

Trees and Construction

BS5837:2012 Tree Survey, Arboricultural Implications Assessment & Method Statement

Site: 5 Millbrook Drive, Kirkby, L32 1TE

Ref: 221144/AIA /A2

Client: Helen Rennard



(Mail) 2nd Floor | 1 Hunters Walk | Canal Street | Chester | CH1 4EB

0333 123 7080 | info@indigosurveys.co.uk

www.IndigoSurveys.co.uk

Arboricultural Consultant (Author):
Rod Benzies <i>ND Arb, BSc Forestry M.Arbor.A</i>

- Oct 2022 -

TABLE OF CONTENTS

Chapter	Title	Page
1	Introduction	3
2	Site & Application Information	4
3	Findings & Recommendations	5
4	Scheme / Impact Assessment	6
5	Method Statement 'Considerations'	7 - 11

Appendices

Caveat	I
Terms and Definitions	II
Tree data table, Tree Constraints Plan & Tree Protection Plan	III

Revision	Description	Date
/	Tree Survey Advice (221144/A1)	20/09/2022

1. INTRODUCTION

- 1.1 **Instruction:** This advice has been prepared for Helen Rennard (hereafter; client) and is in respect of the tree related planning considerations at 5 Millbrook Drive, Kirkby, L32 1TE (hereafter; site).

As the proposal relates to development works at site, the advice herein is produced in accordance with the British Standard 5837 : 2012 '*Trees in Relation to Design, Demolition and Construction - Recommendations*' (hereafter; BS5837).

- 1.2 **BS5837:** The scope of BS5837 is to provide guidance on how trees and other vegetation can be integrated into construction and development design schemes. The overall aim is to ensure the protection of amenity by trees which are appropriate for retention.
- 1.3 **Scope of this advice:** This advice has been produced in accordance with BS5837 and is intended to demonstrate the site's realistic arboricultural constraints and assist with the design process. The objective is to systematically assess and provide suitable recommendations regarding the proposal's potential impact on trees and vice versa.
- 1.4 Following instruction the consultant surveyed the site on the 8th July 2021 where a site walkover and BS5837 tree survey were carried out; all trees on site and around the application boundary were surveyed from ground level and plotted as either an individual or a tree group.
- 1.5 This advice is subject to caveat at Appendix I, outlines relevant terms and definitions at Appendix II and constitutes the findings of the preliminary site assessment and associated arboricultural recommendations.
- 1.6 The survey data and site observations used plans provided by the client to illustrate the surveyed trees in plan format as a 'Tree Constraints Plan' (hereafter; TCP); the TCP and the tree survey data table are at Appendix III.

2. SITE INFORMATION & TREE ASSESSMENT

- 2.1 5 Millbrook Drive, is a semi detached property with gardens to the front and rear. It is accessed from Millbrook Drive and the rear garden is accessed from the side. Similar style properties are adjacent to the site and there is woodland to the north
- 2.2 **Proposal:** It is understood that the project is to construct a garden room to the rear which will replace an existing structure and use footings of a previous structure that extend the width of the rear garden.
- 2.3 The site requires consideration from an arboricultural perspective due to the presence of trees on and around the site; these trees are deemed to be within impacting distance of the existing property and potential construction area.
- 2.4 The trees -
- 2.4.1 The tree survey and objective assessment resulted in BS5837 quality/retention categories 'B - moderate' and 'C - low' being attributed to trees and groups; it is also worth noting that the BS5837 standard circular RPAs would halt at the extents of the previous foundations and roadways.
- 2.4.2 The BS5837 tree survey is a means of objective assessment and reflects the trees' condition, quality contribution, remaining life expectancy and spatial considerations (stem, crown and roots). On this basis and in order to consider the trees' accurate constraints, the survey data has the crown extents for north, south, east west, the stem diameter measurement, and the calculated root protection areas (hereafter; RPAs). Hereafter, the trees are therefore reviewed and considered on their own merits and in line with the guidance of BS5837.

3. FINDINGS & RECOMMENDATIONS

3.1 The following information, as with the prior contents of this report, should be read with the appended tree data table and tree constraints plan (221144/TCP/01).

3.2 General Considerations for Tree Retention / Removal

3.2.1 The 'B' Class trees are considered of value both individually and in the landscape and should be retained by design. Proposed encroachment or removal would need to be justifiable and mitigated in any approved scheme.

Whilst the retention and protection of 'B' category trees is recommended, the removal of some will be mitigated. Subject to supplementary details for tree selection as part of a well delivered landscape scheme, proposals of this nature may then be accepted by the council. However, this will require higher grade larger nursery planting stock than that to mitigate the removal of 'C' category trees.

