

**Tree Condition Report
Arboricultural Impact Assessment
Arboricultural Method Statement
Tree Protection Plan**

Land at Wynnstay Technology Park, Ruabon LL14 6EN



For

Cartefi GO Ltd., 5 King Street, Wrexham LL11 1HF

11.11.2019

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Contents

- 1.0 Remit
- 2.0 Report Limitations
- 2.1 Statutory Obligations
- 2.2 Individual Tree Condition Survey, Arboricultural Impact Assessment, Root Protection Areas and Method Statement
- 3.0 Method statement Summary
- 3.2 Summary of Works
- 3.3 Tree protection specification

Appendix 1

Photo Detail: Tree condition illustration ref. Sect 2.2

Appendix 2

Tree Location and Protection Plan Drawings

Appendix 3

BS 5837 2012 Protection illustrations x2

Appendix 4

Appendix 4 Glossary of Arboricultural Terms

- 1.0 Remit:** Inspect the condition of selected trees within and adjacent to the proposed development based upon the Topographic Survey provided by the Client. Provide an Arboricultural Impact Assessment, Method Statement and Tree Protection Plan to BS5837 (2012) 'Trees in relation to design, demolition and construction – Recommendations'.

- 2.0 Report limitations:**

The tree condition conclusion and recommendations in this report are valid for a period of one year, or a lesser period where indicated in the report. All trees are susceptible to exceptional weather events or deterioration resulting from other environmental changes in close proximity to the tree. The evaluation is based upon Visual Tree Assessment (Mattheck & Breloer 2001). Observations have been made from ground level with the aid of binoculars.

- 2.1 Statutory Obligations**

Bats and the Law (Woodland Management for Bats 2005)

'The Wildlife and Countryside Act 1981 makes it an offence to disturb, damage or destroy bats or their roosts. The Act applies in both England & Wales and requires consultation with the appropriate SNCO before carrying out activities which might harm or disturb bats or their roosts.

The Act is amended by the CROW Act 2000. This adds *recklessness* to the offence of damaging or destroying a place a bat uses for shelter or disturbing a bat while using a roost.

The Conservation (Natural Habitats Regulations 1994) implements the European Directive 92/43/EEC on the Conservation of Natural Habitats and of Wild Fauna and Flora 1992, amended August 2007 & Oct 2010. Under the regulations, damaging or destroying a breeding site or resting place is an absolute offence, regardless of whether the act of doing so may be regarded as reckless, deliberate or incidental.

Wild Birds (Mynors 2002) The Primary legislation affecting wild birds in England, Scotland and Wales is the Wildlife and Countryside Act 1981 (as amended). In January 2001 the Countryside and Rights of Way Act 2000 (CROW) included amendments, which strengthened the law in England and Wales. The basic principle of the Wildlife and Countryside Act 1981 (as amended) is that all wild birds, their nests and eggs, are protected by law and some rare species are afforded special protection. There are certain exemptions to this notably in respect of wildfowl, game birds and various species that may cause damage. (Cowan 2002)

Felling licence: Subject to tree size, location, condition and other Statutory protection, or prior planning approval, not more than 5m³ of timber can be felled in any Calendar quarter without first obtaining a Forestry Commission (FC) felling licence. Failure to obtain a licence where required is a prosecutable offence. Detailed information including exemptions can be found on the FC web site

Conservation Area and Tree Protection Orders: The Local Authority protects trees within the district by the use of and administration of Tree Preservation Orders (TPOs). Trees can also be protected if they are within a Conservation Area. TPOs are used to protect trees (including areas of woodland) where their removal would have a significant impact on the local environment and its enjoyment by the public. TPOs prohibit the cutting down, uprooting, wilful damage or destruction of trees. Any works to a tree(s) protected by a TPO or falling within a Conservation Area first requires the consent of the Local Authority. It is a prosecutable offence to carry out work to a tree protected by a TPO, or remove it, without the prior consent of the Local Authority. Detailed information including exemptions can be found on the Local Authority web site

2.2 Tree Condition Survey and Arboricultural Impact Assessment (AIA)

Inspection method: Visual Tree Assessment (VTA) from ground level.

Location: Cartefi GO Ltd., 5 King Street, Wrexham LL11 1HF

Date: 11.11.19

Protection Status: Not known at date of survey

Limitations: Trees and shrubs have been identified, current height measured to the nearest metre and ultimate height assessed with reference to The Hillier Manual of Trees and Shrubs. A Visual Tree Assessment (VTA) has been carried out on trees in, or adjacent to, the development site. Refer to proposed site layout drawing for tree locations. The risk assessment and recommendations are valid for a period of one year. No detection equipment has been used other than a sounding hammer and metal probe.

NB. All trees are at risk of failure through exceptional weather conditions.

Identification No.	Tag 165
Species	Common oak <i>Quercus robur L.</i>
Current Height (M)	15m
Ultimate Height (M)	20m
Current Stem Dia (cm) at 1.5m	67cm
Crown clearance (M)	5m
Crown Spread (M)	Radius: N = 3; E = 5; S=8m; W = 6m
Growth stage	Mature
Tree Condition: Root: No evidence of soil movement. Stem: no evidence of bark necrosis. Crown: Asymmetric development to south. No recent breakouts or significant dieback. Tree Quality Assessment: Ref.BS5837 (2012) 4.5.1 Category A2 Trees, groups or woodlands of particular visual importance as Arboricultural and/or landscape features' large tree visible from adjacent housing and highway. Life expectancy of at least 40 years. Water Demand NHBC 4.2-B: High Root Protection Area RPA: for tree of 67cm diameter at 1.5m $(0.67 \times 12) = 8\text{m}$. Radius Total RPA required at current stage of growth = 201m² Arboricultural Impact Assessment AIA: - Excavation of a 45° embankment batter from the north end of the garden boundary of plot 1 will be required within the RPA - No new trench excavation is permitted within the RPA - RPA. 'BS 7.7.2.1: The design should not require excavation into the soil, including the lowering of levels and/or scraping, other than the removal, using hand tools, of any turf layer or other surface vegetation'. Method Statement: Construction of new dwellings - The tree is proposed for removal by the Developer	

Identification No.	165a (labelled)
Species	Common ash <i>Fraxinus excelsior</i> L.
Current Height (M)	15m
Ultimate Height (M)	23m
Current Stem Dia (cm) at narrowest point below fork	70cm
Crown clearance (M)	5m
Crown Spread (M)	Radius: N = 5; E = 5; S = 3m; W = 5m
Growth stage	Mature
Tree Condition: Root: No evidence of soil movement. Stem: no evidence of bark necrosis Crown: No recent breakouts or significant dieback. Tree Quality Assessment: Ref.BS5837 (2012) 4.5.1 Category A2 Trees, groups or woodlands of particular visual importance as Arboricultural and/or landscape features' large tree visible from adjacent housing and highway. Life expectancy of at least 40 years, subject to infection from Chalara dieback Water Demand NHBC 4.2-B: Moderate Root Protection Area RPA: for tree of 70cm diameter at 1.5m (0.70 x 12) = 8.4m. Radius Total RPA required at current stage of growth = 222m² Arboricultural Impact Assessment AIA: - Excavation of a 45° embankment batter from the north end of the garden boundary falls outside or the RPA - No new trench excavation is permitted within the RPA - RPA. 'BS 7.7.2.1: The design should not require excavation into the soil, including the lowering of levels and/or scraping, other than the removal, using hand tools, of any turf layer or other surface vegetation'. Method Statement: Construction of new dwellings - Install temporary protective barrier as indicated on the tree protection plan. Specification as recommended in BS5837 (2012) fig.3 appended	

Identification No.	Tag 166
Species	Common sycamore <i>Acer pseudoplatanus</i> L.
Current Height (M)	17m
Ultimate Height (M)	22m
Current Stem Dia (cm) at 1.5m	70cm
Crown clearance (M)	5m
Crown Spread (M)	Radius: N = 5; E = 5; S = 5m; W = 3m
Growth stage	Mature
Tree Condition: Root: No evidence of soil movement. Stem: obscured by ivy growth Crown: ivy growth obscuring bifurcations. No recent breakouts or significant dieback. Tree Quality Assessment: Ref.BS5837 (2012) 4.5.1 Category A2 Trees, groups or woodlands of particular visual importance as Arboricultural and/or landscape features' large tree visible from adjacent housing and highway. Life expectancy of at least 40 years. Water Demand NHBC 4.2-B: Moderate Root Protection Area RPA: for tree of 70cm diameter at 1.5m (0.70 x 12) = 8.4m. Radius Total RPA required at current stage of growth = 222m ² Arboricultural Impact Assessment AIA: • T166 falls within the footprint of Plot 1 garden and new embankment batter • No new trench excavation is permitted within the RPA • RPA. 'BS 7.7.2.1: The design should not require excavation into the soil, including the lowering of levels and/or scraping, other than the removal, using hand tools, of any turf layer or other surface vegetation'. Method Statement: Construction of new dwellings • The tree is proposed for removal by the Developer	

Identification No.	Tag 167
Species	Wych elm <i>Ulmus glabra</i> (Huds.)
Current Height (M)	15m
Ultimate Height (M)	18m
Current Stem Dia (cm) at 1.5m	23cm
Crown clearance (M)	2m
Crown Spread (M)	Radius: N = 2; E = 2; S = 2m; W = 2m
Growth stage	Young
Tree Condition: Root: No evidence of soil movement. Stem: no evidence of bark necrosis. Crown: No recent breakouts or significant dieback. Tree Quality Assessment: Ref.BS5837 (2012) 4.5.1 Category B2 'trees occurring as collectives but situated so as to make little visual contribution to the wider locality' Life expectancy at least 20years – subject to Elm disease Water Demand NHBC 4.2-B: High Root Protection Area RPA: for tree of 23cm diameter at 1.5m (0.23 x 12) = 2.8m. Radius Total RPA required at current stage of growth = 25m ² Arboricultural Impact Assessment AIA: • T167 falls within the footprint of Plot 1 garden and new embankment batter • No new trench excavation is permitted within the RPA • RPA. 'BS 7.7.2.1: The design should not require excavation into the soil, including the lowering of levels and/or scraping, other than the removal, using hand tools, of any turf layer or other surface vegetation'. Method Statement: Construction of new dwellings • The tree is proposed for removal by the Developer	

