



Arboricultural Method Statement

Capitol Park, Barnsley

Client	Sterling Capitol
Agent	Peacock + Smith
Site Address	Capitol Park, Barnsley, S75 2UB
Arboricultural Consultant	Mike Wood
Local Authority	Barnsley Metropolitan Borough Council
Project Description	Hybrid planning application for an extension to Capitol Park comprising a) development of 2no warehouses (floorspace of 9,755m ² and 7,804m ²) for general industrial and storage and distribution purposes (use classes B2 and B8) with provision of ancillary office accommodation - Outline with all matters reserved apart from means of access; and b) full application for provision of associated earthworks, demolition of existing bungalow and formation of access (Amended Plans)
Planning Reference	P2019/0288
Planning Conditions	9
Document Reference	220825-1.0-CPB-AMS-T21



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Appendix A – Tree Protection Plan (roundabout version)

Appendix B – Tree Protection Plan (non-roundabout version)

Appendix C – Tree Schedule (roundabout version)

Appendix C – Tree Schedule (non-roundabout version)

Appendix D – Tree Protection Specifications



1.0 Key Contact Details

Name	Company	Role	Contact Details
Unknown at time of document production	-	Site Manager	Tel: - Mobile: - Email: -
Mark Eagland	Peacock + Smith	Planning Consultant	Tel: 0113 243 1919 Mobile: 07979 Email: markeagland@peacockandsmith.co.uk
Mike Wood	Tree 21 Limited	Arboricultural Consultant	Mobile: 07971287767 Email: info@tree21.co.uk
Unknown at time of document production	Barnsley Metropolitan Borough Council	Local Authority Tree Officer	Tel: 01226 772557 Email: developmentmanagement@barnsley.gov.uk

2.0 Background

- 2.0.1 Tree 21 Limited have been instructed by Peacock + Smith on behalf of Sterling Capitol to produce an Arboricultural Method Statement (AMS) and Tree Protection Plan (TPP) to discharge planning condition 9 of planning consent: P2019/0288. Two Tree Protection Plans have been provided, based on two possible scenarios of the final layout.
- 2.0.2 This document is designed to inform site personnel on how trees on and around the site will be managed from commencement and throughout the enabling works and demolition, construction, and final landscaping. The document provides information on tree protection measures and methods that will be required to safeguard retained trees on site. The document is intended to be used as a reference on site, providing detailed information on tree management. Before the document can be implemented it will need to be approved by Barnsley Metropolitan Borough Council.
- 2.0.3 The document follows best practice guidelines in accordance with BS5837:2012 Trees in relation to design, demolition, and construction – Recommendations and practical solutions, based on sound arboricultural knowledge and experience of the author.
- 2.0.4 The document has been produced by Mike Wood *Dip Arb. TechArborA*, Principal Arboricultural Consultant of Tree 21 Limited. Mike Wood has over 25 years' experience in arboriculture, with over 15 years' experience in providing BS5837 surveys, reports, and technical documents, is a certified LANTRA Professional Tree



Inspector, a registered Quantified Tree Risk Assessment (QTRA) user and a member of the Arboricultural Association.

- 2.0.5 Any proposed works within areas protected by tree protection barriers known herein as Construction Exclusion Zones (CEZ) or any other works near trees or to these trees that may not covered within this document are to be agreed with the Local Planning Authority and/or the Arboricultural Consultant, and appropriate additional methodology provided.
- 2.0.6 The document provides methodology and details on two versions of the layout, one with a roundabout and one without a roundabout. Therefore, two Tree Protection Plans are appended, to cover both scenarios.

WARNING: Failure to comply with the provisions set out in this document could result in breach of planning consent and subsequently may result in an official notice to stop works by the Local Planning Authority.

The Document should be read along with the following appendices:

- Appendix A: Tree Protection Plan (roundabout version)
- Appendix B: Tree Protection Plan non roundabout version)
- Appendix C: Tree Schedule (roundabout version)
- Appendix D: Tree Schedule (non-roundabout version)
- Appendix E: Tree Protection Specifications



3.0 General Tree Welfare

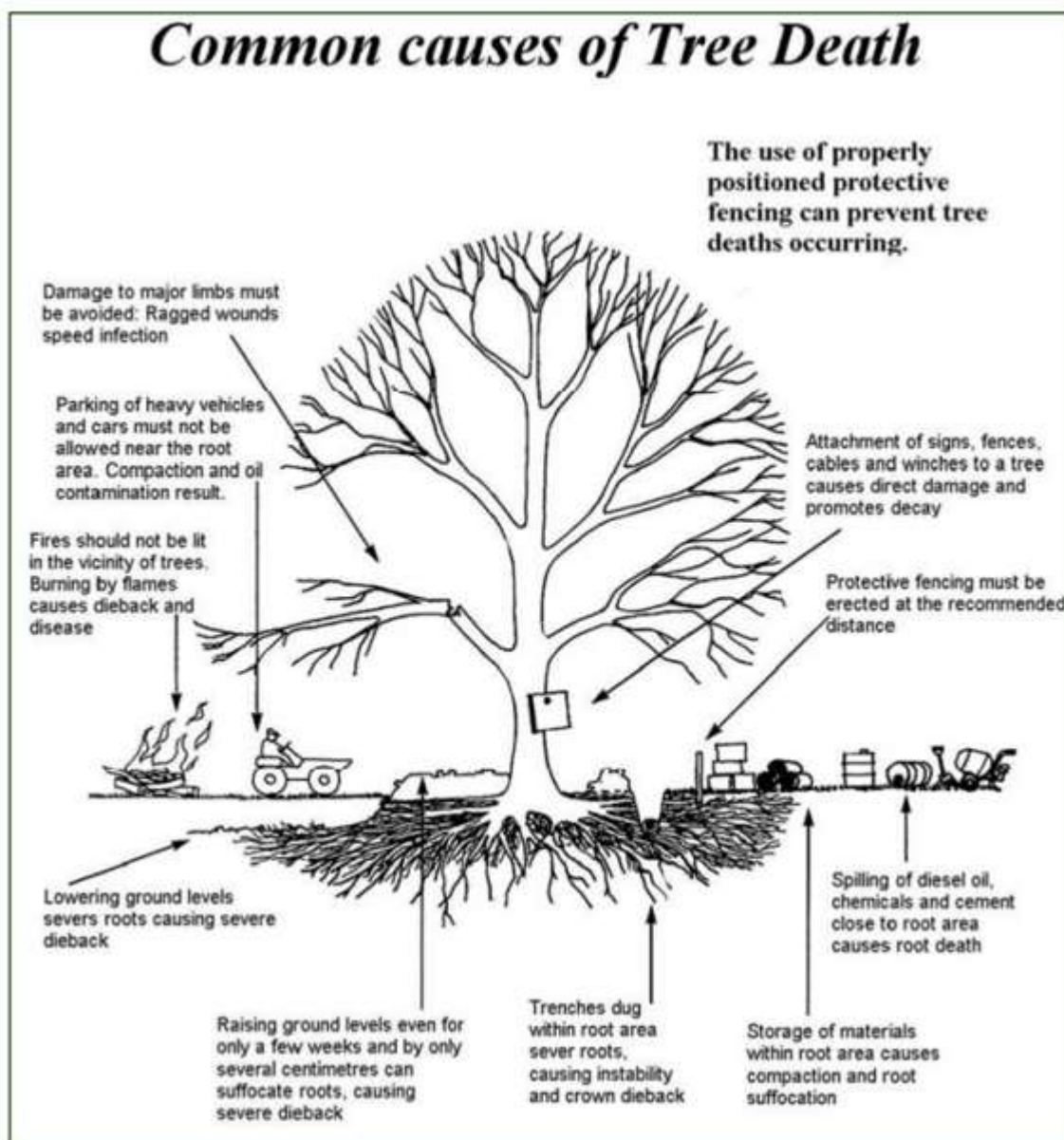
- 3.0.1 When working near trees, it is important to be aware that most tree roots are normally located in the top 600 mm of soil and can spread out horizontally to a distance at least equal to the height of the tree.
- 3.0.2 The distance from the tree in which damage is likely to occur is calculated by the Root Protection Area (RPA), which represents the minimum area around a tree deemed to contain sufficient roots and soil volume to keep the tree viable. RPAs should be treated as a precautionary area within which activities such as ground compaction, excavation, the storing of materials, ground stripping, raising of levels and building are likely to cause damage to trees and therefore should not take place. Usually, barriers are erected around the RPA to physically exclude such activities. The area within these barriers is known as the Construction Exclusion Zone (CEZ). Unavoidable activity within the CEZ must be carefully executed and must be guided by this detailed method statement.
- 3.0.3 Damage can sometimes be avoided, or at least minimised, by suitable technical measures which can be devised with consultation with an Arboricultural Consultant. The protection measures and technical construction measures, applicable to this site, are included within this document.
- 3.0.4 Tree protection fencing will be installed as set out within the Tree Protection & Removal Plan at Appendix A. The fenced-off area will become a Construction Exclusion Zone (CEZ). Any works to be undertaken in the CEZ must follow the detailed method tables set out below.