3.2.3 There are a number of low quality 'C' category trees and groups which have been noted as such due to either their small scale, defects and limited current contribution and/or limited future potential. Hence, they should not significantly constrain nor guide the scheme. However, retention may be preferable to retain landscape maturity. Where tree removals are required, mitigation tree planting is recommended and to be integrated as part of a landscape scheme.

3.2.2 **Note:** No removal of any trees due to the proposal is anticipated

4. SCHEME / IMPLICATIONS ASSESSMENT

4.1 For this assessment, the proposed scheme has been considered (see; s.2.2 herein). This includes consideration for arboricultural management / tree works for H&S tree risk management, tree removal and pruning options, design solutions, tree protection and sensitive measures to account for trees. As per s.1.6 and s.2.2 herein, the TCP scheme overlay illustrates the proposed scheme.

4.2 *Consideration for T1, T3, T4 and T5-*

4.2.1 It is suspected that the existing footprint situated along the rear boundary will form a barrier to the roots of the above trees. The modified RPAs of these trees is shown on the TPP. As such the roots from these trees are unlikely to be affected by the construction activities given that it is also intended to install them using sensitive techniques (section 5.3)

5. METHOD STATEMENT 'CONSIDERATIONS'

5.1 Arboricultural Construction Restrictions

5.1.1 The following restrictions are considered relevant for tree protection purposes which are illustrated on the appended Tree Protection Plan:

- a) **Tree Protection** - a site compound will be set up within the application boundary, excluding the surveyed trees as per the TPP, or Protective Barrier Fencing (PBF) is to be installed as per the TPP.
- b) **Construction Exclusion** - the fenced off areas are Construction Exclusion Zones (CEZ).
- c) **Site Restrictions** - no chemicals/materials are to be transported/stored/used/mixed within the CEZ, and no fires are to be lit and no machinery, plant or vehicles are to be washed down within 10m of the tree's canopy or in a CEZ.
- e) **Ground Works** - during site works RPAs/CEZ may not be breached, i.e. no surface works, without the consultant's prior advice and council consent, and no mechanical digging or scraping is permitted within RPAs/CEZ;
- d) **Sensitive Landscape** - the PBF may be temporarily moved to allow pedestrian access to start sensitive soft landscape works within RPA, i.e. turf removal, retained soil levels, new planting, mulch borders.
- e) **Completion** - only following construction and hard landscape completion can PBF be removed and remaining soft landscape works undertaken within RPAs / CEZ (ground levels to be retained and works undertaken manually with non driven machinery).

5.2 Arboricultural Site Monitoring / Supervision

- 5.2.1 The council will typically request '*a scheme of supervision for the arboricultural protection measures*' to confirm tree protection and adherence to working methods around trees.
- 5.2.2 The appointed site contractor and project manager will be provided with an approved AMS and TPP and will need to be briefed as to prohibited works and tree protection.
- 5.2.3 A record of each site visit will be kept, and a summary letter drafted for the client, the site manager and the local authority (to be sent to the client for distribution), thus -
- (1) ***Pre-commencement*** to confirm approved tree works, site hoarding / tree protection fence line, ground protection and construction restrictions for ground works.
 - (2) ***Development completion*** after all hard landscape works is complete to sign off the site as having adhere to the AMS.

5.3 Sensitive Ground Works (Within or in close proximity to RPAs)

- 5.3.1 Any excavations necessary within a RPA or designated CEZ (as illustrated on the TPP - each RPA and the areas enclosed by PBF) must:
- Retain the existing soil levels; and
 - Use sensitive excavation techniques to protect the tree roots and their existing growing conditions, i.e. sensitive manual excavations / air spade.
- 5.3.2 The RPA excavation areas are to be marked out [as per the TPP] on surfaces and undertaken by hand with the use of manually operated (hand held) tools.
- 5.3.3 The excavations are to be preventative and carefully avoid damage to tree roots; therefore, individual 50mm layers are to be excavated at a time within an RPA/CEZ. This is to ensure that excavations do not incur on the existing soil levels, i.e. no downward regrading of soil levels within RPAs.
- 5.3.4 Any exposed roots shall be packed with a clean damp sand (not builders sand) and wrapped in hessian sacking to protect them from temperature changes and drying out.
- 5.3.5 Small roots (those less than 25mm in diameter) may be carefully pruned back with a clean sharp tree saw. However, pruning large roots (those greater than 25mm in diameter) will require the advice of the consultant and permission of the council; these may be necessary for a tree's health and stability.
- 5.3.6 Once the surface layer material has been removed, any hessian wrapping will be removed and roots will be surrounded/packed with a sharp sand and any existing

ruts, holes or dips are to be infilled with a mix of sharp sand and high grade tree planting soil.

5.3.7 Any exposed roots shall be packed with a clean damp sand (not builders' sand) and wrapped in hessian sacking to protect them from temperature changes and drying out.