Identification No.	Tag 168
Species	Common oak <i>Quercus robur</i> L.
Current Height (M)	16m
Ultimate Height (M)	20m
Current Stem Dia (cm) at 1.5m	45cm
Crown clearance (M)	4m
Crown Spread (M)	Radius: N = 5; E = 0; S = 2m; W = 8m
Growth stage	Mature
Tree Condition: Root: No evidence of soil movement. Stem: phototropic growth response to west. Stem obscured by ivy growth. Crown: Asymmetric development to west. ivy growth obscuring bifurcations. No recent breakouts or significant dieback. Tree Quality Assessment: Ref.BS5837 (2012) 4.5.1 Category A2 Trees, groups or woodlands of particular visual importance as Arboricultural and/or landscape features' large tree visible from adjacent housing and highway. Life expectancy of at least 40 years. Water Demand NHBC 4.2-B: High Root Protection Area RPA: for tree of 45cm diameter at 1.5m (0.45 x 12) = 5.4m. Radius Total RPA required at current stage of growth = 92m ² Arboricultural Impact Assessment AIA: • T168 falls within the footprint of Plot 1 garden and new embankment batter • No new trench excavation is permitted within the RPA • RPA. 'BS 7.7.2.1: The design should not require excavation into the soil, including the lowering of levels and/or scraping, other than the removal, using hand tools, of any turf layer or other surface vegetation'. Method Statement: Construction of new dwellings • The tree is proposed for removal by the Developer	

Identification No.	Tag 169
Species	Common sycamore <i>Acer pseudoplatanus</i> L.
Current Height (M)	16m
Ultimate Height (M)	22m
Current Stem Dia (cm) at 1.5m	45cm
Crown clearance (M)	4m
Crown Spread (M)	Radius: N = 3; E = 1; S = 3m; W = 6m
Growth stage	Mature
Tree Condition: Root: No evidence of soil movement. Stem: obscured by ivy growth. Crown: ivy growth obscuring bifurcations. No recent breakouts or significant dieback. Tree Quality Assessment: Ref.BS5837 (2012) 4.5.1 Category A2 Trees, groups or woodlands of particular visual importance as Arboricultural and/or landscape features' large tree visible from adjacent housing and highway. Life expectancy of at least 40 years. Water Demand NHBC 4.2-B: Moderate Root Protection Area RPA: for tree of 45cm diameter at 1.5m (0.45 x 12) = 5.4m. Radius Total RPA required at current stage of growth = 92m ² Arboricultural Impact Assessment AIA: • T169 falls within the footprint of Plot 1 garden and new embankment batter • No new trench excavation is permitted within the RPA • RPA. 'BS 7.7.2.1: The design should not require excavation into the soil, including the lowering of levels and/or scraping, other than the removal, using hand tools, of any turf layer or other surface vegetation'. Method Statement: Construction of new dwellings • The tree is proposed for removal by the Developer	

Identification No.	Tag 170
Species	Common sycamore <i>Acer pseudoplatanus</i> L.
Current Height (M)	15m
Ultimate Height (M)	22m
Current Stem Dia (cm) at 1.5m	20cm
Crown clearance (M)	4m
Crown Spread (M)	Radius: N = 2; E = 2; S = 2m; W = 2m
Growth stage	Young
Tree Condition: Root: No evidence of soil movement. Stem: no evidence of bark necrosis. Crown: No recent breakouts or significant dieback. Tree Quality Assessment: Ref.BS5837 (2012) 4.5.1 Category B2 'trees occurring as collectives but situated so as to make little visual contribution to the wider locality' Life expectancy at least 20years Water Demand NHBC 4.2-B: Moderate Root Protection Area RPA: for tree of 20cm diameter at 1.5m $(0.20 \times 12) = 2.4\text{m}$. Radius Total RPA required at current stage of growth = 18m^2 Arboricultural Impact Assessment AIA: - T170 falls within the footprint of Plot 1 garden and new embankment batter - No new trench excavation is permitted within the RPA - RPA. 'BS 7.7.2.1: The design should not require excavation into the soil, including the lowering of levels and/or scraping, other than the removal, using hand tools, of any turf layer or other surface vegetation'. Method Statement: Construction of new dwellings - The tree is proposed for removal by the Developer	

Identification No.	Tag 171
Species	Common sycamore <i>Acer pseudoplatanus</i> L.
Current Height (M)	17m
Ultimate Height (M)	22m
Current Stem Dia (cm) at 1.5m	60+63cm
Crown clearance (M)	5m
Crown Spread (M)	Radius: N = 5; E = 5; S = 4m; W = 6m
Growth stage	Mature
Tree Condition: Root: No evidence of soil movement. Stem: obscured by ivy growth. Co-dominant stems Crown: ivy growth obscuring bifurcations. No recent breakouts or significant dieback. Tree Quality Assessment: Ref.BS5837 (2012) 4.5.1 Category A2 Trees, groups or woodlands of particular visual importance as Arboricultural and/or landscape features' large tree visible from adjacent housing and highway. Life expectancy of at least 40 years. Water Demand NHBC 4.2-B: Moderate Root Protection Area RPA: for tree of 60+63cm diameter at 1.5m $\sqrt{(0.60^2 + 0.63^2)} \times 12 = 10.4\text{m}$. Radius Total RPA required at current stage of growth = 341m^2 Arboricultural Impact Assessment AIA: - T171 falls within the footprint of Plot 1 garden and new embankment batter - No new trench excavation is permitted within the RPA - RPA. 'BS 7.7.2.1: The design should not require excavation into the soil, including the lowering of levels and/or scraping, other than the removal, using hand tools, of any turf layer or other surface vegetation'. Method Statement: Construction of new dwellings - The tree is proposed for removal by the Developer	

Identification No.	Tag 172
Species	Common sycamore <i>Acer pseudoplatanus</i> L.
Current Height (M)	17m
Ultimate Height (M)	22m
Current Stem Dia (cm) at 1.5m	55+61cm
Crown clearance (M)	4m
Crown Spread (M)	Radius: N = 5; E = 5; S = 4m; W = 6m
Growth stage	Mature
Tree Condition: Root: No evidence of soil movement. Stem: Co-dominant stems. Basal bark inclusion Crown: No recent breakouts or significant dieback. Tree Quality Assessment: Ref.BS5837 (2012) 4.5.1 Category A2 Trees, groups or woodlands of particular visual importance as Arboricultural and/or landscape features' large tree visible from adjacent housing and highway. Life expectancy of at least 40 years. Water Demand NHBC 4.2-B: Moderate Root Protection Area RPA: for tree of 55+61cm diameter at 1.5m $\sqrt{(0.55^2 + 0.61^2)} \times 12 = 9.8\text{m}$. Radius Total RPA required at current stage of growth = 302m ² Arboricultural Impact Assessment AIA: • T172 falls within the proposed new road entrance footprint • No new trench excavation is permitted within the RPA • RPA. 'BS 7.7.2.1: The design should not require excavation into the soil, including the lowering of levels and/or scraping, other than the removal, using hand tools, of any turf layer or other surface vegetation'. Method Statement: Construction of new dwellings • The tree is proposed for removal by the Developer	

Identification No.	Tag 173
Species	Common sycamore <i>Acer pseudoplatanus</i> L.
Current Height (M)	17m
Ultimate Height (M)	22m
Current Stem Dia (cm) at 1.5m	45cm
Crown clearance (M)	5m
Crown Spread (M)	Radius: N = 2; E = 0; S = 3m; W = 6m
Growth stage	Mature
Tree Condition: Root: No evidence of soil movement. Stem: phototropic growth response to west. Crown: Asymmetric development to west. No recent breakouts or significant dieback. Tree Quality Assessment: Ref.BS5837 (2012) 4.5.1 Category A2 Trees, groups or woodlands of particular visual importance as Arboricultural and/or landscape features' large tree visible from adjacent housing and highway. Life expectancy of at least 40 years. Water Demand NHBC 4.2-B: Moderate Root Protection Area RPA: for tree of 45cm diameter at 1.5m $(0.45 \times 12) = 5.4\text{m}$. Radius Total RPA required at current stage of growth = 92m ² Arboricultural Impact Assessment AIA: • T173 falls within the proposed new road entrance footprint • No new trench excavation is permitted within the RPA • RPA. 'BS 7.7.2.1: The design should not require excavation into the soil, including the lowering of levels and/or scraping, other than the removal, using hand tools, of any turf layer or other surface vegetation'. Method Statement: Construction of new dwellings • The tree is proposed for removal by the Developer	

Identification No.	Tag 174
Species	Common sycamore <i>Acer pseudoplatanus L.</i>
Current Height (M)	17m
Ultimate Height (M)	22m
Current Stem Dia (cm) at 1.5m	65cm
Crown clearance (M)	6m
Crown Spread (M)	Radius: N = 3; E = 7; S = 6m; W = 6m
Growth stage	Mature
Tree Condition: Root: No evidence of soil movement. Stem: ivy obscuring bifurcation with bark inclusion at 2m Crown: No recent breakouts or significant dieback. Tree Quality Assessment: Ref.BS5837 (2012) 4.5.1 Category A2 Trees, groups or woodlands of particular visual importance as Arboricultural and/or landscape features' large tree visible from adjacent housing and highway. Life expectancy of at least 40 years. Water Demand NHBC 4.2-B: Moderate Root Protection Area RPA: for tree of 65cm diameter at 1.5m $(0.65 \times 12) = 7.8\text{m}$. Radius Total RPA required at current stage of growth = 191m^2 Arboricultural Impact Assessment AIA: • T174 falls within the proposed new road entrance footprint • No new trench excavation is permitted within the RPA • RPA. 'BS 7.7.2.1: The design should not require excavation into the soil, including the lowering of levels and/or scraping, other than the removal, using hand tools, of any turf layer or other surface vegetation'. Method Statement: Construction of new dwellings • The tree is proposed for removal by the Developer	

