ARBORICULTURAL IMPACT ASSESSMENT
AT LAND OFF PRINCE CHARLES CLOSE, DERSINGHAM

Prepared for Tom Suiter Construction

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TREE SURVEYS

Executive Summary

This assessment outlines the tree constraints that affect the construction two new dwellings on the site and demonstrates how the retained trees can be protected throughout the development process.

Five of the trees on site will need to be removed for development purposes. These losses will be mitigated by replacement planting.

All the retained trees will be provided with proper protection as set out in BS5837:2012 during the construction phase. Protection measures will include erecting temporary protective fencing and temporary ground protection as appropriate.

This assessment forms an important stage in the process of managing and protecting the trees on site in relation to the proposed development. However, it will only ensure the protection of the trees on site if the tree protection measures in the Arboricultural Method Statement are implemented in full and the prescribed system of arboricultural supervision is followed. Tree protection works must be fully integrated into the construction process.

From an Arboricultural standpoint the proposed development will involve a loss of trees along the eastern boundary. However, the remedial planting has been selected to offer valuable visual amenity to future residents and habitats for local wildlife.

A.T. Coombes
AT Coombes Associates Ltd.
29 June 2021

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1. Terms of Reference

1.1 The aim of this assessment is to survey trees that may be affected by the construction of two new dwellings.

1.2 The assessment addresses the likely impact of the proposed development on surrounding trees and provides recommendations for the protection of retained trees during construction work based on BS 5837:2012 "Trees in relation to design, demolition and construction - Recommendations".

1.3 The client has provided a topographical survey showing the accurate position of all trees and features on site. Also provided was the proposed layout for the development. These plans have been used to form the basis of the Tree Constraints Plan (TCP, Appendix 3) and Tree Protection Plan (TPP, Appendix 4).

1.4 This assessment is an update of the previous Arboricultural Impact Assessment, completed in May 2019, and has been produced following a revision to the design.

1.5 A tree in the neighbours garden from the original report (T15) has since been removed in the interim and will therefore be omitted from this report. The site was not resurveyed for this report.

2. Site Description

2.1 The site is accessed by a field gate off the end of Prince Charles Close. The site contains a variety of trees which are largely grouped along the eastern boundary as shown in figure 1. The central part of the site is grass covered and at the northern end has no trees as shown in figure 2. The adjoining large garden to the west contains some trees within influencing distance of the site (Figs 3 and 4).

Fig 1: Trees on along the eastern boundary of the site.

Fig 2: The site looking to north towards the access point.

2.2 The site slopes gently down to a small stream on the southern boundary shown in figure 5. The stream is edged with an alder, two willow and a Holly tree.

Fig 3: Trees in the neighbouring garden including a very large, recently pollarded, willow near the boundary

Fig 4: A topped hedge of western red cedar in the neighbour's garden

2.3 The large garden to the west contains a number of trees within influencing distance of the site (Figs 3 and 4) in particular a very large willow recently pollarded.

Fig 5: Trees on along the southern boundary of the site.

Fig 6: The site looking south from the entrance.

3. Tree Survey Details

3.1 Appendix 1, the Tree Survey Schedule gives the survey findings in tabular form. The schedule contains all the information specified in section 4.4.2.5 of the British Standard. Appendix 2 gives a full explanation of the survey headings.

3.2 The trees were surveyed on 11 February 2019; they were not climbed, but surveyed from ground level.

3.3 The details recorded during the tree survey have been collected independently of any development proposals, and the categorisation of the quality and amenity value of the trees is made purely on arboricultural grounds.

3.4 No assessment of the soil has taken place as part of this report. The British Standard states that a soil assessment should be carried out by a competent person to establish the structure, clay content and

potential for volume change of the soil. A survey of this nature is considered outside the scope of this Arboricultural Assessment. For guidance on soil structure in relation to construction advice should be sought from a Structural Engineer. Guidance on foundation depth in relation to building and trees can be found in NHBC Chapter 4.2.

