

Kingfisher Ecology Ltd

Ecological, Arboricultural and Sustainable Solutions

Arboricultural Impact Assessment (AIA)

of

Land at former Eastergate Fruit Farm

On behalf of:



July 2019

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Date	26/07/19	

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Qualifications			[REDACTED]
Foundation degree arboriculture (level 5), Lantra Professional tree inspection.			[REDACTED]

Details

Purpose of the Report:

To inform of tree stock in proposed area for property development.

Client: Linden Homes

Date: 26 July 2019

Report prepared by: Mr B Tidey FdSc (arb), MArborA

[REDACTED]

Address: Unit 2, The Business Centre, Morgans Vale Road, Redlynch, SP5 2HA

[REDACTED]

Site Address:

Former Eastergate Fruit Farm
Barnham Lane
Eastergate
West Sussex

Use of Report:

This report is to give information on tree stock and is to be used in conjunction with;

TCP.EFF.22.07.19.472.V1

Tree Survey Schedule. Land at former Eastergate Fruit Farm, Eastergate. ref EFF-19072019-TSS-475

1.0 Introduction

1.1 Background

- 1.1.1 Kingfisher Ecology Ltd have been appointed by Linden Homes to provide information regarding the impact to trees from the proposed property development.
- 1.1.2 The report is intended to outline the impact to trees from the proposed development.

1.2 Scope

- 1.2.1 This report is intended to outline the impact to the trees from the proposed development the information is in accordance with the guidance in BS5837:2012 'Trees in relation to design, demolition and construction – Recommendations' the scope of this standard is described as;
'This British Standard gives recommendations and guidance on the relationship between trees and design, demolition and construction processes. It sets out the principles and procedures to be applied to achieve a harmonious and sustainable relationship between trees and structure. The standard is applicable whether or not planning permission is required'
- 1.2.2 This document forms the Arboricultural Impact Assessment criteria for the planning process.

1.3 Aims

- 1.3.1 The aim of this document are to outline; the impact to trees from the development, the building phase and future pressures.
- 1.3.2 The report will outline clearly where tree removal is necessary, where trees to be retained will require protection

1.4 Tree survey/inspection

- 1.4.1 We undertook a Pre-Development Tree Condition Survey (see Appendix 1), on Tuesday 2nd July 2019 this survey was to update and amend the previous survey and report that was undertaken by Hankinson Duckett Associates in July 2014 the information can be seen in document reference HAD ref: 2136.11.
- 1.4.2 The current survey was to re-assess the condition of the tree resource, categorised the trees and provided the Root Protection Area (RPA) information according to the BS5837:2012 'Trees in relation to design, demolition and construction – Recommendations'. The survey informed the production of this Arboricultural Impact Assessment.
- 1.4.3 Full information from the survey inspection can be found in the documents *Tree Survey Schedule. Land at former Eastergate Fruit Farm, Eastergate. ref EFF-19072019-TSS-475 and TCP.EFF.22.07.19.472.V1*
- 1.4.4 It is worth noting that although every effort has been made to ensure the information gathered was accurate the nature of the site dictated that many trees were inaccessible for close inspection. An overview of the tree has been taken in some instances, this may result in major unseen defects becoming apparent as access

becomes available, as such the impact to specific trees may be such that the information within this and subsequent documents may require amendment.

1.5 Limitations

- 1.5.1 The site inspection was undertaken using previous tree location plans supplied by Hankinson Duckett Associates, these documents and so limitation posed at the time of this inspection are relevant as well as limitation posed by the current inspection
- 1.5.2 The inspection was undertaken with relevance to planning and development and not to tree safety; as such the findings shall not be used as guidance for tree safety management.
- 1.5.3 The survey was undertaken from ground level with no aerial inspection, internal wood compassion or specific test for pests and diseases being undertaken.
- 1.5.4 The site was found to be very heavily overgrown with vegetation that prevented access, in these instances an overview of the tree has been taken.
- 1.5.5 Checks with the Local Planning Authority have not yet been made for confirmation of the presence of any statutory protection of the trees, before any tree work is undertaken this shall be established.

2.0 Executive Summary

- 2.1 The site is a former Fruit farm/ orchard with many trees, the majority of the trees are fruit bearing trees that are of poor health and condition. This is interspersed with larger mature trees of native species such as Oak and Hornbeam, the site has in recent years become overgrown and now there is a higher presence of invasive shrub species such as Hawthorn and Elder.
- 2.2 The proposed development will have a large impact on the trees across the site. Where the large scale removal of trees and shrubbery to allow space for the development. With trees of higher value being incorporated into the design.
- 2.3 The trees for retention are predominantly located around the south and western boundary.
- 2.4 Damage to tree health and condition can be mitigated by following guidance within; BS 5837:2012 Trees in relation to design, demolition and construction- Recommendations; NJUG Guidelines for the planning, installation and maintenance of utility apparatus in proximity to trees; and BS 3998:2010 Tree work. These specify guidance for best practice operations.
- 2.5 A summary of tree affected by the development is detailed in the table below:

Impact	Reason	A	B	C	U
Trees to be removed	To facilitate the development or due to their condition (U cat)	T33	T27, T34, T59, T67, T79, T89, T91, T98, T99, G3, G27, G41, G42	T1, T19, T21, T22, T23, T24, T25, T26, T30, T31, T35, T36, T37, T38, T39, T40, T41, T52, T53, T55, T58, T60, T61, T62, T63, T64, T65, T66, T68, T69, T70, T71, T72, T76, T81, T82, T83, T84, T85, T90, T94, T95, G4, G5, G6, G7, G8, G10, G13, G19, G20, G21, G22, G24, G28, G29, G30, G31, G32, G33, G34, G35, G37, G38, G39, G40, G43	T13, T17, T20, T28, T29, T32, T42, T43, T44, T45, T46, T47, T48, T50, T51, T54, T56, T57, T73, T78, T80, T97, G1, G9, G11, G12, G14, G15, G16, G17, G18, G23, G25, G26, G36, S1
Trees to be retained and requiring protection	Protection measured required during construction phase	T4,T49	T2, T3, T5, T6, T74, T75, T87, T88, T91, G2	T7, T8, T9, T10, T11, T12, T14, T15, T16, T18, T92, T93, T96, T86, T77, G20	None

Retained Trees to be pruned	To address identified defects/ facilitate construction	T4,	T2, T3, T87, T91, T88, G2	T7, T8, T9, T10, T11, T12, T14, T15, T16, T18, T92, T93, T96	None
Probable conflicts with tree RPAs	Incursion of the RPA of trees to be retained, this will need to be mitigated to insure tree health	T4,	T2, T3, T87, G2, G4	T7, T8, T9, T10, T11, T12, T14, T15, T16, T18, T92, T93, T96, G20	None

2.6 The development shall provide an opportunity to manage the trees that are to be retained in a way as to improve their health and value, as well as to establish trees that will further enhance the environment.

3.0 Terms of Reference

3.1 Reference Documents:

- BS5837:2012 'Trees in relation to design, demolition and construction – Recommendations'
- BS3998:2010 'Tree work – Recommendations'
- NJUG 4 – National Joint Utilities Group "Guidelines for the planning, installation and maintenance of utility apparatus in proximity to trees. Volume 4, Issue 2. London: NJUG 2007"
- BGS Open Source Soil Data <http://www.bgs.ac.uk/home.html>.

3.2 Document supplied by the client:

Hankinson Duckett Associates Tree survey and Arboricultural Impact Assessment ref: 2136.11.

2136.11_TSP

17-1103-AP 01B Site Plan Planning Layout Uplift July 2019 A0 1-500 Version

vasse_17-06-2019_16-23-29 - site drawing – proposed

4.0 Description of the site and proposed works

4.1 Site description

- 4.1.1 The site is a former fruit farm located to the north of Barnham road (Eastergate).
- 4.1.2 The site has areas of orchard that have become overgrown with invasive species such as Elder and Hawthorn; access to these areas is not currently possible. There are large open areas that are grass with groups of shrubbery forming. The access path as well as around the current buildings has ornamental type trees and hedging.
- 4.2.3 There are trees located outside the land parcel that will have an impact on the development; therefore, they have been included within this report.

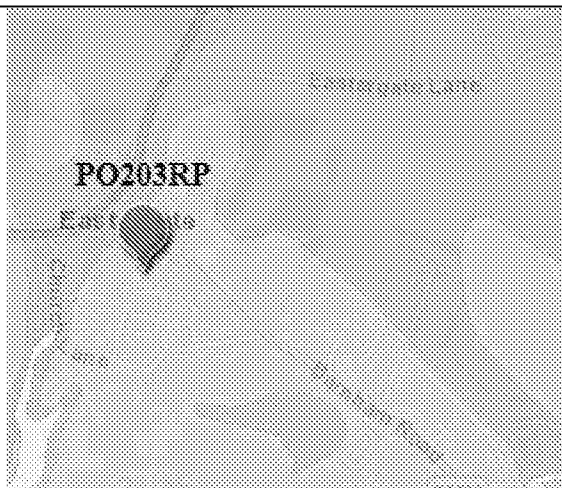
4.2 Proposed works

- 4.2.1 The project is to develop the site for housing with large areas of open grassland. The project will involve the installation of roadways, services, out buildings, dwellings, parking spaces as well as other factors that are associated with occupation of an area, these include; land drainage and balancing ponds.
- 4.2.3 The general topography of the land for the length of the pipeline is declining from north to south

4.3 Soils

- 4.3.1 The underlying geology of the land as described from *British Geological Survey* - <http://www.bgs.ac.uk/>.