Identification No.	Tag 175
Species	Common ash <i>Fraxinus excelsior L.</i>
Current Height (M)	15m
Ultimate Height (M)	22m
Current Stem Dia (cm) at 1.5m	20cm
Crown clearance (M)	6m
Crown Spread (M)	Radius: N = 1; E = 0; S = 3m; W = 5m
Growth stage	Young
Tree Condition: Root: No evidence of soil movement. Stem: obscured by ivy growth. Crown: Bifurcations obscured by ivy. No recent breakouts or significant dieback. Tree Quality Assessment: Ref.BS5837 (2012) 4.5.1 Category B2 'trees occurring as collectives but situated so as to make little visual contribution to the wider locality' Life expectancy at least 20years subject to Chalara infection. Water Demand NHBC 4.2-B: Moderate Root Protection Area RPA: for tree of 20cm diameter at 1.5m $(0.20 \times 12) = 2.4\text{m}$. Radius Total RPA required at current stage of growth = 18m^2 Arboricultural Impact Assessment AIA: • T175 RPA falls outside the proposed new road entrance. • No new trench excavation is permitted within the RPA • RPA. 'BS 7.7.2.1: The design should not require excavation into the soil, including the lowering of levels and/or scraping, other than the removal, using hand tools, of any turf layer or other surface vegetation'. Method Statement: Construction of new dwellings • Install temporary protective barrier as indicated on the tree protection plan. Specification as recommended in BS5837 (2012) fig.3 appended	

Identification No.	Tag 176
Species	Common sycamore <i>Acer pseudoplatanus</i> L.
Current Height (M)	16m
Ultimate Height (M)	22m
Current Stem Dia (cm) at 1.5m	65cm
Crown clearance (M)	6m
Crown Spread (M)	Radius: N = 6; E = 7; S = 6m; W = 7m
Growth stage	Mature
Tree Condition: Root: No evidence of soil movement. Stem: Stem obscured by ivy growth. Crown: ivy growth obscuring bifurcations. No recent breakouts or significant dieback. Tree Quality Assessment: Ref.BS5837 (2012) 4.5.1 Category B2 'trees occurring as collectives but situated so as to make little visual contribution to the wider locality' Life expectancy at least 20years Water Demand NHBC 4.2-B: Moderate Root Protection Area RPA: for tree of 65cm diameter at 1.5m (0.65 x 12) = 7.8m. Radius Total RPA required at current stage of growth = 191m ² Arboricultural Impact Assessment AIA: • T176 falls within the footprint of Plot 35 garden and new embankment batter • No new trench excavation is permitted within the RPA • RPA. 'BS 7.7.2.1: The design should not require excavation into the soil, including the lowering of levels and/or scraping, other than the removal, using hand tools, of any turf layer or other surface vegetation'. Method Statement: Construction of new dwellings • The tree is proposed for removal by the Developer	

Identification No.	Tag 177
Species	Common sycamore <i>Acer pseudoplatanus</i> L.
Current Height (M)	17m
Ultimate Height (M)	22m
Current Stem Dia (cm) at 1.5m	65cm
Crown clearance (M)	6m
Crown Spread (M)	Radius: N = 4; E = 6; S = 7m; W = 5m
Growth stage	Mature
Tree Condition: Root: No evidence of soil movement. Stem: Stem obscured by ivy growth. Crown: ivy growth obscuring bifurcations. No recent breakouts or significant dieback. Tree Quality Assessment: Ref.BS5837 (2012) 4.5.1 Category B2 'trees occurring as collectives but situated so as to make little visual contribution to the wider locality' Life expectancy at least 20years Water Demand NHBC 4.2-B: Moderate Root Protection Area RPA: for tree of 65cm diameter at 1.5m (0.65 x 12) = 7.8m. Radius Total RPA required at current stage of growth = 191m ² Arboricultural Impact Assessment AIA: • The proposed new embankment batter falls within the RPA • No new trench excavation is permitted within the RPA • RPA. 'BS 7.7.2.1: The design should not require excavation into the soil, including the lowering of levels and/or scraping, other than the removal, using hand tools, of any turf layer or other surface vegetation'. Method Statement: Construction of new dwellings • The tree is proposed for removal by the Developer	

Identification No.	Tag 178
Species	Common sycamore <i>Acer pseudoplatanus</i> L
Current Height (M)	17m
Ultimate Height (M)	22m
Current Stem Dia (cm) at 1.5m	51cm
Crown clearance (M)	5m
Crown Spread (M)	Radius: N = 4; E = 4; S = 6m; W = 4m
Growth stage	Mature
Tree Condition: Root: No evidence of soil movement. Stem: obscured by ivy growth. Crown: Bifurcations obscured by ivy. No recent breakouts or significant dieback. Tree Quality Assessment: Ref.BS5837 (2012) 4.5.1 Category A2 Trees, groups or woodlands of particular visual importance as Arboricultural and/or landscape features' large tree visible from adjacent housing and highway. Life expectancy of at least 40 years. Water Demand NHBC 4.2-B: Moderate Root Protection Area RPA: for tree of 51cm diameter at 1.5m $(0.51 \times 12) = 6.1\text{m}$. Radius Total RPA required at current stage of growth = 117m^2 Arboricultural Impact Assessment AIA: - The proposed new embankment batter falls within the RPA - No new trench excavation is permitted within the RPA - RPA. 'BS 7.7.2.1: The design should not require excavation into the soil, including the lowering of levels and/or scraping, other than the removal, using hand tools, of any turf layer or other surface vegetation'. Method Statement: Construction of new dwellings - The tree is proposed for removal by the Developer	

Identification No.	Tag 179
Species	Common sycamore <i>Acer pseudoplatanus</i> L
Current Height (M)	15m
Ultimate Height (M)	22m
Current Stem Dia (cm) at 1.5m	30cm
Crown clearance (M)	5m
Crown Spread (M)	Radius: N = 1; E = 4; S = 2m; W = 1m
Growth stage	Young
Tree Condition: Root: No evidence of soil movement. Stem: no evidence of bark necrosis Crown: Asymmetric development. No recent breakouts or significant dieback. Tree Quality Assessment: Ref.BS5837 (2012) 4.5.1 Category B2 'trees occurring as collectives but situated so as to make little visual contribution to the wider locality' Life expectancy at least 20years Water Demand NHBC 4.2-B: Moderate Root Protection Area RPA: for tree of 30cm diameter at 1.5m $(0.30 \times 12) = 3.6\text{m}$. Radius Total RPA required at current stage of growth = 41m^2 Arboricultural Impact Assessment AIA: - The proposed new embankment batter falls within the RPA - No new trench excavation is permitted within the RPA - RPA. 'BS 7.7.2.1: The design should not require excavation into the soil, including the lowering of levels and/or scraping, other than the removal, using hand tools, of any turf layer or other surface vegetation'. Method Statement: Construction of new dwellings - The tree is proposed for removal by the Developer	

Identification No.	Tag 180
Species	Common sycamore <i>Acer pseudoplatanus</i> L
Current Height (M)	15m
Ultimate Height (M)	22m
Current Stem Dia (cm) at 1.5m	9 stems averaged 18cm
Crown clearance (M)	5m
Crown Spread (M)	Radius: N = 5; E = 5; S = 5m; W = 5m
Growth stage	Early-mature stool regrowth
Tree Condition: Root: No evidence of soil movement. Stem: multiple stem; regrowth from stools. No evidence of bark necrosis Crown: No recent breakouts or significant dieback. Tree Quality Assessment: Ref.BS5837 (2012) 4.5.1 Category A2 Trees, groups or woodlands of particular visual importance as Arboricultural and/or landscape features' large tree visible from adjacent housing and highway. Life expectancy of at least 40 years. Water Demand NHBC 4.2-B: Moderate Root Protection Area RPA: for tree of 9 stems averaged 18cm diameter at 1.5m $\sqrt{(0.18^2 \times 9) \times 12} = 6.5\text{m}$. Radius Total RPA required at current stage of growth = 132m ² Arboricultural Impact Assessment AIA: - The proposed new embankment batter falls within the RPA - No new trench excavation is permitted within the RPA - RPA. 'BS 7.7.2.1: The design should not require excavation into the soil, including the lowering of levels and/or scraping, other than the removal, using hand tools, of any turf layer or other surface vegetation'. Method Statement: Construction of new dwellings - The tree is proposed for removal by the Developer	

Identification No.	Tag 181
Species	Silver birch <i>Betula pendula</i> (Roth.)
Current Height (M)	15m
Ultimate Height (M)	15m
Current Stem Dia (cm) at 1.5m	45cm
Crown clearance (M)	6m
Crown Spread (M)	Radius: N = 4; E = 4; S = 3m; W = 3m
Growth stage	Mature
Tree Condition: Root: No evidence of soil movement. Stem: Stem obscured by ivy growth. Phototropic growth response to east Crown: ivy growth obscuring bifurcations. No recent breakouts or significant dieback. Tree Quality Assessment: Ref.BS5837 (2012) 4.5.1 Category B2 'trees occurring as collectives but situated so as to make little visual contribution to the wider locality' Life expectancy at least 20years Water Demand NHBC 4.2-B: Low Root Protection Area RPA: for tree of 45cm diameter at 1.5m $(0.45 \times 12) = 5.4\text{m}$. Radius Total RPA required at current stage of growth = 92m ² Arboricultural Impact Assessment AIA: - T181 falls within the footprint of Plot 39 garden and new embankment batter - No new trench excavation is permitted within the RPA - RPA. 'BS 7.7.2.1: The design should not require excavation into the soil, including the lowering of levels and/or scraping, other than the removal, using hand tools, of any turf layer or other surface vegetation'. Method Statement: Construction of new dwellings - The tree is proposed for removal by the Developer	