4. Assessment of Tree Constraints

4.1 To facilitate the proper assessment of tree constraints a Tree Constraints Plan (TCP) has been prepared and forms Appendix 3. The plan has been produced as a basis for the assessment of the constraints imposed by existing trees on the proposed design.

4.2 Appendix 3 shows the position of trees marked by a coloured dot matching the retention category status and a reference number (as listed in Appendix 1). Heights (Ht) are marked in metres for each tree, together with the predicted ultimate heights (U/Hgt).

4.3 The plan deals with constraints that the trees may place on the development in two areas as follows:

Below ground Constraints

4.4 The Root Protection Areas (RPA) for the trees are shown as a coloured circle to match the retention category colour. The RPA will be used to help inform the closest positions of any future buildings. The RPA will be protected during any development work with temporary barriers as prescribed by the British Standard.

Above Ground Constraints

4.5 The branch spreads were measured at the four cardinal compass points, with a shape drawn around these points to indicate approximate branch spread, represented by green broken lines on the plan. The ultimate crown spread has been shown with an orange dashed line. This is a predicted distance, and is based on personal experience of how far it is likely the crown will grow.

4.6 A shade pattern has been shown for each tree forming an arc from north west to due east. This gives an indication of the patterns of shadows created by the trees around mid-day in the summer. This is as recommended in BS5837:2012 (Section 5.2.2) but actual shade patterns throughout the year will vary widely. If shading is likely to be a serious constraint a more detailed analysis of shade pattern using proprietary software may be deemed necessary.

5. Arboricultural Impact Assessment

5.1 A total of fifteen individual trees and one tree group were included in this report. Groups contain trees forming continuous features or clusters with similar characteristics were present.

5.2 The trees are largely confined to the periphery of the site. In some cases they are under separate ownership.

5.3 Seven individual trees have been classed as Category B. These trees are generally in good condition and confer landscape values. They should be retained where possible in the context of a development.

5.4 Eight individual trees and one group have been classified as Category C. These trees are small or in poorer condition and do not play such a significant role in the local landscape. C category trees are usually of such a quality that the Local Authority may consider it acceptable for them to be removed for development purposes, if required.

5.5 Any trees that are retained will be provided with their proper protection according to BS5837:2012 regardless of which category they have been placed in.

5.6 The constraints posed by the trees have been shown on Appendix 3 – TCP. Appropriate protection must be provided to each retained tree, regardless of its category, in order to prevent damage during any construction related activity.

5.7 Any trees that are retained will be provided with their proper protection according to BS5837:2012 regardless of which category they have been placed in.

5.8 The tree constraints for each element of the development, are considered separately below:

Element	**Detail**
Plot 1	There are no constraints associated with this aspect of the development.
Plot 2	The proposed garage for plot 2 encroaches into the RPA of one B category tree (T11) and two C category trees (T10 and T12) which will all need to be removed for development purposes and replaced elsewhere on site, as set out in Section 6. The proposed dwelling for plot 2 will experience shading cast by the B category lime (T9). However, the shading will be minimal, so this is not considered to be a significant constraint.
Access Drive	The proposed access drive encroaches into the RPA of one B category field maple (T13) and one C category tree (T14) which will all need to be removed for development purposes and replaced elsewhere on site, as set out in Section 6.
Services and Soakaways	No new service runs should be routed to avoid the RPAs of trees. If this is not possible, special techniques must be employed to place the services within the RPA of the trees. The British Standard suggests a range of trenchless methods suitable for various applications including microtunnelling, surface launched directional drilling, Pipe ramming and Impact Moleing/thrust boring. It is important common ducts should be used where it is not possible to avoid the RPA. Further guidance on installing underground services adjacent to trees can be found in the NJUG Guidelines for the Planning, Installation and Maintenance of Utility Apparatus in Proximity to Trees (Volume 4 Issue 2). This document outlines a number of techniques that may be used for trenching near

Element	Detail
Services and Soakaways Cont.	trees, including trenchless techniques, discontinuous trenching and hand digging. It will be necessary to prepare detailed plans for these services that should be produced in conjunction with an arboriculturist and include allowance for the space needed for access for the installations, and the levels across the proposed area. Any over ground services including CCTV must also be positioned to avoid the need for any regular or detrimental pruning to the trees.