Site Location (BGS Soil)



London Clay Formation - Clay, Silt And Sand. Sedimentary Bedrock formed approximately 48 to 56 million years ago in the Palaeogene Period. Local environment previously dominated by deep seas.

5.0 Arboricultural overview

- 5.1 For all areas affected by the development there will be the impact on 99 individual trees and 44 tree groups
- 5.2 By BS5837:2012 categorisation individually there were: 3 trees of A high quality, 22 trees and groups of B moderate quality, 82 trees and groups of C low quality and 36 trees and groups of U quality, being of such a condition they cannot realistically be retained as living trees in the context of the current land use for longer than 10 years.
- 5.3 The trees can be summarised as follows:

BS 5837 Cat	A	B	C	U
Specific Trees	T4, T33, T49	T2, T3, T5, T6, T27, T34, T59, T67, T74, T75, T79, T87, T88, T89, T91, T98, T99, G2, G3, G27, G41, G42	T1, T7, T8, T9, T10, T11, T12, T14, T15, T16, T18, T19, T21, T22, T23, T24, T25, T26, T30, T31, T35, T36, T37, T38, T39, T40, T41, T52, T53, T55, T58, T60, T61, T62, T63, T64, T65, T66, T68, T69, T70, T71, T72, T76, T77, T81, T82, T83, T84, T85, T86, T90, T92, T93, T94, T95, T96, G4, G5, G6, G7, G8, G10, G13, G19, G20, G21, G22, G24, G28, G29, G30, G31, G32, G33, G34, G35, G37, G38, G39, G40, G43	T13, T17, T20, T28, T29, T32, T42, T43, T44, T45, T46, T47, T48, T50, T51, T54, T56, T57, T73, T78, T80, T97, G1, G9, G11, G12, G14, G15, G16, G17, G18, G23, G25, G26, G36,
Total Number	3 Individual trees	17 Individual trees 5 Tree Groups	57 Individual trees 25 Tree Groups	22 Individual trees 14 Tree Groups

- 5.4 Summary of the trees visual contributions can be summarised as follows:

	A	B	C	U
Individual freestanding trees with dominant form, and having a higher visual impact	None	T2, T3, T6, T74	T96	None

Trees located with a group, with suppressed or codominant growth forms, with a reduced visual impact because of the shielding from the surrounding trees	T4, T33, T49	T2, T3, T5, T27, T34, T59, T67, T75, T79, T87, T88, T89, T91, T98, T99, G2, G3, G27, G41, G42	T1, T7, T8, T9, T10, T11, T12, T14, T15, T16, T18, T19, T21, T22, T23, T24, T25, T26, T30, T31, T35, T36, T37, T38, T39, T40, T41, T52, T53, T55, T58, T60, T61, T62, T63, T64, T65, T66, T68, T69, T70, T71, T72, T76, T77, T81, T82, T83, T84, T85, T86, T90, T92, T93, T94, T95, G4, G5, G6, G7, G8, G10, G13, G19, G20, G21, G22, G24, G28, G29, G30, G31, G32, G33, G34, G35, G37, G38, G39, G40, G43	T13, T17, T20, T28, T29, T32, T42, T43, T44, T45, T46, T47, T48, T50, T51, T54, T56, T57, T73, T78, T80, T97, G1, G9, G11, G12, G14, G15, G16, G17, G18, G23, G25, G26, G36,
Trees visible from a public area (road)		T87, T88, T89, T91	T1, T7, T8, T9, T10, T11, T12, T14, T15, T16, T18, T77 G31, G32, G34, G39 (part), T90, T92, T93,	T78

6.0 Arboricultural Impact

6.1 Tree Removal

6.1.1 The following trees will be removed to facilitate the development by BS5837: 2012 categorisation are;

	A	B	C	D
Tree to be removed	T4, T33, T49	T2, T3, T5, T6, T27, T34, T59, T67, T74, T75, T79, T87, T88, T89, T91, T98, T99, G3, G4 G27, G41, G42	T1, T7, T8, T9, T10, T11, T12, T14, T15, T16, T18, T19, T21, T22, T23, T24, T25, T26, T30, T31, T35, T36, T37, T38, T39, T40, T41, T52, T53, T55, T58, T60, T61, T62, T63, T64, T65, T66, T68, T69, T70, T71, T72, T76, T77<T81, T82, T83, T84, T85, T86, T90, T92, T93, T94, T95, T96, G4, G5, G6, G7, G8, G10, G13, G19, G21, G22, G24, G28, G29, G30, G31, G32, G33, G34, G35, G37, G38, G39, G40, G43	T13, T17, T20, T28, T29, T32, T42, T43, T44, T45, T46, T47, T48, T50, T51, T54, T56, T57, T73, T78, T80, T97, G1, G9, G11, G12, G14, G15, G16, G17, G18, G23, G25, G26, G36, S1

6.1.2 The removal of trees across the site is primarily because of the condition of the tree to be of low quality or in such a condition that they cannot realistically be retained in the context of the current land use. This removal includes groups of trees as well as individual trees.

6.2.3 The removal of tree groups will be primarily be because of their outgrown and declining condition.

6.2.3 Removal of individual trees will primarily be because of their condition, or to allow development of higher quality trees.

6.2.4 Trees worthy of note (A and B category) that are to be removed; T34(A), T33(B), T27(B), T59(B), T99(B), T98(B), T67(B), T79(B), T89(B).

6.2.5 Conflicts between trees and proposed development are:

T34(A) - Dwelling

T33(B) - Driveway

T27(B) - Within garden

T59(B) - Carparking

T99(B) - Amenity field

T98(B) - Access road

T67(B) - Within garden close to dwelling

T79(B) - Driveway

T89(B)- On boundary

6.2 Root Protection Area (RPA) Incursions

6.2.1 Trees that will have incursion into their RPA, by BS5837. 2012 categorisation are;

	A	B	C	D
Trees RPA incursion	T4,	T2, T3, T87, G2	T7, T8, T9, T10, T11, T12, T14, T15, T16, T18, T92, T93, T96, G20	None

6.2.2 Across the site all trees will have the potential to have development operations within retained trees RPA this shall be considered as a constant throughout the project and so suitable protection methods shall be offered.

6.2.5 To reduce the impact to retained trees all construction activity including the site compound shall be outside of tree RPAs with fencing being erected to protect all trees RPA from inadvertent damage.

6.3 Construction exclusion zones

6.3.1 Trees that will need Construction Exclusion Zones (CEZ), by BS5837. 2012 categorisation are;

	A	B	C	D
Trees RPA incursion	T4,	T2, T3, T87, G2	T7, T8, T9, T10, T11, T12, T14, T15, T16, T18, T92, T93, T96, G20	None

6.3.2 Where trees are to be retained there shall be a construction execution zone specified for the area that is the tree RPA or to the maximum crown spread, whatever is greater.

6.3.3 This construction exclusion zone is to be clearly demarcated with barrier fencing to stop all construction access. Where access is required for the development, such as landscaping or if the development necessitates that the area is used then further protection method may be required, such as surfacing to stop soil compaction and boxing around tree trunks to stop damage.

6.4 Tree Pruning

6.4.1 Trees that may require pruning by BS5837: 2012 categorisation are;

	A	B	C	D
Trees RPA incursion	T4,	T2, T3, T87, T91, T88 & G2	T7, T8, T9, T10, T11, T12, T14, T15, T16, T18, T92, T93, T96 & G20	None

6.4.2 The pruning of retained trees across the site will be required, pruning to facilitate the proposed development will effect trees, T4(A), T2(B), T3(B), T87(B), G2(B), T7(C), T8(C), T9(C), T10(C), T11(C), T12(C), T14(C), T15(C), T16(C), T18(C), T92(C), T93(C), T96(C).

6.4.3 The pruning of retained trees likely being required to bring trees to a suitable level of management, and where necessary to stop inadvertent damage during construction this shall be referred to as facilitation pruning and is an ongoing requirement during construction.

6.4.4 The exact amount of pruning required shall be assessed at the time that works are to be undertaken, this is to account for tree development between this report and works being undertaken. All pruning works shall have the project arboriculturalist consulted as well as agreement from the LPA.

6.5 Foundations

6.5.2 In instances where soil conditions are known to be of shrinkable clay and retained trees are present in proximity to the installation there is a potential for future tree related subsidence to occur. On this site and in accordance with information from the BGS, soils in relation to the site are known to be of London Clay Formation. The retained and removed trees therefore have the potential to constrain the foundation design for any adjacent new buildings within influencing distance. Final decisions as to the risks presented by retained/ removed trees upon adjacent new buildings should be subject to detailed site geotechnical information being available, assessed by a structural engineer.

6.6 Services

6.6.1 The location of services is not yet available but shall be planned and shall not entre trees RPA. With the removal of trees across the site there is deemed to be adequate space to allow for this.