Identification No.	Tag 182
Species	Silver birch <i>Betula pendula</i> (Roth.)
Current Height (M)	15m
Ultimate Height (M)	15m
Current Stem Dia (cm) at 1.5m	40cm
Crown clearance (M)	4m
Crown Spread (M)	Radius: N = 1; E = 4; S = 4m; W = 2m
Growth stage	Mature
Tree Condition: Root: No evidence of soil movement. Stem: Stem obscured by ivy growth. Phototropic growth response to east Crown: ivy growth obscuring bifurcations. No recent breakouts or significant dieback. Asymmetric development Tree Quality Assessment: Ref.BS5837 (2012) 4.5.1 Category B2 'trees occurring as collectives but situated so as to make little visual contribution to the wider locality' Life expectancy at least 20years Water Demand NHBC 4.2-B: Low Root Protection Area RPA: for tree of 40cm diameter at 1.5m $(0.40 \times 12) = 4.8\text{m}$. Radius Total RPA required at current stage of growth = 72m^2 Arboricultural Impact Assessment AIA: • T182 falls within the footprint of Plot 39 garden and new embankment batter • No new trench excavation is permitted within the RPA • RPA. 'BS 7.7.2.1: The design should not require excavation into the soil, including the lowering of levels and/or scraping, other than the removal, using hand tools, of any turf layer or other surface vegetation'. Method Statement: Construction of new dwellings • The tree is proposed for removal by the Developer	

Identification No.	Tag 183
Species	Common sycamore <i>Acer pseudoplatanus</i> L
Current Height (M)	17m
Ultimate Height (M)	22m
Current Stem Dia (cm) at 1.5m	55cm
Crown clearance (M)	6m
Crown Spread (M)	Radius: N = 3; E = 5; S = 1m; W = 2m
Growth stage	Mature
Tree Condition: Root: No evidence of soil movement. Stem: obscured by ivy growth. Old impact wound above buttressing east side Crown: Bifurcations obscured by ivy. No recent breakouts or significant dieback. Asymmetric development Tree Quality Assessment: Ref.BS5837 (2012) 4.5.1 Category A2 'Trees, groups or woodlands of particular visual importance as Arboricultural and/or landscape features' large tree visible from adjacent housing and highway. Life expectancy of at least 40 years. Water Demand NHBC 4.2-B: Moderate Root Protection Area RPA: for tree of 55cm diameter at 1.5m $(0.55 \times 12) = 6.6\text{m}$. Radius Total RPA required at current stage of growth = 137m^2 Arboricultural Impact Assessment AIA: • The proposed new embankment batter falls within the RPA • No new trench excavation is permitted within the RPA • RPA. 'BS 7.7.2.1: The design should not require excavation into the soil, including the lowering of levels and/or scraping, other than the removal, using hand tools, of any turf layer or other surface vegetation'. Method Statement: Construction of new dwellings • The tree is proposed for removal by the Developer	

Identification No.	Tag 184
Species	Common sycamore <i>Acer pseudoplatanus</i> L
Current Height (M)	17m
Ultimate Height (M)	22m
Current Stem Dia (cm) at 1.5m	50+50cm
Crown clearance (M)	6m
Crown Spread (M)	Radius: N = 2; E = 6; S = 7m; W = 5m
Growth stage	Mature
Tree Condition: Root: No evidence of soil movement. Stem: obscured by ivy growth. Crown: Bifurcations obscured by ivy. No recent breakouts or significant dieback. Asymmetric development Tree Quality Assessment: Ref.BS5837 (2012) 4.5.1 Category A2 Trees, groups or woodlands of particular visual importance as Arboricultural and/or landscape features' large tree visible from adjacent housing and highway. Life expectancy of at least 40 years. Water Demand NHBC 4.2-B: Moderate Root Protection Area RPA: for tree of 50+50cm diameter at 1.5m $\sqrt{(0.50^2 + 0.50^2)} \times 12 = 8.5\text{m}$. Radius Total RPA required at current stage of growth = 227m ² Arboricultural Impact Assessment AIA: - The proposed new embankment batter falls within the RPA perimeter - No new trench excavation is permitted within the RPA - RPA. 'BS 7.7.2.1: The design should not require excavation into the soil, including the lowering of levels and/or scraping, other than the removal, using hand tools, of any turf layer or other surface vegetation'. Method Statement: Construction of new dwellings - The tree is proposed for removal by the Developer	

Identification No.	Tag 185
Species	Common sycamore <i>Acer pseudoplatanus</i> L
Current Height (M)	16m
Ultimate Height (M)	22m
Current Stem Dia (cm) at 1.5m	47cm
Crown clearance (M)	5m
Crown Spread (M)	Radius: N = 5; E = 5; S = 5m; W = 1m
Growth stage	Mature

Tree Condition: Root: No evidence of soil movement. Stem: obscured by ivy growth Crown: Asymmetric development. Bifurcations obscured by ivy growth. No recent breakouts or significant dieback. Tree Quality Assessment: Ref.BS5837 (2012) 4.5.1 Category B2 'trees occurring as collectives but situated so as to make little visual contribution to the wider locality' Life expectancy at least 20years Water Demand NHBC 4.2-B: Moderate Root Protection Area RPA: for tree of 47cm diameter at 1.5m $(0.47 \times 12) = 5.6\text{m}$. Radius Total RPA required at current stage of growth = 99m ² Arboricultural Impact Assessment AIA: - The proposed new embankment batter falls within the RPA - No new trench excavation is permitted within the RPA - RPA. 'BS 7.7.2.1: The design should not require excavation into the soil, including the lowering of levels and/or scraping, other than the removal, using hand tools, of any turf layer or other surface vegetation'. Method Statement: Construction of new dwellings - The tree is proposed for removal by the Developer	
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Identification No.	Tag 186
Species	Common sycamore <i>Acer pseudoplatanus</i> L Goat willow <i>Salix caprea</i> L
Current Height (M)	15m
Ultimate Height (M)	22m
Current Stem Dia (cm) at 1.5m	40+42cm
Crown clearance (M)	5m
Crown Spread (M)	Radius: N = 1; E = 7; S = 6m; W = 4m
Growth stage	Mature
Tree Condition: Root: No evidence of soil movement. Stem: obscured by ivy growth Crown: Asymmetric development. Bifurcations obscured by ivy growth. No recent breakouts or significant dieback. Tree Quality Assessment: Ref.BS5837 (2012) 4.5.1 Category B2 'trees occurring as collectives but situated so as to make little visual contribution to the wider locality' Life expectancy at least 20years Water Demand NHBC 4.2-B: Moderate Root Protection Area RPA: for tree of 40+42cm diameter at 1.5m $\sqrt{(0.40^2 + 0.42^2)} \times 12 = 7\text{m}$ Radius Total RPA required at current stage of growth = 154m ² Arboricultural Impact Assessment AIA: - The proposed new embankment batter falls within the RPA - No new trench excavation is permitted within the RPA - RPA. 'BS 7.7.2.1: The design should not require excavation into the soil, including the lowering of levels and/or scraping, other than the removal, using hand tools, of any turf layer or other surface vegetation'. Method Statement: Construction of new dwellings - The tree is proposed for removal by the Developer	

Identification No.	Tag 187
Species	Silver birch <i>Betula pendula</i> (Roth.)
Current Height (M)	15m
Ultimate Height (M)	15m
Current Stem Dia (cm) at 1.5m	31cm
Crown clearance (M)	5m
Crown Spread (M)	Radius: N = 3; E = 4; S = 2m; W = 2m
Growth stage	Mature
Tree Condition: Root: No evidence of soil movement. Stem: Stem obscured by ivy growth. Phototropic growth response to east Crown: ivy growth obscuring bifurcations. No recent breakouts or significant dieback. Asymmetric development Tree Quality Assessment: Ref.BS5837 (2012) 4.5.1 Category B2 'trees occurring as collectives but situated so as to make little visual contribution to the wider locality' Life expectancy at least 20years Water Demand NHBC 4.2-B: Low Root Protection Area RPA: for tree of 31cm diameter at 1.5m $(0.31 \times 12) = 3.7\text{m}$. Radius Total RPA required at current stage of growth = 43m ² Arboricultural Impact Assessment AIA: - T182 falls within the footprint of Plot 41 garden and new embankment batter - No new trench excavation is permitted within the RPA - RPA. 'BS 7.7.2.1: The design should not require excavation into the soil, including the lowering of levels and/or scraping, other than the removal, using hand tools, of any turf layer or other surface vegetation'. Method Statement: Construction of new dwellings - The tree is proposed for removal by the Developer	

Identification No.	Tag 188
Species	Common sycamore <i>Acer pseudoplatanus</i> L
Current Height (M)	16m
Ultimate Height (M)	22m
Current Stem Dia (cm) at 1.5m	47cm
Crown clearance (M)	6m
Crown Spread (M)	Radius: N = 2; E = 2; S = 3m; W = 5m
Growth stage	Mature
Tree Condition: Root: No evidence of soil movement. Stem: obscured by ivy growth Crown: Asymmetric development. Bifurcations obscured by ivy growth. No recent breakouts or significant dieback. Tree Quality Assessment: Ref.BS5837 (2012) 4.5.1 Category B2 'trees occurring as collectives but situated so as to make little visual contribution to the wider locality' Life expectancy at least 20years Water Demand NHBC 4.2-B: Moderate Root Protection Area RPA: for tree of 47cm diameter at 1.5m (0.47 x 12) = 5.6m. Radius Total RPA required at current stage of growth = 99m ² Arboricultural Impact Assessment AIA: - The proposed new embankment batter falls within the RPA - No new trench excavation is permitted within the RPA - RPA. 'BS 7.7.2.1: The design should not require excavation into the soil, including the lowering of levels and/or scraping, other than the removal, using hand tools, of any turf layer or other surface vegetation'. Method Statement: Construction of new dwellings - The tree is proposed for removal by the Developer	

