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Arboricultural Impact Assessment Method Statement & Tree Protection Plan (to BS:5837 2012)

Homewood, Farm Lane, Loudwater
WD3 4XJ

Prepared for Mr Balvinder Nagi

Prepared by Trevor Heaps BSc, MICFor, RC. Arbor. A

Date: 22nd September 2021

Ref: TH 3077



Summary

The following works are proposed:

Two storey side and rear extension, single storey side extension and construction of an attached garage.

The proposals are within influencing distance of several protected trees and so some basic tree protection measures and working methodology (in accordance with BS 5837:2012) will ensure they are not detrimentally affected during works.

The relationship between the proposal and trees is sustainable and will not result in any unreasonable pressure to carry out inappropriate tree works.

If the proposal is implemented in accordance with the recommendations laid out in this report, neither the trees or wider landscape will be adversely affected.

This is an arboriculturally defensible scheme and there are no (arboricultural) reasons why planning consent should not be granted.

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1.0 Introduction

1.1 I am Trevor Heaps, Director of Trevor Heaps Arboricultural Consultancy Ltd. I hold a First-Class Honours Degree in Arboriculture; I am a Chartered Arboriculturist and a professional member of the Institute of Chartered Foresters; and I am also a Registered Consultant with the Arboricultural Association. Further information about my qualifications and experience is provided in Appendix 1.

1.2 Contact details:

Who	Name	Organisation	Details
Arboricultural consultant	Trevor Heaps	Trevor Heaps Arboricultural Consultancy Ltd., 12 Plover Drive, Milford-on-Sea, Hampshire, SO41 0XF	[REDACTED]
Client	Mr Balvinder Nagi		
Three Rivers District Council - LPA	Tree Officer	Three Rivers District Council, Three Rivers House, Northway, Rickmansworth, Herts, WD3 1RL	[REDACTED]

2.0 Instruction

2.1 We are to survey all significant trees that could be affected by the proposed works.

2.2 We are then to prepare a report to appraise the effect these works will have on any nearby trees and the surrounding landscape.

2.3 We are then to set out recommendations for the protection of the trees during development - in accordance with British Standard 5837:2012 'Trees in relation to design, demolition and construction - Recommendations' (BS5837).

3.0 Drawings provided

3.1 Layouts - Ref. 1025 Prop.AR.A1 - Dated Jan 2018

4.0 Report context

4.1 The site was surveyed by Trevor Heaps on the 22nd September 2021.

4.2 The trees were surveyed from within the site at ground level. No climbed inspections were carried out and no root/soil samples were taken for analysis.

4.3 The trees were inspected based on the Visual Tree Assessment (VTA) developed by Mattheck & Breloer (The Body Language of Trees, 1994).

4.4 Tree heights, crown spreads and stem diameters were measured with a clinometer, a Disto laser measure and a diameter measuring tape respectively.

4.5 Small trees and shrubs (with stem diameters less than 75mm) were not surveyed.

4.6 This report is based on the information provided (i.e. site plans, proposed drawings, scales, measurements etc.) and our observations during the site visit.

4.7 This report will support a planning application or an application to discharge a tree-related condition and its purpose is to assist and inform the planning process.

4.8 This report does not set out the detailed, working specifications of tree protection measures and engineering / design features, but provides sufficient detail to demonstrate the feasibility of the scheme in principle.

4.9 The report does not assess the potential influence of trees upon load-bearing soils beneath existing and proposed structures (resulting from water abstraction by trees on shrinkable soils).

5.0 Statutory tree protection

5.1 We were advised by the agent that some trees within and adjacent to this site are covered by a Tree Preservation Order, which means that if any tree works are required (to the protected trees), an application must be made to the Council (unless approved by way of this report – but please see 5.2).

5.2 Even if approved by way of this report, the Council's consent IS required for works on trees subject to a TPO / within a Conservation Area if:

- Development under a planning permission has not been commenced within the relevant time limit (i.e. the permission has 'expired');
- Only outline planning permission has been granted; or
- It is not necessary to carry out works on protected trees to implement a full planning permission.

6.0 Ecological constraints

6.1 The Wildlife and Countryside Act 1981 (as amended by the Countryside and Rights of Way Act 2000) provides statutory protection to birds, bats and other species that inhabit trees.

6.2 In addition to any tree matters considered in this report, these protected animals could impose significant constraints on the use and timing of access to the site.

7.0 The site

7.1 This property is situated within a leafy, residential part of Loudwater.

8.0 The soil and topography

8.1 The soils at this site were determined using information provided by the British Geological Survey and observations during the site visit.

8.2 The site slopes gently downwards from north to south. The soil texture is sand-to-sandy loam. The soil parent material is river terrace sand and gravel.

8.3 The soil is deep, and so a thick soil profile is likely. Soil (and any underlying parent Material) should be easily dug to a depth of more than one metre.

8.4 Given the information above, the soil has little potential of becoming compacted (which is harmful to tree roots); however, tree protection will not be relaxed.

9.0 Arboricultural Impact Assessment (AIA) and Tree Protection Methods

9.1 The following section describes the potential effects the construction works will have on the subject trees. Mitigation measures are recommended, and this information should be read in conjunction with the supporting Tree Protection Plan (TPP).

9.2 Further information on the subject trees is provided in Appendices 2 & 3.

9.3 Soil compaction around retained trees

9.3.1 Soil compaction can be caused by various construction-related activities such as storage of materials and the use of heavy machinery (or even heavier than normal pedestrian access during works). It is harmful to tree roots because it reduces gaseous exchange and the availability of water and nutrients.

9.3.2 To avoid the roots of the retained trees being affected by soil compaction, all vulnerable areas will be separated from the working area by protective fencing.

9.3.3 The existing hard surfaces will provide ample protection for any roots growing beneath and so do not need reinforcing.

9.4 Underground services

9.4.1 The proposed extension will either connect directly to existing underground services (with no further excavations) or be connected to existing services using a route outside the RPAs of trees shown retained.

9.4.1 The proposals will be designed in such a way as to either connect directly to existing underground services (with no further excavations) or be connected to existing services using a route outside the RPAs of trees shown retained.

9.4.2 If existing services within RPAs require upgrading, care shall be taken to minimise disturbance and where practicable, trenchless techniques employed; only as a last resort should open excavations be considered. Where existing services within RPAs are deemed not satisfactory for any further use, they should be left in situ rather than being excavated or removed.

9.4.3 If, for whatever reason, the proposed services need to be moved (and incursions into RPAs are unavoidable), then the installation works will be carried out under full arboricultural supervision and will, at the very least, comply with the methods and guidelines detailed in the National Joint Utilities Group publication NJUG 4, Guidelines for the Planning, Installation, and Maintenance of Utility Services in Proximity to Trees (November 2007).