4.0 General Precautions

- 4.0.1 In general, the following procedures will also be followed. No materials that are likely to have an adverse effect on tree health will be stored or discharged within the CEZ.
- 4.0.2 Where storage of such materials is upslope of the trees, barriers will be put in place at ground level to minimise the risk of spillages leaching down-slope and contaminating the Root Protection Area of a tree. Such materials include:
- Fuel and oil
 - Bitumen
 - Cement & Concrete
 - Building Sand



- 4.0.3 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 considered when determining its location in relation to trees, and it should be attended at all times until safe enough to leave. Any fire should be at least 50m away from the foliage of any retained tree.
- 4.0.4 Concrete will not be mixed or transported over unprotected ground within the CEZ.
- 4.0.5 Any incidents involving potential damage to retained trees will be recorded on site and a copy of the incident made available to the Local Authority Tree Officer within 48 hours.
- 4.0.6 The Poster below will be enlarged and installed in welfare areas to remind operatives of potential tree damage





5.0 Tables of Tasks and Detailed Method

- 5.0.1 The tables below provide detailed methods on each task and how they are to be undertaken, along with general tasks which may be required to complete the works. Any deviation from the methods set out in the tables below will be discussed and agreed with the Arboricultural Consultant and/or the Local Authority before being implemented.



Task 1: Tree Pruning and Removal

Method and Action Required

- 1) The tree work requirements, depending on the final layout version (roundabout or non-roundabout) are set out in Tree Schedule appendices C and D.
- 2) Trees shown for removal are illustrated by a red dashed crown outline on the Tree Protection Plan to identify their location, including parts of tree groups and hedges.
- 3) All tree works will be undertaken by suitably qualified Tree Surgeons and the work will be undertaken in accordance with BS3998:2010 and undertaken before any other operations on site, including installation of the tree protection barrier.
- 4) Where stumps are to be removed, and the tree is within 15 m of a tree to be retained, the stump will be ground out using a mechanical stump grinder, working locally on that stump to avoid potential damage to retained tree roots.
- 5) If outside of this area, then the stump can either be ground out or grubbed out using an excavator or ground out with a stump grinder. Note: existing underground services should be checked before any stump removal work is undertaken.
- 6) Any variation to the tree surgery works will be agreed with the Arboricultural Consultant before being implemented.
- 7) All arisings will be removed from site, except where identified for reuse.
- 8) Areas of groups, woodland, or hedges to be removed will be minimised to enable the works and installation of tree protection barriers only.
- 9) An example of trees/groups/hedges and part groups/hedges to be removed in the Tree Protection Plan with red dashed outline and retained trees/groups/hedges with green solid outline (crown spread) and orange outline (Root Protection Area) is provided below.

Example of red dashed outline (to be removed) and solid green and orange outline (to be retained)

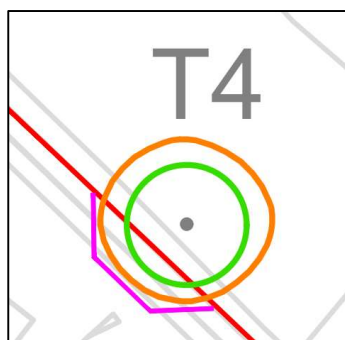




Task 2: Installation and Management of Tree Protection Fencing

Method and Action Required

- 1) The Tree Protection Fencing will be installed following completion of the tree work and before any other works associated with the construction works, begins on site.
- 2) Fencing should be aligned as shown on the final agreed Tree Protection Plan (either Appendix A or B). Once the fencing alignment has been set out (this can be achieved with wooden pegs or road pins) the Arboricultural Consultant will check the alignment, confirm any alterations, and sign this off. A second visit will also be undertaken once the fence has been installed to check it meets the specified criteria.
- 3) The tree protection fencing will be constructed, following the criteria set out in BS 5837:2012 (specification shown at Appendix E). Depending on the activity nearby this will either be figure 2 or figure 3. This will be agreed on site, following the setting out of the alignment. The fenced off area will form the Construction Exclusion Zone (CEZ) for the duration of the works.
- 4) A tree protection information sign (example shown at Appendix E) will be secured to every third fencing panel at eye level, facing into the site. This will aid identification of the CEZ and inform site operatives of its importance.
- 5) The tree protection fencing will remain in place, not moved, and kept in good condition until all works are complete, except for any final landscaping works planned within the CEZ, which will follow the method in task 6, below or otherwise agreed with the Arboricultural Consultant.
- 6) Once installed and during the active construction stage, the tree protection fencing will be checked once per month by an Arboricultural Consultant and any repairs, damage or realignment advised on site will be rectified within 2 working days.
- 7) An example of Tree Protection Fencing Alignment in Tree Protection Plan is shown below (pink line).





Task 3: Demolition of the Existing Bungalow

Method and Action Required

- 1) Before access can be gained an existing bungalow and associated landscaping will need to be demolished and cleared.
- 2) Tree removal and protection measures associated with this task will depend on the final layout (roundabout or no roundabout).
- 3) The same applies to this work, as the wider site and trees to be removed should be removed first, followed by the installation of the tree protection barrier, as shown on the relevant Tree Protection Plan, following the principles in Tasks 1 and 2 above before the bungalow is demolished and the site is cleared, or any plant machinery is brought onto the site.
- 4) Once the tree work is complete and the tree protection barriers are installed, the works can progress as planned, once all operatives have been briefed on the relevance of the tree protection barrier.
- 5) Location of Bungalow to be removed is shown below.



Image provided by Google Maps



Task 4: Site Preparation, Materials & Welfare/Storage Set up

Method and Action Required

- 1) Once the bungalow has been cleared, access will become available for the wider site. Before access is approved, any remaining tree work and tree protection barriers will need to be installed, checked, and confirmed by an Arboricultural Consultant.
- 2) The site facilities including welfare areas, site offices, material storage compounds etc. can then be set up.
- 3) Work can then proceed as planned.



Task 5: Site Rules & Contingencies

Method and Action Required
1) Movement and storage of earthworks and materials are to remain outside of all tree protection barriers, as these areas are a Construction Exclusion Zone. 2) If any damage to tree protection barriers happens during this work (or other work), the damage is to be repaired at the first available opportunity and not more than 2 working days. 3) Any incident of damage to barriers or retained, protected trees are to be reported to the Arboricultural Consultant and the Local Authority immediately and no longer than 2 working days. 4) Any damage that may have caused damage to a protected tree, or the protected ground within the CEZ, defined with tree protection barriers will require a site visit from the Arboricultural Consultant and addendum methods provided to repair or mitigate any damage. This could include soil compaction, ground contamination, or level alterations. 5) The tree protection barrier is to remain in place in good repair throughout the project duration, whilst there is demolition and construction related activity. 6) On completion of all works associated with the construction, including movement of soil and ground materials and once all construction related equipment, machinery, storage, and welfare areas have been removed from site, the tree protection fencing can be removed. 7) Once removed the Arboricultural Consultant will visit the site and check all retained trees within 15m of the tree protection to ensure the site is left in satisfactory condition. 8) Any improvements required will be confirmed in writing and another visit will take place to check the improvements have been made.