5.3.8 Small roots (those less than 25mm in diameter) may be carefully pruned back with a clean sharp tree saw.

5.4 Protective Barrier Fencing (PBF) Specification

5.4.1 Both existing boundary fencing is to be maintained and temporary barrier fencing is to be installed (and signed off by way of arboricultural supervision). It is illustrated on the Tree Protection Plan and is to remain in situ for the entire duration of preparation/construction processes unless otherwise agreed in writing by the council.

5.4.2 To comprise of 1.5 to 2m Heras panels. All weather notices should be erected at regular intervals on the weld mesh panels with words such as "Construction exclusion zone - Keep out".

5.5 Ground Protection

5.5.1 Ground protection will comprise solely of the existing footings and infill at the rear boundary of the property.

5.6 Underground utilities

5.6.1 Underground utilities are to be installed as per a dedicated plan and be clear of RPA by design. Otherwise, and if RPAs cannot be avoided, the following restrictions are recommended for underground utilities within RPAs:

- Any necessary excavations to be undertaken sensitively using either a no-dig method (e.g. Air-Spade) and/or under arboricultural supervision;
- Any exposed roots shall be packed with a clean damp sand (not builders sand) and wrapped in hessian sacking to protect them;
- Small roots which are identified (those less than 25mm diameter) may be carefully pruned back with a clean sharp tree saw; and
- Larger roots which are identified (those greater than 25mm in diameter) are to be retained and protected as they may be necessary for a tree's health and stability.

5.7 Report Handling

5.7.1 This report is released to the client and architect to be distributed at their discretion and the consultant is available for queries relating to this report and/or trees.

5.7.2 The proposed scheme is reviewed in respect of the arboricultural constraints and is considered to be achievable in line with the BS5837 guidance. The tree protection methods herein may be approved by the council for which a planning approval will

be subject to a final and detailed Arboricultural Method Statement based on the approved information and other detail perhaps not available at the pre-planning approval stage, i.e. utility layout, final landscape plan, construction management plan (CMP) etc.

- 5.7.3 This AMS and the TPP may be approved by the council in support of the application, subject to a conditioned final AMS and TPP as a means of authorised tree protection measures; all site personnel will have access to a copy and the tree work and protection details are to be inspected as per s.5.2 for '*Arboricultural Monitoring / Supervision*'.

This concludes our advice.

Appendix I

Caveat

Any and all information supplied to Indigo Surveys Ltd by/on behalf of the client is assumed to be accurate unless otherwise informed. | This advice is limited to the observations made on the date of inspection as detailed herein and any deletion, editing or alteration will result in the advice being null and void in its entirety. | This advice in its entirety may be deemed null and void if remedial works are undertaken on any area of the site, on or after the date of the survey. | No liability is assumed by the author or by Indigo Surveys Ltd for any misuse, misinterpretation or misrepresentation of this advice. | This advice is not valid in adverse or unpredictable weather conditions or for any failure due to 'force majeure' or unpredictable events. | No responsibility is assumed either by the author of this advice or by Indigo Surveys Ltd for any legal matters that may arise as a consequence. | Neither the author nor Indigo Surveys Ltd will be required to attend court or give testimony as part of this agreement. | The responsibility for any works undertaken on the basis of the recommendations of this advice does not form part of this agreement.

Appendix II

Terms and Definitions

“Arboriculturist” - person who has, through relevant education, training and experience, gained expertise in the field of trees in relation to construction.

“Competent Person” - person who has training and experience relevant to the matter being addressed and an understanding of the requirements of the particular task being approached.

“Topographical survey” - an accurately measured land survey undertaken to show all relevant existing site features. *A method of carrying out topographical surveys is given in RICS specification* Surveys of land buildings and utility services at scales of 1:500 and larger.

“BS5837 Tree survey” - should be undertaken by an arboriculturist to record information about the trees on or adjacent to a site. The results of the tree survey, including material constraints arising from existing trees that merit retention, should be used (along with any other relevant baseline data) to inform feasibility studies and design options. For this reason, the tree survey should be completed and made available to designers prior to and/or independently of any specific proposals for development.

“Tree categorisation method” - trees should be categorised in accordance with the BS5837 cascade chart by an arboriculturist. This is to identify the quality and value (in a non-fiscal sense) of the existing tree stock, allowing informed decisions to be made concerning which trees should be removed or retained in the event of development occurring.

“Root protection area (RPA)” - layout design tool indicating the minimum area around a tree deemed to contain sufficient roots and rooting volume to maintain the tree’s viability, and where the protection of the roots and soil structure is treated as a priority, shown as an arboricultural constraint in m². The radius is calculated using the BS5837 calculation method. An arboriculturist may change the shape of an RPA but not reduce its area.