10.0 Conclusions

10.1 The retained trees will be protected using up-to-date methodology and guidance provided by the current British Standards (BS 58378:2012). To this end, a site-specific AMS and TPP have been provided. These are found in Section 11 and Appendix 9 respectively.

10.2 Provided the recommendations laid out in this report are followed, the proposals will not detrimentally affect the trees or the character / appearance of the local area.

10.3 The trees do not cause any significant conflicts in terms of construction activities, nor will any significant issues of post-development pressure be likely to emerge that could not be managed with routine, minor tree maintenance.

11.0 The Arboricultural Method Statement (AMS)

11.1 Effective tree protection relies on following a logical sequence of events and arboricultural supervision. This AMS lays down the methodology for all construction works that may influence significant trees and recommendations for arboricultural supervision are provided in Section 12.

11.2 It is essential that this AMS is observed and adhered to. Therefore, a copy of this AMS must be issued to the building contractor to be integrated into their work schedule and must also be permanently made available on-site for the duration of development.

11.3 This AMS should be read in conjunction with the supporting Tree Protection Plan (TPP), which is found in Appendix 9.

11.4 At this site, operations are to occur in the following sequence (refer to Appendix 4 for further details on underlined methodology; which are listed in alphabetical order):

1. Erect protective fencing along the position(s) shown by the dashed red line/s on the TPP.
2. Carry out pre-commencement inspection and provide photographic record / report to the Council to demonstrate that the recommended tree protection has been correctly set up. The contractor will be required to read and sign the induction form (see Appendix 7).
3. Commence construction
4. Remove tree protection when all construction activity has ended.
5. Carry out landscaping works.

12.0 Arboricultural supervision

12.1 A suitably-qualified arboriculturalist will provide on-going supervision during construction. The occasions when supervision is required are outlined in Table 2. If the LPA wish to see further supervision, this matter can be dealt with by amending the report and/or by condition.

Table 2: Indicative arboricultural supervision requirements

Supervision details	Required (Y / N)	When	Details	Nature	Sign off
Pre-commencement site meeting (combined with tree protection check)	Y	Prior to any site activity	To ensure contractors are briefed & understand the AMS & TPP. A site supervisor will be appointed to oversee tree protection & the reporting of any damage to trees or deviation from the AMS - to the project arboriculturalist / LPA	Informal and open discussions. Induction form signed by attendees	Details of meeting to be sent to LPA within 5 days
Meeting with tree contractors	N	Prior to protective measures being installed	To ensure tree work instructions are clear and understood.	Informal meeting	No follow up required
Protective measure check	Y	Prior to any site activity	To ensure that protective measures are fit-for-purposed and correctly positioned.	Photos to be provided to consultant	Details of to be sent to LPA within 5 days
On-going supervision	N	Every 2 weeks during construction	To ensure that the protective measures have not been moved and continue to be fit for purpose.	Site meeting with a site monitoring report to be prepared	Details of to be sent to LPA within 5 days
Supervision of excavation works near trees	N	During construction	To supervise key stages of works near trees (insert which / when)	Site meeting with a site monitoring report to be prepared	Details of to be sent to LPA within 5 days
Meeting with landscape contractors	N	After construction	To provide advice on tree / shrub selection (if not conditioned)	Informal meeting	No follow up required

12.2 A site inspection record (see Appendix 8) will be prepared after each visit and will state the condition of tree protection measures and outline any required remedial action (and timescales).

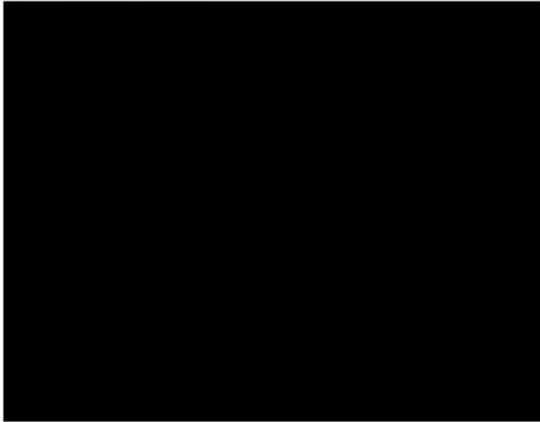
12.3 To demonstrate compliance, and to help the LPA discharge relevant planning conditions, all site monitoring reports will be forwarded to the LPAs arboricultural officer within 5 working days of the visit.

12.3 NOTE: It is the applicant's responsibility to arrange meeting dates with the arboriculturalist.

13.0 Signature

This report represents a true and factual account of the potential arboricultural impacts, and makes recommendations for appropriate protective measures, at the subject property.

Signed



.....

Trevor Heaps
Chartered Arboriculturist
BSc, MICFor, RC. Arbor. A

Dated

22nd September 2021

Appendix 1 - Professional résumé

I am Trevor Heaps, Director of Trevor Heaps Arboricultural Consultancy Ltd. I hold a First-Class Honours Degree in Arboriculture; I am a Chartered Arboriculturist and a professional member of the Institute of Chartered Foresters; and I am also a Registered Consultant with the Arboricultural Association.

Professional training

- Arboriculture and Bats: Scoping Surveys for Arborists (BCT & AA) – October 2017
- Tree Science (AA) – June 2016
- OPM (Oak Processionary Moth) Training (FC) – May 2016
- Visual Tree Assessment (Arboricultural Association) - October 2015
- Trees and the Law (Dr Charles Mynors) - June 2015
- Mortgage (Home Buyers) Report Writing (LANTRA / CAS) - February 2015
- Tree Preservation Orders - effective application (LANTRA / CAS) - November 2014
- Professional Tree Inspection 3-day course (LANTRA / AA) - July 2014
- Arboricultural Consultancy Course (AA) - May 2014
- Further down the subsidence trail 1-day course (AA) - April 2013
- Getting to grips with subsidence 1-day course (AA) - November 2012

