Seddon Homes

Former Midlothian Garage, New Mill Road, Holmfirth

Arboricultural Method Statement

September 2018

FPCR Environment and Design Ltd
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Rev	Issue Status	Prepared / Date	Approved/Date
-	Final	TCB / 31.08.18	HCK / 01.09.18

CONTENTS

TABLES

PLANS

APPENDICES

1.0 INTRODUCTION

1.1 This Arboricultural Method Statement (AMS) has been prepared by FPCR Environment and Design Limited on behalf of Seddon Homes to provide the methods of protection for retained trees located at Former Midlotian Garage, New Mill Road, Holmfirth (hereafter referred to as 'the site').

1.2 This statement should be read in conjunction with the Arboricultural Assessment dated August 2018.

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

1.4 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.

1.5 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 LPA.

Planning Consent

1.6 This AMS has provided details to address concerns raised by the Tree Officer in relation to protection of retained trees following the approval of planning consent dated 26th May 2016 ref:.2015/60/93824/W.

1.7 This AMS sets out the methodology for all proposed works that affect trees on the site. Compliance with this AMS, once approved by the Local Planning Authorities (LPA) Arboricultural Officer, will be a requirement of all relevant contractors associated with the development proposals.

Statutory Constraints

1.8 Following consultation with the Local Planning Authority, Kirklees Council, it is understood that there is a Tree Preservation Order, namely Former Midlothian Garage, New Mill Road, Holmfirth, TPO No.12, which applies to a number of trees present within the assessment site and therefore statutory constraints apply to the development in respect of trees. A plan detailing trees covered by the TPO has been included within the Arboricultural Assessment, dated August 2018, as Appendix C and further details are given in Chapter 4.

1.9 Trees which have not been approved for removal as part of this document and that are subject of any TPO's are protected by law. No works other those listed are to be carried out without prior consultation with the project Arboriculturalist and approval by the LPA if applicable.

Limitations

1.10 The Method Statement is concerned solely with Arboricultural issues related to the site referenced only.

1.11 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.

1.12 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. A such the processes set out in the AMS may need to be reviewed and amended to suit as required.

2.0 PROTECTION REQUIREMENTS

2.1 To satisfy 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 1: Protection Requirements and Evidence of Action

Condition Reference	Evidence of Action
Tree Retention and Removal for Phase of Development	Tree Retention Plan (drawing no. 8313-T-03) accompanies the AMS. The Plan shows: • Trees to be retained (green) • Trees to be removed (red crossed hatch) • Tree Groups to be retained (green stripe hatch) • Tree Groups to be removed (red crossed hatch) • Hedgerow to be retained (solid green line) • Hedgerow to be removed (solid red line) • Extent of calculated Root Protection Areas (blue circle) • Overlaid development proposals for reference
Tree Protection	Tree Protection Plans (drawing no 8313-T-04) accompanies the AMS. The plan show: • Trees to be retained (green) • Tree Groups to be retained (green stripe hatch) • Hedgerow to be retained (solid green line) • Extent of calculated Root Protection Areas (blue circle) • Overlaid development proposals for reference • The position of Tree Protection fencing (pink line) • Measurements and Annotations for ease of interpretation (pink text) The Tree Protection Plans have been annotated for ease of interpretation.

General Protection Requirements

2.2 This AMS, the appended Task Specific Method Statements and accompanying Tree Protection Plan (drwg.no. 8313-T-04), should be reproduced in their entirety in colour and copies should be kept on file in the site office for reference.

2.3 The relevant contractors should be provided any Task Specific Method Statements appended as part of this AMS, where relevant to their work, and shall be required to complete the Tree Protection Induction and Compliance Form. This can be accessed either online by Smartphone, Tablet or computer using the link provided on Appendix C - *'What you need to know about working near trees'*.

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

2.5 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.

2.6 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.

3.0 TREE PROTECTION METHODOLOGY

3.1 Construction activities can harm trees if not carried out sympathetically in areas where trees are present. The crowns, stems and below ground rooting environment of trees can be damaged by construction machinery, scorched by fire or affected by chemical leaching. Trees roots can by asphyxiated and die if the soil in the rooting area becomes compacted and structure damaged. This can happen very easily, particularly on clay soils, even with the passage of light vehicles. Asphyxiation of roots can also be caused by raising or lowering the ground level. In some cases, it can take several years for the damage to become apparent.

Tree Protection Programme

3.2 The key stages where tree protection would be implemented along with the requirements for site supervision have been outlined in the following table.

3.3 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 2: Timeline of Tree Protection

Timetable	Actions	Project Arboricultural Consultant requirements	Task Specific Method Statement / Appendix reference
Pre-commencement site meeting **(TBC)**	Pre-commencement site meeting prior to the start of any construction works on site. Timeline of construction processes to be shared with Project Arboriculturalist and changes made to the AMS as required.	Site meeting / Tool box talk by Arboricultural Consultant (refer to Section 3.4) 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. Arboricultural Consultant to check that copies of Task Specific Arboricultural Method Statements (located in Appendix D) are present and that Tree Protection Induction Record has been completed by required personnel.	Appendix C Appendices D
Commence Tree Works			
Immediately following tree removals	Tree Protection Fencing positions to be marked out and pegged (where applicable) by the Arboricultural Consultant to ensure that all fencing is erected in the correct positions.	Arboricultural Consultant to assist with measuring out distances from trees in accordance with the Tree Protection Plans. Photos of evidence to be taken for auditing purposes.	Appendix D2 and 8313-T-04
Commence Construction Works			

Timetable	Actions	Project Arboricultural Consultant requirements	Task Specific Method Statement / Appendix reference
Date TBC during Pre-commencement site meeting and in line with construction program)	Periodic compliance inspections accompanied by robust auditing of visits. Tree Protective Fencing and ground protection position and suitability checked by Arboricultural Consultant. Compliance with AMS checked and recorded.	Record of visit to be completed by Arboricultural Consultant and a copy is to be handed to Site Manager and LPA upon request. Continuous checks that the Tree Protection Induction Record has been completed to ensure ongoing compliance.	Tablet based Auditing App (Project Arboricultural Consultant use only)
Construction Works Completed			
Date TBC during Pre-commencement site meeting and in line with construction program	Removal of Tree Protective Fencing Soft landscaping to be planted in accordance with the approved landscape proposals.	Project Arboricultural Consultant to check if all Tree Protective Fencing has been removed and in doing so no damage has occurred to retained trees and hedgerows. Project Arboricultural Consultant to liaise with appointed contractor	

Arboricultural Supervision

Appointment of FPCR Project Arboricultural Consultant

3.4 The Site Manager will be responsible for contacting the FPCR Arboricultural Consultant 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.