“Arboricultural implications assessment” - a study, undertaken by an arboriculturist, to identify, evaluate and possibly mitigate the extent of direct and indirect impacts on existing trees that may arise as a result of the implementation of any site layout proposal.

“Arboricultural method statement” - methodology for the implementation of any aspect of development that is within the root protection area, or has the potential to result in loss of or damage to a tree to be retained.

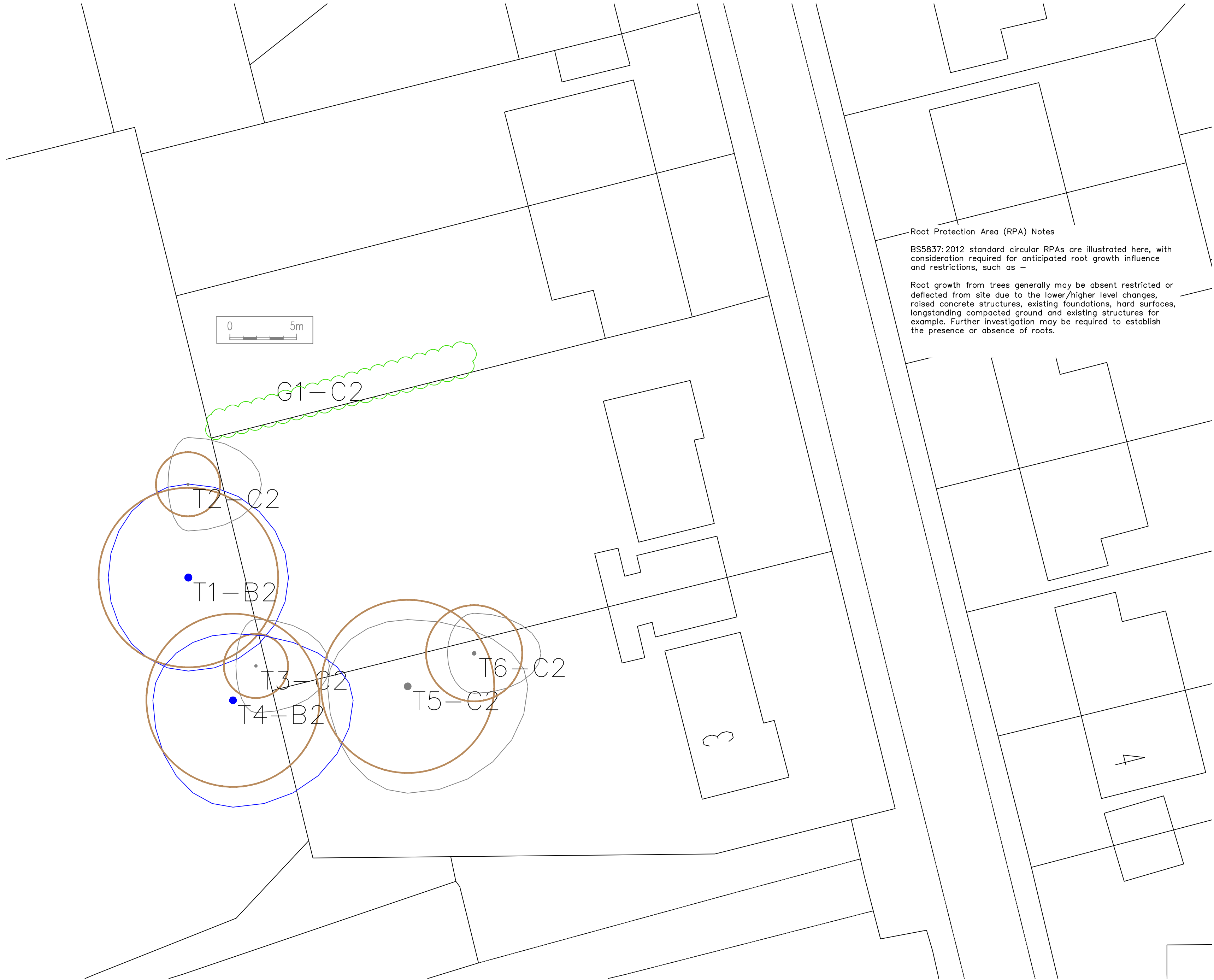
“Tree protection plan” - a scale drawing, informed by descriptive text where necessary, based upon the finalised proposals, showing trees for retention and illustrating the tree and landscape protection measures.