AA – Arboricultural Association

BCT – Bat Conservation Trust

CAS – Consulting Arborist Society

FC – Forestry Commission

Appendix 2 - Tree data schedule

Ref	Name	Age	DBH (mm)	Hgt. (m)	Can. hgt. (m)	Can N (m)	Can E (m)	Can S (m)	Can W (m)	Physio cond.	Struct cond.	Life Exp.	Ret. Cat.	Comments	Rec's (proposed works are highlighted)
T1	Fagus sylvatica (Beech)	EM	350	6	4	2.5	2.5	2.5	2.5	Normal	Normal	20+	B2	Ivy (heavy covering).	N/A
T2	Chamaecyparis lawsoniana (Lawson Cypress)	EM	350	16	4	2.5	2.5	2.5	2.5	Fair	Fair	20+	B2	Sparse. Twin-stemmed.	N/A
T3	Chamaecyparis lawsoniana (Lawson Cypress)	EM	450	16	4	2.5	2.5	2.5	2.5	Fair	Fair	20+	B2	Sparse. Ivy (light covering).	N/A
H4	Fagus sylvatica (Beech)	SM	100	2.5	0.5	0.75	0.75	0.75	0.75	Normal	Normal	40+	C2	Boundary hedge.	N/A
T5	Ilex aquifolium (Holly)	EM	150	4	1.5	2	2	2	2	Normal	Normal	40+	B2	Clipped tree.	N/A
T6	Malus sylvestris (Crab Apple)	M	600	10	3	4.5	4.5	4.5	4.5	Fair	Normal	20+	B2	Sparse.	N/A
T7	Picea abies (Norway Spruce)	OM	450	16	6	4	4	4	4	Fair	Fair	20+	C2	Sparse. Helical wounding on stem	N/A
T8	Tilia X europaea (Common Lime)	EM	150	14	2	4.5	4.5	4.5	4.5	Normal	Normal	40+	B2	Multi-stemmed.	N/A
T9	Picea abies (Norway Spruce)	M	450	18	6	4	4	4	4	Normal	Normal	40+	B2		N/A
T10	Picea abies (Norway Spruce)	M	450	18	6	4	4	4	4	Fair	Normal	20+	C2	Sparse.	N/A
T11	Picea abies (Norway Spruce)	M	600	22	6	5.5	5.5	5.5	5.5	Normal	Normal	20+	A2		N/A
T12	Cryptomeria japonica (Japanese Red Cedar)	EM	350	14	6	3.5	3.5	3.5	3.5	Poor	Fair	<10	C2	Sparse. Die-back in crown.	N/A
T13	Fagus sylvatica (Beech)	M	700	25	6	8.5	8.5	8.5	8.5	Normal	Normal	40+	A2		N/A
T14	Fagus sylvatica (Beech)	M	600	25	6	8.5	8.5	8.5	8.5	Normal	Normal	40+	A2		N/A

Ref	Name	Age	DBH (mm)	Hgt. (m)	Can. hgt. (m)	Can N (m)	Can E (m)	Can S (m)	Can W (m)	Physio cond.	Struct cond.	Life Exp.	Ret. Cat.	Comments	Rec's (proposed works are highlighted)
T15	Fagus sylvatica (Beech)	M	600	25	6	8.5	8.5	8.5	8.5	Normal	Normal	40+	A2		N/A
T16	Betula pendula (Silver Birch)	M	400	14	5	2	8	8	2	Normal	Fair	20+	B2	Asymmetrical crown due to growth of nearby tree now removed.	N/A
T17	Fagus sylvatica (Beech)	M	600	25	6	8.5	8.5	8.5	8.5	Normal	Normal	40+	A2		N/A
T18	Quercus robur (Common Oak)	M	750	16	6	9	9	9	9	Normal	Normal	40+	A2		N/A
T19	Fagus sylvatica (Beech)	M	600	25	6	8.5	8.5	8.5	8.5	Normal	Normal	40+	A2		N/A
T20	Fagus sylvatica (Beech)	M	500	25	6	8.5	8.5	8.5	8.5	Normal	Normal	40+	A2		N/A
T21	Fagus sylvatica (Beech)	M	600	25	6	8.5	8.5	8.5	8.5	Normal	Normal	40+	A2		N/A
T22	Fagus sylvatica (Beech)	M	600	25	6	8.5	8.5	8.5	8.5	Normal	Normal	40+	A2		N/A
T23	Fagus sylvatica (Beech)	M	600	25	6	8.5	8.5	8.5	8.5	Normal	Normal	40+	A2		N/A
T24	Prunus cerasifera (Cherry Plum)	EM	300	5	3	3.5	3.5	3.5	3.5	Poor	Fair	<10	C2	Suppressed due to growth from nearby trees. Sparse.	N/A
T25	Fagus sylvatica (Beech)	M	600	25	6	8.5	8.5	8.5	8.5	Normal	Fair	40+	B2	Triple-stemmed. Cavity, dug by a badger, noted at base	N/A
T26	Acer campestre (Field Maple)	EM	400	10	6	4.5	4.5	4.5	4.5	Fair	Normal	40+	B2		N/A
T27	Acer campestre (Field Maple)	EM	300	10	6	3.5	3.5	3.5	3.5	Fair	Normal	40+	B2		N/A
T28	Acer campestre (Field Maple)	EM	200	10	6	3	3	3	3	Fair	Normal	40+	B2		N/A

Ref	Name	Age	DBH (mm)	Hgt. (m)	Can. hgt. (m)	Can N (m)	Can E (m)	Can S (m)	Can W (m)	Physio cond.	Struct cond.	Life Exp.	Ret. Cat.	Comments	Rec's (proposed works are highlighted)
T29	Acer campestre (Field Maple)	EM	300	10	6	3.5	3.5	3.5	3.5	Fair	Normal	40+	B2		N/A
T30	Prunus avium (Wild Cherry)	EM	275	12	5	3.5	3.5	3.5	3.5	Fair	Normal	40+	B2	Sparse.	N/A
T31	Ulmus glabra (Wych Elm)	EM	300	12	5	3.5	3.5	3.5	3.5	Fair	Normal	<10	C2	Limited safe useful life expectancy (SULE).	N/A
T32	Chamaecyparis lawsoniana (Lawson Cypress)	EM	300	10	3.5	2	2	2	2	Fair	Normal	40+	B2	Sparse.	N/A
T33	Acer pseudoplatanus (Sycamore)	EM	250	14	8	4	4	4	4	Normal	Normal	40+	A2		N/A
T34	Fraxinus excelsior (Ash)	EM	300	12	5	3.5	3.5	3.5	3.5	Fair	Normal	40+	B2	Likely to be lost to Ash die-back in the near future.	N/A
T35	Fraxinus excelsior (Ash)	EM	150	10	5	2	2	2	2	Fair	Normal	40+	C2	Likely to be lost to Ash die-back in the near future.	N/A
T36	Fraxinus excelsior (Ash)	EM	275	12	5	3.5	3.5	3.5	3.5	Fair	Normal	40+	B2	Likely to be lost to Ash die-back in the near future.	N/A
T37	Fagus sylvatica (Beech)	M	900	25	6	9.5	9.5	9.5	9.5	Normal	Normal	40+	A2		N/A
T38	Fagus sylvatica (Beech)	M	600	25	6	8.5	3.5	3.5	8.5	Normal	Normal	40+	A2	Suppressed due to growth from nearby trees.	N/A
T39	Fagus sylvatica (Beech)	M	750	25	6	8.5	3.5	3.5	8.5	Normal	Normal	40+	A2	Suppressed due to growth from nearby trees.	N/A
T40	Fraxinus excelsior (Ash)	M	650	25	6	4.5	4.5	9.5	9.5	Fair	Fair	20+	B2	Asymmetrical crown due to growth of nearby tree now removed. Twin-stemmed. Likely to be lost to Ash die-back in the near future.	N/A
T41	Chamaecyparis lawsoniana (Lawson Cypress)	EM	350	16	3	3	3	3	3	Normal	Normal	40+	B2		N/A