Arboricultural Consultant Contact Details

FPCR Arboricultural Consultant: Tom Bennett

Contact Email: tom.bennett@fpcr.co.uk

Contact Number: 01509 672772 or 07957641779

3.5 An overview of the specific involvement of the project Arboricultural Consultant has been provided in Tables 1 and 2.

3.6 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 Consultant will discuss the methodology and various tree protection measures to be implemented subject to approval by the LPA.

3.7 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.

3.8 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;

3.9 Evidence of the toolbox being carried out shall be collected through completing Appendix C - *'What you need to know about working near trees'* factsheet which will be issued to the Site Manager and should form part of any future site inductions for contractors.

3.10 All contractors shall be required to complete the Tree Protection Induction and Compliance Form which is to be accessed via a link and/or QR Code at the bottom of the *'What you need to know about working near trees'* factsheet using a Smartphone, Tablet or computer. This online form can be viewed at any time by the Arboricultural Consultant and shared with both the client and the LPA upon request. A periodic review of its use shall be conducted to ensure continued compliance.

3.11 The Arboricultural Consultant 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 Consultant can share with the client and LPA.

3.12 The project Arboricultural Consultant 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 Project Arboricultural Consultant

3.13 The following stages of supervision shall be required:

- Pre-commencement site meeting and Tool box 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)**
- 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 Consultant 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

3.14 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.

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

- Appendix D1: Tree Contractor - Tree Work Methodology
- Appendix D2: Fencing Contractor – Working Methodology
- Appendix D3: Hard and Soft Landscaping - Working Methodology

Specific Tree Work Requirements

3.16 Tree works to retained trees will be limited to crown lifting and the reduction of low branch material to allow for the installation of Tree Protection Fencing and boundary treatments.

3.17 All works have been detailed with Appendix D1: Tree Contractor – Tree Methodology and shall be in accordance with BS 3998:2010 'Tree work. Recommendations'. The use of a competent tree surgery contractor is necessary to comply with this.

General Tree Protection Measures

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

3.19 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.

3.20 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.

3.21 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.

3.22 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.

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

3.24 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.

3.25 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.

3.26 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.

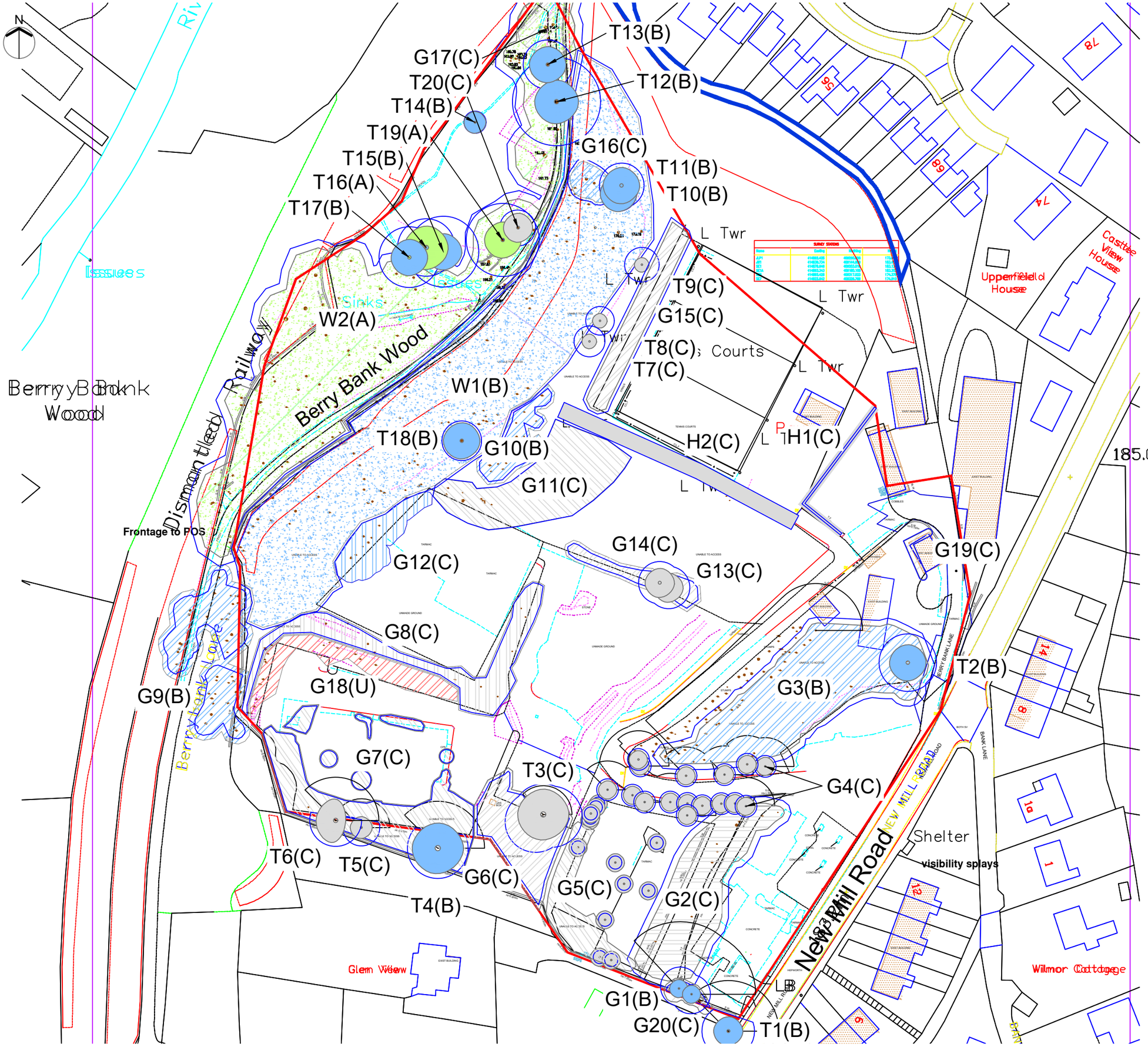
3.27 Notice boards, telephone cables or other services will not be attached to any part of a retained tree.

3.28 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.