Identification No.	Tag 189
Species	Silver birch <i>Betula pendula</i> (Roth.)
Current Height (M)	14m
Ultimate Height (M)	14m
Current Stem Dia (cm) at 1.5m	38cm
Crown clearance (M)	6m
Crown Spread (M)	Radius: N = 3; E = 4; S = 0m; W = 3m
Growth stage	Mature
Tree Condition: Root: No evidence of soil movement. Stem: Stem obscured by ivy growth. Crown: ivy growth obscuring bifurcations. No recent breakouts or significant dieback. Asymmetric development Tree Quality Assessment: Ref.BS5837 (2012) 4.5.1 Category B2 'trees occurring as collectives but situated so as to make little visual contribution to the wider locality' Life expectancy at least 20years Water Demand NHBC 4.2-B: Low Root Protection Area RPA: for tree of 38cm diameter at 1.5m (0.38 x 12) = 4.6m. Radius Total RPA required at current stage of growth = 66m ² Arboricultural Impact Assessment AIA: - T189 falls within the footprint of Plot 42 garden and new embankment batter - No new trench excavation is permitted within the RPA - RPA. 'BS 7.7.2.1: The design should not require excavation into the soil, including the lowering of levels and/or scraping, other than the removal, using hand tools, of any turf layer or other surface vegetation'. Method Statement: Construction of new dwellings - The tree is proposed for removal by the Developer	

Identification No.	Tag 190
Species	Silver birch <i>Betula pendula</i> (Roth.)
Current Height (M)	14m
Ultimate Height (M)	14m
Current Stem Dia (cm) at 1.5m	34cm
Crown clearance (M)	6m
Crown Spread (M)	Radius: N = 3; E = 3; S = 3m; W = 3m
Growth stage	Mature
Tree Condition: Root: No evidence of soil movement. Stem: Stem obscured by ivy growth. Crown: ivy growth obscuring bifurcations. No recent breakouts or significant dieback. Tree Quality Assessment: Ref.BS5837 (2012) 4.5.1 Category B2 'trees occurring as collectives but situated so as to make little visual contribution to the wider locality' Life expectancy at least 20years Water Demand NHBC 4.2-B: Low Root Protection Area RPA: for tree of 34cm diameter at 1.5m $(0.34 \times 12) = 4.1\text{m}$. Radius Total RPA required at current stage of growth = 53m^2 Arboricultural Impact Assessment AIA: - T190 falls within the footprint of Plot 42 garden and new embankment batter - No new trench excavation is permitted within the RPA - RPA. 'BS 7.7.2.1: The design should not require excavation into the soil, including the lowering of levels and/or scraping, other than the removal, using hand tools, of any turf layer or other surface vegetation'. Method Statement: Construction of new dwellings - The tree is proposed for removal by the Developer	

Identification No.	Tag 191
Species	Silver birch <i>Betula pendula</i> (Roth.)
Current Height (M)	14m
Ultimate Height (M)	14m
Current Stem Dia (cm) at 1.5m	34cm
Crown clearance (M)	6m
Crown Spread (M)	Radius: N = 1; E = 5; S = 4m; W = 1m
Growth stage	Mature
Tree Condition: Root: No evidence of soil movement. Stem: Stem obscured by ivy growth. Crown: ivy growth obscuring bifurcations. No recent breakouts or significant dieback. Asymmetric development. Tree Quality Assessment: Ref.BS5837 (2012) 4.5.1 Category B2 'trees occurring as collectives but situated so as to make little visual contribution to the wider locality' Life expectancy at least 20years Water Demand NHBC 4.2-B: Low Root Protection Area RPA: for tree of 34cm diameter at 1.5m $(0.34 \times 12) = 4.1\text{m}$. Radius Total RPA required at current stage of growth = 53m^2 Arboricultural Impact Assessment AIA: - T191 falls within the footprint of Plot 42 garden and new embankment batter - No new trench excavation is permitted within the RPA - RPA. 'BS 7.7.2.1: The design should not require excavation into the soil, including the lowering of levels and/or scraping, other than the removal, using hand tools, of any turf layer or other surface vegetation'. Method Statement: Construction of new dwellings - The tree is proposed for removal by the Developer	

Identification No.	Tag 192
Species	Silver birch <i>Betula pendula</i> (Roth.)
Current Height (M)	14m
Ultimate Height (M)	14m
Current Stem Dia (cm) at 1.5m	32cm
Crown clearance (M)	6m
Crown Spread (M)	Radius: N = 2; E = 3; S = 0m; W = 4m
Growth stage	Mature
Tree Condition: Root: No evidence of soil movement. Stem: Stem obscured by ivy growth. Crown: ivy growth obscuring bifurcations. No recent breakouts or significant dieback. Asymmetric development. Tree Quality Assessment: Ref.BS5837 (2012) 4.5.1 Category B2 'trees occurring as collectives but situated so as to make little visual contribution to the wider locality' Life expectancy at least 20years Water Demand NHBC 4.2-B: Low Root Protection Area RPA: for tree of 32cm diameter at 1.5m $(0.32 \times 12) = 3.8\text{m}$. Radius Total RPA required at current stage of growth = 46m^2 Arboricultural Impact Assessment AIA: - T192 falls within the footprint of Plot 42 garden and new embankment batter - No new trench excavation is permitted within the RPA - RPA. 'BS 7.7.2.1: The design should not require excavation into the soil, including the lowering of levels and/or scraping, other than the removal, using hand tools, of any turf layer or other surface vegetation'. Method Statement: Construction of new dwellings - The tree is proposed for removal by the Developer	

Identification No.	Tag 193
Species	Silver birch <i>Betula pendula</i> (Roth.)
Current Height (M)	14m
Ultimate Height (M)	14m
Current Stem Dia (cm) at 1.5m	39cm
Crown clearance (M)	4m
Crown Spread (M)	Radius: N = 1; E = 2; S = 4m; W = 4m
Growth stage	Mature
Tree Condition: Root: No evidence of soil movement. Stem: Stem obscured by ivy growth. Crown: ivy growth obscuring bifurcations. No recent breakouts or significant dieback. Asymmetric development. Tree Quality Assessment: Ref.BS5837 (2012) 4.5.1 Category B2 'trees occurring as collectives but situated so as to make little visual contribution to the wider locality' Life expectancy at least 20years Water Demand NHBC 4.2-B: Low Root Protection Area RPA: for tree of 39cm diameter at 1.5m $(0.39 \times 12) = 4.7\text{m}$. Radius Total RPA required at current stage of growth = 46m^2 Arboricultural Impact Assessment AIA: - The proposed new embankment batter falls within the RPA - No new trench excavation is permitted within the RPA - RPA. 'BS 7.7.2.1: The design should not require excavation into the soil, including the lowering of levels and/or scraping, other than the removal, using hand tools, of any turf layer or other surface vegetation'. Method Statement: Construction of new dwellings - The tree is proposed for removal by the Developer	

Identification No.	Tag 194
Species	Goat willow <i>Salix caprea</i> L.
Current Height (M)	12m
Ultimate Height (M)	12m
Current Stem Dia (cm) at 1.5m	30cm
Crown clearance (M)	4m
Crown Spread (M)	Radius: N = 2; E = 3; S = 5m; W = 6m
Growth stage	Late-Mature
Tree Condition: Root: No evidence of soil movement. Stem: Major deadwood lower stem Crown: No recent breakouts or significant dieback on remaining crown. Asymmetric development. Tree Quality Assessment: Ref.BS5837 (2012) 4.5.1 Category B2 'trees occurring as collectives but situated so as to make little visual contribution to the wider locality' Life expectancy at least 20years Water Demand NHBC 4.2-B: High Root Protection Area RPA: for tree of 30cm diameter at 1.5m $(0.30 \times 12) = 3.6\text{m}$. Radius Total RPA required at current stage of growth = 41m^2 Arboricultural Impact Assessment AIA: - The proposed new embankment batter falls within the RPA - No new trench excavation is permitted within the RPA - RPA. 'BS 7.7.2.1: The design should not require excavation into the soil, including the lowering of levels and/or scraping, other than the removal, using hand tools, of any turf layer or other surface vegetation'. Method Statement: Construction of new dwellings - The tree is proposed for removal by the Developer	

Identification No.	Tag 195
Species	Silver birch <i>Betula pendula</i> (Roth.)
Current Height (M)	14m
Ultimate Height (M)	14m
Current Stem Dia (cm) at 1.5m	31cm
Crown clearance (M)	6m
Crown Spread (M)	Radius: N = 3; E = 3; S = 3m; W = 4m
Growth stage	Mature
Tree Condition: Root: No evidence of soil movement. Stem: Stem obscured by ivy growth. Crown: ivy growth obscuring bifurcations. No recent breakouts or significant dieback. Tree Quality Assessment: Ref.BS5837 (2012) 4.5.1 Category B2 'trees occurring as collectives but situated so as to make little visual contribution to the wider locality' Life expectancy at least 20years Water Demand NHBC 4.2-B: Low Root Protection Area RPA: for tree of 31cm diameter at 1.5m $(0.31 \times 12) = 3.7\text{m}$. Radius Total RPA required at current stage of growth = 43m^2 Arboricultural Impact Assessment AIA: - The proposed new embankment batter falls within the RPA - No new trench excavation is permitted within the RPA - RPA. 'BS 7.7.2.1: The design should not require excavation into the soil, including the lowering of levels and/or scraping, other than the removal, using hand tools, of any turf layer or other surface vegetation'. Method Statement: Construction of new dwellings - The tree is proposed for removal by the Developer	