6.7 Ground Levels

6.7.1 No proposed changes to existing ground levels are proposed within the RPAs of retained trees.

6.7.2 Issues surrounding changes in levels, mounding, retaining walls, slopes and hard landscaping features do not apply to the development areas. Any alterations to levels close to or within the RPAs of retained trees should be avoided and this includes hard landscaping features such as new footpaths, retaining walls etc.

Arboricultural methods and site supervision can be provided as part of any Arboricultural Method Statement (AMS) required to discharge any conditions of any future planning approval for the site.

6.8 Shading

6.8.1 Shading is only an issue for proposed properties to the south and western aspect of the site, where the larger trees are to be retained this shading will primarily be from the early evening. Action to reduce shading to gardens and homes may prove to be a future pressure on retained trees, therefor the layout of the development shall be planned to lessen this.

6.9 Site Supervision/ Monitoring

6.9.1 Most damage to trees on development sites is caused inadvertently and to ensure continued protection during development a system of site monitoring and supervision is proposed.

- 6.9.2 Basic checks will ensure that any tree protection remains present and intact. Any unforeseen issues can also be identified and discussed before damage to the tree(s) occurs.
- 6.9.3 Where tree pruning and tree removal and any excavations within RPA is being undertaken this should be under the supervision of an arboricultural watching brief. This will insure all operations are undertaken to the required specification and standard. Any unforeseen issues can be rectified in a timely and correct manor.
- 6.9.4 A more detailed explanation of what will be assessed during the proposed inspections, supervision and monitoring will be provided within the Arboricultural Method Statement (AMS). The below table is an overview of what processes need to be overseen or inspected.

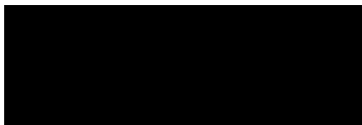
Visit	Date	Status
Pre-commencement Inspections Attend site to inspect type and location of tree protection and any temporary ground protection prior to development commencing and discuss any issues associated with demolition/ enabling works	Before works commence	Incomplete
Site Inspection Attend site to confirm fencing and ground protection remains in place.	Every 4 to 6 weeks	Incomplete
Site Inspection Final site visit to confirm that no damage has been done to retained trees/ identify any remedial actions in the event damage has occurred. Assess any required tree surgery following construction	End of construction	Incomplete
Watching brief Where operations to or close to trees including pruning, felling and excavation are undertaken	At specific times	Incomplete
Watching brief Where any operations within RPA are undertaken	At specific times	Incomplete

7.0 Recommendations

- 7.1 That by liaison with the council tree officer, formal agreement should be sought regarding the tree pruning required and tree protection methods employed to protect retained trees. These will be via the production of an Arboricultural Method Statement (AMS) and Tree Protection Plan (TPP) and will include:
- The type and location of tree protective fencing
 - Areas for supervised excavation
 - Construction exclusion zones
 - Suitable RPA ground protection.
- 7.2 Pre-commencement site meetings should be arranged to discuss the recommendations in this and subsequent reports and method statements. Copies of all relevant arboricultural reports should be available on site.
- 7.3 The AMS should be developed further with the contractor through the development process to include comments made by them and the client and design team as well as council officers. A copy of the tree report, including the Arboricultural Method Statements and Tree Protection Plan is kept on site at all times.
- 7.4 Details of site inspection / supervision visits by the consultant Arboriculturist are recorded and sent to the council tree officer with copies retained by the site manager.
- 7.5 A strong tree planting plan shall be implemented to replace removed trees with an emphasis to increase tree numbers to what is currently on site, tree planting shall include an aftercare plan that ensures tree survival or tree replacement for 7 years after completion of the project. The planting plan shall chose tree species that will have a large mature size and are suitable to the growing environment.

8.0 Conclusions

- 8.1 The proposed development will affect the tree population; therefor it is necessary to implement mitigative actions that will reduce the negative or harmful action that may directly, indirectly or inadvertently affect retained trees.
- 8.2 Across the site there will need to be the removal of a substantial number of trees and shrubbery, this loss shall be over compensated for.
- 8.3 Full specifications as to the methodology of tree protection shall be found within an Arboricultural Method Statement and the location for it found within a Tree Protection Plan.
- 8.4 Supervision by a arboriculturist watching brief is advised for when working within or around tree that are to be retained, to insure best practice tree management.
- 8.5 The development of the site will bring an opportunity for best practice tree management of the remaining trees and an opportunity for further native tree and hedgerow planting. All tree works, and landscape tree planting will require agreement with the council officers.



Ben Tidey FdSc

Consultant Arboriculturist

Friday, 26 July 2019

Appendix 1: Tree Schedule

Reference number	Species	Life stage	Height (m)	Crown height (m)	FSB; height and direction	Stem Diameter (mm)	Crown radius N,E,S,W	Observations	Preliminary management recommendations	Physiological condition	Structural condition	Life expectancy	BS5837 Category	Sub category
T1	Horse Chestnut / <i>Aesculus hippocastanum</i>	Mature	10	1.5	2 NW	500	6, 6, 5, 6	Tree locate off site, bleeding canker, major deadwood in crown	Pollard or fell	Poor	Poor	10+	C	2
#T2	Pedunculate Oak / <i>Quercus robur</i>	Mature	20	30	3 SW	920	13, 12, 11, 10	Old pruning wounds, damage to crown, cavities in crown, major deadwood in crown	No works required	Good	Fair	40+	B	2
#T3	Pedunculate Oak / <i>Quercus robur</i>	Mature	14	1	3 E	690	9, 14, 9, 6	Cavities in crown, trunk leaning to east	No works required	Good	Fair	40+	B	2
T4	Pedunculate Oak / <i>Quercus robur</i>	Mature	13	3	2 NE	610	9, 8, 6, 9	Trunk leaning to north, major deadwood in crown	No works required	Good	Good	40+		2
#T5	Pedunculate Oak / <i>Quercus robur</i>	Early Mature	13	0.5	3 SW	500	6, 5, 7, 7	Major deadwood in crown	No works required	Good	Good	40+	B	2
T6	Poplar sp / <i>Populus .sp</i>	Mature	18	1	2 S	890	10, 10, 12, 12	Twin stem at 1m with potential included bark union, cavities in crown, major deadwood in crown	Further inspection	Fair	Fair	20+	B	2
T7	Poplar sp / <i>Populus .sp</i>	Mature	20	10	6 E	500	5, 4, 1, 5	Sparse crown, major deadwood in crown, excessive Ivy inhibiting full inspection	Further inspection	Good	Fair	10+	C	2
T8	Poplar sp / <i>Populus .sp</i>	Mature	18	8	6 W	400	1, 2, 3, 2	Excessive Ivy inhibiting full inspection	Further inspection	Good	Fair	10+	C	2
T9	Hawthorn / <i>Crataegus monogyna</i>	Mature	10	1.5	2 S	500	2, 4, 6, 4	Major deadwood in crown	Reduce crown by 3m from height and 1-2m from lateral limbs	Fair	Fair	20+	C	2
#T10	Poplar sp / <i>Populus .sp</i>	Mature	19	8	8 W	420	3, 3, 1, 3	Excessive Ivy inhibiting full inspection, major deadwood in crown	Further inspection	Good	Fair	10+	C	2
#T11	Poplar sp / <i>Populus .sp</i>	Mature	16	4	4 E	440	1, 6, 3, 1	Excessive Ivy inhibiting full inspection, major deadwood in crown	Further inspection	Good	Fair	10+	C	2
#T12	Poplar sp / <i>Populus .sp</i>	Mature	18	6	6 W	420	3, 1, 0, 4	Excessive Ivy inhibiting full inspection, major deadwood in crown	Further inspection	Good	Fair	10+	C	2
#T13	Hawthorn / <i>Crataegus monogyna</i>	Mature	6	2.5	2 N	380	2, 3, 1, 2	Dead standing	Fell	Dead	Dead	<10	U	
#T14	Poplar sp / <i>Populus .sp</i>	Mature	17	6	6 W	440	3, 1, 0, 4	Excessive Ivy inhibiting full inspection, major deadwood in crown	Further inspection	Good	Fair	10+	C	2