3.29 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

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



KEY

- Category U - Trees / Groups Unsuitable for Retention (BS 5837:2012)
- Category A - Trees / Groups of High Quality (BS 5837:2012)
- Category B - Trees / Groups of Moderate Quality (BS 5837:2012)
- Category C - Trees / Groups of Low Quality (BS 5837:2012)
- Hedgerow (Colour indicates BS5837:2012 Category)
- Root Protection Area (The RPA has been altered where appropriate to reflect underground constraints)
- T1 (A) G1 (A) — Individual / Group Number and BS5837:2012 Category
- Indicative Shade Pattern (in accordance with BS5837:2012 where appropriate)

Scale 1:1000 @ A3

0 25 50m

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
-	23.03.18	First Issue	DJS
A	March 2018		DJS
B	01.05.2018	OS tile inserted	TCB
C	27.07.2018	Tree extents updates	TCB

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client
Seddon Homes

project
Former Midlothian Garage
New Mill Road, Holmfirth

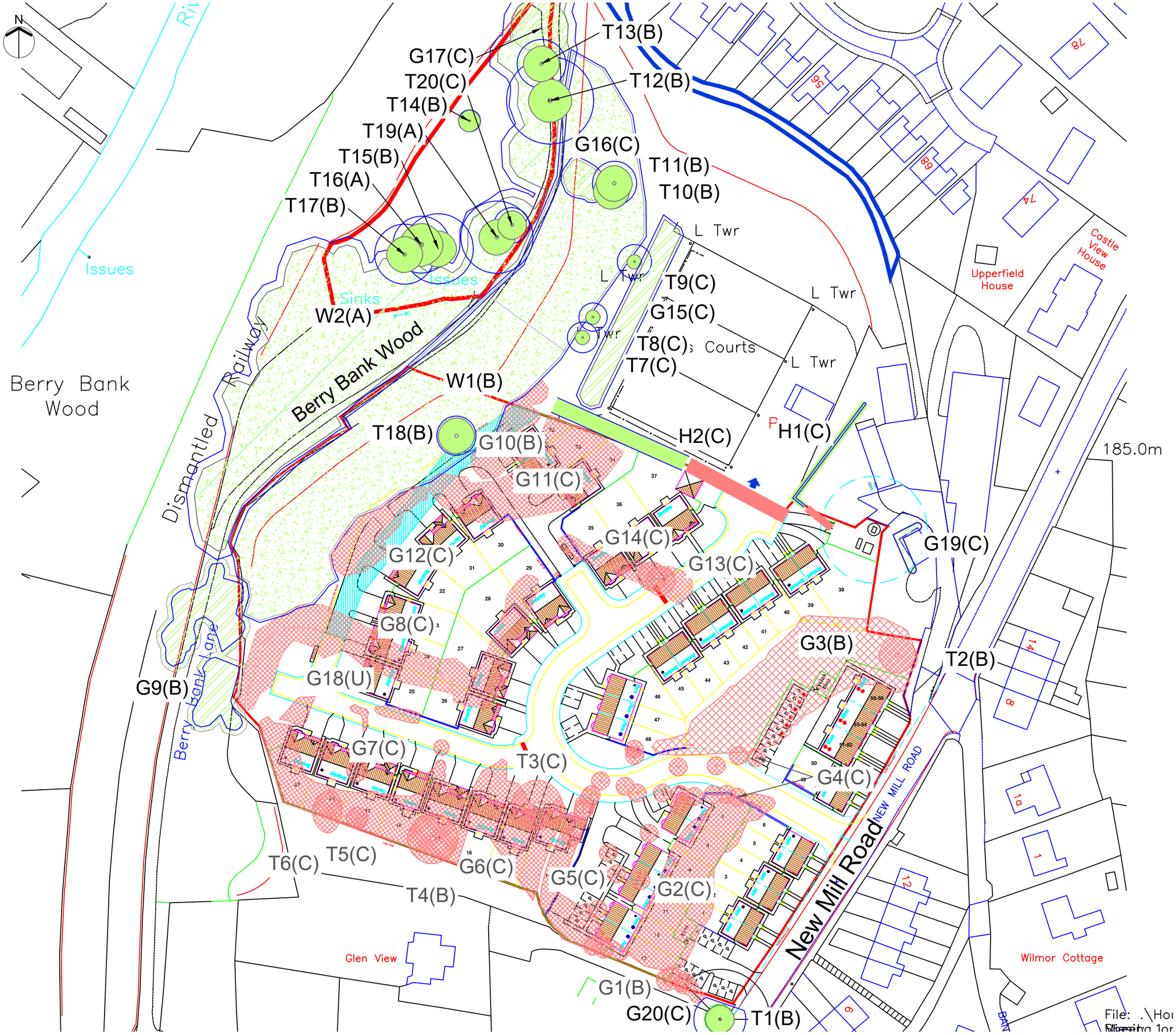
drawing title
TREE SURVEY PLAN

scale	drawn	date
1:1000 @ A3	TCB	July 2018

drawing number
8313-T-02

rev
C

CAD file: K:\8300\8313\ARB\Plans\Tree Survey Plan.dwg



KEY

- Tree/Group to be Retained
- Tree/Group to be removed to facilitate the proposals
- Category U - Unsuitable for retention on arboricultural grounds
- Hedgerow Proposed to be Retained and Incorporated into the New Development
- Hedgerow Proposed to be Removed to Facilitate the Development upon Approval of the Application
- Root Protection Area (Shown for retained trees only)
- T1 (A) G1 (A) — Individual / Group Number and BS Category
- Indicative Shade Pattern (where appropriate)

Scale 1:1000 @ A3

0 25 50m

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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rev	date	description	by
-	22.03.18	First Issue	DJS
A	23.03.18	Second Issue	DJS
B	01.05.18	Revised layout inserted	TCB
C	09.05.18	Revised layout inserted	TCB
D	27.07.18	Revised tree removal	TCB
E	24.08.18	Revised tree removal	TCB

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client
Seddon Homes

project
Former Midlothian Garage
New Mill Road, Holmfirth

drawing title
TREE RETENTION PLAN

scale	drawn	date
1:1000 @ A3	TCB	August 2018

drawing number
8313-T-03

rev
E

CAD file: K:\8300\8313\ARB\Plans\Tree Retention Plan Rev E.dwg

KEY

- Tree/Group to be Retained
- Hedgerow Proposed to be Retained and Incorporated into the New Development
- Root Protection Area (Shown for retained trees only)
- T1 (A) G1 (A) — Individual / Group Number and BS Category
- Indicative Shade Pattern (where appropriate)
- 6.0m — Tree Protection Fencing

Scale 1:1000 @ A3

0 25 50m

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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rev	date	description	by
-	24.08.2018	First Issue	TCB

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project
Former Midlothian Garage
New Mill Road, Holmfirth

drawing title
TREE PROTECTION PLAN

scale	drawn	date
1:1000 @ A3	TCB	August 2018

drawing number
8313-T-04

rev
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Appendix A - Tree Schedule