Appendix III

Data Table:	As appended (BS5837 Tree Survey Key & Table)
Tree Constraints Plan: (TCP / Scheme Overlay)	As appended (221144/TCP/01)
Tree Protection Plan: (Application Stage)	As appended (221144/TPP/01)

TREE SURVEY IN ACCORDANCE WITH BRITISH STANDARD 5837:2012 'TREES IN RELATION TO DESIGN, DEMOLITION & CONSTRUCTION - RECOMMENDATIONS'																
CLIENT: Helen Rennard				PROJECT REF: 221144/A1				SITE: 5 Millbrook Drive, Kirkby, L32 1TE								
CONTACT: /				SURVEY DATE: 1 September 2022				ARB CONSULTANT: Rod Benzies ND Arb, BSc, MArborA								
TREE REF. #	SPECIES	AGE	HEIGHT (in m)	CANOPY (in m) N - S - E - W				STEM (in mm)	RPA (in m)	CLEARANCE (in m)	1st BRANCH (in m)	VITALITY	LIFE EXPEC.	NOTES	BS CAT.	MANAGEMENT
T1	Sycamore; Acer psuedoplatanus; Aceraceae	M	18+	7	7	7.5	6	560*	6.7	1	3.5 All round	Norm	20-40	Situated in neighbouring property. Limited access for full VTA. 4m from boundary edge 8m from side. Sucker growth is occurring around the base.	B 2	
T2	Sycamore; Acer psuedoplatanus; Aceraceae	SM	14	3.5	3.5	5.5	1.5	200*	2.4	1	3.5 All round	Norm	20-40	Situated in neighbouring property. Limited access for full VTA	C 2	
T3	Sycamore; Acer psuedoplatanus; Aceraceae	SM	14	3.5	3.5	5.5	1.5	200*	2.4	1	3.5 All round	Norm	20-40	Situated in neighbouring property. Limited access for full VTA	C 2	
T4	Common Beech; Fagus sylvatica; Fagaceae	M	20+	5	8	9	6	540*	6.5	1	2 Splay	Norm	20-40	Situated in neighbouring property. Limited access for full VTA. Multistemmed from 1.7m	B 2	
T5	Cherry; Prunus (species); Rosaceae	M	15+	5	8	9	6	540*	6.5	1	2 Splay	Norm	20-40	Situated in neighbouring property. Limited access for full VTA. Multistemmed from 1.7m. Managed by adhoc crown pruning and reduction	C 2	
T6	Plum; Prunus (spps) Rosaceae	M	10	3	3	5	2	300*	3.6	1	1 Splay	Low/ Norm	20-40	Situated in neighbouring property. Limited access for full VTA. Managed by adhoc crown pruning and reduction. Multistemmed from base	C 2	
G1	Conifers garden shrubs	M	6	n/a	n/a	n/a	n/a	250	2.8	0	0	Norm	20-40	Situated in neighbouring property. Garden ornamental planting	C 2	

TREE SURVEY 'KEY' - BRITISH STANDARD 5837:2012 'TREES IN RELATION TO DESIGN, DEMOLITION & CONSTRUCTION - RECOMMENDATIONS'																
TPO/CA		-	On client request: presence of Tree Preservation Orders (TPO) / site location within a Conservation Area (CA) & date checked;													
TREE REF. #		-	Tree reference number: tag or plan number (T - individual tree, G - group of trees/shrubs, H - hedge);													
SPECIES		-	Genus, species and/or common name;													
AGE		-	Age classification (NP - new planting, Y - young, EM - Early-Mature, SM - semi mature, M - mature, LM - late mature, OM - over mature);													
HEIGHT (in m)		-	Approximate height of tree in metres;													
CANOPY (in m) N - S - E - W		-	Approximate branch spread in metres of the four principal compass points;													
STEM (in mm)		-	Stem diameter in millimetres: measured in accordance with s.4.6 of BS5837;													
RPA (in m)		-	Circle radius of the Root Protection Area: calculated using the stem diameter (single/multiple stem variant, as outlined within BS5837);													
CLEARANCE (in m)		-	Crown clearance in metres above the adjacent ground level;													
1ST BRANCH (in m)		-	Clearance in metres to first significant branch and direction of growth (where relevant);													
VITALITY		-	Physiological condition typically gauged from canopy cover and annual extension growth (good, fair, poor, dead);													
ESTIMATED REMAINING CONTRIBUTION		-	Approximate number of years a tree will continue to contribute without the need for oppressive arboricultural intervention, categorised in years as <10, 10-20, 20-40 and >40;													
NOTES		-	Structural and physiological condition observations;													
BS CAT.		-	BS5837 tree quality assessment category: resulting from structural/physiological condition and remaining contribution (approximate useful life expectancy);													
		-	Standard retention category U : in such a condition that any existing value would be lost within 10 years;													
		-	Standard retention category A : high quality and value, in such a condition as to be able to make substantial contribution of 40+ years;													
		-	Standard retention category B : moderate quality and value, in such a condition as to make a significant contribution of 20+ years;													
		-	Standard retention category C : low quality and value, currently in adequate condition to remain until new planting could be established 10+ years;													
		-	Standard retention sub-category, mainly due to: 1 - Arboricultural values, 2 - Landscape values, 3 - Cultural values, including conservation;													
MANAGEMENT		-	Preliminary management recommendations (as appropriate);													
' * '		-	Within the survey schedule denotes an estimate													



KEY

Tree Crown Spread

Root Protection Area (RPA)

Tree Stem

T1

Tree No.