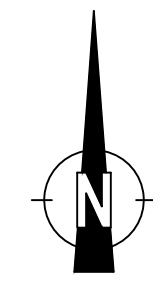


Task 6: Landscaping Operations

Method and Action Required
1) All new soft landscaping works including tree planting will be undertaken following completion of the earthworks, construction, and hard surfacing works. 2) Works with the CEZ (barriers can be removed following pint 1 above) will only be undertaken with hand operated equipment only. No plant or wheeled machinery except unless it is pedestrian operated. 3) No trenches will be dug, post holes will be at least 2m from retained trees and dug by hand. 4) Levels will not be altered within Root Protection Areas of retained trees. 5) New trees to be planted will be sourced from reputable tree nurseries and movement and handling will follow the guidance of BS8545:2014 Trees: from nursery to independence in the landscape – Recommendations. 6) Tree Planting will follow best practice and be undertaken by landscape professionals. 7) Aftercare of newly planted trees will include:- • Ensuring the base is clear of vegetation within at least 0.5m radius from the tree, with a suitable mulch added into this clear area. • Adjusting stakes, ties and guards as the trees grow. • Undertaking appropriate formative pruning during the first 5 years. • Ensuring adequate water to is provided in dry/drought conditions (this means when there has been no rain for 2 weeks or more). • Removing stakes, ties, and guards once the trees have become established and independent within the landscape. • If any tree dies within 5 years of planting, it will be replaced in the next planting season.



Appendix A: Tree Protection Plan (Roundabout Version)



Symbol Guide

Root Protection Area

Canopy Spread

Tree Position,
(colour represents
retention category)

Tag Number

BS5837:2012 - Tree Category

Category A Trees
High Quality

Category C Trees
Low Quality

Category B Trees
Moderate Quality

Category U Trees
Poor Quality/Remove

Tree Protection & Removal

Proposed Tree
Removal

Tree Protection
Fencing

Project Name:	Capitol Park Barnsley
Drawing Title:	Tree Protection Plan Roundabout Version
Drawing Number:	220829-1.0-CPB-RV-TPP-MH
Client:	Sterling Capitol
Agent:	Peacock + Smith
Date:	August 2022
Scale:	1:500 @A1

Area of woodland group W1 to be removed outside of tree protection alignment to facilitate the roundabout configuration and road alterations.

Grading work to be undertaken after tree protection barrier is installed and minor clearance of scrub group G1 has been completed (outside of tree protection). Grading will not conflict with overhanging branches of G2. Minor facilitation pruning may be required to install the barrier. This will be undertaken to BS3998:2010, specification.

Grading work will not conflict with the crown branches of T9 and T10. Facilitation pruning may be required to install the barrier. This will be undertaken in accordance with BS3998:2010, specification.

Encroachment of grading work outside of tree protection alignment is considered to be acceptable, due G5 being managed at a hedgerow scale and less rooting volume required.

Section of H3 to be removed to facilitate road infrastructure.

T6 to be removed to facilitate grading work, due to extent of roots (RPA).

End section of H1 to be removed to facilitate the roundabout development

T11, G8 and G7 to be removed to facilitate demolition of the existing bungalow and roundabout configuration.

HIGHAM LANE

W1

G3

G2

G1

H2

T10

T9

G5

T8

T7

T5

T6

H3

H4

G6

H5

T11

G8

G7

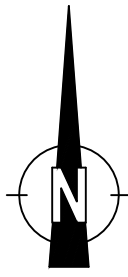
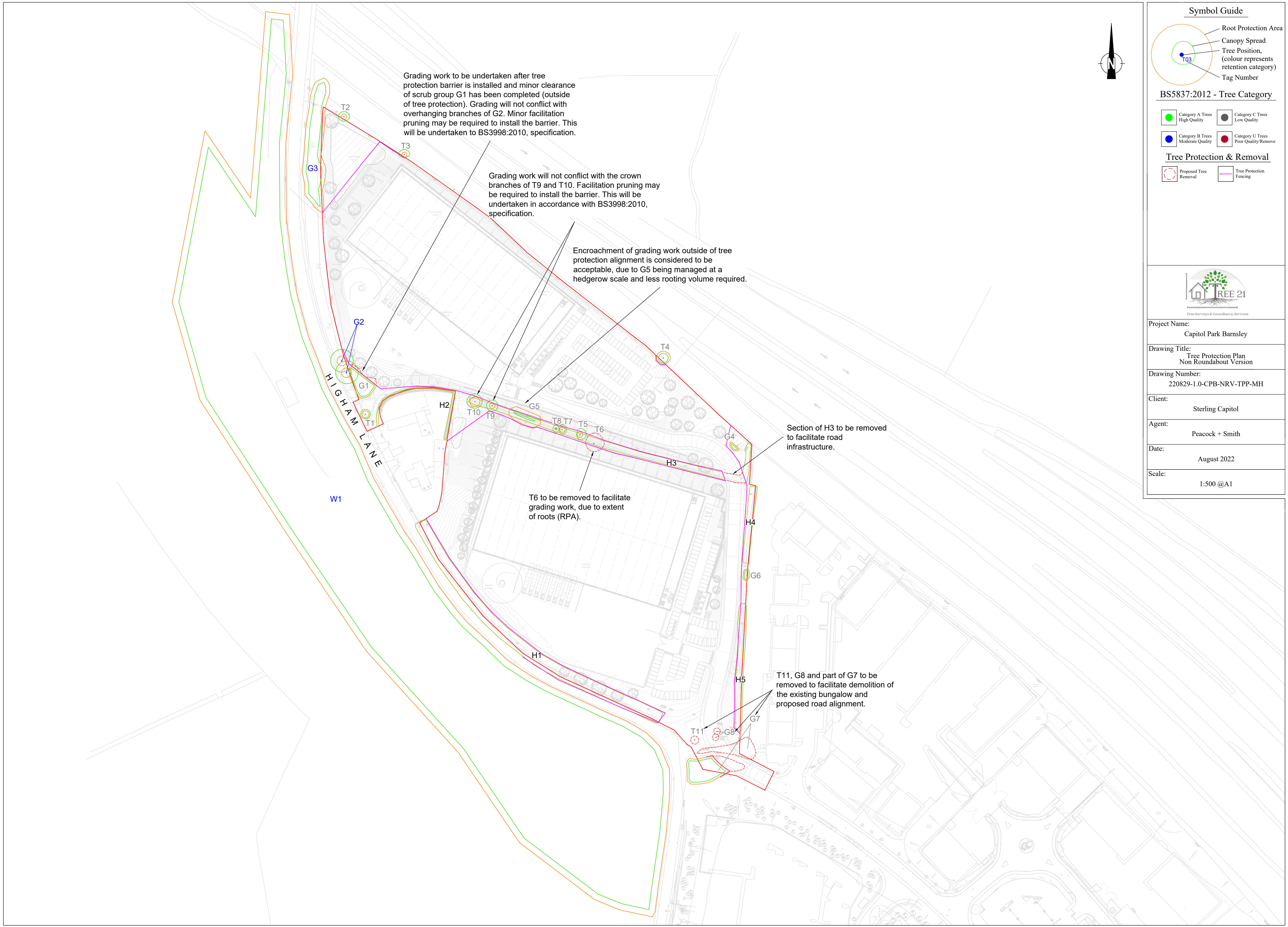
T2