Ref	Name	Age	DBH (mm)	Hgt. (m)	Can. hgt. (m)	Can N (m)	Can E (m)	Can S (m)	Can W (m)	Physio cond.	Struct cond.	Life Exp.	Ret. Cat.	Comments	Rec's (proposed works are highlighted)
G42	Chamaecyparis lawsoniana (Lawson Cypress)	SM	100	8	3	1.5	1.5	1.5	1.5	Normal	Normal	40+	C2		N/A
T43	Chamaecyparis lawsoniana (Lawson Cypress)	EM	450	16	3	3	3	3	3	Normal	Normal	40+	B2		N/A
T44	Chamaecyparis lawsoniana (Lawson Cypress)	EM	450	16	3	3	3	3	3	Normal	Normal	40+	B2		N/A
T45	Malus (Apple)	SM	150	3	1.5	1.5	1.5	1.5	1.5	Normal	Normal	20+	C2		N/A
T46	Prunus cerasifera (Cherry Plum)	SM	150	3	1.5	1.5	1.5	1.5	1.5	Normal	Normal	20+	C2		N/A
T47	Malus (Apple)	M	500	8	4	1.5	3.5	3.5	1.5	Fair	Fair	20+	B2	Pruned (badly) in past. Suppressed due to growth from nearby trees.	N/A
T48	Prunus cerasifera 'Pissardii' (Purple-leafed Plum)	M	400	4	2.5	3.5	3.5	3.5	3.5	Fair	Fair	20+	C2	Ivy (heavy covering).	N/A
T49	Prunus cerasifera 'Pissardii' (Purple-leafed Plum)	M	400	4	2.5	3.5	3.5	3.5	3.5	Fair	Fair	20+	C2	Ivy (heavy covering).	N/A

Appendix 3 - Tree data schedule explanatory notes

This section explains the terms used in the **Tree data schedule** (Appendix 2).

Ref: Each item of vegetation has its own unique number, prefixed by a letter such that:

T1=Tree **S2**=Shrub or stump **G3**=Group **H4**=Hedge **W5**=Woodland

Species: Latin (and common names in brackets) are given.

Age:

- **Y - Young** - Usually less than 10 years' old
- **SM - Semi-mature** - Significant future growth to be expected, both in height and crown spread (typically below 30% of life expectancy)
- **EM - Early-mature** - Full height almost attained. Significant growth may be expected in terms of crown spread (typically 30-60% of life expectancy)
- **M - Mature** - Full height attained. Crown spread will increase but growth increments will be slight (typically 60% or more of life expectancy)
- **V - Veteran** - A level of maturity whereby significant management may be required to keep the tree in a safe condition
- **OM - Over-mature** - As for veteran except management is not considered worthwhile

DBH (mm): Stem diameter, measured in mm, taken at 1.5m above ground level where possible.

Hgt. (m): Height: Measured from ground level to the top of the crown in metres.

Can Hgt. (m): Crown height: Measured from ground level to the lowest tips of the main crown begins in metres. Where the crown is unbalanced it is measured on the side deemed to be most relevant. This is usually the side facing the area of anticipated development.

Can N, S, E, W: - Canopy extents

Approximate radial crown spread measured to the four cardinal points (for individual trees only)

Physio cond.: Indicates the physiological condition of the tree as one of the following categories:

- **Normal** - Healthy tree with no symptoms of significant disease
- **Fair** - Tree with early signs of disease, small defects, decreased life expectancy, or evidence of less-than-average vigour for the species
- **Poor** - Significant disease present, limited life expectancy, or with very low vigour for the species and evidence of physiological stress
- **Very poor** - Tree is in advanced stages of physiological failure and is dying
- **Dead** - No leaves or signs of life

Struct cond.: Indicates the structural condition of the tree as one of the following categories:

- **Normal** - No significant structural defects noted
- **Fair** - Some structural defects noted but remedial action not required at present
- **Poor** - Significant defects noted resulting in a tree that requires regular monitoring or remedial action
- **Very poor** - Major defects noted that compromise the safety of the tree. Remedial works or tree removal is likely to be required.
- **Dead** - No leaves or signs of life

Life Exp.: The estimated number of years before the tree may require removal (<10), (10 – 20), (20 – 40), or (40+).

Ret. Cat.: - **Retention category:** BS5837:2012 Category where:

- **U = Trees unsuitable for retention.** Trees in such a condition that cannot realistically be retained as living trees in the context of the current land use for longer than 10 years. These trees are shown on the tree plans with red centres.
- **A = Trees of high quality.** Trees of high quality with an estimated remaining life expectancy of at least 40 years. These trees are shown on the tree plans with green centres.
- **B = Trees of moderate quality.** Trees of moderate quality with an estimated remaining life expectancy of at least 20 years. These trees are shown on the tree plans with blue centres.
- **C = Trees of low quality.** Trees of low quality with an estimated remaining life expectancy of at least 10 years, or young trees with a stem diameter below 150mm. These trees are shown on the tree plans with grey centres.

Trees of notable quality are graded as Category A or Category B. These trees are sometimes divided further into sub-categories:

- Sub-category 1 is allocated where it has been assessed that the tree has mainly arboricultural qualities.
- Sub-category 2 is allocated where it is assessed that the tree has mainly landscape qualities.
- Subcategory 3 is allocated where it is assessed that the tree has mainly cultural qualities, including conservation.

Trees may be allocated more than one sub-category. All sub-categories carry equal weight, with for example an A3 tree being of the same importance and priority as an A1 tree.

Comments: Tree form and pruning history are also recorded along with an account of any significant defects.

Rec's - Recommendations: Usually based on any defects observed and intended to ensure that the tree is in an acceptable condition.

Appendix 4 – Specifications for tree protective measures

Protective fencing

The following is based on an extract from British Standard 5837:2012 - Trees in relation to design, demolition and construction– Recommendations.

