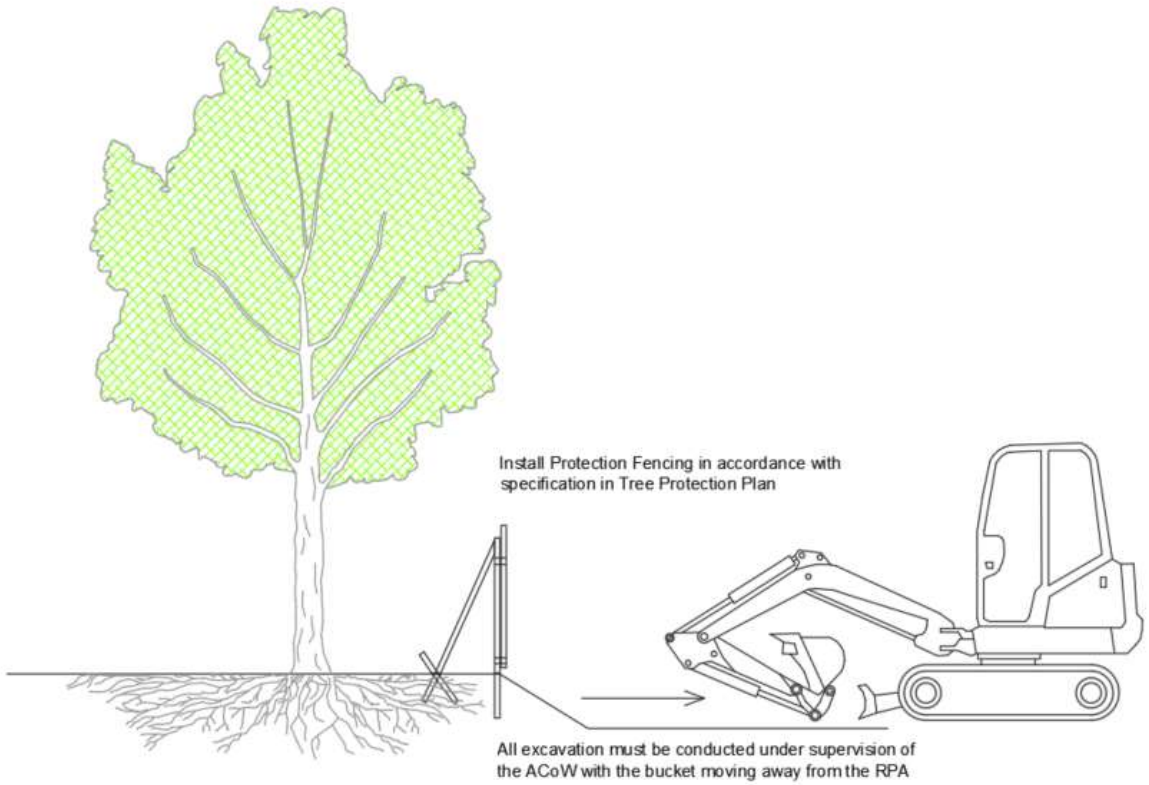
Table 1: Related Reference Material

Plan Name	Drawing Number
Tree Protection Plan	8151-T-03

The purpose of the Method Statement is to ensure that damage to the rooting area of all retained trees is protected from unnecessary damage. Due to the requirement for excavation within the root protection area of trees to widen the highway it is not possible to use “no-dig” construction for all proposed works.

The cutting of roots shall not entirely be avoidable during the removal of existing ground material to construct the certain parts of access road and residential plots. As such the excavation of this material is to be carried out under the supervision of the project Arboriculturalist. Any roots located / identified during these works shall be pruned back to the face of the trench as they became exposed. Roots shall be wrapped with hessian material, which is to be kept damp, until the area can be back filled.

Tree Protection Fencing positioned as shown on the Tree Protection Plans is not to be removed or moved back. No heavy machinery is to be positioned within the RPA of the tree and excavation is to be carried out with bucket of the excavator moving away from the tree.



Appendix C4: Installation of No-dig Cellular Confinement – Working Methodology

Table 1: Related Reference Material

Plan Name	Drawing Number
Tree Protection Plan	8151-T-03
Appendices	**Appendix Title**
Appendix E	Cellweb TRP Installation Guide

The purpose of the Method Statement is to ensure that the rooting area of all retained trees is protected from unnecessary damage. Therefore, the digging down, compacting the soil and creating an impermeable surface will be minimised.