6. Tree Management and Replanting Proposals

6.1 No Preliminary tree work has been specified in column 12 of Appendix 1 for arboricultural and health and safety reasons. This schedule does not refer to, and will be superseded by, any requirements for tree felling for development purposes that may be required.

6.2 Please note that the inspection of trees on site was of a preliminary nature, gathering, as set out in the British Standard, only information needed to assess tree constraints. While any obvious tree defects that may constitute a risk have been recorded in the survey and appropriate remedial work specified this assessment does not constitute a full tree health and safety survey. In particular inaccessible trees, trees with heavy Ivy cover and trees within groups have not been inspected fully and dimensions estimated. However, any comments on the trees relating to health and safety remain valid for 12 months from the date of this report after which the trees will require re-inspection.

6.3 Five trees will be removed for development purposes including two B category trees (T11 and T13) and three C category trees (T10, T12 and T14).

6.4 In order to mitigate the loss of the above trees five new heavy standard rootballed or containerised trees 12 cm to 14 cm stem girth) will be planted. The species, selected to be in keeping with the development, will be as follows:

2 Sweet Gum Lane Roberts - *Liquidambar styraciflua 'Lane Roberts'*
2 Flowering Crab *Apple 'Royalty'*
1 Handkerchief tree *Davidia involucrata*

6.5 The trees will be securely pit planted in holes which are excavated to a diameter 75 mm larger than the rootball of the tree, planted at a depth no deeper than the height of the root ball / root collar and back filled with soil excavated from the tree pit. Each tree will supported with a treated softwood stake inserted at a 45 degree angle to the ground, avoiding the rootball. Adjustable rubber ties will secure the trees to the stakes. Spiral guards (60cm x 38mm) will be wrapped around the lower stem to prevent mammal damage. Mulch will be placed around each tree at depth of 50-100mm and at a diameter of 1m to reduce weed growth.

6.6 The trees will be maintained for a 5-year period. Work will include keeping a circular area with a 0.5m radius centred on the stem of the trees free from weed growth using either herbicide or mulch,

checking supports and guards and replacing any failures during the period with trees of the same species and quality.

7. Further Arboricultural Input into the Design Process, Construction and Aftercare

7.1 A Tree Protection Plan (TPP), Arboricultural Method Statement (AMS) and Timetable for implementation of Tree Protection Works form Appendices 4, 5 and 6 respectively.

7.2 The AMS contains a timetable for implementation of the tree protection works. No work will commence until the protective fencing is in place.

7.3 If the proposed layout of the development changes it will be necessary to revise this report.

8. Permissions and Constraints

8.1 It must be ascertained whether there are any Tree Preservation Orders on any trees within the site. If there are, written permission must be obtained from the Local Authority prior to commencing any work that may affect the condition of the protected trees. If the site is within a Local Authority Conservation Area the Local Planning Authority must be given 6 weeks' notice of any works on the trees.

8.2 To assist the planning process the LPA should be provided with a copy of this report and invited to comment on the proposals.

8.3 When dealing with developments close to trees, special attention should be paid to related legislation ensuring that the Wildlife and Countryside Act (1994), Conservation of Habitats and Species Regulations (2010) and the Countryside Rights of Way Act (2000) are adhered to. It must be ensured that nesting birds and protected species such as bats and reptiles are considered and protected.

9. Conclusions

9.1 Two B category (T11 and T13) and three C category trees (T10, T12 and T14 and will be removed for development purposes and replaced with new heavy standard trees.