<table>
<tr><th>Measurements</th><th>Age Class</th><th>Overall Condition</th><th>Root Protection Area (RPA)</th></tr>
<tr><td>Height - Measured using a digital laser clinometer (m)</td><td>YNG: Young trees up to ten years of age</td><td>G - Good: Trees with only a few minor defects and in good overall health needing little, if any attention</td><td rowspan="4">• 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.</td></tr>
<tr><td>Stem Dia. - Diameter measured (mm) in accordance with Annex C of the BS5837</td><td>SM: Semi-mature trees less than 1/3 life expectancy</td><td>F - Fair: Trees with minor rectifiable defects or in the early stages of stress from which it may recover</td></tr>
<tr><td>Crown Radius - Measured using a digital laser clinometer radially from the main stem (m)</td><td>EM: Early mature trees 1/3 – 2/3 life expectancy</td><td>P - Poor: Trees with major structural and/or physiological defects such that it is unlikely the tree will recover in the long term</td></tr>
<tr><td rowspan="2">Abbreviations
est - Estimated stem diameter
avg - Average stem diameter for multiple stems
upto - Maximum stem diameter of a group</td><td>M: Mature trees over 2/3 life expectancy</td><td>D - Dead: This could also apply to trees in an advanced state of decline and unlikely to recover</td></tr>
<tr><td>OM: Over mature declining or moribund trees of low vigour</td><td colspan="2" rowspan="2">The BS category particular consideration has been given to the following
• The health, vigour and condition of each tree
• 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</td></tr>
<tr><td></td><td>V: Veteran tree possessing certain attributes relating to veteran trees</td></tr>
</table>

Structural Condition
The following is an example of considerations when inspecting structural condition: • The presence of fungal fruiting bodies around the base of the tree or on the stem, as they could possibly indicate the presence of possible internal decay • Soil cracks and any heaving of the soil around the base • Any abrupt bends in branches and limbs resulting from past pruning • Tight or weak 'V' shaped forks and co-dominant stems • Hazard beam formations and other such biomechanical related defects (as described by Claus Mattheck, Body Language of Trees HMSO Research for Amenity Trees No. 4 1994) • Cavities as a result of limb losses or past pruning • Broken branches or storm damage • Damage to roots • Basal, stem or branch / limb cavities • Crown die-back or abnormal foliage size and colour

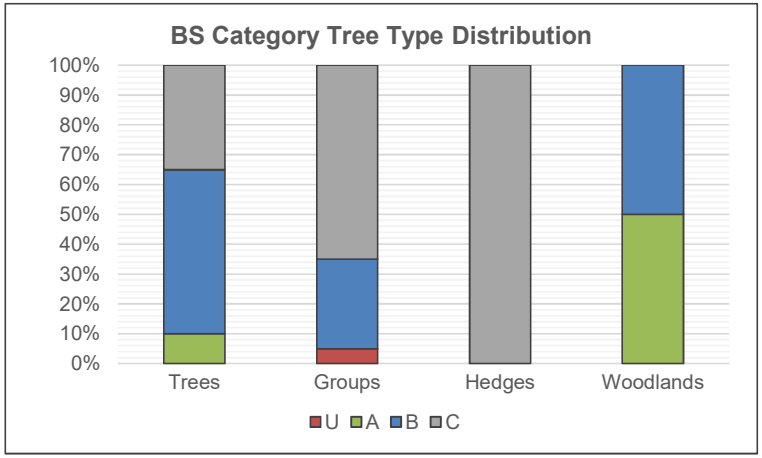
Quality Assessment of BS Category
Category U - Trees in such a condition that they cannot realistically be retained as living trees in the context of the current land use for longer than 10 years.
Category A - Trees of high quality with an estimated remaining life expectancy of at least 40 years.
Category B - Trees of moderate quality with an estimated remaining life expectancy of at least 20 years.
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.
Sub-categories: (i) - Mainly arboricultural value (ii) - Mainly landscape value (iii) - Mainly cultural or conservation value

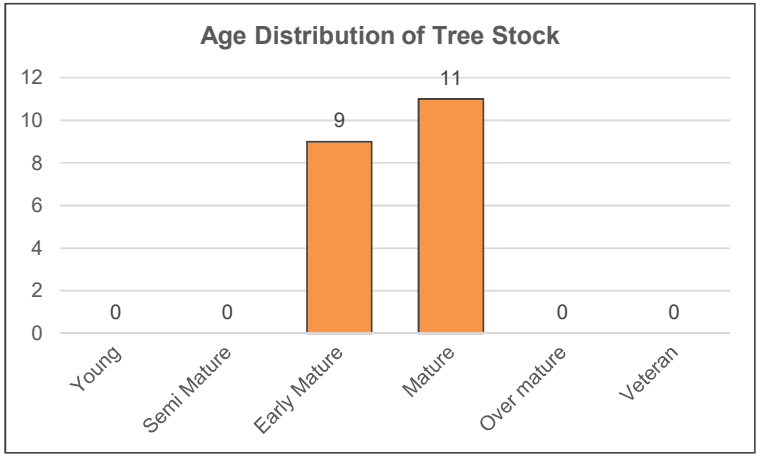
Appendix Summary

	Individual Trees	Totals	Tree Groups and Hedgerows	Totals
Category U		0	G18	1
Category A	T16, T19	2	W2	1
Category B	T1, T2, T4, T10, T11, T12, T13, T14, T15, T17, T18	11	G1, G3, G9, G10, G12, G16, W1	7
Category C	T3, T5, T6, T7, T8, T9, T20	7	G2, G4, G5, G6, G7, G8, G11, G13, G14, G15, G17, G19, G20, H1, H2	15
	Total	20	Total	24

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

Age Distribution of Tree Stock shows the number of trees in each age category across the tree stock allowing assessment of their longevity to be made.





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	14	610	4	EM	G	Growing on the stone wall adjacent to car park at 1m. Pruning wounds and stubs with minor dead wood.	168	7.3	B (i)
T2	Sycamore Acer pseudoplatanus	12	620 240	5	EM	F	Multi-stemmed tree at the boundary of G3 along internal road way	200	8.0	B (i)
T3	Goat Willow Salix caprea	8	8 x 250	7	EM	F	Layered form through natural phoenix regeneration	226	8.5	C (i)
T4	Deodar Cedar Cedrus deodara	13	Est 700	7	M	G	Third party tree outside boundary atop 3m rock face, access restricted, measurements estimated.	222	8.4	B (i)
T5	Lawson Cypress Chamaecyparis lawsoniana	8	300 300	3	EM	G	Third party tree with poor form outside boundary atop 3m rock face, access restricted, twin stemmed, multi leadered form, measurements estimated.	81	5.1	C (i)
T6	Scots Pine Pinus sylvestris	12	600	N - 6 S - 6 E - 1 W - 5	M	G	Third party tree atop 3m rock face outside boundary, access restricted, measurements estimated. Twin leadered from 3m with included bark union Branch stubs	163	7.2	C (i)
T7	Leyland Cypress Cupressocyparis leylandii	10	360	2	EM	G	Located behind the large Leyland cypress hedge screening the woodland from the tennis courts with no major defects and a balanced crown, slightly overlapping with canopies of W1	59	4.3	C (i)
T8	Leyland Cypress Cupressocyparis leylandii	9	330	2	EM	G	Located behind the large Leyland cypress hedge (G15) screening the woodland from the tennis courts with no major defects, slightly overlapping with canopies of W1	49	4.0	C (i)
T9	Leyland Cypress Cupressocyparis leylandii	9	400	2	EM	F	Located behind the large Leyland cypress hedge (G15) screening the woodland from the tennis courts with no major defects, slightly overlapping with canopies of W1	72	4.8	C (i)