Identification No.	Tag 196
Species	Common ash <i>Fraxinus excelsior</i> L.
Current Height (M)	16m
Ultimate Height (M)	23m
Current Stem Dia (cm) at 1.5m	27cm
Crown clearance (M)	5m
Crown Spread (M)	Radius: N = 3; E = 3; S = 3m; W = 3m
Growth stage	Young
Tree Condition: Root: No evidence of soil movement. Stem: no evidence of bark necrosis Crown: No recent breakouts or symptoms of Chalara dieback. Tree Quality Assessment: Ref.BS5837 (2012) 4.5.1 Category B2 'trees occurring as collectives but situated so as to make little visual contribution to the wider locality' Life expectancy at least 20years – subject to infection from Chalara dieback Water Demand NHBC 4.2-B: Moderate Root Protection Area RPA: for tree of 27cm diameter at 1.5m $(0.27 \times 12) = 3.2\text{m}$. Radius Total RPA required at current stage of growth = 32m^2 Arboricultural Impact Assessment AIA: - The proposed new embankment batter falls within the RPA - No new trench excavation is permitted within the RPA - RPA. 'BS 7.7.2.1: The design should not require excavation into the soil, including the lowering of levels and/or scraping, other than the removal, using hand tools, of any turf layer or other surface vegetation'. Method Statement: Construction of new dwellings - The tree is proposed for removal by the Developer	

Identification No.	Tag 197
Species	Common oak <i>Quercus robur</i> L
Current Height (M)	10m
Ultimate Height (M)	20m
Current Stem Dia (cm) at 1.5m	32cm
Crown clearance (M)	5m
Crown Spread (M)	Radius: N = 3; E = 3; S = 5m; W = 5m
Growth stage	Young
Tree Condition: Root: No evidence of soil movement. Stem: no evidence of bark necrosis Crown: No recent breakouts dieback. Tree Quality Assessment: Ref.BS5837 (2012) 4.5.1 Category A2 Trees, groups or woodlands of particular visual importance as Arboricultural and/or landscape features' large-growing tree visible from adjacent housing and highway. Life expectancy of at least 40 years. Water Demand NHBC 4.2-B: High Root Protection Area RPA: for tree of 32cm diameter at 1.5m $(0.32 \times 12) = 3.8\text{m}$. Radius Total RPA required at current stage of growth = 46m^2 Arboricultural Impact Assessment AIA: - The proposed new embankment batter falls outside the RPA perimeter - No new trench excavation is permitted within the RPA - RPA. 'BS 7.7.2.1: The design should not require excavation into the soil, including the lowering of levels and/or scraping, other than the removal, using hand tools, of any turf layer or other surface vegetation'. Method Statement: Construction of new dwellings - Install temporary protective barrier as indicated on the tree protection plan. Specification as recommended in BS5837 (2012) fig.3 appended	

Identification No.	Tag 198
Species	Common oak <i>Quercus robur</i> L
Current Height (M)	12m
Ultimate Height (M)	20m
Current Stem Dia (cm) at 1.5m	22cm
Crown clearance (M)	5m
Crown Spread (M)	Radius: N = 2.5; E = 2.5; S = 2.5m; W = 2.5m
Growth stage	Young
Tree Condition: Root: No evidence of soil movement. Stem: no evidence of bark necrosis Crown: No recent breakouts dieback. Tree Quality Assessment: Ref.BS5837 (2012) 4.5.1 Category A2 Trees, groups or woodlands of particular visual importance as Arboricultural and/or landscape features' large-growing tree visible from adjacent housing and highway. Life expectancy of at least 40 years. Water Demand NHBC 4.2-B: High Root Protection Area RPA: for tree of 22cm diameter at 1.5m $(0.22 \times 12) = 2.6\text{m}$. Radius Total RPA required at current stage of growth = 22m^2 Arboricultural Impact Assessment AIA: - The proposed new embankment batter falls outside the RPA perimeter - No new trench excavation is permitted within the RPA - RPA. 'BS 7.7.2.1: The design should not require excavation into the soil, including the lowering of levels and/or scraping, other than the removal, using hand tools, of any turf layer or other surface vegetation'. Method Statement: Construction of new dwellings - Install temporary protective barrier as indicated on the tree protection plan. Specification as recommended in BS5837 (2012) fig.3 appended	

Identification No.	Tag 199
Species	Common ash <i>Fraxinus excelsior</i> L.
Current Height (M)	16m
Ultimate Height (M)	23m
Current Stem Dia (cm) at 1.5m	34cm
Crown clearance (M)	5m
Crown Spread (M)	Radius: N = 3; E = 3; S = 3m; W = 3m
Growth stage	Young
Tree Condition: Root: No evidence of soil movement. Stem: no evidence of bark necrosis Crown: No recent breakouts or symptoms of Chalara dieback. Tree Quality Assessment: Ref.BS5837 (2012) 4.5.1 Category B2 'trees occurring as collectives but situated so as to make little visual contribution to the wider locality' Life expectancy at least 20years – subject to infection from Chalara dieback Water Demand NHBC 4.2-B: Moderate Root Protection Area RPA: for tree of 34cm diameter at 1.5m $(0.34 \times 12) = 4.1\text{m}$. Radius Total RPA required at current stage of growth = 53m^2 Arboricultural Impact Assessment AIA: - The proposed new embankment batter falls outside the RPA perimeter - No new trench excavation is permitted within the RPA - RPA. 'BS 7.7.2.1: The design should not require excavation into the soil, including the lowering of levels and/or scraping, other than the removal, using hand tools, of any turf layer or other surface vegetation'. Method Statement: Construction of new dwellings - Install temporary protective barrier as indicated on the tree protection plan. Specification as recommended in BS5837 (2012) fig.3 appended	

Identification No.	Tag 200
Species	Common ash <i>Fraxinus excelsior</i> L.
Current Height (M)	16m
Ultimate Height (M)	23m
Current Stem Dia (cm) at 1.5m	36cm
Crown clearance (M)	5m
Crown Spread (M)	Radius: N = 3; E = 3; S = 3m; W = 3m
Growth stage	Young
Tree Condition: Root: No evidence of soil movement. Stem: no evidence of bark necrosis. Bark inclusion at 1.2m Crown: No recent breakouts or symptoms of Chalara dieback. Tree Quality Assessment: Ref.BS5837 (2012) 4.5.1 Category B2 'trees occurring as collectives but situated so as to make little visual contribution to the wider locality' Life expectancy at least 20years – subject to infection from Chalara dieback Water Demand NHBC 4.2-B: Moderate Root Protection Area RPA: for tree of 36cm diameter at 1.5m $(0.36 \times 12) = 4.3\text{m}$. Radius Total RPA required at current stage of growth = 58m^2 Arboricultural Impact Assessment AIA: - The proposed new embankment batter falls outside the RPA perimeter - No new trench excavation is permitted within the RPA - RPA. 'BS 7.7.2.1: The design should not require excavation into the soil, including the lowering of levels and/or scraping, other than the removal, using hand tools, of any turf layer or other surface vegetation'. Method Statement: Construction of new dwellings - Install temporary protective barrier as indicated on the tree protection plan. Specification as recommended in BS5837 (2012) fig.3 appended	

Identification No.	Tag 20 to 205
Species	Goat willow <i>Salix caprea</i> L.
Current Height (M)	8m
Ultimate Height (M)	8m
Current Stem Dia (cm) at 1.5m	Averaged coppice regrowth 6 stems x 12cm
Crown clearance (M)	0m
Crown Spread (M)	Radius: N = 4; E = 4; S = 4m; W = 4m
Growth stage	Young coppice regrowth
Tree Condition: Root: No evidence of soil movement. Stem: no evidence of bark necrosis. Crown: No recent breakouts or dieback. Tree Quality Assessment: Ref.BS5837 (2012) 4.5.1 Category B2 'trees occurring as collectives but situated so as to make little visual contribution to the wider locality' Water Demand NHBC 4.2-B: High Root Protection Area RPA: for tree of 6 stems x 12cm diameter at 1.5m $\sqrt{(0.12^2 \times 6) \times 12} = 3.5\text{m}$. Radius Total RPA required at current stage of growth = 39m^2 Arboricultural Impact Assessment AIA: - The trees fall within the built footprints - No new trench excavation is permitted within the RPA - RPA. 'BS 7.7.2.1: The design should not require excavation into the soil, including the lowering of levels and/or scraping, other than the removal, using hand tools, of any turf layer or other surface vegetation'. Method Statement: Construction of new dwellings - The trees are proposed for removal by the Developer	

Identification No.	G1 (all trees colonising the level ground)
Species	Goat willow. Common Ash Silver birch Sycamore Oak Hawthorn
Current Height (M)	2 to 8m
Ultimate Height (M)	23m (ash)
Current Stem Dia (cm) at 1.5m	Averaged 8cm
Crown clearance (M)	0m
Crown Spread (M)	Radius: N = 1; E = 1; S = 1m; W = 1m averaged
Growth stage	Young coppice regrowth (majority)
Tree Condition: Root: No evidence of soil movement. Stem: no evidence of bark necrosis. Crown: No recent breakouts or dieback. Tree Quality Assessment: Ref.BS5837 (2012) 4.5.1 Category B2 'trees occurring as collectives but situated so as to make little visual contribution to the wider locality' Water Demand NHBC 4.2-B: High Root Protection Area RPA: N/a Total RPA required at current stage of growth = N/a Arboricultural Impact Assessment AIA: - The trees fall within the built footprints - No new trench excavation is permitted within the RPA - RPA. 'BS 7.7.2.1: The design should not require excavation into the soil, including the lowering of levels and/or scraping, other than the removal, using hand tools, of any turf layer or other surface vegetation'. Method Statement: Construction of new dwellings - All trees proposed for removal by Developer	