The framework support (shown in Figure 2 and photo 1) is the usual method of support for ‘Heras’ fencing. Some variations are possible if site conditions are appropriate; i.e. support by wooden posts (75mm x 75mm x 2.75m) dug or concreted into the ground (dry mix concrete contained within a plastic bag), or if there is no pressure for access, a lighter form of netting on stakes.

Figure 2: Default specification for protective barrier (BS 5837:2012)

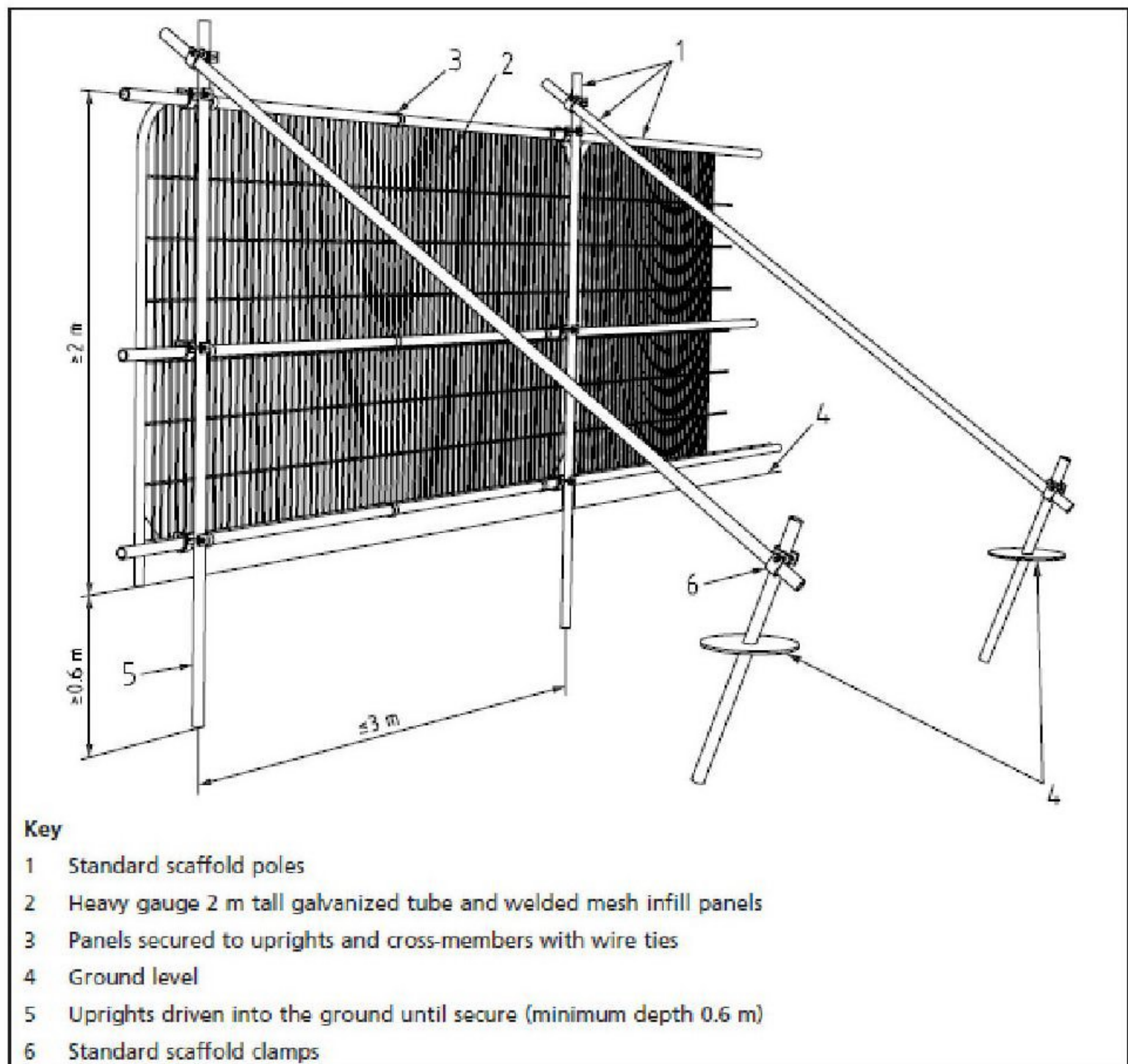


Photo 1: A worked example of the default specification for protective barrier (BS 837:2012)



Durable, all-weather signs are to be attached to the fencing (an example sign is provided below). These shall be printed, laminated and attached at regular intervals along the fencing.

Once erected, the protective fencing is to be regarded as sacrosanct and there is to be no access into the area protected by it - the construction exclusion zone (CEZ).

The protective fencing is to be maintained in good order, so it is fit for purpose throughout the construction process. The fencing will not be altered in any way, or prematurely removed without prior consent of the project arboriculturist and/or (if necessary) the LPA arboricultural officer.

Where specified in the AMS, the tree(s) stem/s shall be boxed off with wooden ply boards or wrapped in hessian and chestnut pale fencing. This will help avoid any direct damage to tree stems from passing machinery (see photo 2).

Photo 2: Trees protected by hessian & chestnut pale fencing / limbs protected by wooden boxing



TREE PROTECTION FENCING

KEEP OUT

This fencing must not be removed
or altered in any way without prior
consultation with the project
arboriculturist!

Please report any damage to trees
and/or fencing to the site manager
or the project arboriculturist