#T15	Poplar sp / <i>Populus .sp</i>	Mature	18	8	4 W	490	1, 6, 1, 2	Excessive Ivy inhibiting full inspection, major deadwood in crown	Further inspection	Good	Fair	10+	C	2
#T16	Poplar sp / <i>Populus .sp</i>	Mature	18	4	3 NW	570	1, 5, 1, 3	Excessive Ivy inhibiting full inspection, major deadwood in crown	Further inspection	Good	Fair	10+	C	2
#T17	Poplar sp / <i>Populus .sp</i>	Early Mature	6	3	5 N	570	0, 0, 0, 0	Dead standing	Fell	Dead	Dead	<10	U	
T18	Hawthorn / <i>Crataegus monogyna</i>	Mature	10	1	4 S	507	4, 6, 3, 3	Excessive Ivy inhibiting full inspection	Sever Ivy	Good	Fair	10+	C	2
#T19	Hawthorn / <i>Crataegus monogyna</i>	Mature	6	0.5	2 E	360	1, 6, 3, 0	Excessive Ivy inhibiting full inspection	Sever Ivy and Further inspection	Good	Fair	10+	C	2
#T20	Elder / <i>Sambucus nigra</i>	Mature	6	1	2 SE	246	2, 3, 3, 1	Supressed crown	No works required	Good	Fair	10+	U	
#T21	Hawthorn / <i>Crataegus monogyna</i>	Early Mature	6	2	1.5 NW	262	3, 2, 3, 4	Supressed crown	No works required	Good	Fair	10+	C	2
#T22	Hawthorn / <i>Crataegus monogyna</i>	Early Mature	8	2	2 W	240	3, 2, 2, 4	Supressed crown	No works required	Good	Fair	20+	C	2
#T23	Hawthorn / <i>Crataegus monogyna</i>	Mature	8	2	1.5 W	433	4, 3, 2, 4	Supressed crown	No works required	Good	Fair	20+	C	2
#T24	Hawthorn / <i>Crataegus monogyna</i>	Mature	8	1	1 N	407	4, 3, 0, 3	Supressed crown, lean to north	No works required	Good	Fair	20+	C	2
#T25	Hawthorn / <i>Crataegus monogyna</i>	Mature	9	5	5 N	291	6, 4, 4, 4	Supressed crown	No works required	Good	Fair	20+	C	2
T26	Hawthorn / <i>Crataegus monogyna</i>	Early Mature	8	6	6 SW	170	1, 1, 2, 2	Supressed crown	No works required	Good	Fair	10+	C	2
T27	Holly / <i>Ilex aquifolium</i>	Early Mature	9	0.5	1 NE	284	3, 2, 2, 1	Supressed crown, Lean to east	No works required	Good	Fair	20+	B	2
T28	Hawthorn / <i>Crataegus monogyna</i>	Early Mature	4	1	1 E	180	2, 3, 2, 3	Major deadwood in crown, excessive Ivy and vegetation inhibiting full inspection	Remove major deadwood	Poor	Poor	<10	U	
T29	Hawthorn / <i>Crataegus monogyna</i>	Early Mature	4	1	0.5 NW	210	4, 0, 0, 6	Major deadwood in crown, excessive Ivy and vegetation inhibiting full inspection	Remove major deadwood	Poor	Poor	<10	U	
T30	Hawthorn / <i>Crataegus monogyna</i>	Early Mature	4	1	1 E	177	2, 2.5, 2, 2	Supressed crown, excessive Ivy inhibiting full inspection	No works required	Good	Good	20+	C	2
T31	Hawthorn / <i>Crataegus monogyna</i>	Early Mature	4	1	0.5 NE	220	6, 5, 0, 1	fallen	No works required	Good	Fair	20+	C	2
T32	Elder / <i>Sambucus nigra</i>	Early Mature	5	1.5	0.5 SW	342	6, 4, 5, 4	Major deadwood in crown, tree with major dieback of crown	Fell	Poor	Poor	<10	U	
T33	Pedunculate Oak / <i>Quercus robur</i>	Mature	9	0	0 SE	610	2, 9, 11, 3	Dead tree with wildlife value	Further inspection	Good	Poor	<11	A	3
T34	Hawthorn / <i>Crataegus monogyna</i>	Mature	11	0	0 E	580	3, 9, 4, 2	Lapsed hedge, Excessive Ivy inhibiting full inspection	No works required	Good	Fair	20+	B	2
#T35	Hawthorn / <i>Crataegus monogyna</i>	Early Mature	9	1	1 NW	310	3, 3, 2, 2	No gross defect	No works required	Good	Good	20+	C	2
#T36	Hawthorn / <i>Crataegus monogyna</i>	Early Mature	5	1	1.5 E	192	3, 4, 2, 2	No gross defect	Remove major deadwood	Good	Fair	20+	C	2

#T37	Hawthorn / <i>Crataegus monogyna</i>	Early Mature	6	1	1 NW	202	2, 1, 2.5, 2.5	No gross defect	No works required	Good	Fair	20+	C	2
#T38	Hawthorn / <i>Crataegus monogyna</i>	Early Mature	8	1	1.5 SW	263	2, 2.5, 4, 5	Supressed crown	No works required	Good	Fair	20+	C	2
#T39	Hawthorn / <i>Crataegus monogyna</i>	Early Mature	7	1	1.5 NE	333	4, 3, 2, 3	Supressed crown	No works required	Good	Fair	20+	C	2
#T40	Hawthorn / <i>Crataegus monogyna</i>	Mature	7	1	1.5 SE	417	4, 6, 6, 5	Supressed crown	No works required	Good	Fair	20+	C	2
#T41	Hawthorn / <i>Crataegus monogyna</i>	Mature	6	0.5	0.5 S	350	3, 4, 3, 4	Supressed crown	No works required	Good	Fair	20+	C	2
#T42	Apple / <i>Malus .sp</i>	Early Mature	7	1	1.5 E	277	3, 4, 4, 0	Supressed crown, damage to lower trunk	No works required	Fair	Poor	<10	U	
#T43	Elder / <i>Sambucus nigra</i>	Early Mature	7	2	2 E	190	2, 4, 2, 0	Major deadwood in crown	Remove major deadwood	Fair	Poor	<10	U	
#T44	Elder / <i>Sambucus nigra</i>	Early Mature	3.5	1	1 NW	151	1, 1, 1, 1	Major deadwood in crown	Fell	Fair	Poor	<10	U	
#T45	Elder / <i>Sambucus nigra</i>	Early Mature	2	1	1 E	90	1, 1, 1, 1	Dead standing	Fell	Dead	Dead	<10	U	
T46	Apple / <i>Malus .sp</i>	Early Mature	2	1	1 NW	90	1, 1, 1, 1	Dead standing	Fell	Dead	Dead	<10	U	
T47	Apple / <i>Malus .sp</i>	Over Mature	1	0.5	1 SE	350	1.5, 2, 1, 0	Dead standing	Fell	Dead	Dead	<10	U	
T48	Apple / <i>Malus .sp</i>	Over Mature	2	3	1.5 W	410	0.5, 0.5, 2, 2.5	Dead tree with wildlife value	Further inspection	Dead	Dead	<10	U	
T49	Apple / <i>Malus .sp</i>	Mature	6	1	1.5 SW	443	4, 4, 4, 4	Major deadwood in crown, damage to trunk	Remove major deadwood	Fair	Poor	<10		3
T50	Elder / <i>Sambucus nigra</i>	Semi Mature	3	0.5	0.5 N	120	1, 1, 1, 1	Dead standing	No works required	Dead	Dead	<10	U	
#T51	Elder / <i>Sambucus nigra</i>	Early Mature	3	0.5	0.5 N	211	2, 2, 2, 2	Major deadwood in crown	Further inspection	Poor	Poor	<10	U	
T52	Hawthorn / <i>Crataegus monogyna</i>	Semi Mature	4	0.5	0.5 N	190	2, 2, 2, 2	Excessive Ivy inhibiting full inspection	No works required	Good	Fair	20+	C	2
T53	Elder / <i>Sambucus nigra</i>	Early Mature	4	1	0.5 N	280	2, 2, 2, 2	Major deadwood in crown	Further inspection	Fair	Fair	20+	C	2
#T54	Elder / <i>Sambucus nigra</i>	Semi Mature	3	0.5	0.5 N	100	1.5, 1.5, 1.5, 1.5	Excessive Ivy inhibiting full inspection	Further inspection	Fair	Fair	<10	U	
T55	Elder / <i>Sambucus nigra</i>	Early Mature	7	1	1 N	190	3, 3, 3, 3	Excessive Ivy inhibiting full inspection	Further inspection	Good	Fair	20+	C	2
T56	Elder / <i>Sambucus nigra</i>	Early Mature	5	1	1 N	170	2, 2, 2, 2	Excessive Ivy inhibiting full inspection	Further inspection	Good	Fair	<10	U	
T57	Apple / <i>Malus .sp</i>	Early Mature	6	1	2 NW	250	3, 1, 1, 3	Tree stump	No works required	Dead	Dead	<10	U	
T58	Hawthorn / <i>Crataegus monogyna</i>	Early Mature	7	0.5	0.5 NE	439	5, 3, 5, 4	No gross defect	No works required	Good	Good	20+	C	2
T59	Ash / <i>Fraxinus Excelsior</i>	Early Mature	10	0	1.5 S	300	4, 4, 3, 3	No gross defect	No works required	Good	Good	40+	B	2
T60	Hornbeam / <i>Carpinus Betulus</i>	Early Mature	9	0.5	1.5 E	150	1, 2.5, 3, 0.5	Supressed crown	No works required	Good	Fair	10+	C	2
T61	Pedunculate Oak / <i>Quercus robur</i>	Mature	13	1	2 NE	510	4, 6, 6, 2	Excessive Ivy inhibiting full inspection, supressed crown, major deadwood in crown,	Remove major deadwood	Fair	Fair	40+	C	2