Tree No	Species	Height	Stem Dia.	Crown Radius	Age Class	Overall Condition	Structural Condition	RPA	RPA Radius	BS5837 Cat
T10	Broad leaved Lime Tilia platyphyllos	14	420	5	M	F	Leaning tree 4m down the bank with fused limbs and crossing branches, canopy biased up the hill to the east. Among other examples of the same species	80	5.0	B (i)
T11	Broad leaved Lime Tilia platyphyllos	14	520	5	M	F	Large basal bark wound to just under 1m from ground on south side of stem. Bifurcation at 1m with crown bias east	122	6.2	B (i)
T12	Sessile Oak Quercus petraea	16	640 320 720	6	M	F	Large mature tree west of woodland path opposite 1.5m retaining wall at border of W1 and W2. Cavity in base on south side at ground level. Ivy on stem with fused leader but good vigour Broken branches and branch stubs present	466	12.2	B (i)
T13	Sessile Oak Quercus petraea	15	570	5	M	G	Tall broad canopy, dead wood and stubs, cavities in limbs and stem on southwest side of stem but good vigour	147	6.8	B (i)
T14	Silver Birch Betula pendula	12	260	3	EM	F	Tree in opening has balanced crown and cavity to 3m	31	3.1	B (i)
T15	English Oak Quercus robur	21	820	5	M	G	Gnarled stem beyond bifurcation which occurs at 3m, broad prominent crown on banking above basin area to east	304	9.8	B (i)
T16	Sycamore Acer pseudoplatanus	23	670	6	M	G	Large very tall tree in the basin of the valley. Minor shading of lower branches, concrete at base with no significant defects	203	8.0	A (i)
T17	Sessile Oak Quercus petraea	21	700	5	M	F	Large flames of bark damage to 6m on the west side of both stems, rot in wood on northern stem with dead wood and stubs, good vigour and structural wood appears sound where intact	222	8.4	B (i)
T18	Ash Fraxinus excelsior	15	460	5	M	G	Ash tree just below the top of the lip of the ledge at central portion of W1	96	5.5	B (i)

Tree No	Species	Height	Stem Dia.	Crown Radius	Age Class	Overall Condition	Structural Condition	RPA	RPA Radius	BS5837 Cat
T19	Sycamore Acer pseudoplatanus	15	840	5	M	G	Large mature tree on raised bank across from retaining wall along old railway path	319	10.1	A (i)
T20	Ash Fraxinus excelsior	16	420	4	EM	F	Tree with severe bifurcation at 2m, fused limbs and stressed reaction growth around thin split at union of bifurcation, leaning north	80	5.0	C (i)

Group No	Species	Height	Stem Dia.	Crown Radius	Age Class	Overall Condition	Structural Condition	RPA	RPA Radius	BS5837 Cat
GROUPS OF TREES										
G1	Lombardy Poplar Populus nigra 'Italica'	18	Up to 450	2.5	M	F	Upright forms Both trees stand upon a raised retaining wall with stems deflected by another adjacent retaining wall Minor dead wood **Recommend felling of both trees to prevent damage to the structural walls**	92	5.4	B (ii)
G2	Beech Fagus sylvatica Ash Fraxinus excelsior Goat Willow Salix caprea Hawthorn Crataegus monogyna Silver Birch Betula pendula Sycamore Acer pseudoplatanus	12	Up to 400	3	Yng / SM	G	Group surrounding the western portion of the car park. Overhanging hardstanding up to 5m, minor dead wood throughout with vigorous trees; crowded. Slope of 1.5m with ash regenerating on the western bank, goat willow appear pollarded in places. Silver birch and sycamore rubbing stems	72	4.8	C (ii)

Group No	Species	Height	Stem Dia.	Crown Radius	Age Class	Overall Condition	Structural Condition	RPA	RPA Radius	BS5837 Cat
G3	Ash Fraxinus excelsior English Oak Quercus robur Goat Willow Salix caprea Hawthorn Crataegus monogyna Holly Ilex aquifolium Horse Chestnut Aesculus hippocastanum Rowan Sorbus aucuparia Silver Birch Betula pendula Sycamore Acer pseudoplatanus Whitebeam Sorbus aria Leyland Cypress Cupressocyparis leylandii Norway Spruce Picea abies	13	Up to 300	3	Yng / SM	G	Large wooded group upon steep banking at car park boundary with minor dead wood throughout, Silver birch dominant in the centre **Requires thinning to allow trees to develop to maturity**	41	3.6	B (ii)
G4	Lawson Cypress Chamaecyparis lawsoniana	8	Up to 250	2.5	SM	F	Avenue along internal access road between G2 and G3 Heavily encroached by surrounding trees Previous ornamental planting	28	3.0	C (ii)
G5	Ash Fraxinus excelsior Goat Willow Salix caprea Silver Birch Betula pendula	7	Up to 150	2.5	Yng / SM	F	Self-seeded scrub of low value	10	1.8	C (ii)

Group No	Species	Height	Stem Dia.	Crown Radius	Age Class	Overall Condition	Structural Condition	RPA	RPA Radius	BS5837 Cat
G6	Beech Fagus sylvatica Ash Fraxinus excelsior Goat Willow Salix caprea Hawthorn Crataegus monogyna Silver Birch Betula pendula Sycamore Acer pseudoplatanus Leyland Cypress Cupressocyparis leylandii Lawson Cypress Chamaecyparis lawsoniana	Up to 8	Up to 180	3	SM	P / F	Mixed group with layering goat willow, minor dead wood, crossing branches and fused limbs. Coppice Sycamore on boundary to prevent failure	15	2.2	C (ii)
G7	Ash Fraxinus excelsior Goat Willow Salix caprea Silver Birch Betula pendula Sycamore Acer pseudoplatanus	Up to 8	Up to 180	2.5	SM	P / F	Self-seeded scrub of low value	15	2.2	C (ii)
G8	Ash Fraxinus excelsior Goat Willow Salix caprea Sycamore Acer pseudoplatanus Whitebeam Sorbus aria Lawson Cypress Chamaecyparis lawsoniana Leyland Cypress Cupressocyparis leylandii	Up to 11	Up to 300	4	EM / M	G	Line of tree making up previous evergreen screen interspersed by occasional broadleaf trees.	41	3.6	C (ii)