Trevor Heaps



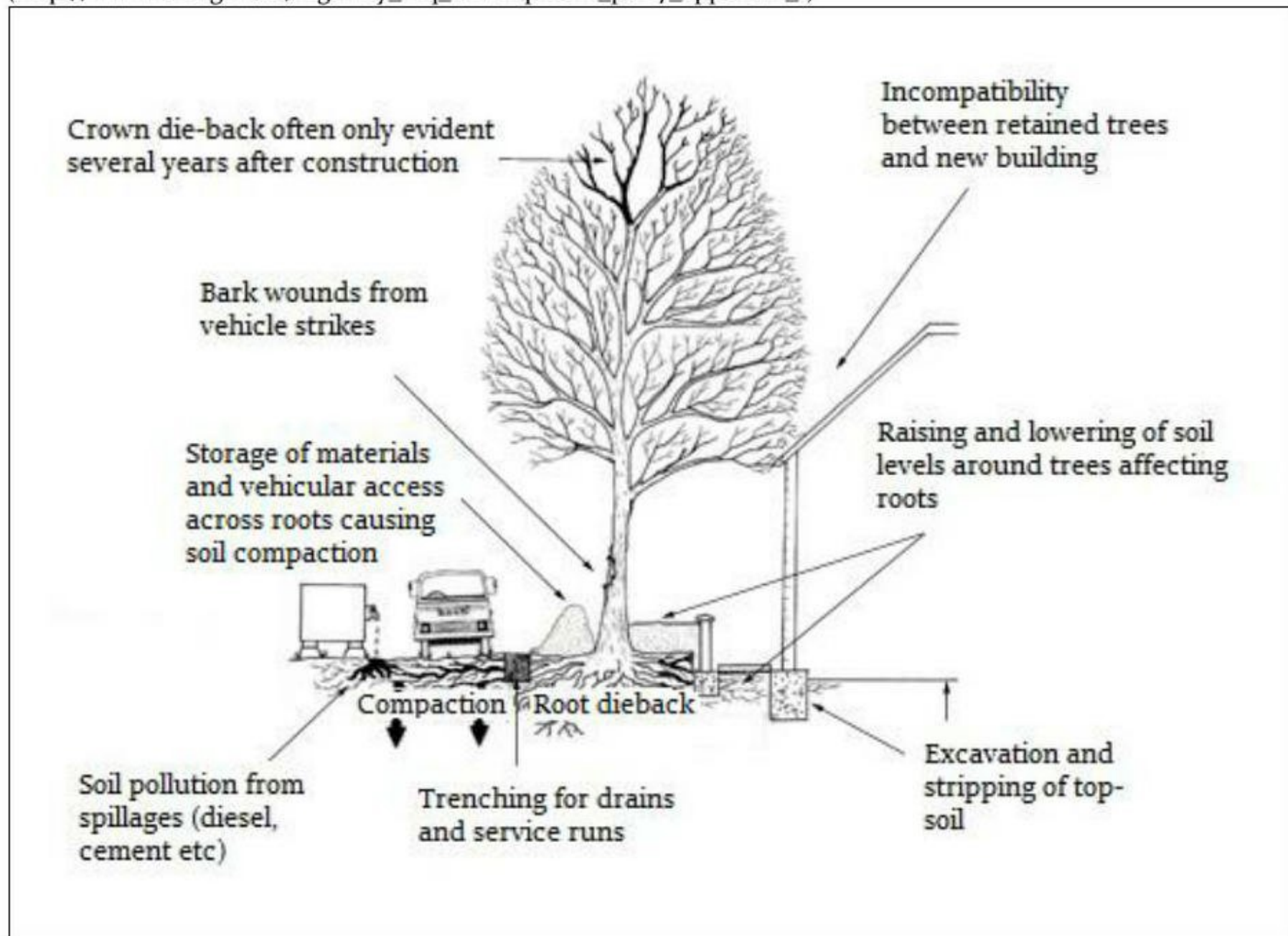
Soft landscaping within or close to the Root Protection Areas (RPAs) of retained trees

The following precautions are necessary to avoid damage to trees (where activities are to take place within their RPAs):

- Ground levels will not be changed;
- Soil must be of good quality and free of contaminants and other foreign objects potentially injurious to tree roots. The topsoil must satisfy the requirements of BS3882:200;
- No heavy machinery will be operated within the RPAs of retained trees during the installation of soft landscaping;
- Unwanted vegetation shall be removed manually or by using systemic herbicide that will not damage tree roots;
- No fuels or chemicals shall be used or stored within these areas; and
- No irrigation or drainage pipes shall be installed within the RPAs

Appendix 5 – General precautions and further information

Figure 4: Common problems for trees on development sites
(http://www.leics.gov.uk/highway_req_development_part7_appendix_f)



5.1 Services and drainage: Surface run-off water shall be sent to soakaways located outside the RPAs of retained tree(s). If trenching is required within the RPA of retained trees to provide routes for services, this work shall be undertaken using mole boring and / or hand digging (under arboricultural supervision).

5.2 Storage of materials: No materials or spoil are to be stored within areas protected by protective fencing and/or ground protection. The same applies for existing hard surfaces that are being used as ground protection.

5.3 Spillages: If any cement residues fall within root protection areas, it shall be swept up, bagged and removed from site – it shall not be washed away with water.

5.4 Demolition: Where any existing structures are to be demolished, they will be done so inwardly (away from root protection areas / retained soil).

5.5 Levels: There is to be no alteration of ground levels within the area protected by protective fencing and/or ground protection, unless previously specified and agreed upon. The same applies for existing hard surfaces that are being used as ground protection.

5.6 Fires: No fires are to be lit within 20 metres of the stems of retained trees.

5.7 Above ground damage to trees: Care must be taken in planning the location and operation of machinery to avoid above ground damage to trees. BS5837 (2012) Section 6.2.4.1 states *'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 contacting retained trees. Such contact can result in serious damage to 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 of trees is always maintained. Access facilitation pruning should be undertaken where necessary to maintain this clearance.'*