T62	Cherry Plumb / <i>Prunus cerasifera</i>	Early Mature	6	0.5	1 E	110	3, 3, 3, 3	No gross defect	No works required	Good	Good	20+	C	2
T63	Elder / <i>Sambucus nigra</i>	Mature	6	1	0.5 SE	280	3, 3, 3, 3	Excessive Ivy inhibiting full inspection,	Further inspection	Good	Fair	10+	C	2
T64	Goat Willow / <i>Salix caprea</i>	Mature	14	1.5	1.5 E	784	8, 8, 8, 8	Excessive Ivy and vegetation inhibiting full inspection	Further inspection	Good	Fair	20+	C	2
T65	Silver Birch / <i>Betula Pendula</i>	Early Mature	14	5	4 E	200	0, 6, 1, 0	Growing in dilapidated green house, suppressed crown	No works required	Good	Fair	20+	C	2
T66	Ornamental Shrubs	Mature	9	2	0.5 E	387	5, 5, 5, 5	Growing in dilapidated green house	No works required	Fair	Fair	20+	C	2
#T67	Silver Birch / <i>Betula Pendula</i>	Early Mature	12	2	3 NW	230	3, 3, 3, 3	Growing in dilapidated green house, suppressed crown, excessive Ivy and vegetation inhibiting full inspection	Further inspection	Fair	Fair	20+	B	2
#T68	Silver Birch / <i>Betula Pendula</i>	Mature	14	2	3 SE	200	3, 3, 4, 2	Growing in dilapidated green house, suppressed crown, excessive Ivy and vegetation inhibiting full inspection	Further inspection	Fair	Fair	20+	C	2
T69	Holly / <i>Ilex aquifolium</i>	Early Mature	7	0	0.5 S	90	2, 2, 2, 2	No gross defect	No works required	Fair	Fair	20+	C	2
T70	Sycamore / <i>Acer pseudoplatanus</i>	Mature	14	1.5	2 W	510	6, 6, 6, 6	Excessive Ivy and vegetation inhibiting full inspection,	Further inspection	Fair	Fair	40+	C	2
T71	Goat Willow / <i>Salix caprea</i>	Mature	11	2	3 W	510	6, 6, 8, 6	Excessive Ivy and vegetation inhibiting full inspection	Further inspection	Fair	Fair	40+	C	2
#T72	Goat Willow / <i>Salix caprea</i>	Mature	11	3	4 NW	570	6, 6, 2, 6	Excessive Ivy and vegetation inhibiting full inspection, twin stem	Further inspection	Fair	Poor	20+	C	2
T73	Elder / <i>Sambucus nigra</i>	Mature	5	0	0 E	372	6, 6, 0, 0	Suppressed crown, branching in contact with building	No works required	Fair	Poor	<10	U	
#T74	Pedunculate Oak / <i>Quercus robur</i>	Early Mature	8	0.5	1.5 E	330	4, 4, 4, 3	Damage to crown	No works required	Fair	Fair	40+	B	2
#T75	Pedunculate Oak / <i>Quercus robur</i>	Early Mature	7	1.5	2.5 S	283	4, 5, 5, 4	No gross defect	No works required	Fair	Fair	40+	B	2
T76	Apple / <i>Malus .sp</i>	Mature	6	2	1 SW	533	4, 2, 3, 5	Excessive Ivy and vegetation inhibiting full inspection, major deadwood in crown	Remove major deadwood	Fair	Fair	10+	C	2
#T77	Wild Cherry / <i>Prunus avium</i>	Mature	12	0.5	0.5 N	400	5, 5, 1, 2	Excessive Ivy and vegetation inhibiting full inspection, major deadwood in crown	Remove major deadwood	Fair	Fair	20+	C	2
#T78	Elder / <i>Sambucus nigra</i>	Mature	7	1.5	1 S	311	3, 2, 2, 4	Dead standing	Fell	Dead	Dead	<10	U	
T79	Silver Birch / <i>Betula Pendula</i>	Early Mature	12	2	2 N	200	3, 3, 3, 3	Excessive Ivy and vegetation inhibiting full inspection	Further inspection	Fair	Fair	10+	B	2
T80	Elder / <i>Sambucus nigra</i>	Mature	7	1.5	1 S	300	3, 3, 2, 3	Excessive Ivy and vegetation inhibiting full inspection	Further inspection	Fair	Poor	<10	U	
T81	Hawthorn / <i>Crataegus monogyna</i>	Early Mature	6	2	1.5 S	180	3, 3, 2, 3	Excessive Ivy and vegetation inhibiting full inspection	Further inspection	Fair	Fair	10+	C	2
#T82	Silver Birch / <i>Betula Pendula</i>	Early Mature	12	4	6 E	230	3, 1, 2, 3	No gross defect	No works required	Fair	Fair	10+	C	2

#T83	Goat Willow / <i>Salix caprea</i>	Mature	12	3	3 S	700	2, 7, 7, 6	Excessive Ivy and vegetation inhibiting full inspection, suppressed crown	No works required	Fair	Fair	10+	C	2
#T84	Goat Willow / <i>Salix caprea</i>	Mature	14	3	2 N	700	8, 7, 6, 6	Excessive Ivy and vegetation inhibiting full inspection	Further inspection	Fair	Fair	20+	C	2
T85	Wild Cherry / <i>Prunus avium</i>	Early Mature	7	1	1 N	270	6, 4, 2, 5	Excessive Ivy and vegetation inhibiting full inspection, major deadwood in crown	No works required	Fair	Fair	20+	C	2
T86	Hawthorn / <i>Crataegus monogyna</i>	Early Mature	6	0.5	0.5 NE	286	5, 3, 2, 4	Excessive Ivy inhibiting full inspection	No works required	Fair	Fair	20+	C	2
T87	Hawthorn / <i>Crataegus monogyna</i>	Early Mature	6	0.5	1.5 S	300	4, 3, 3, 3	Excessive Ivy inhibiting full inspection	No works required	Fair	Fair	20+	B	2
T88	Persian Ironwood / <i>Parrotia persica</i>	Mature	7	0	0 N	340	6, 6, 1, 3	Excessive Ivy inhibiting full inspection	Further inspection	Fair	Fair	40+	B	1, 2, 3
T89	Holm Oak / <i>Quercus ilex</i>	Early Mature	7	0	0.5 W	326	3, 3, 3, 3	Excessive Ivy inhibiting full inspection	Prune branching back from building	Fair	Fair	40+	B	2
T90	Sycamore / <i>Acer pseudoplatanus</i>	Semi Mature	9	2	2 N	260	2, 2, 2, 2	No gross defect	No works required	Fair	Fair	20+	C	2
T91	Field Maple / <i>Acer campestre</i>	Early Mature	9	0	0.5 W	310	4, 4, 4, 4	Tree located off site over carpark	Further inspection	Fair	Fair	40+	B	2
T92	Lime / <i>Tilia X europaea</i>	Early Mature	10	0	0.5 SW	300	3, 3, 3, 3	Tree located off site, excessive Ivy inhibiting full inspection	Further inspection	Fair	Fair	40+	C	2
T93	Field Maple / <i>Acer campestre</i>	Early Mature	9	0	0.5 SW	280	3, 3, 3, 3	Tree located off site, excessive Ivy inhibiting full inspection	Further inspection	Fair	Fair	40+	C	2
T94	Elder / <i>Sambucus nigra</i>	Early Mature	5	1	1 N	210	3, 3, 3, 3	Excessive Ivy and vegetation inhibiting full inspection	Further inspection	Fair	Fair	20+	C	2
#T95	Apple / <i>Malus .sp</i>	Mature	4.5	1	0 NW	520	3, 3, 3, 3	Excessive Ivy and vegetation inhibiting full inspection	Further inspection	Fair	Fair	10+	C	2
T96	Hawthorn / <i>Crataegus monogyna</i>	Early Mature	6	0.5	0.5 NE	375	5, 3, 3, 2	No gross defect	No works required	Good	Good	20+	C	2
T97	Elder / <i>Sambucus nigra</i>	Early Mature	6	1	2 NW	200	3, 3, 3, 3	Dead standing	Fell	Dead	Dead	<10	U	
T98	Pedunculate Oak / <i>Quercus robur</i>	Semi Mature	8	1	2 E	190	4, 3, 3, 3	No gross defect	No works required	Fair	Fair	20+	B	2
T99	Pedunculate Oak / <i>Quercus robur</i>	Young	7	1	1 SW	120	2, 2, 2, 2	No gross defect	No works required	Good	Fair	20+	B	2
G1	Lawson's Cypress / <i>Chamaecyparis lawsoniana</i>	Early Mature	12	0.5	0.5 W	280	2, 1, 2, 3	Lapsed hedge, dead and broken parts, Excessive Ivy inhibiting full inspection	Fell	Poor	Poor	<10	U	
G2	Hornbeam / <i>Carpinus Betulus</i>	Mature	13	0.5	0.5 E	330	4, 4, 4, 4	Lapsed hedge, with major deadwood in crown and at trunk, damage to trunk, cavities in crown and on trunk	No works required	Good	Fair	20+	B	1, 2
G3	Hawthorn / <i>Crataegus monogyna</i>	Mature	11	1	1 N	420	3, 3, 3, 3	Lapsed hedge	No works required	Good	Fair	20+	B	2