A method to spread and support the load of the hard surface and anticipated usage without causing compaction of the soil structure beneath will be used. The use of "no-dig" industry led specialist engineering solutions i.e., three-dimensional load bearing cellular confinement systems shall be used to construct the footpath within the RPA of tree T5 & T6 etc.

Figures 1 and 2 demonstrate the specification for No-dig Footpath Construction and No-dig Permanent Road Construction (further details and product specifications are available upon request).

Figure 3 and Appendix E provides information from a reputable supplier (Geosynthetics Ltd).

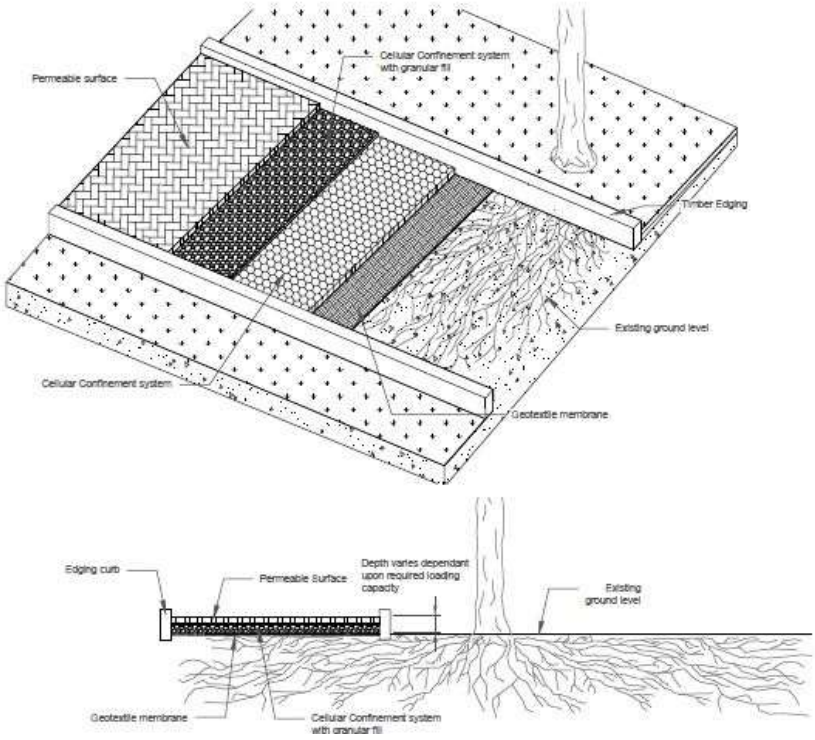


Figure 1: No-dig Footpath Construction

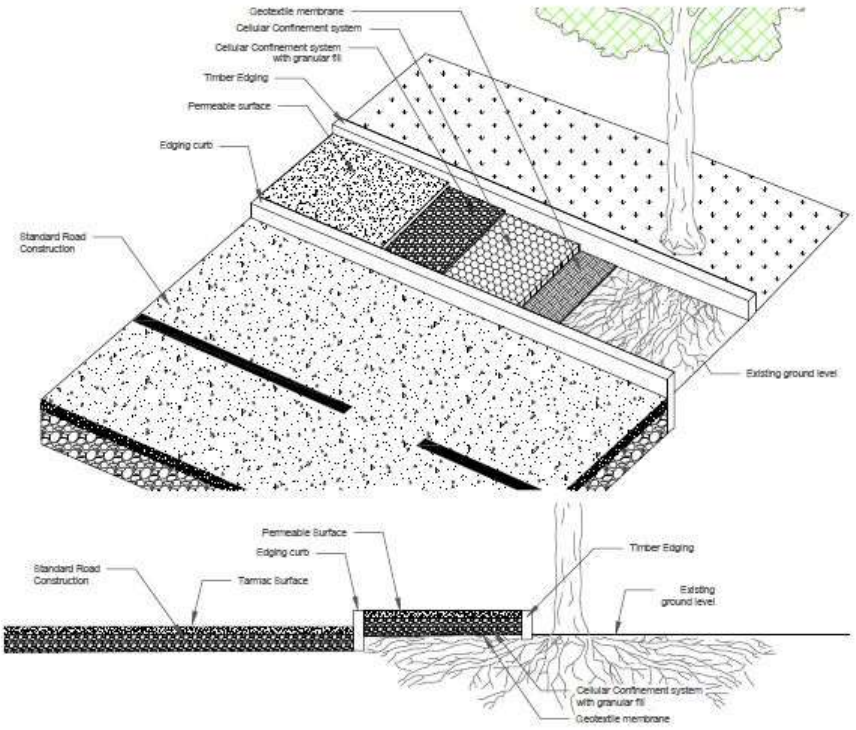


Figure 2: No-dig Permanent Road Construction

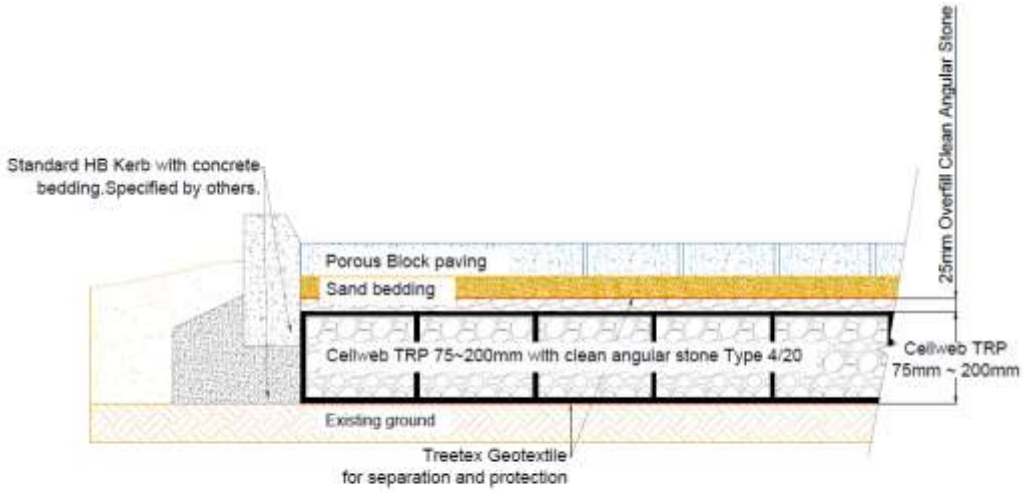


Figure 3: Geosynthetics Cellweb 75-200mm Block Paving Standard Detail

The principal rules to apply when constructing such a system as described above are as follows:

- Roots must not be severed, cut or broken;
- Original ground levels must not be changed;
- Soils must not be compacted;
- Oxygen and water must be able to diffuse into the soil beneath the engineered surface.

The initial task will include the removal of the existing vegetative surface. It is of paramount importance that particular care is taken when removing the top surface layer. This operation will need to be supervised by the Arboricultural Clerk of Works.

The use of a geotextile membrane will help support the sub-base and form a partial filter (a last line of defence) for contaminants such as oil and road salt. The sub-base will be porous to enable gaseous exchange and water infiltration. A suitable material is washed angular stone with a diameter between 20 – 40mm with no fine aggregates. Aggregates or stones must have a near neutral PH.

The surface material will be permeable paving. The exact specification of the hard surface is a matter for the Structural Engineer.

The following methodology should be used as a guideline for the installation of cellular confinement systems:

1. Under **arboricultural supervision** remove the upper surface layer vegetation / turf. The depth of the excavation will be determined by the arboriculturist and shall commence until the shallowest root with a diameter greater than 25mm, or a matt of fine fibrous tree roots, is encountered. Holes shall be filled with clean angular stone and sharp sand. Do not level off high spots or compact the soil through rolling.

2. Immediately after an even soil surface layer has been prepared, a geo textile membrane will be laid. The geo-textile membrane sheets should overlap by a minimum of 300mm.

3. The sub-base will be laid to a depth and specification prescribed by the Structural Engineer.

4. Lay out the collapsed cellular confinement system on-top of the membrane. Use a J pin (usually supplied) into the centre cell at the end of the panel and secure into the ground.

5. Pull the cellular confinement sheet out to its full length and secure its length with another J pin. Measure its width to 2.56m and secure in each of the corners with the J pins. Use 10 pins per panel to create a panel measuring 8.1m x 2.56m. **Each cell must be fully extended and under tension.**

6. Staple adjacent panels together at each cell (200mm: 5 staples. 150mm: 4 staples. 100mm: 3 staples. 75mm: 3 staples).

7. If a curved path or shape is required, this should be cut when the cellular confinement panel is pinned out to 8.1 x 2.56m, ensuring complete cells remain. **Do not try to curve or bend the panels into place.**

8. Infill the Clean Angular Stone. The infill material must be a clean angular stone, Type 4/20mm or Type 20/40mm. **Do not use M.O.T type 1 or crushed stone with fines for tree root protection.**

9. Infill the cells with the clean angular stone, working towards the tree and using the infilled panels as a platform – working from one end to the other. Minimum 25mm overfill of clean angular stone when used in conjunction with a hard surface. **No compaction is required of the infill. Do not use a whacker plate or other means of compaction.**

10. Encourage settlement of the stone with the use of a light roller or with 2-3 passes of the construction plant used for installation.