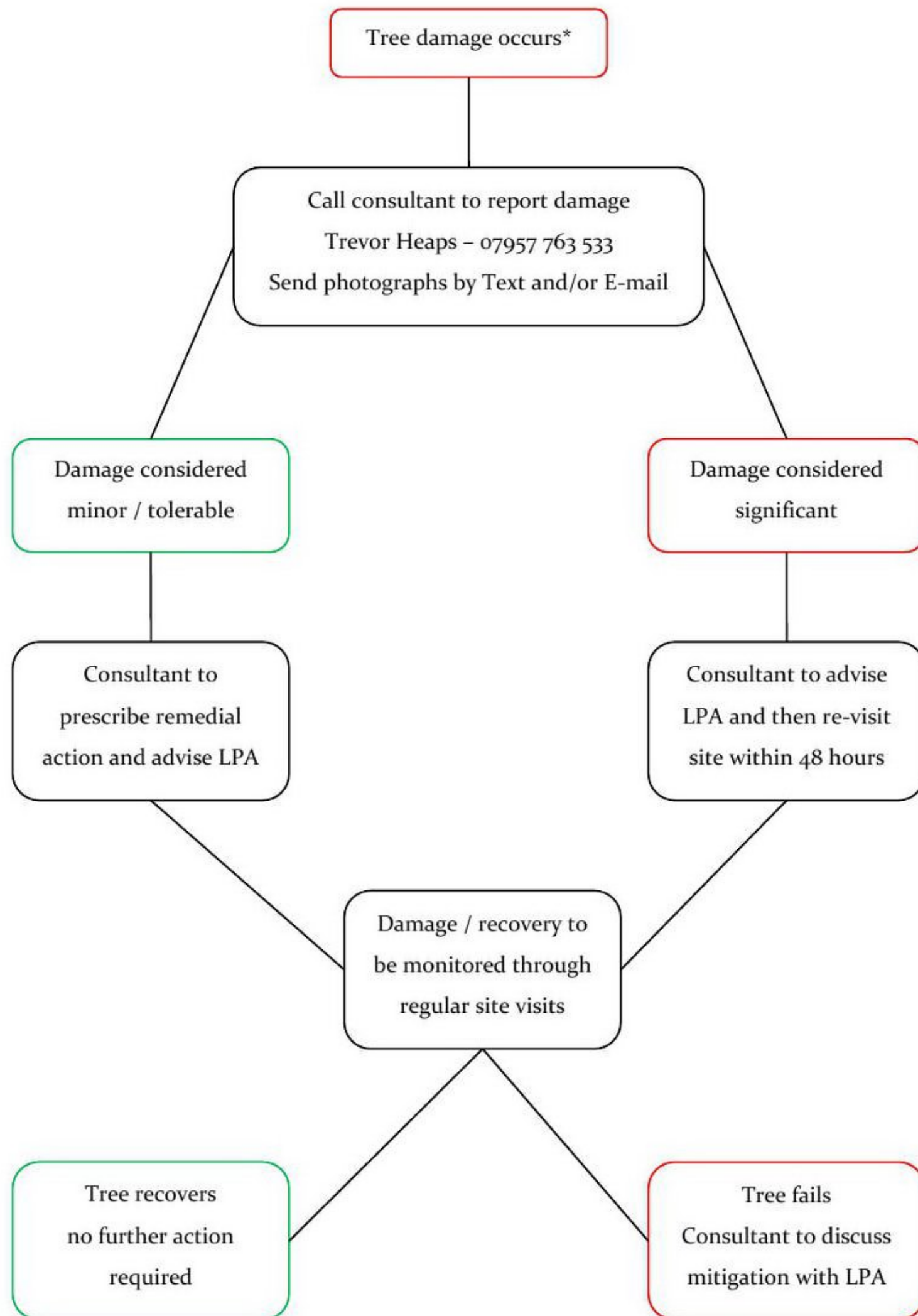
5.8 Remedial works and soil improvement: Exposed soils are easily compacted resulting in loss of water and gaseous exchange; this can lead to root death (and subsequently tree death).

5.8.1 To relieve ground compaction, which may have resulted from the use of vehicles or by the storage of materials, the soils should be broken up to allow air to penetrate and for the soil structure to be restored. There are various methods to achieve this, such as: auguring the soil by hand / fork or pneumatic excavation (e.g. with an air spade); both should be combined with soil structure improvements (see 5.8.2).

5.8.2 The soil structure can be improved by incorporating a compost or mulch within the topsoil, of 75-100mm in depth. This can be spread over the surface and gently forked into the soil. If bark chip is used as mulch, NPK fertilizer should be added to counteract the nitrogen depletion of the soil. There is also the option of adding mycorrhizal fungal which may also improve root function.

5.9 Choosing an arborist: When appointing a tree works contractor, please only use properly qualified and experienced companies who comply with current British Standards (3998) and always check that they carry Public Liability Insurance within a minimum of £2,000,000 cover, and the relevant Employers Liability Insurance. A list of contractors approved by the Arboricultural Association can be found at www.trees.org.uk or by calling 01242 522 152.

Appendix 6 - Procedure to follow in case of damage to retained trees



*Tree damage could include: unauthorised branch / root pruning; accidental damage to roots, stem, branches or crown; bark damage to vehicle / machinery strikes; and spillage of toxic materials within root protection areas (RPAs)

Appendix 7 - Induction form for all site personnel

Site name:

App. No.:

Appointed Site Supervisor:

- I have had explained to me by the Site Manager the key implications of the Arboricultural Method Statement relating to the development at the above site.
- I am aware that trees have shallow roots and any excavation works beneath the canopy could cause irreparable damage.
- I am aware that the tree protective fencing / ground protection must remain in its original position and must not be moved without the approval of the appointed Arboricultural Consultant.
- I understand that certain operations must be supervised by the appointed Arboricultural Consultant and that these must not start until the consultant is present and has given approval.
- I confirm that I will bring any concerns about potential damage to trees to the attention of the Site Manager.
- I am aware that I must not cause damage to any of the retained trees on or adjacent to the site. Damage may be caused by direct means (i.e. physical damage caused to roots or the trunk/branches of the tree) or by indirect means (e.g. by fire or toxic materials entering the rooting environment of the tree).

Print Name:

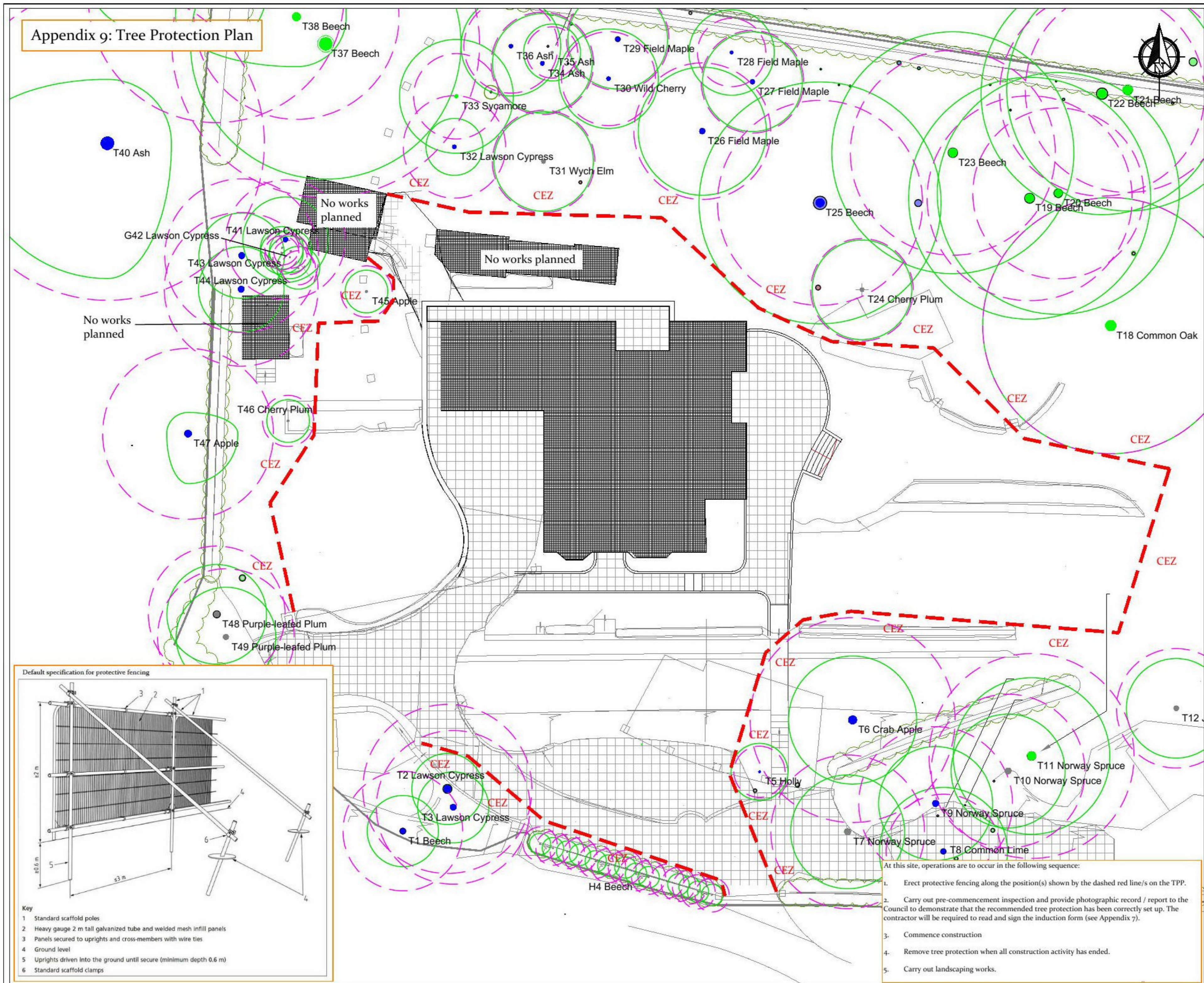
Sign Name:

Date:

Appendix 8 - Site inspection record

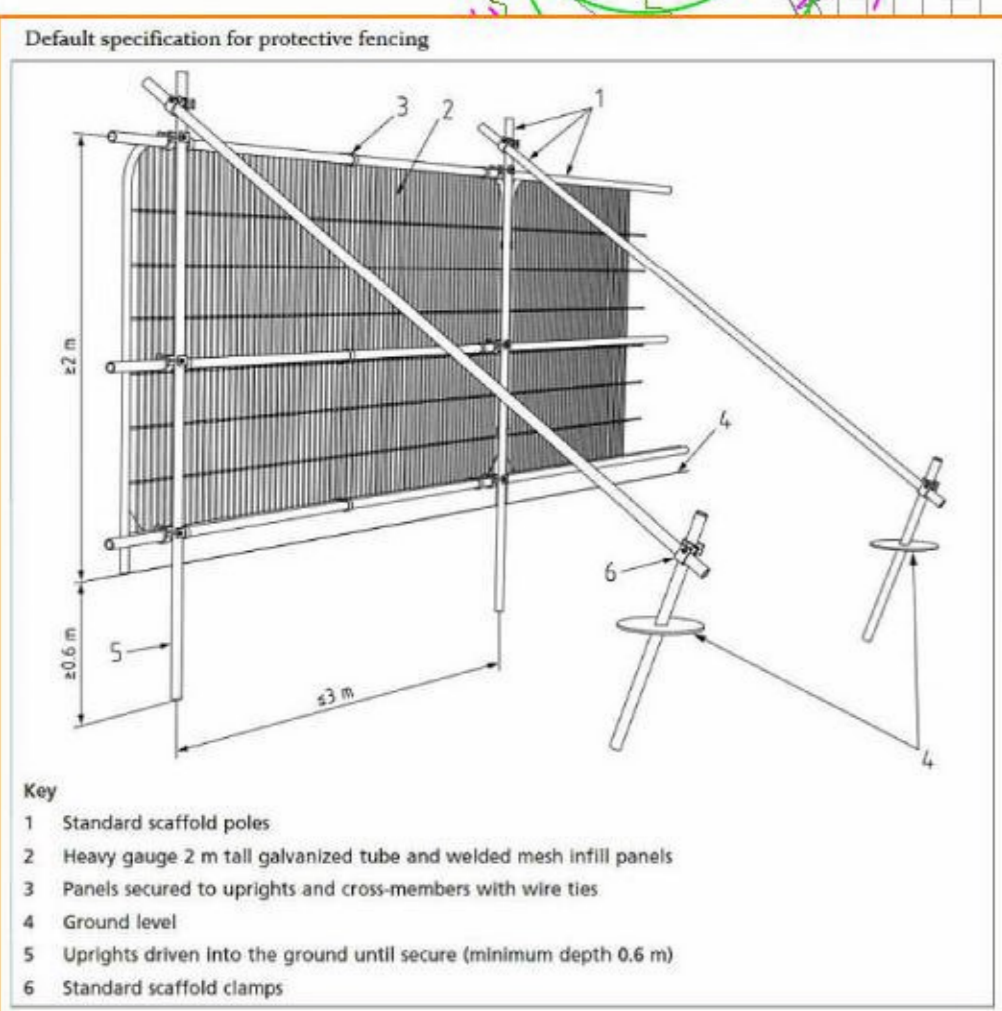
Date:	Time:	Planning reference:	
Site:			
Those present in addition to project arboriculturist:			
Client / Agent:			
Project / Site manager:			
LPA arboricultural officer:			
Other (specify):			
	Yes	No	Notes
Tree protection measures located in accordance with TPP?			
Any disturbance within construction exclusion zone?			
Any materials stored within construction exclusion zone?			
Any evidence of damage to tree roots, stems or canopies?			
Any works programmed before next planned site visit that may affect retained trees? (if yes, provide details below)			
Additional site visit required to ensure compliance with required action? (Y / N)			
Proposed visit date:			
Signed:		Date:	

Appendix 9: Tree Protection Plan



Plan Legend

- Tree/s to be retained
- Tree/s to be removed
- Centre colours
 - Category A Tree
 - Category B Tree
 - Category C Tree
 - Category U Tree
- Root Protection Area (RPA)
If amended, the original is a dotted blue circle
- Protective fencing
- Construction & storage exclusion zone
- Existing surfacing to remain unchanged



- At this site, operations are to occur in the following sequence:
1. Erect protective fencing along the position(s) shown by the dashed red line/s on the TPP.
 2. Carry out pre-commencement inspection and provide photographic record / report to the Council to demonstrate that the recommended tree protection has been correctly set up. The contractor will be required to read and sign the induction form (see Appendix 7).
 3. Commence construction
 4. Remove tree protection when all construction activity has ended.
 5. Carry out landscaping works.

Scale: 1:250 @ A3

Site Address: Homewood, Farm Lane Loudwater, WD3 4XJ

Client: Mr Balvinder Nagi
 Drawing No: TH/A3/3077/TPP

Job Ref: TH 3077 | Date: 22/09/2021

Trevor Heaps
 Arboricultural Consultancy Ltd



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