G4	Hawthorn / Crataegus monogyna	Early Mature	6	0.5	0.5 N	180	3, 3, 3, 3	No gross defect	No works required	Good	Good	20+	C	2
#G5	Dogwood / Cornus sanguinea	Mature	7	0.5	0.5 N	180	3, 3, 3, 3	Damage to crown	No works required	Good	Good	20+	C	2
G6	Hawthorn / Crataegus monogyna	Early Mature	8	1	1 NE	190	3, 4, 4, 3	Apple and Hawthorn group	No works required	Fair	Fair	20+	C	2
#G7	Hawthorn / Crataegus monogyna	Early Mature	6	1	1 N	220	3, 3, 3, 3	Excessive Ivy inhibiting full inspection	Further inspection	Fair	Fair	20+	C	2
G8	Hawthorn / Crataegus monogyna	Early Mature	8	1	1 E	180	3, 3, 3, 3	Suppressed crown	No works required	Fair	Fair	10+	C	2
#G9	Hawthorn / Crataegus monogyna	Mature	9	1	4 NW	250	4, 1, 1, 3	Excessive Ivy and vegetation inhibiting full inspection, damage to crown, major deadwood in crown	Pollard at 1.5m	Fair	Poor	<10	U	
G10	Hawthorn / Crataegus monogyna	Early Mature	7	0.5	0.5 N	160	3, 3, 3, 3	Suppressed crown	No works required	Good	Fair	20+	C	2
#G11	Elder / Sambucus nigra	Early Mature	5	0.5	0.5 N	180	3, 3, 3, 3	Excessive Ivy and vegetation inhibiting full inspection, major deadwood in crown	Remove major deadwood, further inspection	Good	Fair	10+	U	
G12	Elder / Sambucus nigra	Early Mature	6	0.5	0.5 N	240	3, 3, 3, 3	Major deadwood in crown	Remove major deadwood	Fair	Fair	10+	U	
G13	Elder / Sambucus nigra	Early Mature	6	0.5	0.5 N	260	3, 3, 3, 3	Excessive Ivy and vegetation inhibiting full inspection	Further inspection	Fair	Fair	10+	C	2
#G14	Elder / Sambucus nigra	Early Mature	6	0.5	0.5 N	250	3, 3, 3, 3	Excessive Ivy and vegetation inhibiting full inspection, damage to crown, major deadwood in crown	Remove major deadwood, further inspection	Fair	Fair	10+	U	
G15	Elder / Sambucus nigra	Early Mature	5	0.5	0.5 N	220	2, 2, 2, 2	Excessive Ivy and vegetation inhibiting full inspection	Further inspection	Fair	Fair	10+	U	
G16	Elder / Sambucus nigra	Early Mature	5	0.5	0.5 N	170	3, 1, 0.5, 2	Suppressed crown	No works required	Fair	Poor	10+	U	
G17	Apple / Malus .sp	Early Mature	3	0	0.5 N	190	3, 1.5, 0, 2	Suppressed crown, damage to trunk	No works required	Fair	Poor	10+	U	
G18	Apple / Malus .sp	Mature	3.5	0.5	0.5 N	319	1, 1.5, 4, 3	Damage to crown, major deadwood in crown	Remove major deadwood	Fair	Poor	10+	U	
G19	Cherry Plumb / Prunus cerasifera	Early Mature	5	0.5	0.5 N	150	3, 2, 2, 2	Suppressed crown	No works required	Fair	Fair	20+	C	2
#G20	Apple / Malus .sp	Mature	6	0.5	0.5 N	250	3, 3, 3, 3	Old orchard, excessive Ivy and vegetation inhibiting full inspection, major deadwood in crown	Remove major deadwood	Fair	Fair	20+	C	2
G21	Lilac, Forsythia / Syringa, Forsythia	Early Mature	4	0.5	0.5 N	200	3, 3, 3, 3	Lilac, Forsythia, Apple and Elder with excessive Ivy and vegetation inhibiting full inspection	Further inspection	Fair	Fair	10+	C	2
G22	Cotoneaster / Contoneaster frigidus	Early Mature	8	0	0 N	120	6, 2, 1, 2	No gross defect	No works required	Fair	Fair	10+	C	2

#G23	Cotoneaster / <i>Cotoneaster frigidus</i>	Semi Mature	8	2	2 N	200	4, 4, 4, 4	Mixed vegetation with shrubs and smaller trees	No works required	Fair	Fair	<10	U	
G24	Goat Willow / <i>Salix caprea</i>	Mature	12	0.5	1 W	400	6, 6, 6, 6	Excessive Ivy and vegetation inhibiting full inspection	No works required	Fair	Fair	20+	C	2
G25	Elder / <i>Sambucus nigra</i>	Early Mature	5	1	0.5 N	160	2, 2, 2, 2	Excessive Ivy and vegetation inhibiting full inspection, major deadwood in crown	Remove major deadwood	Poor	Fair	<10	U	
G26	Elder / <i>Sambucus nigra</i>	Early Mature	6	0.5	0.5 N	250	3, 3, 3, 3	Excessive Ivy and vegetation inhibiting full inspection, major deadwood in crown	Remove major deadwood	Fair	Fair	<10	U	
#G27	Apple / <i>Malus .sp</i>	Mature	5	0.5	0.5 N	250	3, 3, 3, 3	Excessive Ivy and vegetation inhibiting full inspection	Further inspection	Fair	Fair	40+	B	2
#G28	Cherry Laurel / <i>Prunus laurocerasus</i>	Early Mature	8	0	0 N	230	3, 3, 3, 3	Excessive Ivy and vegetation inhibiting full inspection, lapsed hedge	No works required	Fair	Fair	20+	C	2
G29	Cherry Plumb / <i>Prunus cerasifera</i>	Early Mature	9	0	0 NE	270	3, 5, 2, 2	Supressed crown, damage to crown	No works required	Fair	Fair	20+	C	2
G30	Cherry Laurel / <i>Prunus laurocerasus</i>	Mature	9	0	0 N	300	4, 4, 4, 4	Lapsed hedge	No works required	Fair	Fair	20+	C	2
G31	English Elm / <i>Ulmus procera</i>	Semi Mature	8	2.5	2 S	160	2.5, 2.5, 2.5, 2.5	No gross defect	No works required	Good	Good	10+	C	2
#G32	Lawson's Cypress / <i>Chamaecyparis lawsoniana</i>	Early Mature	16	0	0.5 N	450	4, 4, 4, 4	Excessive Ivy and vegetation inhibiting full inspection, damage to trunk and crown	Further inspection	Fair	Poor	10+	C	2
G33	Cherry Plumb / <i>Prunus cerasifera</i>	Young	4	0.5	0.5 N	50	1, 1, 1, 1	No gross defect	No works required	Good	Fair	20+	C	2
#G34	Cherry Laurel / <i>Prunus laurocerasus</i>	Mature	10	0	0 N	280	4, 4, 4, 4	Lapsed hedge	No works required	Fair	Fair	20+	C	2
#G35	Cherry Plumb / <i>Prunus cerasifera</i>	Early Mature	7	0	1 E	120	1, 1, 1, 1	Excessive Ivy and vegetation inhibiting full inspection	Further inspection	Good	Fair	20+	C	2
#G36	Elder / <i>Sambucus nigra</i>	Early Mature	5	0	0.5 N	120	3, 3, 3, 3	Excessive Ivy and vegetation inhibiting full inspection, major deadwood in crown	Remove major deadwood, further inspection	Poor	Poor	<10	U	
G37	Apple / <i>Malus .sp</i>	Early Mature	8	0.5	0.5 N	250	3, 3, 3, 3	Excessive Ivy and vegetation inhibiting full inspection	Further inspection	Fair	Fair	40+	C	2
G38	Hawthorn / <i>Crataegus monogyna</i>	Mature	8	0.5	0.5 N	220	3, 3, 3, 3	Excessive Ivy and vegetation inhibiting full inspection	Further inspection	Fair	Fair	40+	C	2
#G39	Hawthorn / <i>Crataegus monogyna</i>	Early Mature	10	1.5	1 N	240	3, 3, 3, 3	Area of unspecified trees	Further inspection	Good	Fair	20+	C	2
G40	Elder / <i>Sambucus nigra</i>	Semi Mature	6	0	0 N	100	3, 3, 3, 3	No gross defect	No works required	Fair	Fair	10+	C	2
G41	Hornbeam / <i>Carpinus Betulus</i>	Mature	16	0.5	0.5 E	390	4, 12, 4, 8	Lapsed hedge, major deadwood in crown	Remove major deadwood	Fair	Fair	20+	B	2
#G42	Field Maple / <i>Acer campestre</i>	Early Mature	10	0	0 N	200	3, 3, 3, 3	Tree locate off site, lapsed hedge	No works required	Good	Good	20+	B	2

G43	Hawthorn / Crataegus monogyna	Early Mature	10	1	0.5 N	200	3, 3, 3, 3	Excessive Ivy and vegetation inhibiting full inspection	Further inspection	Fair	Fair	20+	E	2
S1	Poplar sp / Populus .sp	Mature	1	0	0 N	350	0, 0, 0, 0	Dead standing	Fell	Dead	Dead	<10	U	

= Measurements estimated due to inaccessible tree or tree part

*= designated A category because of its ecological value

Appendix 2: Key Terms and Abbreviations

Arboricultural Implication Assessment (AIA):

An assessment of the arboricultural impact of a development.