11. Where edging is required for footpath and light structures, the edge will comprise treated timber boards pegged every 500mm with a wooden peg on the outside. The top of the peg will be flush with the top of the board.

12. **All surfaces in Root Protection Areas must be porous**. Surfaces can include porous block paving, porous asphalt, loose gravel, grass and gravel retention systems (e.g Golpla), resin bound gravel, concrete and Astro turf.

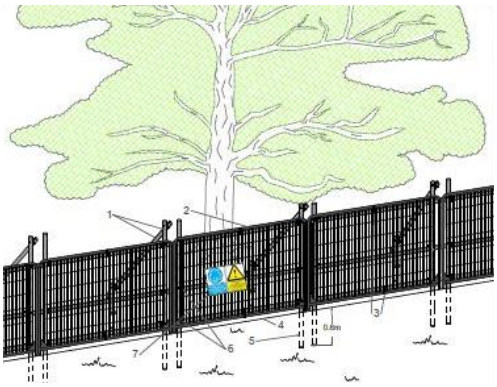
WHAT YOU NEED TO KNOW ABOUT WORKING NEAR TREES

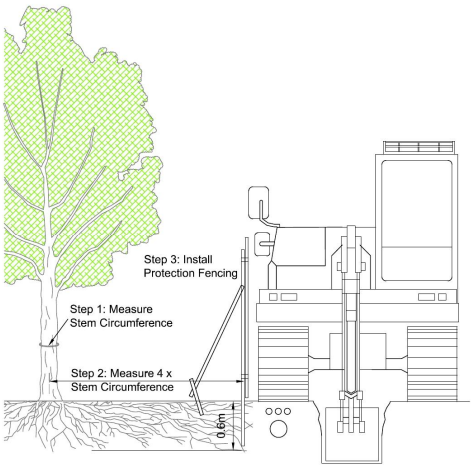
This advice note provides a brief overview of the methods of protection for trees located across the site. Compliance with these guidelines will be a requirement of all contractors working near retained trees.

Any construction works which are to be carried out near to or within the fenced off areas should be carried out in accordance with the Arboricultural Method Statement and as explained by the Site Manager during the site induction. Failure to adhere to the correct sequence, manner and timing of operations detailed in the Arboricultural Method Statement may result in irremediable damage to trees or disturbance to retained tree cover.

Retained trees are protected by planning law and reckless damage or non consented tree removal could result in the serving of a stop notice or prosecution by the LPA.

Trees make a significant contribution to the landscape character of the development and they are to be treated as important assets. To protect these assets, tree protective fencing has been installed where required across the site.





The following points are to be considered at all times.

1. Protective fencing has been installed at the extent of the calculated root protection area (RPA) - **Do not use or access** the ground within the fenced area. This is particularly the case for placement of site offices, stockpiles of soil or fuel and material storage, storing machinery or parking of vehicles, debris or building materials or fires.
2. **Avoid** excavations, changes in ground levels or tracking of machinery within the fenced area at **all times.** These activities can seriously compromise the long term survival of trees due to the impact on a trees roots.
3. **Report** any instances where the fencing has been removed, repositioned, damaged or is not fit for purpose (see images below) to the Site Manager. This shall help the Site Manager to ensure that the fencing is maintained throughout the construction process. It will also reduce the risk of any staff and contractors accidently and inadvertently causing damage to trees as a result.

Unacceptable example of tree protection due to a lack of adequate fencing and poor site management. Note mounds of soil have been placed within the Root Protection Area.

Tree Protection Fencing which has been erected prior to the commencement of any site works and the correct signage has been provided to clearly highlight that this is a protected zone.

Please acknowledge you have read and understand this document by visiting the website http://bit.ly/2EprKu8 or scanning the QR Code on a Smartphone or Tablet.

fpcr

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Cellweb® TRP Installation Guide

Step 1: Prepare Surface

Step 2: Lay out Treetex™

Step 3: Lay out Cellweb® TRP

- Cellweb® TRP is a NO DIG tree root protection measure and it is recommended that no excavation be performed without prior approval and guidance from the Local Authority Arboricultural Officer.
- Soil compaction from vehicles, machinery and materials is to be strictly prohibited during construction within Root Protection Areas (RPAs).
- Approval must be obtained from the Local Authority that the design and the method of construction is acceptable.
- Further information is available from the following two documents;
  - British Standard BS5837: 'Trees in Relation to Design, Demolition and Construction' (2012).
  - Arboricultural Advisory and Information Service: Practice note 12 – 'Through the Trees to Development' (APN12).