Group No	Species	Height	Stem Dia.	Crown Radius	Age Class	Overall Condition	Structural Condition	RPA	RPA Radius	BS5837 Cat
G9	English Oak Quercus robur Goat Willow Salix caprea Rowan Sorbus aucuparia Silver Birch Betula pendula Sycamore Acer pseudoplatanus	Up to 12	Up to 300	5	EM / M	F / G	Good condition group on steep embankment going west from area of hardstanding	41	3.6	B (ii)
G10	Goat Willow Salix caprea Silver Birch Betula pendula Leyland Cypress Cupressocyparis leylandii	Up to 12	Up to 430	6	EM / M	G	Middle aged group atop banking, well established individuals, dead wood and stubs	84	5.2	B (ii)
G11	Ash Fraxinus excelsior Goat Willow Salix caprea Silver Birch Betula pendula	Up to 10	Up to 340	4	SM / EM	G	Self-seeded scrub of low value	52	4.1	C (ii)
G12	Ash Fraxinus excelsior English Elm Ulmus procera Goat Willow Salix caprea Hawthorn Crataegus monogyna Rowan Sorbus aucuparia Sycamore Acer pseudoplatanus Lawson Cypress Chamaecyparis lawsoniana	Up to 13	Up to 420	5	EM / M	G	Established line of boundary trees in front of W1 with fused branches	80	5.0	B (ii)

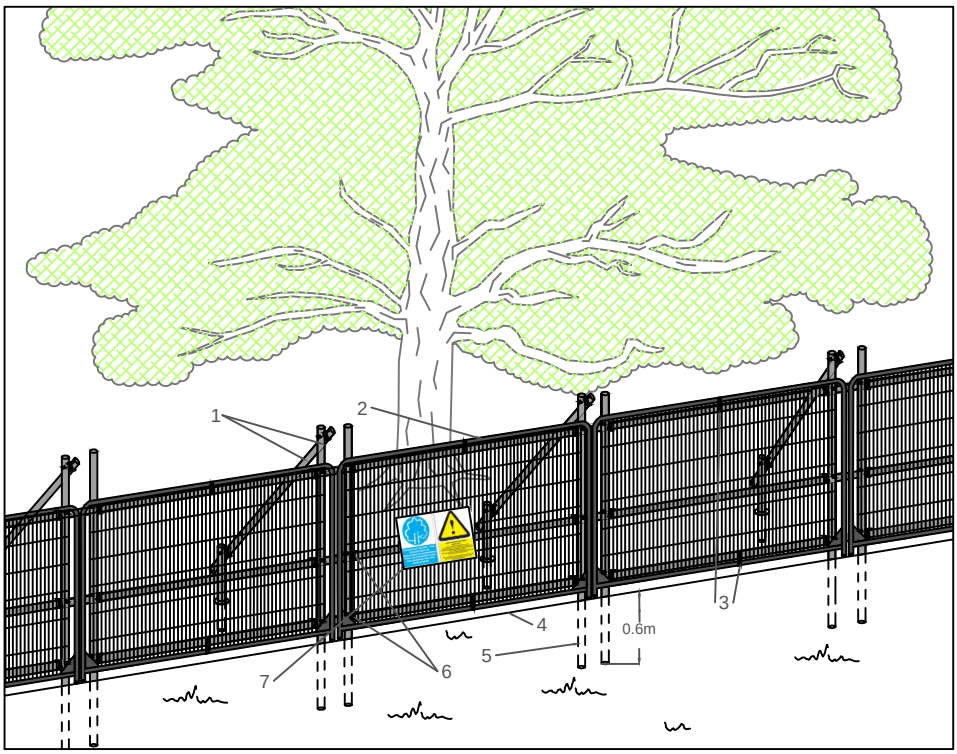
Group No	Species	Height	Stem Dia.	Crown Radius	Age Class	Overall Condition	Structural Condition	RPA	RPA Radius	BS5837 Cat
G13	Goat Willow Salix caprea Sycamore Acer pseudoplatanus	10	Up to 490	4	EM	F	Two trees previously part of the original landscaping for the site now surrounded by piles of spoil and scrub vegetation	109	5.9	C (ii)
G14	Goat Willow Salix caprea Sycamore Acer pseudoplatanus Silver Birch Betula pendula	Up to 7	Up to 100	2	SM	F	Self-seeded scrub of low value	5	1.2	C (ii)
G15	Leyland Cypress Cupressocyparis leylandii	18	Up to 320	3	EM	F	Hedge group west of tennis courts, good screening group with uniform appearance although adverse visual impact upon adjacent woodland	46	3.8	C (ii)
G16	Goat Willow Salix caprea	Up to 13	Up to 390	4	EM	F	Two mature trees on banking with moderate dead wood throughout. Dieback in places. Multi-stemmed trees with occasional snapped hanging branches	69	4.7	B (ii)
G17	Sessile Oak Quercus petraea	Up to 16	Up to 650	5	EM / M	F	Stem damage on west of each tree, severe but good responsive growth, on central tree to 3m. Dead wood and stubs, hanging branches in places with signs of retrenchment. Structural wood appears sound	191	7.8	C (ii)
G18	Leyland Cypress Cupressocyparis leylandii	Up to 9	Up to 450	3	M	D	A number of dead trees among G8 subject to extensive fire damage	N/A	N/A	U
G19	Ash Fraxinus excelsior Horse Chestnut Aesculus hippocastanum Sycamore Acer pseudoplatanus	5	avg 90	1	SM	P / F	Self-seeded trees along boundary fence	4	1.1	C (ii)

Group No	Species	Height	Stem Dia.	Crown Radius	Age Class	Overall Condition	Structural Condition	RPA	RPA Radius	BS5837 Cat
G20	Beech Fagus sylvatica Ash Fraxinus excelsior Hawthorn Crataegus monogyna Silver Birch Betula pendula	Up to 14	Up to 280	4	SM-EM	F	Trees situated within ground between two boundary walls Branch stubs evident Crossing and rubbing branches Low and interlocking crowns	35	3.4	C (ii)

Hedge No	Species	Height	Stem Dia.	Crown Radius	Age Class	Overall Condition	Structural Condition	RPA	RPA Radius	BS5837 Cat
HEDGEROWS										
H1	Leyland Cypress Cupressocyparis leylandii	1	50 x 4	1	EM	F	Maintained hedgerow	0	0.3	C (ii)
H2	Leyland Cypress Cupressocyparis leylandii	5	180	2	EM	F	Maintained hedgerow	15	2.2	C (ii)