Arboricultural Method Statement (AMS):

Contains references to tree protection information.

Arboriculturalist:

Person who has relevant education and training, gained expertise in the field of trees.

British Standard 5837: 2012 Trees in Relation to Design, Demolition, and Construction - Recommendations (BS 5837):

British Standard document outlining best practice and guidelines for the impact of arboriculture on the construction industry.

British Standard 3998 2012 Tree Work Recommendations (BS 3998):

British Standard document outlining best practice for Tree Works.

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.

Construction:

Site Based operations with the potential to affect existing trees.

Construction Exclusion Zone:

Area based on the root protection area from which access is prohibited for the extent of the project.

Root Protection Area (RPA):

Layout design tool indicating the minimum area around a tree deemed sufficient to protect roots in order to maintain the trees health and viability.

Service(s):

Any above or belowground structure or apparatus required for utility provision e.g. drainage, gas supply, water, ground source heat pumps, soak-a-ways, CCTV, telecommunications.

Stem:

Principle above ground structural component(s) of a tree that supports the branches/crown.

Tree Protection Plan:

Scale drawing, informed by descriptive text where necessary, based upon the finalised proposals, showing the trees for retention and illustrating the tree and landscape protection measures.

Appendix 3: Tree Protection

BARRIERS/FENCING

All barriers/fencing agreed for the development must be installed prior to any works starting on site and ideally in conjunction with the erection of the site security measures. All barriers/fencing must stay in place until the all works on site are finished or as agreed by the consultant arboriculturalist and/or planning authority.

Default Specification:

The default specification consists of a vertical and horizontal scaffold framework that is well braced to resist impacts from vehicles and construction site operations. The specification recommended in the current BS 5837 states the vertical tube should be spaced at maximum intervals of 3m and should be driven securely into the ground. Once in place weld mesh or similar (Heras panels) will need to be securely fixed to the scaffold framework.

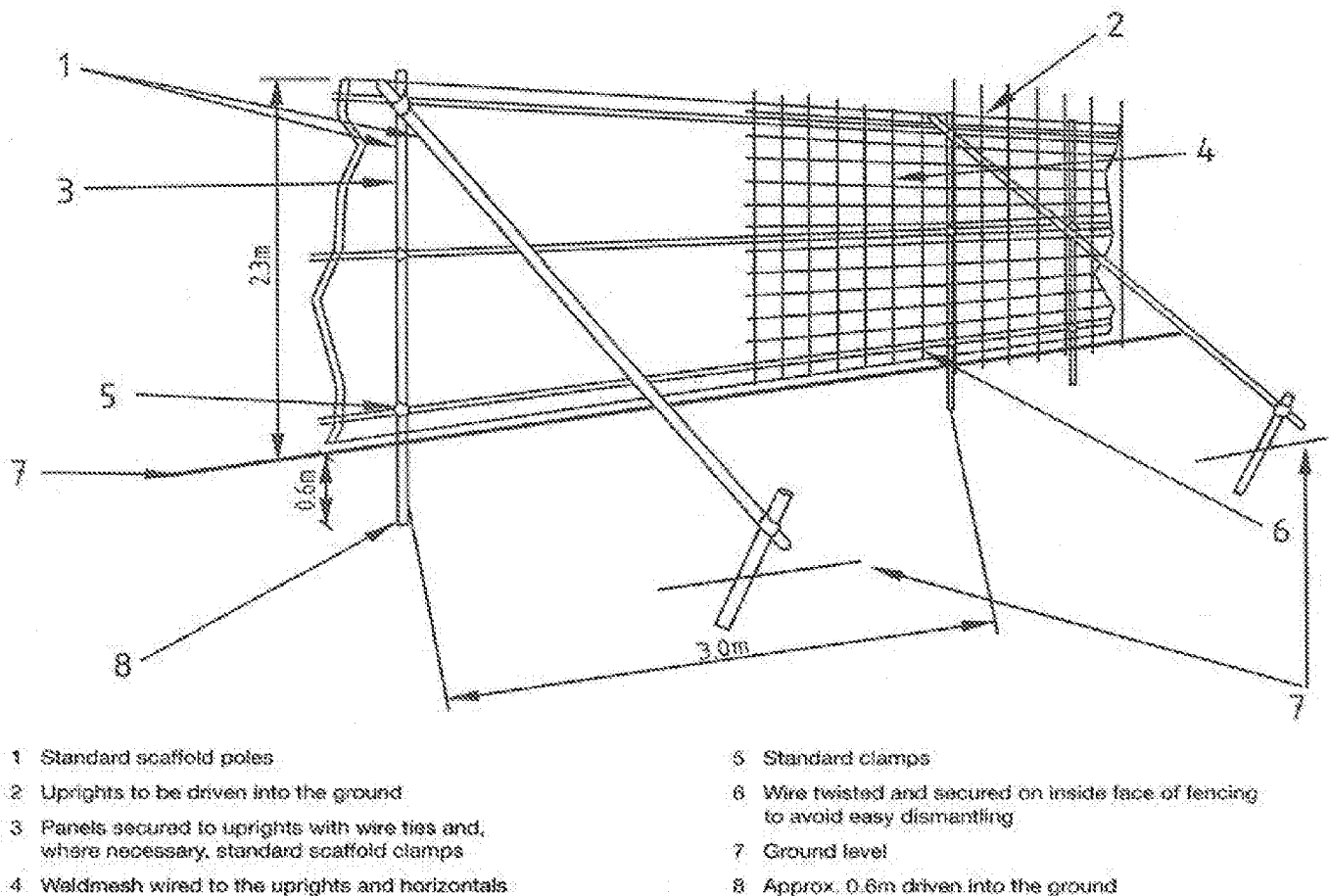


Figure 2. – Protective fencing for RPA

Signage:

All tree protection fencing is required to have signs attached at 4-6m intervals. Below are examples of the required signage to be attached to the tree protection barrier.



Above: Three examples of tree protection fencing signage ranging from a simple sign (*left*) attached with zip ties to more in-depth signs (*middle & right*) explaining the limitations and legal protection status of the trees being protected.

Ground Protection

Ground protection is required during the development process to protect the retained trees, Root Protection Areas from construction operations. This can be where permanent working space is needed or temporary access is justified within the RPA, which would involve setting back the tree protection barrier. Where possible existing hard surfaces within RPAs need to be utilised or retained for ground protection rather than being removed during demolition operations. Where tree protection barriers are set back from the perimeter of the RPA exclusion zone exposing unmade ground to construction damage, new temporary ground protection will be installed prior to construction starting. Below are some general specifications for ground protection based on the type and weight of traffic.

Pedestrian Access

For pedestrian traffic ONLY a single thickness of scaffold board (40mm) or wooden boarding is to be laid on a minimum of 100mm deep woodchip, which is laid upon a geotextile membrane.

Small Plant Up To 2 Tonne (2000kg)

For small plant machinery with a gross weight of up to 2 tonne (2000kg), interlinking polyethylene or aluminium track way needs to be laid on a minimum of 150mm deep woodchip which is laid upon a geotextile membrane.

Regular Traffic and Plant Up To 3.5 Tonne (3500kg)

Where heavy traffic is expected from pedestrian to vehicular with a gross weight of up to 3.5tonne, interlinking aluminium or metal track way must be used over a minimum layer of 200mm deep woodchip, which is laid upon a geotextile membrane.

Appendix 4: Working in Root Protection Areas

Prevention of detrimental impact to RPAs: In most instances the RPA will need to be completely isolated from construction and development operations using tree protection barriers and ground protection. This is the most reliable way to ensure the preservation of the RPA and retain it completely undisturbed. The RPAs of the trees to be retained have been shown diagrammatically on the Tree Protection Plan along with accurate location of any tree protection measures.

However some operations will require specific works to be carried out in the RPA and anyone entering the RPA must follow the guidelines below to ensure the minimal amount of disturbance is afforded at all times. Any operations in the RPA needs to accord to the principle that the tree and soil structure takes priority. This will help retain and preserve healthy, valuable trees in the landscape and development but also prevent costly and potentially dangerous situations from occurring during and after the works has been completed.

The two main instances where these guidelines for entering and working must be followed are:

- 1. Removal of existing surfaces/structures and replacing those with new surfaces, structures, landscaping.**
- 2. Preparation and installation of new surfacing, structures, landscapes.**

Most of the other operations can utilise some form of ground protection to prevent or reduce the impact on the RPA.

Excavations within the RPA and root retention: Any excavations carried out within the RPA must be done so by hand using spades, forks and trowels, taking care to limit the amount of damage caused to the outer bark and woody structure of the roots. The fork should be used to loosen the soil in the excavation area and help locate any substantial roots (25mm- 100mm diameter). A trowel can then be used to remove the soil from around the roots taking care as to not damage the bark.