Removed Tree

Tree Condition Category

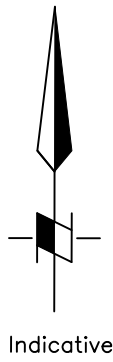
A

B

C

U

The surveyed trees are illustrated on this Constraints Plan which is prepared in accordance with British Standard BS5837: 2012 'Trees in Relation to Design, Demolition and Construction – Recommendations'



Root Protection Area (RPA) Notes

BS5837:2012 standard circular RPAs are illustrated here, with consideration required for anticipated root growth influence and restrictions, such as –

Root growth from trees generally may be absent restricted or deflected from site due to the lower/higher level changes, raised concrete structures, existing foundations, hard surfaces, longstanding compacted ground and existing structures for example. Further investigation may be required to establish the presence or absence of roots.

DO NOT SCALE FROM DRAWING

The original of this drawing was produced in colour – a monochrome copy should not be relied upon.

REV.	DESCRIPTION	DWN	CHK'D	DATE		
CLIENT Helen Rennard						
PROJECT 221144/A1 5 Millbrook Drive, Kirkby, L32 1TE						
TITLE Tree Constraints Plan						
DWN	DATE	CHK'D	DATE	APP'D	DATE	SCALE
RPHB	20/09/2022	AT	20/09/2022			1–200
 (Mail) Second Floor, 1 Hunter's Walk, Canal Street, Chester. CH1 4EB Telephone: 0333 123 7080 www.indigosurveys.co.uk						
Drawing Number 221144/A1/TCP/01						A2 REV.

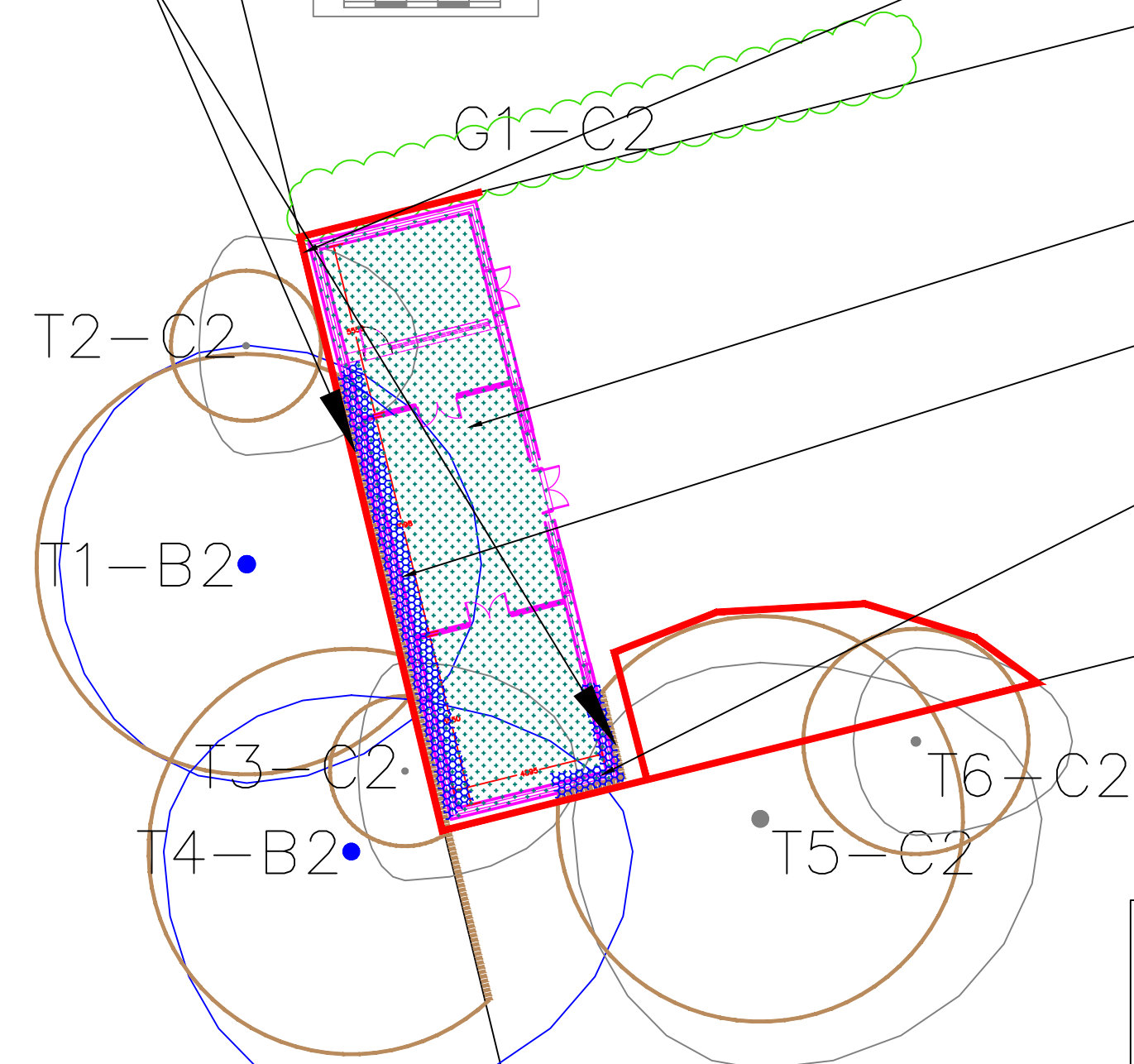
THIS DRAWING IS CONFIDENTIAL AND MUST NOT BE REPRODUCED WITHOUT THE CONSENT OF INDIGO SURVEYS LTD.