T3

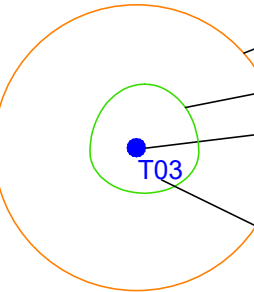
T4



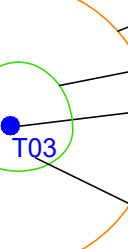
Appendix B: Tree Protection Plan (Non-Roundabout Version)



Symbol Guide



Root Protection Area



Canopy Spread



Tree Position,
(colour represents
retention category)



Tag Number

BS5837:2012 - Tree Category

 Category A Trees High Quality	 Category C Trees Low Quality
 Category B Trees Moderate Quality	 Category U Trees Poor Quality/Remove

Tree Protection & Removal

 Proposed Tree Removal	 Tree Protection Fencing
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Tree Surveys & Consultancy Services

Project Name:	Capitol Park Barnsley
Drawing Title:	Tree Protection Plan Non Roundabout Version
Drawing Number:	220829-1.0-CPB-NRV-TPP-MH
Client:	Sterling Capitol
Agent:	Peacock + Smith
Date:	August 2022
Scale:	1:500 @A1



Appendix C: Tree Schedule (Roundabout Version)

BS5837 Survey Data



Ref.	Species	Measurements	General Observations	Category	Recommendations
G1	Blackthorn (<i>Prunus spinosa</i>) Grey Alder (<i>Alnus incana</i>)	Height (m): 5 2 stems, avg.(mm): 80 Spread (m): 1.5N, 1.5E, 1.5S, 1.5W Crown Clearance (m): 1 Life Stage: Young Rem. Contrib.: 40+ Years	An area of scrub vegetation/young trees, of limited arboricultural value.	C1 RPA Area: 183 sq m, plus a 1m buffer.	Pre construction: Localised pruning to facilitate works/installation of tree protection barrier. During construction: Protect trees with protective barriers - as shown on plans.
G2	Common Ash x2 (<i>Fraxinus excelsior</i>) Alder (<i>Alnus sp.</i>)	Height (m): 11 3 stems, avg.(mm): 250 Spread (m): 3N, 3E, 3S, 3W Crown Clearance (m): 2 Life Stage: Semi Mature Rem. Contrib.: 40+ Years	Two off-site ash trees. One is intertwined with an alder and is overhanging the boundary wall by 2.5m. Both interfere with telecoms cables and pole.	B1 RPA Area: 69 sq m, plus a 1m buffer.	Pre construction: Localised pruning to facilitate works/installation of tree protection barrier. During construction: Protect trees with protective barriers - as shown on plans.

Ref.	Species	Measurements	General Observations	Category	Recommendations
G3	Field Maple (Acer campestre) Common Ash (Fraxinus excelsior) Alder (Alnus sp.) Hazel (Corylus avellana) Crab Apple (Malus sylvestris) Common Hawthorn (Crataegus monogyna) Sycamore (Acer pseudoplatanus)	Height (m): 3 7 stems, avg.(mm): 200 Spread (m): 3N, 3E, 3S, 3W Crown Clearance (m): 1.5 Life Stage: Semi Mature Rem. Contrib.: 40+ Years	Dense boundary group of trees, mainly off-site but a small cluster of alder are on the site side of the boundary wall.	B1,2 RPA Area: 934 sq m, plus a 1m buffer.	During construction: Protect trees with protective barriers - as shown on plans.
G4	Goat Willow (Salix caprea)	Height (m): 5 Stem Diam (mm): 70 Spread (m): 2N, 2E, 2S, 2W Crown Clearance (m): 1 Life Stage: Young Rem. Contrib.: 40+ Years	Small cluster of willow stems of limited arboricultural value.	C1 RPA Area: 25 sq m, plus a 1m buffer.	During construction: Protect trees with protective barriers - as shown on plans.
G5	Common Ash x2 (Fraxinus excelsior) Pedunculate Oak (Quercus robur)	Height (m): 9 3 stems, avg.(mm): 330 Spread (m): 3N, 3E, 3S, 3W Crown Clearance (m): 1.5 Life Stage: Semi Mature Rem. Contrib.: 40+ Years	Three hedgerow trees, all multiple-stemmed as they have been topped in line with the hedgerow in the past. Minor decay pocket at the base of the oak.	C1 RPA Area: 62 sq m, plus a 1m buffer.	During construction: Protect trees with protective barriers - as shown on plans.
G6	Common Hawthorn (Crataegus monogyna)	Height (m): 4 Stem Diam (mm): 70 Spread (m): 3N, 3E, 3S, 3W Crown Clearance (m): 0 Life Stage: Semi Mature Rem. Contrib.: 20+ Years	Small clump of hawthorn stems. An isolated part of what was previously a consistent boundary hedge.	C1 RPA Area: 21 sq m, plus a 1m buffer.	During construction: Protect trees with protective barriers - as shown on plans.

Ref.	Species	Measurements	General Observations	Category	Recommendations
G7	Hazel (<i>Corylus avellana</i>) Common Ash (<i>Fraxinus excelsior</i>) Italian Alder (<i>Alnus cordata</i>)	Height (m): 6.5 3 stems, avg.(mm): 100 Spread (m): 2N, 2E, 2S, 2W Crown Clearance (m): 2 Life Stage: Semi Mature Rem. Contrib.: 40+ Years	Small group of densely planted trees, pruned back over the adjacent footpath. A utility pole (electric) is situated in the middle of the group.	C1 RPA Area: 63 sq m, plus a 1m buffer.	Remove tree group, to facilitate the road and roundabout infrastructure.
G8	Lawson Cypress (<i>Chamaecyparis lawsoniana</i>)	Height (m): 5 Stem Diam (mm): 70 Spread (m): 2N, 2E, 2S, 2W Crown Clearance (m): 2 Life Stage: Semi Mature Rem. Contrib.: 20+ Years	Two typical garden specimens in close proximity to each other. Both typical of cultivar with no notable defects.	C1 RPA Area: 16 sq m, plus a 1m buffer.	Remove trees to facilitate the road infrastructure.
H1	Elm (<i>Ulmus</i> sp.) Common Ash (<i>Fraxinus excelsior</i>) Common Holly (<i>Ilex aquifolium</i>) Common Hawthorn (<i>Crataegus monogyna</i>)	Height (m): 9 4 stems, avg.(mm): 160 Spread (m): 1N, 1E, 1S, 1W Crown Clearance (m): 0 Life Stage: Semi Mature Rem. Contrib.: 40+ Years	Unmanaged, lapsed hedgerow of principally elm. Growing into overhead telecoms cables. Some vehicle strikes noted to branches. Some early evidence of Dutch elm disease to some of the specimens.	NotRecorded RPA Area: 1146 sq m, plus a 1m buffer.	Pre construction: Remove end section of hedge as shown on the Tree Protection Plan. During construction: Protect trees with protective barriers - as shown on plans.
H2	Leyland Cypress (<i>Cupressocyparis leylandii</i> X)	Height (m): 3 Stem Diam (mm): 70 Spread (m): 2N, 2E, 2S, 2W Crown Clearance (m): 1 Life Stage: Semi Mature Rem. Contrib.: 20+ Years	Typical boundary hedgerow, located off-site but potentially within influencing distance.	NotRecorded RPA Area: 327 sq m, plus a 1m buffer.	During construction: Protect trees with protective barriers - as shown on plans.