Once the roots have been exposed, those that are to be removed (any roots up to 25mm in diameter) can be done using sharp secateurs or a handsaw. Any roots above 25mm in diameter, where possible, need to be retained and protected from drying out and temperature extremes by wrapping or covering them in a suitable material e.g. hessian, spare membrane material, plastic. This wrapping needs to be removed before any back filling takes place. Some roots over larger areas of excavation can be displaced where possible to bend round any new structures or pipework whilst remaining intact. Roots with a diameter of 25-100mm should only be cut in exceptional circumstances and after consultation. Roots above 100mm should only be cut after consultation with the appointed arboriculturalist. Alternatively using compressed air to displace the soil is always preferable and more effective especially over larger areas or to remove soil quicker while keeping roots intact. This may be part of the specification and would be included within the Arboricultural Method Statement.

Arboricultural Supervision: All works being carried out within the RPA must be carried out with great care and be supervised by a qualified arboriculturalist to ensure that the contractors understand the need to minimize any detrimental impact on the retained root system. This is done through properly briefing before the work commences along with regular site inspections and signing the work off when completed.

Removal and Demolition of Structures and Surfaces: As with all operations carried out within the RPA exceptional care must be taken to ensure any detrimental impact on the roots and soil structure is kept to an absolute minimum. Where any structure is being demolished (above or below ground) within the RPA additional barriers is recommended to protect the remaining RPA, above ground stem and branch structures. Where there are no hard surfaces or they are due to be removed from within the RPA, plant machinery should operate from outside the RPA providing there is a long enough reach. Where this is unfeasible ground protection must be used to prevent soil compaction from plant machinery conducting the demolition operations. Where possible any suitable load bearing hard surface already existing within the RPA should be retained during demolition. This prevents any additional damage to the underlying soil structure by allowing the surface to support the plant machinery and falling material. Where the hard surface in the RPA is due to be

removed, where possible it should remain in-situ for as long as possible. Before any demolition process takes place it should be determined whether any access facilitation pruning is required to provide clearance and prevent physical damage between the plant machinery and tree structures. In some situations working space can be provided by temporarily tying back tree branches. Both tying and pruning need to be specified by a qualified arboriculturalist and ideally follow the guidelines set out in BS 3998 2012 Tree Work Recommendations.

Debris to be removed from within the RPA must be done so across existing hard surface or temporary ground protection so as to prevent compaction of the soil structure. If possible the material can also be lifted out of the RPA using suitable machinery preferable with a long reach.

Where trees are standing adjacent to structures that need to be removed, the demolition should be undertaken inwards within the footprint of the existing building, often referred to as **'top down, pull back'**. Where underground structures are present within RPAs and will become redundant it is preferable to leave the structures in situ rather than remove them, which could cause considerable root damage. Where hard surface is scheduled for removal within RPAs care must be taken to not disturb the root structure that could be present underneath. Hand held tools or carefully supervised machine work could be utilised to remove the surface. This should be working backwards away from the retained trees and not moving over the newly exposed ground.

New Structure Guidelines: All new structures being proposed in the RPA have the potential to cause damage to root structures and alter the ground conditions. The age and maturity of the trees will affect the viability and type of incursion into the RPA available. Younger trees are more robust and adaptable to changes in their environment where as mature and Veteran trees tolerate very little disturbance to their soil and root structures. When constructing inside RPAs the goal is to minimise the amount of soil disturbance/compaction and retain a good level of gaseous and water exchange. Constructing above ground using pile and beam construction limits the amount of disturbance to the soil and root structure which reduces the adverse effect on physiological processes. Most solutions need to be well thought out and are a combined effort and communication of ideas between the engineer, architect and arboriculturalist.

Light Weight Structures e.g. Sheds, Small Storage: Small structures with relatively small foundations that spread load bearing can be constructed straight onto the surface without the need for any excavations. A certain amount of ground levelling is permitted but only to the top 50mm of the soil to fill in any undulations and provide a level surface. Anything above the 50mm will need to be raised up above the existing ground level to achieve the desired surface. Any ground works required must be carried out with great care so as not to damage retained tree roots. Small roots below 25mm can be severed with a sharp saw or secateurs. A membrane will be required between the ground and the bottom of the foundation to prevent leeching of potentially harmful chemicals materials e.g. cement into the soil. Frames can be constructed and fixed onto the ground using stakes from which the foundation can be produced. But there are recommendations for the amount of RPA that can be covered.

New permanent hard surfacing should not exceed 20% of any existing unsurfaced ground within the RPA.

Fencing, Posts, and Small Piers: Generally the construction of fencing that doesn't require a strip or wall foundation can be installed with having very little impact on the soil and root structure. It is acceptable to dig small holes up to 300mm x 300mm for the installations of posts or piers so long as the digging is carried out carefully and by hand as directed in Appendix. 5.4 Or preferably by compressed air. Any roots up to 25mm in diameter may be severed using a sharp saw or secateurs, if possible the hole being dug could be widened or moved to enable retaining the root(s) whole. Any roots 25mm+ should be retained where possible but may be severed after consulting the appointed arborist; further guidelines have been explained above. Ideally holes should be dug as far away from the main stem as possible where larger diameter roots are less likely to be encountered and less damage will occur. When installing posts or piers in the RPA the smallest feasible hole possible must be used when excavating for the foundations of the posts to reduce the impact to the RPA.

Buildings, Walls, Bridges on New Foundations: Most conventional foundations are done by producing a strip of concrete dug into a trench in the ground. This is not acceptable practice in RPA's with the potential to cause large amounts of damage to root systems causing decline in the trees health, making the tree structurally unsound. Small diameter piles supporting beams or cast flooring are permitted within the RPA's as they will reduce the potential damage to root structure. But before any piling is carried out suitable ground protection must be put down to prevent soil compaction from the piling rig leaving gaps in the ground protection for the pile locations. Hand excavations need to be carried out in the location for each pile down to a depth of 700mm to establish whether there are any substantial roots in the pile location. If substantial roots are discovered (25mm+) the appointed arborist will make a decision whether the root can be severed or if the pile location has to be moved. The supporting beams connecting to the piles cannot be lower than the existing ground level resulting in the need for further excavations. The beams should be constructed off site allowing them to be lowered in to position without the need to be casted in the RPA.

Services: New services and service runs should where possible be sited outside the RPA of retained trees to prevent unnecessary damage to root structures. Sometimes there is the need to upgrade existing services, which requires excavation, this can cause extensive damage and render the trees structurally unsound. This should be a last resort and all decisions need to be in conjunction with the consulting arborist.

New Surfaces Guidelines: The installation of new surfaces within the RPA can be very damaging to the root structure and soil conditions. Excavations required for the laying of new sub bases and level grading could both cause extensive root damage to retained trees.

Excessive soil level alterations and new surfaces can change the condition of the soil and the environment the roots survive in, altering moisture content and the ability for gaseous exchange. Ideally any new surface needs to be permeable to allow moisture transfer and allow the continuation of gaseous exchange, be constructed above existing ground levels and load bearing where the load is spread evenly over the surface to help prevent compaction of the soil. Having these qualities helps enable structures and surfaces to be constructed in RPA while having continued successful retention of valuable trees. Younger trees are more adaptable to changes and construction of new surfaces within the RPA. They are able to cope with the pressures whereas mature, and veteran trees often severely decline. Mature and veteran trees should not have any new surfaces installed in their RPAs, as their ability to cope with the change is poor.

Providing Sufficient Grading for New Surfaces: Determining the depth of roots within any soil and RPA is difficult and can only be achieved by careful excavation of the topsoil. All surfaces proposed inside the RPA need to ideally be of a no dig construction which prohibits excavation, but this is often unfeasible as the ground is usually undulating. Limited ground movement and excavations are permitted if they are carried out with care to prevent any damage to the retained root systems. Ideally the ground should be raised up to provide a suitable level surface using a granular aggregate like angular stone or sharp sand. If done under supervision it is acceptable to allow the removal of the topsoil and turf to a depth of no more than 50mm, which normally doesn't, damage the roots. However if there are a large number of surface roots already showing prior to any soil removal there can be no excavation and the ground level must alternatively be raised. If during the grading of the soil roots at a diameter greater than 25mm are encountered the consultant arborist will need to make an evaluation as to whether the damage is preventable and or acceptable before proceeding. At no point can the graded surface be compacted to provide a finish as this will disrupt the soil structure and cause a damaging effect of the roots within it. The final level of the proposed surface must also be considered and discussed prior to starting any works to establish whether the proposal is practical and useable once completed.

Installing Base and Top Layers: Once a suitably level base has been created without damaging the retained roots, a load spreading construction is required to prevent the compaction of the soil structure beneath. Normally this can be achieved by installing a cellular confinement system that is filled with an angular no fines aggregate to help support and distribute the calculated load over a wider area and limiting soil compaction. This enables a finishing layer of permeable tarmac, block pavers, grasscrete, or gravel to be laid on top depending on the desired usage of the surface. Alternative options are to use preformed concrete slabs that

can be laid directly onto the surface but they cannot be laid on top of any form of strip foundation which has a high potential for root damage.

Retention of Existing Surfaces: Where possible it is preferable to install new surfaces over those already existing, limiting the potential damage to any underlying root system. This can provide a suitable sub base without the need for excavation and without the need for special supervision and precautions. Care will only be needed if roots are lifting or protruding through the existing surface.