Identification No.	Wood 1 (Young plantation between embankment and road on northern boundary)
Species	Goat willow. Common Ash Silver birch Sycamore Oak Hawthorn Hazel
Current Height (M)	15m averaged
Ultimate Height (M)	23m (ash)
Current Stem Dia (cm) at 1.5m	Averaged 25cm averaged
Crown clearance (M)	2m
Crown Spread (M)	Radius: N = 2; E = 2; S = 2m; W = 2m averaged
Growth stage	Young
Tree Condition: Root: No evidence of soil movement. Stem: no evidence of bark necrosis. Crown: No recent breakouts or dieback. Tree Quality Assessment: Ref.BS5837 (2012) 4.5.1. Category A2 Trees, groups or woodlands of particular visual importance as Arboricultural and/or landscape features' large-growing trees visible from highway. Life expectancy of at least 40 years. Water Demand NHBC 4.2-B: High Root Protection Area RPA: for tree of 25cm diameter at 1.5m (0.25 x 12) = 3m. Radius Total RPA required at current stage of growth = 28m² /tree Arboricultural Impact Assessment AIA: • The c.80% of trees fall within the proposed new embankment • No new trench excavation is permitted within the RPA • RPA. 'BS 7.7.2.1: The design should not require excavation into the soil, including the lowering of levels and/or scraping, other than the removal, using hand tools, of any turf layer or other surface vegetation'. Method Statement: Construction of new dwellings • The 80% trees are proposed for removal by the Developer • Install temporary protective barrier as indicated on the tree protection along the remaining boundary trees. Specification as recommended in BS5837 (2012) fig.3 appended	

Identification No.	Wood 2 (Tree colonising the existing embankment and forming an understory to the significant tagged trees between embankment and road on western boundary)
Species	Goat willow. Common Ash Silver birch Sycamore Oak Hawthorn Hazel
Current Height (M)	15m averaged
Ultimate Height (M)	23m (ash)
Current Stem Dia (cm) at 1.5m	Averaged 20cm averaged
Crown clearance (M)	2m
Crown Spread (M)	Radius: N = 2; E = 2; S = 2m; W = 2m averaged
Growth stage	Young to early-mature
Tree Condition: Root: No evidence of soil movement. Stem: no evidence of bark necrosis. Crown: No recent breakouts or dieback. Tree Quality Assessment: Ref.BS5837 (2012) 4.5.1. Category A2 Trees, groups or woodlands of particular visual importance as Arboricultural and/or landscape features' large-growing trees visible from highway. Life expectancy of at least 40 years. Water Demand NHBC 4.2-B: High Root Protection Area RPA: for tree of 20cm diameter at 1.5m $(0.20 \times 12) = 2.4\text{m}$. Radius Total RPA required at current stage of growth = 18m^2 /tree Arboricultural Impact Assessment AIA: - The c.80% of trees fall within the proposed new embankment - No new trench excavation is permitted within the RPA - RPA. 'BS 7.7.2.1: The design should not require excavation into the soil, including the lowering of levels and/or scraping, other than the removal, using hand tools, of any turf layer or other surface vegetation'. Method Statement: Construction of new dwellings - The 80% trees are proposed for removal by the Developer - Install temporary protective barrier as indicated on the tree protection along the remaining boundary trees. Specification as recommended in BS5837 (2012) fig.3 appended	

General Arboricultural Method Statement ref. BS 5837 (2012)

3.0 The root protection area (RPA) recommendation in BS 5837 2012 (Trees in relation to design, demolition and construction – Recommendations), is based upon a minimum area (in m²) calculated from the measurement of the stem diameter and a factor of the radial distance between the tree stem and the outer extent of the main lateral roots. The resulting area is usually recorded as a generalised circle on the tree survey. However, the significant figure is the equivalent available rooting area in m² rather than the circular shape; tree roots exploit the optimum ground conditions for their physical development dependent upon soil aeration, plant-available water, mineral elements and physical barriers to growth. Providing the total minimum area in m² recommended in the RPA is available to the tree, the actual shape of the area is less significant, *providing* it can be demonstrated that the construction process will not result in significant damage to existing roots greater than 25mm in diameter. 'The viable retention of trees on construction sites is dictated by the successful protection of their root systems throughout the development process from initial site clearance to installation of the new landscape. Healthy soils contain five basic components: oxygen, organic matter, mineral matter, living organisms and moisture. A soil's porosity allows water to drain through, carbon dioxide to escape and oxygen to enter. Construction vehicles operating on exposed soils, particularly in wet conditions, compact the soil pores and prevent these processes from occurring'(Cowan 2005)

3.1 The Tree Protection Plan (TPP) and method statement details how the construction work will be carried out in proximity to the retained trees, protective barrier specification, timing of work, other mitigation measures where required and supervision of the protection measures during construction.

3.2 Summary of works

Drainage and Utilities: Follow recommendation in the NJUG Volume 4 Code of practice relating to work in proximity to tree roots within the RPA; specifically, the avoidance of trench excavations within the RPA. Any drainage or service-related works to be carried out within the Root Protection Area must be subject to the prior written approval of the LPA of a method statement detailing how such works are to be carried out and monitored, so as to avoid undue damage to the tree.

Site Compound, construction materials, soil/demolition debris storage mixing of concrete and washings: Must be located outside of the Root Protection Areas. Vehicle movements, storage of vehicles or heavy machinery, lighting of fires and no excavations or alterations of ground level is permitted within the protective barrier or areas of temporary ground protection

Method of work for individual trees retained in proximity to construction works or access to the works: refer to the work method described for each retained tree ref. section 2.2 of the report.

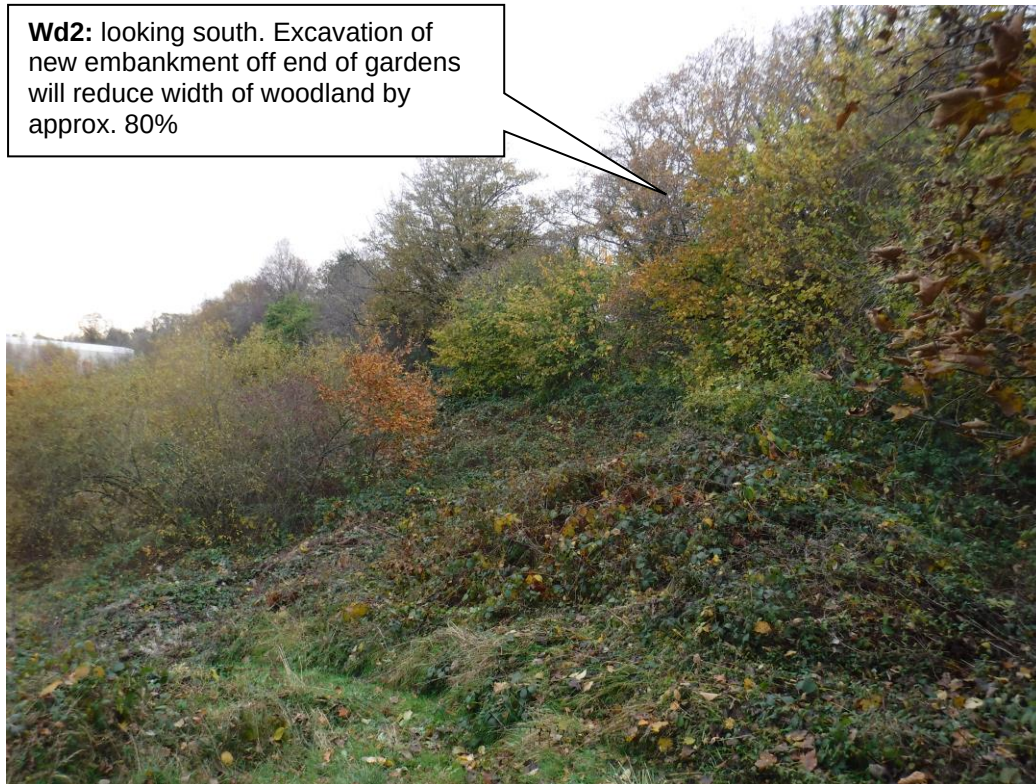
3.3 **Protective Fencing**

- Protective barriers should be erected with verticals positioned to avoid the lateral roots of the larger trees. Refer to BS 5837 (2012) figure 3 Protective barrier for details of the recommended specification.
- Protective barrier should be erected and then approved by the Local Planning Authority before the start of demolition and construction works on site, including the installation of temporary site office, storage and welfare facilities if required
- The barrier and ground protection shall be maintained in a satisfactory condition throughout the duration of development. There is to be no access or operations of any kind within the barrier, nor repositioning of the barrier even temporarily, without the prior written approval of the LPA.

Appendix 1

Photo Detail: Tree condition illustration ref. Sect 2.2

Wd2: looking south. Excavation of new embankment off end of gardens will reduce width of woodland by approx. 80%



Wd1: looking west. Excavation of new embankment off end of gardens will reduce width of woodland by approx. 80%