Installation Method

1. Prepare the Surface

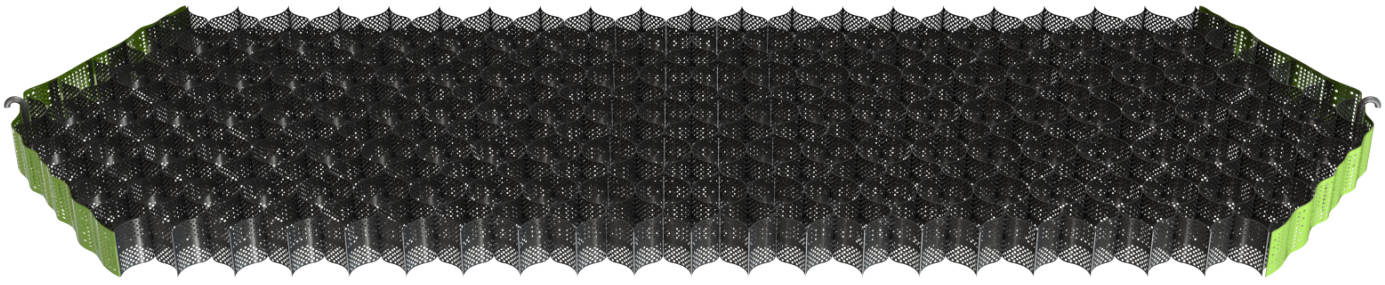
- Remove the surface vegetation using appropriate hand held tools or herbicide (see Note 1).
- Remove any surface rocks, debris and organic material.
- Create a level surface by filling any hollows with clean angular stone or sharp sand.
- Do not level off high spots or compact the soil through rolling.

2. Lay out the Treetex™ Non-Woven Geotextile

- Lay out the Treetex™ over the prepared area, overlaying the edges of the required area by 300mm.
- Overlap any joins by 300mm minimum or more, depending on soil structure (see Note 2).

3. Lay out the Cellweb® TRP Cellular Confinement System

- Lay out the collapsed Cellweb® TRP on-top of the Treetex™.
- Place one of the supplied J pins into the centre cell at the end of the panel and secure into the ground.