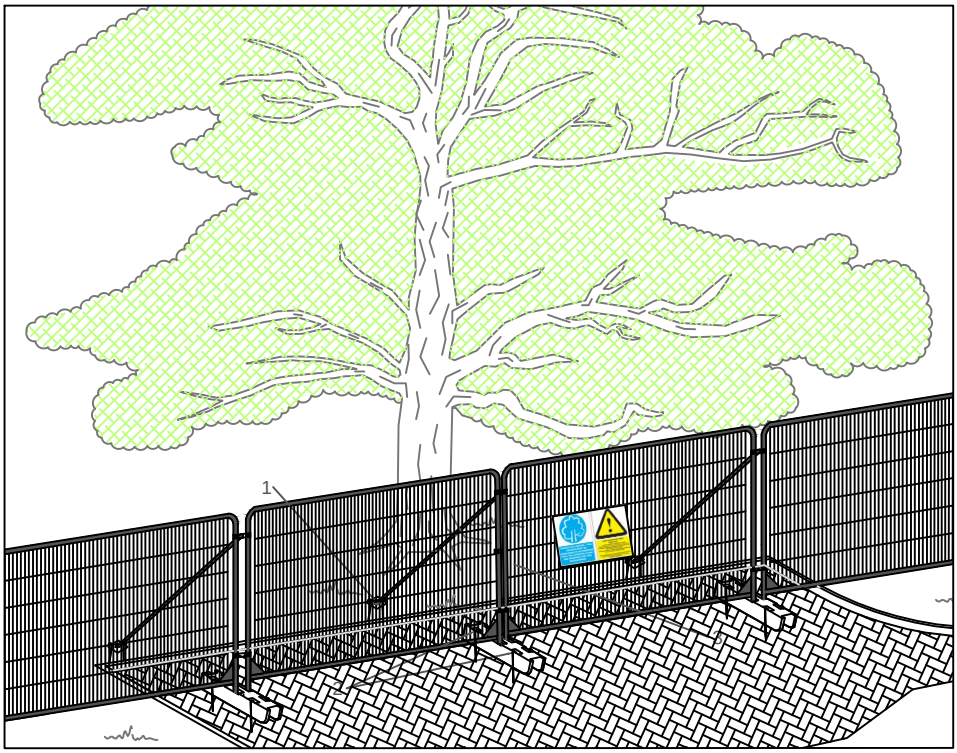
Wood No	Species	Height	Stem Dia.	Crown Radius	Age Class	Overall Condition	Structural Condition	RPA	RPA Radius	BS5837 Cat
WOODLANDS										
W1	Broad leaved Lime Tilia platyphyllos Ash Fraxinus excelsior Elder Sambucus nigra Goat Willow Salix caprea Hawthorn Crataegus monogyna Hazel Corylus avellana Horse Chestnut Aesculus hippocastanum Rowan Sorbus aucuparia Sessile Oak Quercus petraea Silver Birch Betula pendula Sycamore Acer pseudoplatanus Dogwood Cornus sanguinea	Up to 16	Up to 550	6	EM / M	G	Wooded hillside leading into W2 where steep banking meets a Woodland path separating W1 and W2. Canopies meet from trees on both sides over path. Lesser diversity of species in general compared with W2 with sycamore dominant and the occasional mature ash. Fallen trees, bark damage in places, ivy heavy among trees in the centre of this woodland. Tree cover starts at the top of the steep banking and topography is very steep throughout with areas of vertical rock face. Fly tipping littering and disposal of arisings occur across the woodland floor. Ash regeneration prolific in areas and a range of ground flora. Notable small population of large-leaved lime at northern end.	137	6.6	B (ii)

Wood No	Species	Height	Stem Dia.	Crown Radius	Age Class	Overall Condition	Structural Condition	RPA	RPA Radius	BS5837 Cat
W2	Beech Fagus sylvatica Ash Fraxinus excelsior Downy Birch Betula pubescens Goat Willow Salix caprea Hawthorn Crataegus monogyna Hazel Corylus avellana Sessile Oak Quercus petraea Silver Birch Betula pendula Sycamore Acer pseudoplatanus	Up to 23	Up to 850	8	SM / EM / M	G	This section of the valley woodland sits west of the woodland path. As a woodland it has numerous features of quality including a range of species, varied ground flora, mature trees and areas of natural regeneration, occasional fallen trees, dead wood and hanging branches with several paths running throughout. In the centre of this section of woodland is a basin in which water collects. Multiple areas have been subject to fly-tipping and littering. Topography includes flatter areas north and along the path with undulating and steep banks in places. Appears older and more mature in general than W1. Canopies of W2 overhang across the central path.	327	10.2	A (ii & iii)



Standard specification for protective barrier

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



Above ground stabilising systems

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

masterplanning
environmental assessment
landscape design
urban design
ecology
architecture
arboriculture

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NOTES

drawing title

APPENDIX B
PROTECTIVE FENCING SPECIFICATIONS

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

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

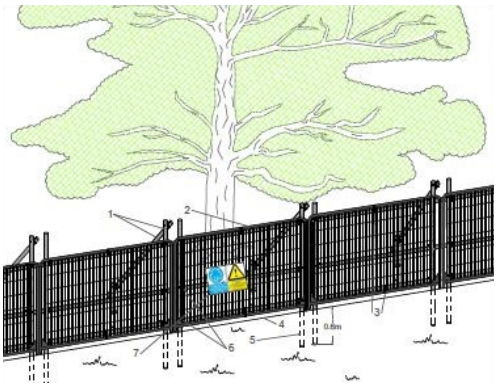
WHAT YOU NEED TO KNOW ABOUT WORKING NEAR TREES

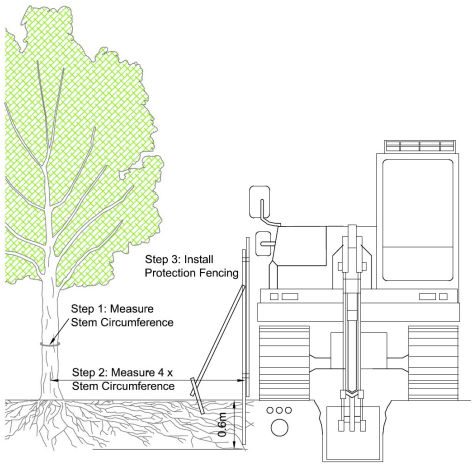
This advice note provides a brief overview of the methods of protection for trees located across the site. Compliance with these guidelines will be a requirement of all contractors working near retained trees.

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.

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Appendix D1 Tree Surgery Contractors – Tree Work Methodology

Table 1: Related Reference Material

Plan Name	Drawing Number
Tree Retention Plan	8313-T-03
Tree Protection Plan	8313-T-04
Appendices	**Appendix Title**
Appendix A	Tree 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 are shown on the Tree Retention Plan as red circles hatched with red criss-crossing lines or solid red lines. A key has been provided on each of the plans to assist with identification.