Root Protection Area (RPA) Notes

BS5837:2012 standard circular RPAs are illustrated here, with consideration required for anticipated root growth influence and restrictions, such as –

Root growth from trees generally may be absent restricted or deflected from site due to the , existing foundations, hard surfaces, longstanding compacted ground and existing structures already on site. Further investigation may be required to establish the presence or absence of roots.

1. Root growth from T1, T3, T4 and T5 may be restricted by the existing footings of a previous construction visible on site. It is understood that the proposal will use these footings or replace them.
2. RPA's on the TPP have been adjusted to take into account to take into account the above root constraints.



Tree Pruning:
Trees are sufficiently clear of proposed structure so no pruning is required.

Protective Barrier Fencing (PBF):
Existing boundary fence is to be retained for tree protection during construction. Only to be replaced if required after construction completion. Protection for T5 and T6 to comprise of 2m tall welded mesh panels on rubber or concrete feet. Panels are to be joined together using a minimum of two anti-tamper couplers, installed so that they can only be removed from inside the fence. The panels should be supported on the inner side by stabilizer struts, which should be attached to a base plate and secured with ground pins. All weather notices should be erected at regular intervals on the weld mesh panels with words such as "Tree Protection Area – Keep out". See example on TPP..

Ground Protection:
Existing footings are to be used as ground protection throughout construction.

Sensitive Ground Works (foundation excavations) – excavations to be sensitive and manual along the approved footprint, under arboricultural supervision to carefully prune any roots back to clear the foundation.