Ref.	Species	Measurements	General Observations	Category	Recommendations
H3	Common Hawthorn (Crataegus monogyna) Elder (Sambucus nigra) Blackthorn (Prunus spinosa) Goat Willow (Salix caprea) Common Holly (Ilex aquifolium)	Height (m): 3 5 stems, avg.(mm): 50 Spread (m): 1N, 1E, 1S, 1W Crown Clearance (m): 0 Life Stage: Young Rem. Contrib.: 40+ Years	A generally neat, well maintained field boundary hedgerow. There is evidence of past hedge laying present.	NotRecorded RPA Area: 476 sq m, plus a 1m buffer.	Pre construction: Remove section to facilitate road infrastructure. During construction: Protect trees with protective barriers - as shown on plans.
H4	Common Hawthorn (Crataegus monogyna) Elder (Sambucus nigra)	Height (m): 4 2 stems, avg.(mm): 70 Spread (m): 1N, 1E, 1S, 1W Crown Clearance (m): 0 Life Stage: Semi Mature Rem. Contrib.: 40+ Years	Typical field boundary hedgerow. Fairly well maintained.	NotRecorded RPA Area: 241 sq m, plus a 1m buffer.	During construction: Protect trees with protective barriers - as shown on plans.
H5	Blackthorn (Prunus spinosa) Elm (Ulmus sp.) Sycamore (Acer pseudoplatanus) Ash (Fraxinus sp.) Willow (Salix sp.) Sessile Oak (Quercus petraea) Common Hawthorn (Crataegus monogyna)	Height (m): 5 7 stems, avg.(mm): 130 Spread (m): 2N, 2E, 2S, 2W Crown Clearance (m): 2 Life Stage: Semi Mature Rem. Contrib.: 20+ Years	A lapsed section of hedgerow/hedgerow trees, left unmanaged and degenerating into scrub. Situated beneath electric cables.	NotRecorded RPA Area: 419 sq m, plus a 1m buffer.	During construction: Protect trees with protective barriers - as shown on plans.

Ref.	Species	Measurements	General Observations	Category	Recommendations
T1	Italian Alder (<i>Alnus cordata</i>)	Height (m): 10 Stem Diam (mm): 180 Spread (m): 3N, 3E, 3S, 3W Crown Clearance (m): 1.5 Life Stage: Semi Mature Rem. Contrib.: 40+ Years	Open grown specimen, single stemmed with a balanced crown. It appears to be in good condition with no major visible defects.	C1 RPA Radius: 2.2m. Area: 15 sq m.	During construction: Protect tree with protective barriers - as shown on plans.
T10	Common Ash (<i>Fraxinus excelsior</i>)	Height (m): 7 Stem Diam (mm): 260 Spread (m): 5N, 4.5E, 4S, 5W Crown Clearance (m): 1 Life Stage: Semi Mature Rem. Contrib.: 40+ Years	Good hedgerow tree with a balanced crown. No major visible defects.	C1 RPA Radius: 3.1m. Area: 30 sq m.	During construction: Protect tree with protective barriers - as shown on plans.
T11	Silver Fir (<i>Abies alba</i>)	Height (m): 10 Stem Diam (mm): 240 Spread (m): 2.5N, 2.5E, 2.5S, 2.5W Crown Clearance (m): 2.5 Life Stage: Semi Mature Rem. Contrib.: 40+ Years	An open grown specimen with a well balanced crown. It appears to be in good condition with no major visible defects.	C1 RPA Radius: 2.9m. Area: 26 sq m.	Pre construction: Remove tree to facilitate the road infrastructure. During construction: Protect tree with protective barriers - as shown on plans.
T2	Common Hawthorn (<i>Crataegus monogyna</i>)	Height (m): 6 Stem Diam (mm): 140 Spread (m): 3N, 3.5E, 3S, 3.5W Crown Clearance (m): 1.5 Life Stage: Semi Mature Rem. Contrib.: 20+ Years	Situated off-site. Typical example of species. Very dense crown with many crossing/rubbing branches. Acceptable condition at this time.	C1 RPA Radius: 1.7m. Area: 9 sq m.	During construction: Protect tree with protective barriers - as shown on plans.
T3	Common Ash (<i>Fraxinus excelsior</i>)	Height (m): 8 Stem Diam (mm): 120 Spread (m): 3N, 3.5E, 2S, 3.5W Crown Clearance (m): 3 Life Stage: Semi Mature Rem. Contrib.: 40+ Years	Multi-stemmed from base with a fairly balanced crown. Situated on the boundary line. Acceptable condition at this time. No major visible defects.	C1 RPA Radius: 1.4m. Area: 6 sq m.	During construction: Protect tree with protective barriers - as shown on plans.
T4	Pedunculate Oak (<i>Quercus robur</i>)	Height (m): 6 Stem Diam (mm): 250 Spread (m): 4N, 4.5E, 4S, 4W Crown Clearance (m): 3 Life Stage: Semi Mature Rem. Contrib.: 40+ Years	Small, self-set specimen. Situated off-site but overhanging the boundary fence by 2.5m. Branches are rubbing against the fence line. It is located adjacent to an electricity pole and beneath cables; possibly limiting its useful future.	C1 RPA Radius: 3.0m. Area: 28 sq m.	During construction: Protect tree with protective barriers - as shown on plans.

Ref.	Species	Measurements	General Observations	Category	Recommendations
T5	Goat Willow (Salix caprea)	Height (m): 5 Stem Diam (mm): 110 Spread (m): 4N, 4E, 3S, 2W Crown Clearance (m): 1.5 Life Stage: Semi Mature Rem. Contrib.: 40+ Years	Self-set specimen in acceptable condition at this time but of limited arboricultural value.	C1 RPA Radius: 1.3m. Area: 5 sq m.	During construction: Protect tree with protective barriers - as shown on plans.
T6	Pedunculate Oak (Quercus robur)	Height (m): 8 Spread (m): 6.5N, 6.5E, 5S, 5W Crown Clearance (m): 2 Life Stage: Semi Mature Rem. Contrib.: 40+ Years	Hedgerow tree, bifurcated from base, previously topped in line with the hedgerow. Acceptable condition at this time.	C1 RPA Radius: 3.7m. Area: 43 sq m.	Remove tree due to grading work in the Root Protection Area.
T7	Goat Willow (Salix caprea)	Height (m): 4 Stem Diam (mm): 140 Spread (m): 3N, 3E, 3S, 1.5W Crown Clearance (m): 1.5 Life Stage: Semi Mature Rem. Contrib.: 20+ Years	Self-set specimen in acceptable condition at this time but of limited arboricultural value.	C1 RPA Radius: 1.7m. Area: 9 sq m.	During construction: Protect tree with protective barriers - as shown on plans.
T8	Goat Willow (Salix caprea)	Height (m): 3.5 Stem Diam (mm): 60 Spread (m): 2.5N, 1.5E, 2.5S, 2W Crown Clearance (m): 0.5 Lowest Branch (m): 1.5 Life Stage: Semi Mature Rem. Contrib.: 20+ Years	Self-set specimen in acceptable condition at this time but of limited arboricultural value.	C1 RPA Radius: 0.7m. Area: 2 sq m.	During construction: Protect tree with protective barriers - as shown on plans.
T9	Goat Willow (Salix caprea)	Height (m): 5 Stem Diam (mm): 110 Spread (m): 3.5N, 3.5E, 3.5S, 3.5W Crown Clearance (m): 1.5 Life Stage: Semi Mature Rem. Contrib.: 20+ Years	Self-set specimen in acceptable condition at this time but of limited arboricultural value. Large bark wound noted at base.	C1 RPA Radius: 1.3m. Area: 5 sq m.	During construction: Protect tree with protective barriers - as shown on plans.