The trees to be removed will be marked up by the project Arboricultural consultant 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.

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

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 trunk 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.

Trees situated along the edge of W1 & T18 - in order to allow the installation of Tree Protection Fencing.

All works shall be in accordance with BS 3998:2010 '*Tree work. Recommendations'*. The use of a competent tree surgery contractor is necessary to comply with this.

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.

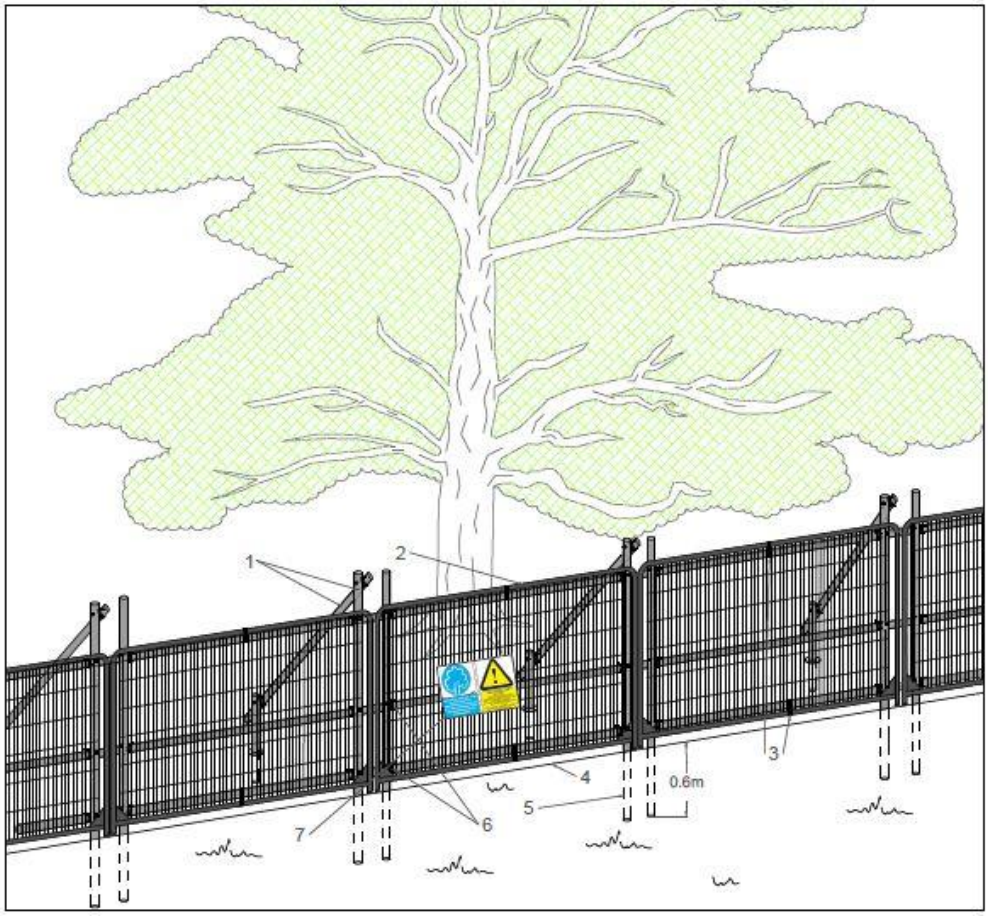
Appendix D2 Fencing Contractors – Working Methodology

Table 1: Related Reference Material

Plan Name	Drawing Number
Tree Retention Plan	8313-T-03
Tree Protection Plan	8313-T-04
Appendices	**Appendix Title**
Appendix A	Tree Works Schedule

Fencing will be installed, as detailed in Tree Protection Plan, at the extent of the root protection areas of retained trees using the dimension indicated on the plan. The positioning of the protective fencing shall be measured out during the initial pre-commencement site meeting by the project Arboricultural Consultant during and, where required, with the Site Manager present. Highly visible fluorescent paint and marker pegs / stakes will be used to assist in identification where deemed necessary.

Barriers will comprise a Heras panel framework supported by scaffold poles driven into the ground as per the specification below. Where scaffold poles cannot be driven then rubber block feet will be used:



Standard specification for High Intensity Protective Barrier

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

The fencing will be strong and suitable for the location, type and proximity of construction activity and prevent access of machinery, plant or operative beyond the area required to construct the development.

Tree protection barriers and work exclusion zones will be clearly marked using appropriate signage, an example of which has been included as Appendix B.

All tree protective fencing will remain rigid and in place for the duration of the development and should be inspected at weekly intervals by the Site Manager alongside regular inspections to be carried out by the Arboricultural Consultant.

Following the completion of construction works and in agreement with the project Arboricultural Consultant, the tree protection barriers will be removed carefully as to avoid causing root disturbance or leaving in situ any lengths of scaffold framework. This operation can be carried out prior to soft landscaping works such as new planting, mulching grass sowing etc.

Appendix D5 Hard and Soft Landscaping – Working Methodology

Table 1: Related Reference Material

Plan Name	Drawing Number
Tree Retention Plan	8313-T-03
Tree Protection Plan	8313-T-04

Following the completion of construction works and in agreement with the project Arboricultural Consultant, the tree protection barriers will be removed carefully as to avoid causing root disturbance or leaving in situ any lengths of scaffold framework, to allow for the landscaping works.

All existing ground flora, including bramble, soft rush, rose bay willow herb etc. which has grown in previously fenced areas will be cleared by strimming and all arising raked up. After a period of at least one month, the regrowth shall be sprayed off with appropriate herbicides. For herbaceous vegetation this will be a Glyphosate based herbicide and for coarser growth a brushwood killer based on Triclopyr.

Stumps should be treated with appropriate herbicide to prevent regrowth. Stumps outside the root protection area may be removed using appropriate machinery. If it is necessary to remove small stumps within the root protection area, then they can be dug out by hand. Large stumps may be removed using a stump grinder with ground protection where necessary.

The area surrounding T7 should ideally be treated using an ‘Air Spade’. This method of treatment uses compressed air to break up soil allowing the improved movement of oxygen and nutrients. After treatment these areas can be landscaped accordingly.

Within the root protection areas of trees to be retained, the preparation of soil for planting and turfing will be carried out by hand. Cultivation will be kept to a minimum and new topsoil must not exceed 100mm in depth within 1m of the stem. Topsoil and other materials will be transported by wheelbarrow on running boards when working near trees. Areas outside the root protection area can be carried out using suitable machinery provided it does not enter the rooting area of retained trees.

Finished levels shall not be compacted.