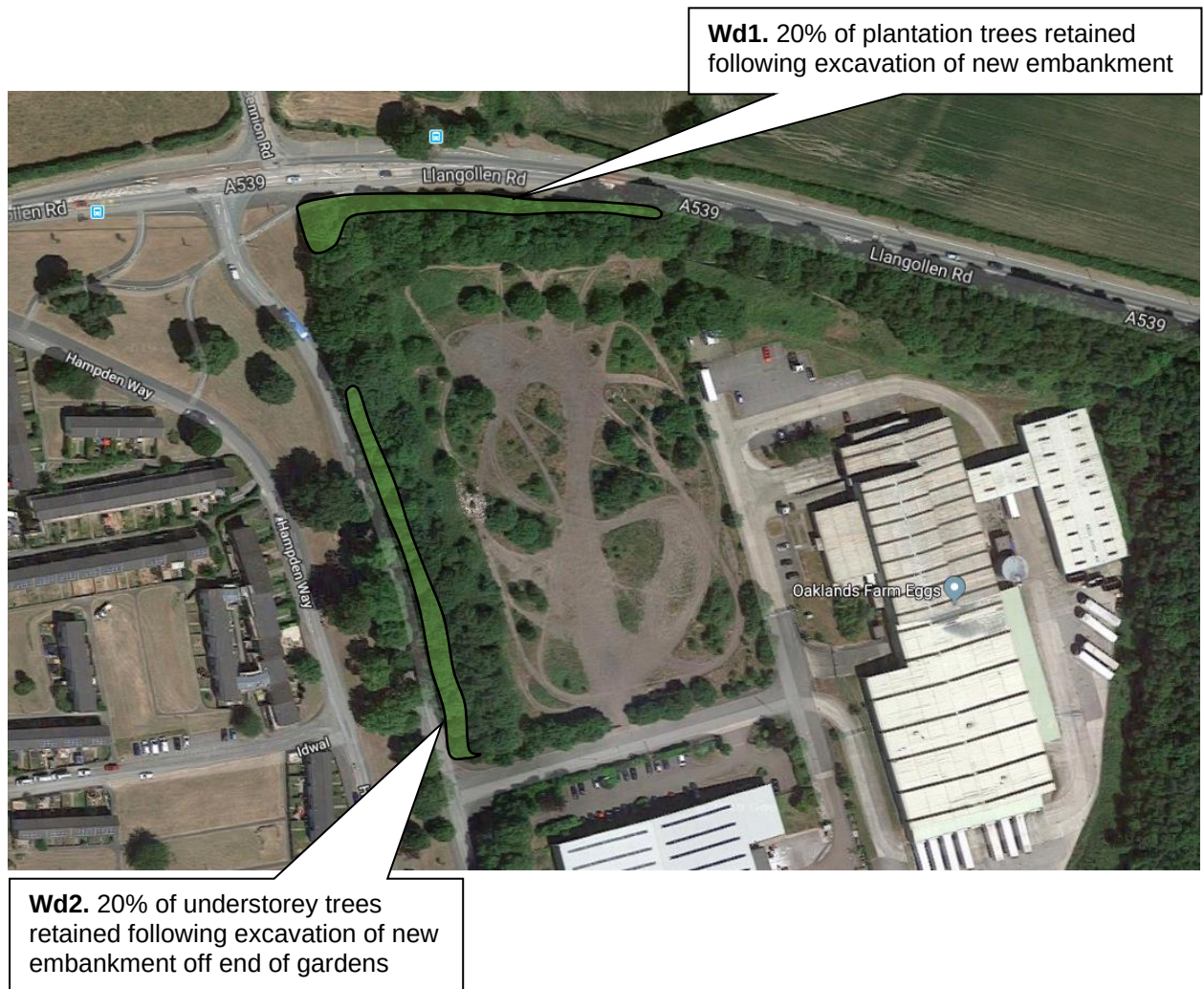


T165



T165 to T174 proposed for removal to accommodate new entrance and new embankments to Plots 1 and 2





Appendix 2

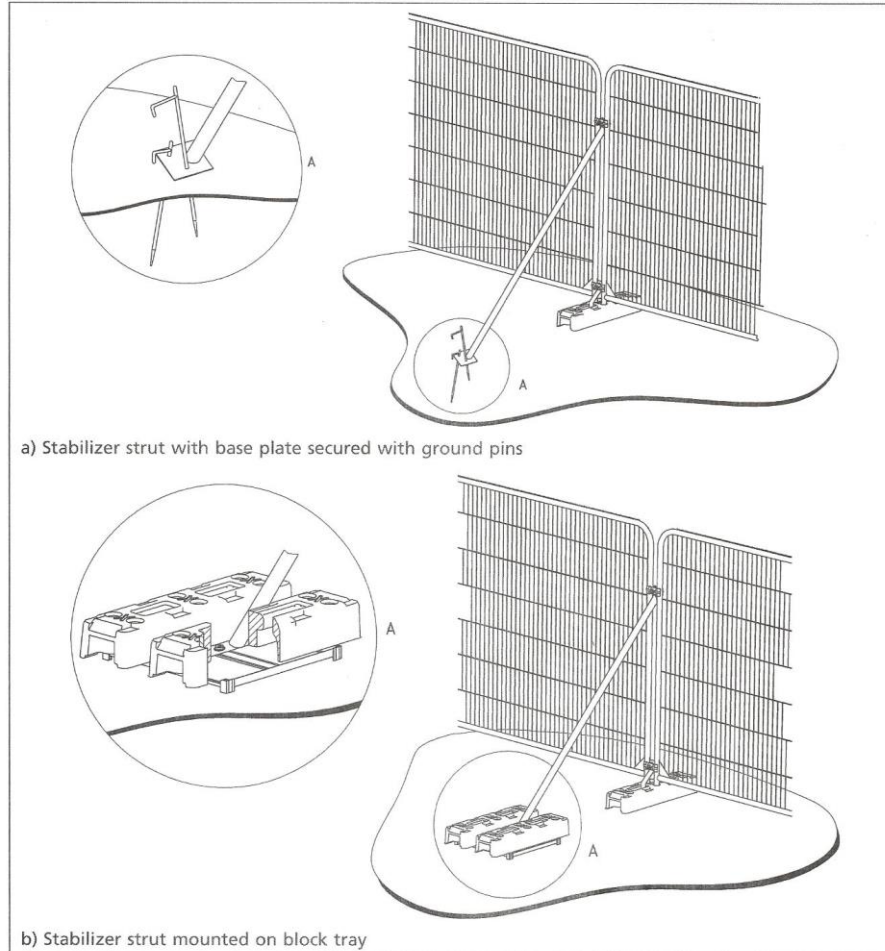
Tree Location and Protection Plan (supplied as separate drawing) to follow final layout.

Appendix 3
BS 5837 2012 Protection illustrations

BRITISH STANDARD

BS 5837:2012

Figure 3 Examples of above-ground stabilizing systems



6.2.3 Ground protection during demolition and construction

6.2.3.1 Where construction working space or temporary construction access is justified within the RPA, this should be facilitated by a set-back in the alignment of the tree protection barrier. In such areas, suitable existing hard surfacing that is not proposed for re-use as part of the finished design should be retained to act as temporary ground protection during construction, rather than being removed during demolition. The suitability of such surfacing for this purpose should be evaluated by the project arboriculturist and an engineer as appropriate.

6.2.3.2 Where the set-back of the tree protection barrier would expose unmade ground to construction damage, new temporary ground protection should be installed as part of the implementation of physical tree protection measures prior to work starting on site.

6.2.3.3 New temporary ground protection should be capable of supporting any traffic entering or using the site without being distorted or causing compaction of underlying soil.

NOTE The ground protection might comprise one of the following:

- a) for pedestrian movements only, a single thickness of scaffold boards placed either on top of a driven scaffold frame, so as to form a suspended walkway, or on top of a compression-resistant layer (e.g. 100 mm depth of woodchip), laid onto a geotextile membrane;
- b) for pedestrian-operated plant up to a gross weight of 2 t, proprietary, inter-linked ground protection boards placed on top of a compression-resistant layer (e.g. 150 mm depth of woodchip), laid onto a geotextile membrane;
- c) for wheeled or tracked construction traffic exceeding 2 t gross weight, an alternative system (e.g. proprietary systems or pre-cast reinforced concrete slabs) to an engineering specification designed in conjunction with arboricultural advice, to accommodate the likely loading to which it will be subjected.

6.2.3.4 The locations of and design for temporary ground protection should be shown on the tree protection plan and detailed within the arboricultural method statement (see 6.1).

6.2.3.5 In all cases, the objective should be to avoid compaction of the soil, which can arise from the single passage of a heavy vehicle, especially in wet conditions, so that tree root functions remain unimpaired.

6.2.4 Additional precautions outside the exclusion zone

6.2.4.1 Planning of site operations should take sufficient account of wide loads, tall loads and plant with booms, jibs and counterweights (including drilling rigs), in order that they can operate without coming into contact with retained trees. Such contact can result in serious damage to the trees and might make their safe retention impossible. Consequently, any transit or traverse of plant in proximity to trees should be conducted under the supervision of a banksman, to ensure that adequate clearance from trees is maintained at all times. Access facilitation pruning should be undertaken where necessary to maintain this clearance.

NOTE In some instances, local planning authority consent for pruning might be required.

6.2.4.2 Fires on sites should be avoided if possible. Where they are unavoidable, they should not be lit in a position where heat could affect foliage or branches. The potential size of a fire and the wind direction should be taken into account when determining its location, and it should be attended at all times until safe enough to leave.

NOTE Local environmental health authorities might have specific restrictions.

6.2.4.3 Any materials whose accidental spillage would cause damage to a tree should be stored and handled well away from the outer edge of its RPA.

Appendix 4

Glossary of Arboricultural Terms

Adaptive Growth: Woundwood.	New strengthening woody growth in response to loss of tissue through decay or physical damage
Age Class: Young	Up to 1/3 rd life expectancy
Early-mature	Between 1/3 rd and 2/3rds life expectancy
Mature	Over 2/3rds life expectancy
Late-mature	Onset of natural limb loss; increase in dysfunctional tissue
Over-mature	Declining or moribund trees of low vigour. NB Late-mature and over-mature trees are more prone to structural failure than young or early-mature trees.
Breakout:	Loss of a limb usually close to the junction the main stem or scaffold limb
Branch bark ridge:	Natural feature in the axil of the branch providing a simple guide for locating the best position for the top edge of a pruning cut.
Buttressing:	Root flare at the base of the stem
Crown dieback:	Significant loss of foliage throughout the crown; often the result of root damage. Usually indicating a tree in decline.
Deadwood:	Dead secondary branching persisting on the scaffold limbs. Minor deadwood <50mm diameter is less likely to cause damage in the event of failure. Major deadwood >50mm present a greater hazard and is a greater risk of failure in trees without durable heartwood e.g. Lime and ash. Deadwood which is not presenting a hazard to the highway is excluded from the inspection report. Deadwood stubs: Prevent the sealing of the wound site, providing sites of decay and increasing risk of limb failure.
Epicormic Response:	Growth of dormant buds on areas of the stem or scaffold limbs effected by loss of woody tissue or foliage. New woody tissue is laid down in areas of vigorous epicormic growth.
Included bark:	Weak regions of bark-to-bark contact at the stem or branch junctions.
Retrenchment:	Describes the response in new growth in the lower crown, following dieback in the upper crown. A feature of some over-mature trees, enabling survival into great age (veteran trees)
Scaffold limbs:	1 st order limbs; the major limbs supporting the secondary branching or 2 nd & 3 rd order branches
Soil Heave:	Raised lateral roots or loosened soil surrounding the base of the tree.

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