Ref.	Species	Measurements	General Observations	Category	Recommendations
W1	Elm (Ulmus sp.) Oak (Quercus sp.) Elder (Sambucus nigra) Aspen (Populus tremula) Plum (Prunus domestica) Sycamore (Acer pseudoplatanus) Field Maple (Acer campestre) Silver Birch (Betula pendula) Norway Maple (Acer platanoides) Common Hawthorn (Crataegus monogyna) Common Alder (Alnus glutinosa) Common Beech (Fagus sylvatica)	Height (m): 16 12 stems, avg.(mm): 250 Spread (m): 5N, 5E, 5S, 5W Crown Clearance (m): 1 Life Stage: Early Mature Rem. Contrib.: 40+ Years	Large, dense, overgrown shelterbelt which is forming a young woodland. Situated on an old colliery bund located off-site. Mainly non-native species. Dead elms noted along frontage.	B1,2 RPA Area: 53647 sq m, plus a 1m buffer.	Pre construction: Remove area of woodland group as shown on the Tree Protection Plan to facilitate the roundabout and road alterations. During construction: Protect retained area of woodland with protective barriers - as shown on the Tree Protection Plan.



Appendix D: Tree Schedule (Non-Roundabout Version)

BS5837 Survey Data



Ref.	Species	Measurements	General Observations	Category	Recommendations
G1	Blackthorn (<i>Prunus spinosa</i>) Grey Alder (<i>Alnus incana</i>)	Height (m): 5 2 stems, avg.(mm): 80 Spread (m): 1.5N, 1.5E, 1.5S, 1.5W Crown Clearance (m): 1 Life Stage: Young Rem. Contrib.: 40+ Years	An area of scrub vegetation/young trees, of limited arboricultural value.	C1 RPA Area: 183 sq m, plus a 1m buffer.	Pre construction: Localised pruning to facilitate works/installation of tree protection barrier. During construction: Protect trees with protective barriers - as shown on plans.
G2	Common Ash x2 (<i>Fraxinus excelsior</i>) Alder (<i>Alnus sp.</i>)	Height (m): 11 3 stems, avg.(mm): 250 Spread (m): 3N, 3E, 3S, 3W Crown Clearance (m): 2 Life Stage: Semi Mature Rem. Contrib.: 40+ Years	Two off-site ash trees. One is intertwined with an alder and is overhanging the boundary wall by 2.5m. Both interfere with telecoms cables and pole.	B1 RPA Area: 69 sq m, plus a 1m buffer.	Pre construction: Localised pruning to facilitate works/installation of tree protection barrier. During construction: Protect trees with protective barriers - as shown on plans.

Ref.	Species	Measurements	General Observations	Category	Recommendations
G3	Field Maple (Acer campestre) Common Ash (Fraxinus excelsior) Alder (Alnus sp.) Hazel (Corylus avellana) Crab Apple (Malus sylvestris) Common Hawthorn (Crataegus monogyna) Sycamore (Acer pseudoplatanus)	Height (m): 3 7 stems, avg.(mm): 200 Spread (m): 3N, 3E, 3S, 3W Crown Clearance (m): 1.5 Life Stage: Semi Mature Rem. Contrib.: 40+ Years	Dense boundary group of trees, mainly off-site but a small cluster of alder are on the site side of the boundary wall.	B1,2 RPA Area: 934 sq m, plus a 1m buffer.	During construction: Protect trees with protective barriers - as shown on plans.
G4	Goat Willow (Salix caprea)	Height (m): 5 Stem Diam (mm): 70 Spread (m): 2N, 2E, 2S, 2W Crown Clearance (m): 1 Life Stage: Young Rem. Contrib.: 40+ Years	Small cluster of willow stems of limited arboricultural value.	C1 RPA Area: 25 sq m, plus a 1m buffer.	During construction: Protect trees with protective barriers - as shown on plans.
G5	Common Ash x2 (Fraxinus excelsior) Pedunculate Oak (Quercus robur)	Height (m): 9 3 stems, avg.(mm): 330 Spread (m): 3N, 3E, 3S, 3W Crown Clearance (m): 1.5 Life Stage: Semi Mature Rem. Contrib.: 40+ Years	Three hedgerow trees, all multiple-stemmed as they have been topped in line with the hedgerow in the past. Minor decay pocket at the base of the oak.	C1 RPA Area: 62 sq m, plus a 1m buffer.	During construction: Protect trees with protective barriers - as shown on plans.
G6	Common Hawthorn (Crataegus monogyna)	Height (m): 4 Stem Diam (mm): 70 Spread (m): 3N, 3E, 3S, 3W Crown Clearance (m): 0 Life Stage: Semi Mature Rem. Contrib.: 20+ Years	Small clump of hawthorn stems. An isolated part of what was previously a consistent boundary hedge.	C1 RPA Area: 21 sq m, plus a 1m buffer.	During construction: Protect trees with protective barriers - as shown on plans.

Ref.	Species	Measurements	General Observations	Category	Recommendations
G7	Hazel (<i>Corylus avellana</i>) Common Ash (<i>Fraxinus excelsior</i>) Italian Alder (<i>Alnus cordata</i>)	Height (m): 6.5 3 stems, avg.(mm): 100 Spread (m): 2N, 2E, 2S, 2W Crown Clearance (m): 2 Life Stage: Semi Mature Rem. Contrib.: 40+ Years	Small group of densely planted trees, pruned back over the adjacent footpath. A utility pole (electric) is situated in the middle of the group.	C1 RPA Area: 63 sq m, plus a 1m buffer.	Remove section of the tree group as shown on the plan, to facilitate the road infrastructure.
G8	Lawson Cypress (<i>Chamaecyparis lawsoniana</i>)	Height (m): 5 Stem Diam (mm): 70 Spread (m): 2N, 2E, 2S, 2W Crown Clearance (m): 2 Life Stage: Semi Mature Rem. Contrib.: 20+ Years	Two typical garden specimens in close proximity to each other. Both typical of cultivar with no notable defects.	C1 RPA Area: 16 sq m, plus a 1m buffer.	Remove trees to facilitate the road infrastructure.
H1	Elm (<i>Ulmus</i> sp.) Common Ash (<i>Fraxinus excelsior</i>) Common Holly (<i>Ilex aquifolium</i>) Common Hawthorn (<i>Crataegus monogyna</i>)	Height (m): 9 4 stems, avg.(mm): 160 Spread (m): 1N, 1E, 1S, 1W Crown Clearance (m): 0 Life Stage: Semi Mature Rem. Contrib.: 40+ Years	Unmanaged, lapsed hedgerow of principally elm. Growing into overhead telecoms cables. Some vehicle strikes noted to branches. Some early evidence of Dutch elm disease to some of the specimens.	NotRecorded RPA Area: 1146 sq m, plus a 1m buffer.	During construction: Protect trees with protective barriers - as shown on plans.
H2	Leyland Cypress (<i>Cupressocyparis leylandii</i> X)	Height (m): 3 Stem Diam (mm): 70 Spread (m): 2N, 2E, 2S, 2W Crown Clearance (m): 1 Life Stage: Semi Mature Rem. Contrib.: 20+ Years	Typical boundary hedgerow, located off-site but potentially within influencing distance.	NotRecorded RPA Area: 327 sq m, plus a 1m buffer.	During construction: Protect trees with protective barriers - as shown on plans.

Ref.	Species	Measurements	General Observations	Category	Recommendations
H3	Common Hawthorn (Crataegus monogyna) Elder (Sambucus nigra) Blackthorn (Prunus spinosa) Goat Willow (Salix caprea) Common Holly (Ilex aquifolium)	Height (m): 3 5 stems, avg.(mm): 50 Spread (m): 1N, 1E, 1S, 1W Crown Clearance (m): 0 Life Stage: Young Rem. Contrib.: 40+ Years	A generally neat, well maintained field boundary hedgerow. There is evidence of past hedge laying present.	NotRecorded RPA Area: 476 sq m, plus a 1m buffer.	Pre construction: Remove section to facilitate road infrastructure. During construction: Protect trees with protective barriers - as shown on plans.
H4	Common Hawthorn (Crataegus monogyna) Elder (Sambucus nigra)	Height (m): 4 2 stems, avg.(mm): 70 Spread (m): 1N, 1E, 1S, 1W Crown Clearance (m): 0 Life Stage: Semi Mature Rem. Contrib.: 40+ Years	Typical field boundary hedgerow. Fairly well maintained.	NotRecorded RPA Area: 241 sq m, plus a 1m buffer.	During construction: Protect trees with protective barriers - as shown on plans.
H5	Blackthorn (Prunus spinosa) Elm (Ulmus sp.) Sycamore (Acer pseudoplatanus) Ash (Fraxinus sp.) Willow (Salix sp.) Sessile Oak (Quercus petraea) Common Hawthorn (Crataegus monogyna)	Height (m): 5 7 stems, avg.(mm): 130 Spread (m): 2N, 2E, 2S, 2W Crown Clearance (m): 2 Life Stage: Semi Mature Rem. Contrib.: 20+ Years	A lapsed section of hedgerow/hedgerow trees, left unmanaged and degenerating into scrub. Situated beneath electric cables.	NotRecorded RPA Area: 419 sq m, plus a 1m buffer.	During construction: Protect trees with protective barriers - as shown on plans.