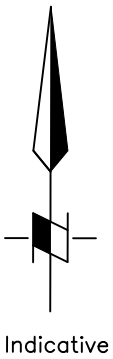
KEY

Tree Crown Spread
Root Protection Area (RPA)
Tree Stem
T1 Tree No.
Removed Tree

Tree Condition Category

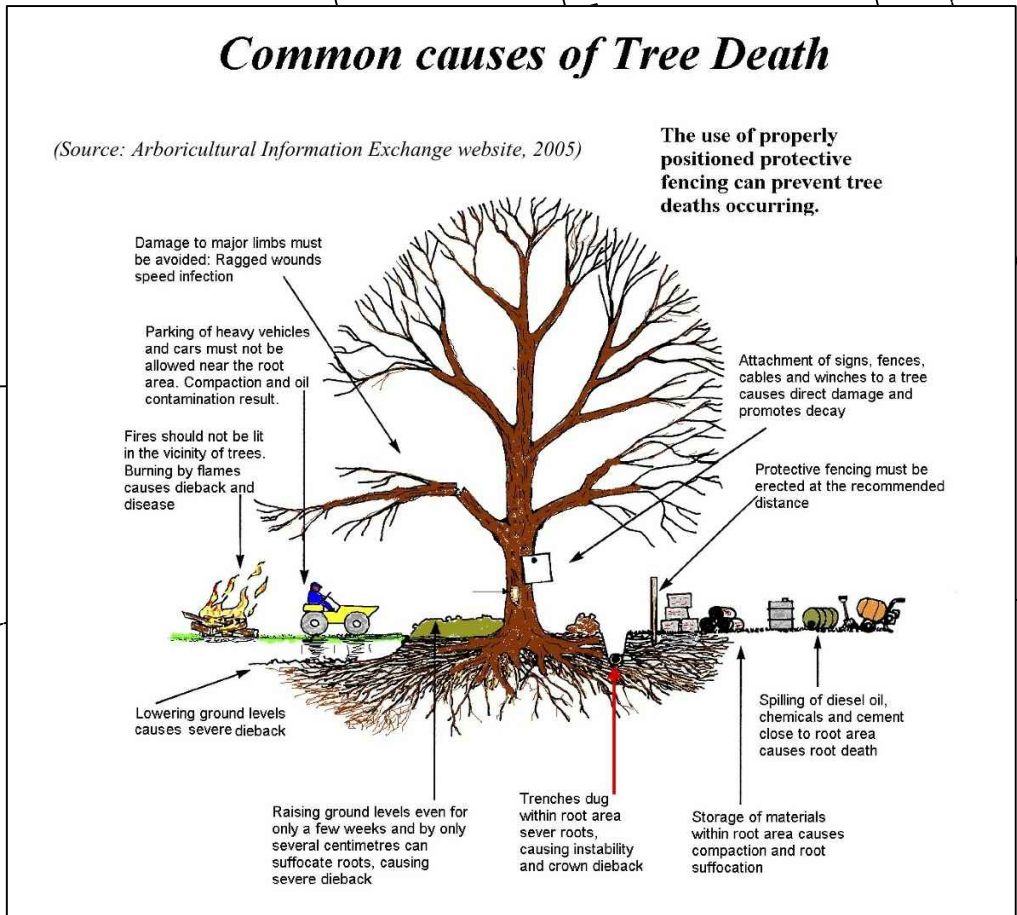
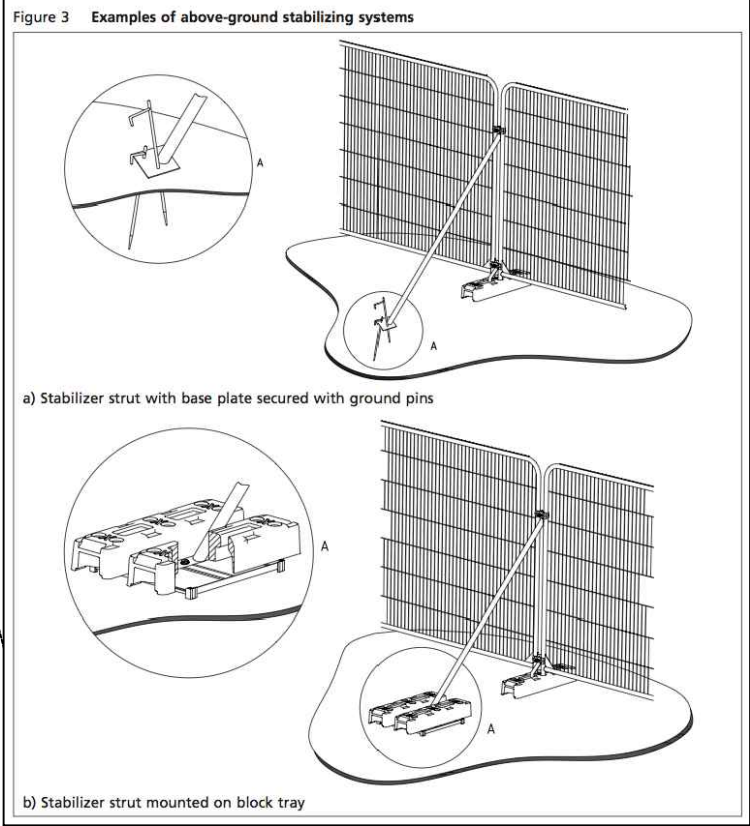
A
B
C
U

The surveyed trees are illustrated on this Constraints Plan which is prepared in accordance with British Standard BS5837: 2012 'Trees in Relation to Design, Demolition and Construction – Recommendations'



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



REV.	DESCRIPTION	DWN	CHK'D	DATE

CLIENT
Helen Rennard

PROJECT
221144/TPP/A2
5 Millbrook Drive,
Kirkby, L32 1TE

TITLE
Tree Protection Plan

DWN	DATE	CHK'D	DATE	APP'D	DATE	SCALE
RPHB	11/10/2022	AT	11/10/2022			1 – 200



(Mail) Second Floor, 1 Hunter's Walk, Canal Street, Chester. CH1 4EB
Telephone: 0333 123 7080 www.indigosurveys.co.uk

Drawing Number
221144/A2/TPP/01

A2
REV.

THIS DRAWING IS CONFIDENTIAL AND MUST NOT BE REPRODUCED WITHOUT THE CONSENT OF INDIGO SURVEYS LTD.

DO NOT SCALE FROM DRAWING

The original of this drawing was produced in colour – a monochrome copy should not be relied upon.