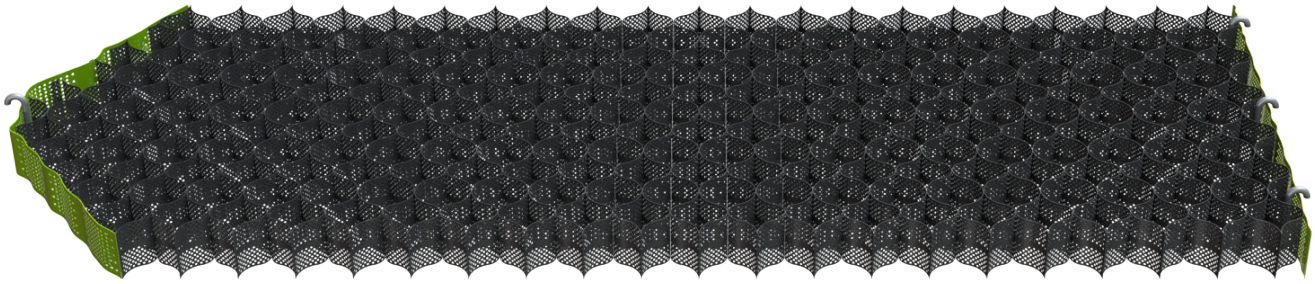


Cellweb® TRP - Installation Guide

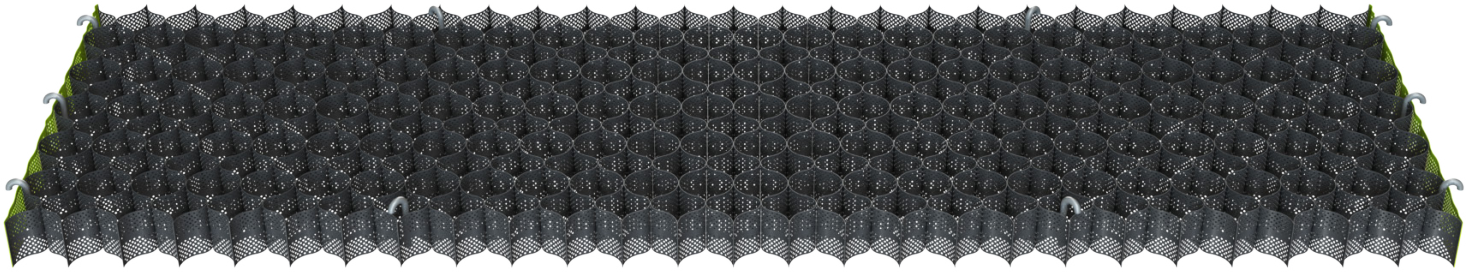
Step 3: Pinning Cellweb ® TRP

Step 3: Stapling Cellweb ® TRP

- Pull out the Cellweb® TRP to its full 8.1m length and secure its length with another J pin.



- Now measure its width to 2.56m and secure in each of the corners with the J pins.
- Use 10 pins per panel to create a panel measuring 8.1m x 2.56m.



- This will produce a cell size of 259mm x 224mm which is the required cell aperture. Each cell must be fully extended and under tension.
- Staple adjacent panels together at each cell (see Note 3).
- If a curved path or shape is required, this should be cut when the Cellweb® TRP panel is pinned out to 8.1 x 2.56m, ensuring complete cells remain. Do not try to curve or bend the Cellweb® TRP panels into place.
- When cutting Cellweb® TRP, please bear in mind that you will lose two internal cells per cut. Across a 8.1m long panel, this equates to a loss of 0.224m x 2 along the length or 0.259m x 2 across the width.

Cellweb® TRP - Installation Guide

Step 4: Clean Angular Stone

Step 5: Edge Restraints

Step 6: Surface Options

4. Infill the Clean Angular Stone

- The infill material must be a clean angular stone, Type 4/20mm or Type 20/40mm (see Note 4).
- Do not use M.O.T type 1 or crushed stone with fines for tree root protection.
- Infill the Cellweb® TRP cells with the clean angular stone, working towards the tree and using the infilled panels as a platform.
- Minimum 25mm overfill of clean angular stone when used in conjunction with a hard surface.
- No compaction is required of the infill. Do not use a whacker plate or other means of compaction**.**
- Encourage settlement of the stone with the use of a light roller or with 2-3 passes of the construction plant used for installation.
- If the clean angular stone is being used as the final surface; regular maintenance will be required to ensure a minimum overfill of 50mm.

5. Edge restraints

- Excavations for kerbs and edgings should be avoided within the RPAs.
- Where edging is required for footpath and light structures, a peg and treated timber board edging is acceptable
- Other options include wooden sleepers, kerb edging constructed on-top of the Cellweb® TRP system, plastic and metal edging etc.

6. Surface options

- All surfaces in Root Protection Areas must be porous. Surfaces can include porous block paving, porous asphalt, loose gravel, grass and gravel retention systems (e.g Golpla), resin bound gravel, concrete and astro turf.

NOTES

1. **Herbicide:** According to BS5837:2012 "The use of herbicides in the vicinity of existing trees should be appropriate for the type of vegetation to be killed, and all instructions, warnings and other relevant information from the manufacturers should be strictly observed and followed. Care should be taken to avoid any damaging effects upon existing plants and trees to be retained, species to be introduced, and existing sensitive habitats, particularly those associated with aquatic or drainage features."
2. **Geotextile:** We recommend the installation of a Treetex™ under the Cellweb® TRP, or under the sub-base, if installed. The overlapping between adjacent rolls of Geotextile should be: CBR > 3%: 300mm minimum, CBR between 1% and 3%: 500mm minimum. CBR ≤ 1%: 750mm minimum.
3. **Staples:** Number of staples per join: 200mm: 5 staples. 150mm: 4 staples. 100mm: 3 staples. 75mm: 3 staples.
4. **Granular Fill:** Open graded sub-base, clean angular stone Type 4/20 or Type 20/40. Please refer to BS7533-13:2009 and to the Design Manual for Roads and Bridges (DMRB), Volume 4 Geotechnics and Drainage, Section 1 Earthworks, HA44/91, Volume 7 – IAN 73/06 Design Guidance for road pavement foundations and Manual of Contract Documents for Highway Works (MCHW), Volume 1 Specification for Highway Works for the construction and maintenance of the fill material.