Ref.	Species	Measurements	General Observations	Category	Recommendations
T1	Italian Alder (<i>Alnus cordata</i>)	Height (m): 10 Stem Diam (mm): 180 Spread (m): 3N, 3E, 3S, 3W Crown Clearance (m): 1.5 Life Stage: Semi Mature Rem. Contrib.: 40+ Years	Open grown specimen, single stemmed with a balanced crown. It appears to be in good condition with no major visible defects.	C1 RPA Radius: 2.2m. Area: 15 sq m.	During construction: Protect tree with protective barriers - as shown on plans.
T10	Common Ash (<i>Fraxinus excelsior</i>)	Height (m): 7 Stem Diam (mm): 260 Spread (m): 5N, 4.5E, 4S, 5W Crown Clearance (m): 1 Life Stage: Semi Mature Rem. Contrib.: 40+ Years	Good hedgerow tree with a balanced crown. No major visible defects.	C1 RPA Radius: 3.1m. Area: 30 sq m.	During construction: Protect tree with protective barriers - as shown on plans.
T11	Silver Fir (<i>Abies alba</i>)	Height (m): 10 Stem Diam (mm): 240 Spread (m): 2.5N, 2.5E, 2.5S, 2.5W Crown Clearance (m): 2.5 Life Stage: Semi Mature Rem. Contrib.: 40+ Years	An open grown specimen with a well balanced crown. It appears to be in good condition with no major visible defects.	C1 RPA Radius: 2.9m. Area: 26 sq m.	Pre construction: Remove tree to facilitate the road infrastructure. During construction: Protect tree with protective barriers - as shown on plans.
T2	Common Hawthorn (<i>Crataegus monogyna</i>)	Height (m): 6 Stem Diam (mm): 140 Spread (m): 3N, 3.5E, 3S, 3.5W Crown Clearance (m): 1.5 Life Stage: Semi Mature Rem. Contrib.: 20+ Years	Situated off-site. Typical example of species. Very dense crown with many crossing/rubbing branches. Acceptable condition at this time.	C1 RPA Radius: 1.7m. Area: 9 sq m.	During construction: Protect tree with protective barriers - as shown on plans.
T3	Common Ash (<i>Fraxinus excelsior</i>)	Height (m): 8 Stem Diam (mm): 120 Spread (m): 3N, 3.5E, 2S, 3.5W Crown Clearance (m): 3 Life Stage: Semi Mature Rem. Contrib.: 40+ Years	Multi-stemmed from base with a fairly balanced crown. Situated on the boundary line. Acceptable condition at this time. No major visible defects.	C1 RPA Radius: 1.4m. Area: 6 sq m.	During construction: Protect tree with protective barriers - as shown on plans.
T4	Pedunculate Oak (<i>Quercus robur</i>)	Height (m): 6 Stem Diam (mm): 250 Spread (m): 4N, 4.5E, 4S, 4W Crown Clearance (m): 3 Life Stage: Semi Mature Rem. Contrib.: 40+ Years	Small, self-set specimen. Situated off-site but overhanging the boundary fence by 2.5m. Branches are rubbing against the fence line. It is located adjacent to an electricity pole and beneath cables; possibly limiting its useful future.	C1 RPA Radius: 3.0m. Area: 28 sq m.	During construction: Protect tree with protective barriers - as shown on plans.

Ref.	Species	Measurements	General Observations	Category	Recommendations
T5	Goat Willow (Salix caprea)	Height (m): 5 Stem Diam (mm): 110 Spread (m): 4N, 4E, 3S, 2W Crown Clearance (m): 1.5 Life Stage: Semi Mature Rem. Contrib.: 40+ Years	Self-set specimen in acceptable condition at this time but of limited arboricultural value.	C1 RPA Radius: 1.3m. Area: 5 sq m.	During construction: Protect tree with protective barriers - as shown on plans.
T6	Pedunculate Oak (Quercus robur)	Height (m): 8 Spread (m): 6.5N, 6.5E, 5S, 5W Crown Clearance (m): 2 Life Stage: Semi Mature Rem. Contrib.: 40+ Years	Hedgerow tree, bifurcated from base, previously topped in line with the hedgerow. Acceptable condition at this time.	C1 RPA Radius: 3.7m. Area: 43 sq m.	Remove trees due to grading work in the Root Protection Area.
T7	Goat Willow (Salix caprea)	Height (m): 4 Stem Diam (mm): 140 Spread (m): 3N, 3E, 3S, 1.5W Crown Clearance (m): 1.5 Life Stage: Semi Mature Rem. Contrib.: 20+ Years	Self-set specimen in acceptable condition at this time but of limited arboricultural value.	C1 RPA Radius: 1.7m. Area: 9 sq m.	During construction: Protect tree with protective barriers - as shown on plans.
T8	Goat Willow (Salix caprea)	Height (m): 3.5 Stem Diam (mm): 60 Spread (m): 2.5N, 1.5E, 2.5S, 2W Crown Clearance (m): 0.5 Lowest Branch (m): 1.5 Life Stage: Semi Mature Rem. Contrib.: 20+ Years	Self-set specimen in acceptable condition at this time but of limited arboricultural value.	C1 RPA Radius: 0.7m. Area: 2 sq m.	During construction: Protect tree with protective barriers - as shown on plans.
T9	Goat Willow (Salix caprea)	Height (m): 5 Stem Diam (mm): 110 Spread (m): 3.5N, 3.5E, 3.5S, 3.5W Crown Clearance (m): 1.5 Life Stage: Semi Mature Rem. Contrib.: 20+ Years	Self-set specimen in acceptable condition at this time but of limited arboricultural value. Large bark wound noted at base.	C1 RPA Radius: 1.3m. Area: 5 sq m.	During construction: Protect tree with protective barriers - as shown on plans.

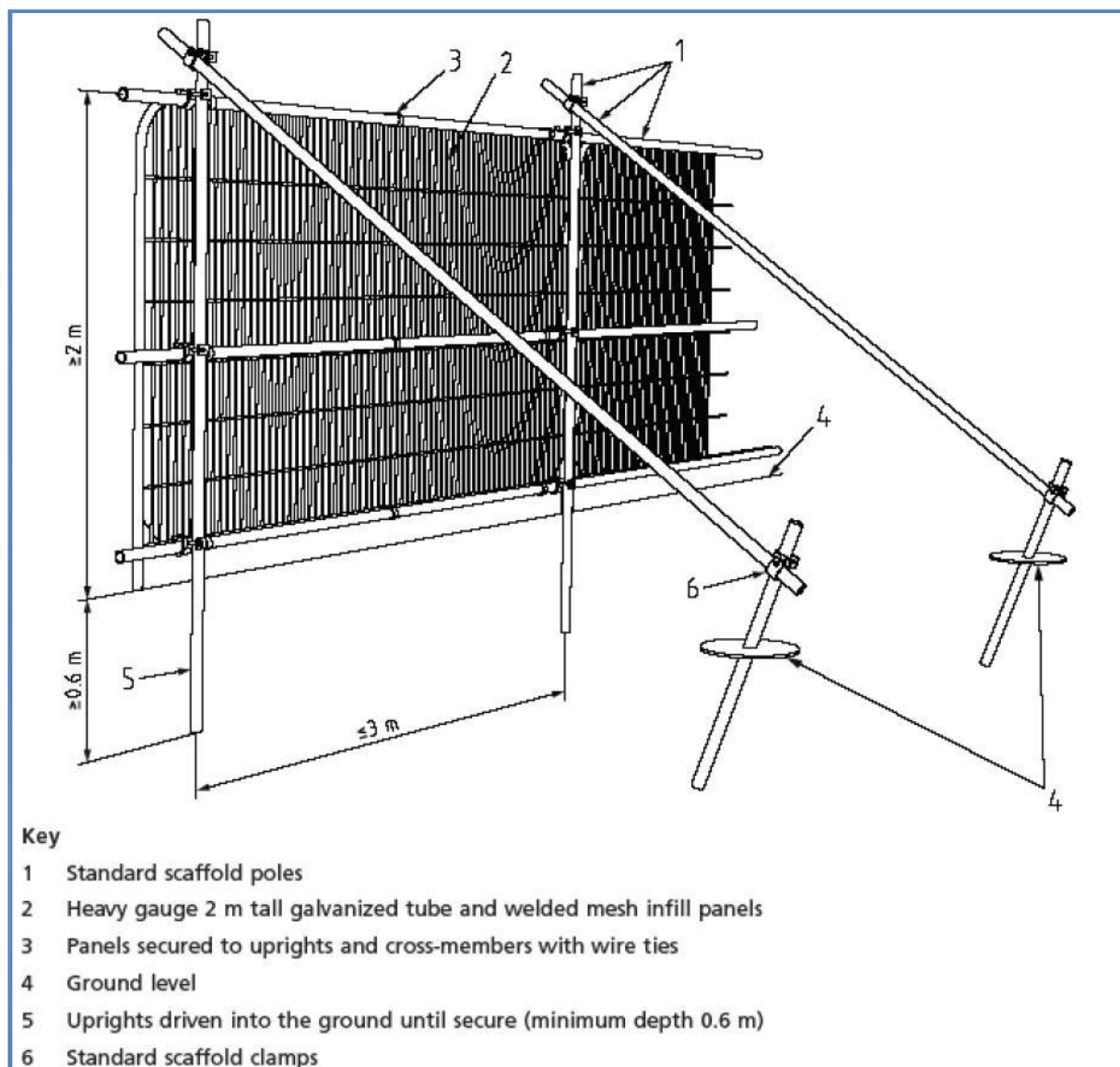
Ref.	Species	Measurements	General Observations	Category	Recommendations
W1	Elm (Ulmus sp.) Oak (Quercus sp.) Elder (Sambucus nigra) Aspen (Populus tremula) Plum (Prunus domestica) Sycamore (Acer pseudoplatanus) Field Maple (Acer campestre) Silver Birch (Betula pendula) Norway Maple (Acer platanoides) Common Hawthorn (Crataegus monogyna) Common Alder (Alnus glutinosa) Common Beech (Fagus sylvatica)	Height (m): 16 12 stems, avg.(mm): 250 Spread (m): 5N, 5E, 5S, 5W Crown Clearance (m): 1 Life Stage: Early Mature Rem. Contrib.: 40+ Years	Large, dense, overgrown shelterbelt which is forming a young woodland. Situated on an old colliery bund located off-site. Mainly non-native species. Dead elms noted along frontage.	B1,2 RPA Area: 53647 sq m, plus a 1m buffer.	During construction: No action required.



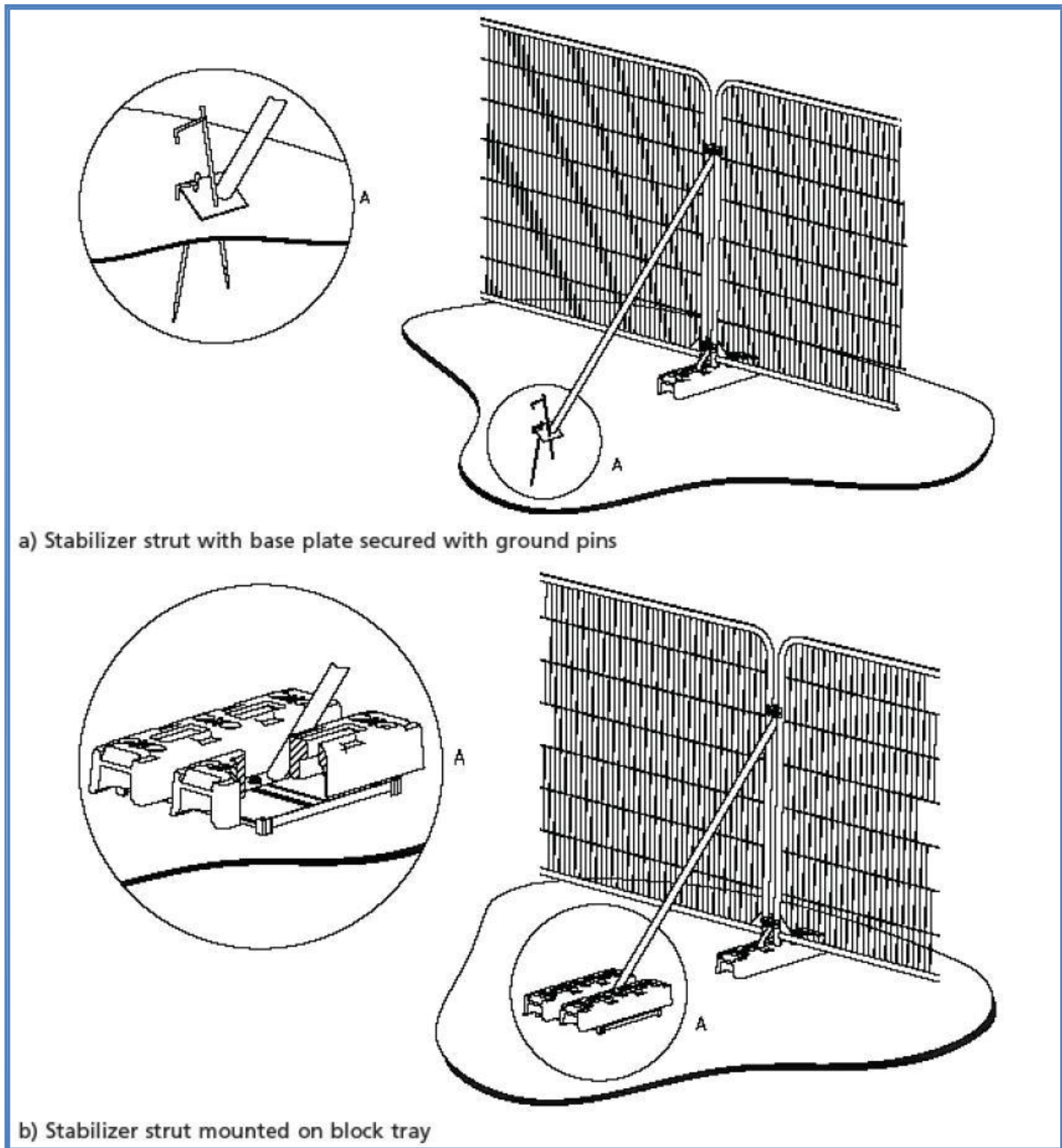
Appendix E: Tree Protection Specifications



Example Tree Protection Fencing Sign



BS5837: 2012 - Figure 2 – Tree Protective Barrier



BS5837: 2012 - Figure 3 – Examples of Above Ground Stabilisation Systems