9.2 All other trees on or adjacent to the site will be retained and protected according to BS5837: 2012 throughout the works.

9.3 Temporary ground protection will be required to allow sufficient access for construction in close proximity to T9.

9.4 From an arboricultural standpoint the revised design will have less impact on the trees on site and the proposed new planting will help to restore any lost tree cover and provide seasonal interest and visual amenity

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29 June 2021

APPENDIX 1-
TREE SURVEY SCHEDULE

SITE: Prince Charles Close Dersingham

SURVEY COMPLETED 11/02/2019:

1	2	3	4	5	6				7	8	9	10	11	12	13	14	15	16
Tree No.	**Species**	**Ht (m)**	**Stem dia (mm)**	**No of Stems**	**Branch Spread**				**Height and Direction of First Branch (m)**	**Mean Canopy Ht**	**Life Stage**	**Physiological Condition**	**Structural Condition**	**Preliminary Tree work**	**Estimated remaining contribution (Yrs)**	**Cat grading**	**Radius of RPA (m)**	**RPA (sq m)**
					N	**E**	**S**	**W**										
T1	Apple	5.3	178	2	3.6	4.3	2.6	1.5	n/a	2.0	EM	Good	Moderate - Forked	None	>10	C1	2.1	14.3
T2	Hawthorn	7.6	194	2	3.2	3.0	2.6	1.5	n/a	1.8	EM	Good	Moderate - Forked	None	>10	C2	2.3	17.1
T3	Hawthorn	5.0	138	1	2.7	3.0	2.0	1.7	n/a	1.8	EM	Good	Moderate - Leaning	None	>10	C2	1.7	8.6
T4	Alder	16.1	336	1	3.1	2.8	4.2	3.7	n/a	3.0	M	Fair - Crown slightly thin	Moderate - Topped and re-grown at 12 m	None	>20	B1	4.0	51.1
T5	Willow	11.8	350	2	2.9	2.8	4.4	3.8	3 s	3.5	EM	Good	Good	None	>20	B2	4.2	55.4
T6	Willow	12.8	414	2	3.5	3.2	2.5	3.4	2 n	4.0	EM	Good	Good	None	>20	B2	5.0	77.5
T7	Holly	9.4	150	2	3.0	3.0	3.0	3.0	n/a	0.0	SM	Good	Good	None	>10	C1	1.8	10.2
T8	Holly	9.8	205	3	1.7	2.2	2.4	2.1	n/a	1	SM	Good	Good	None	>10	C1	2.5	19.0
T9	Lime	17.8	575	1	4.0	4.0	4.0	5.5	4 w	3	M	Good		None	>20	B2	6.9	149.6
T10	Silver birch	12.3	330	1	3	2.5	1.7	1.7	4 s	8	EM	Fair - supressed by adjoining Trees	Moderate shallow crown some snags	None	>10	C2	4.0	49.3
T11	Turkey Oak	19.8	740	1	5.6	6.0	6.4	8.1	4 s	6	M	Good	Good	None	>20	B2	8.9	247.8
T12	Field Maple	10.7	275	1	3	1.9	3.5	6.9	n/a	3	EM	Good		None	>10	C2	3.3	34.2
T13	Field Maple	13.4	355	1	3.8	3.2	2.4	8.1	n/a	4	EM	Good		None	>20	B2	4.3	57.0
T14	Field Maple	9.8	312	1	4	3.5	3	6.1	n/a	3.5	EM	Good		None	>10	C2	3.7	44.0
T16	Cherry #	12.6	500	1	4	4.0	4	4	n/a	3.5	EM	Good	Good	None	> 20	B1	6.0	113.1
G1	Western Red Cedar #	7.0	450	1	4	4	4	4	n/a	2	EM	Good -Row of 10 trees forming an overgrown hedge all topped at 7 m	Good	None	>10	C2	5.4	91.6

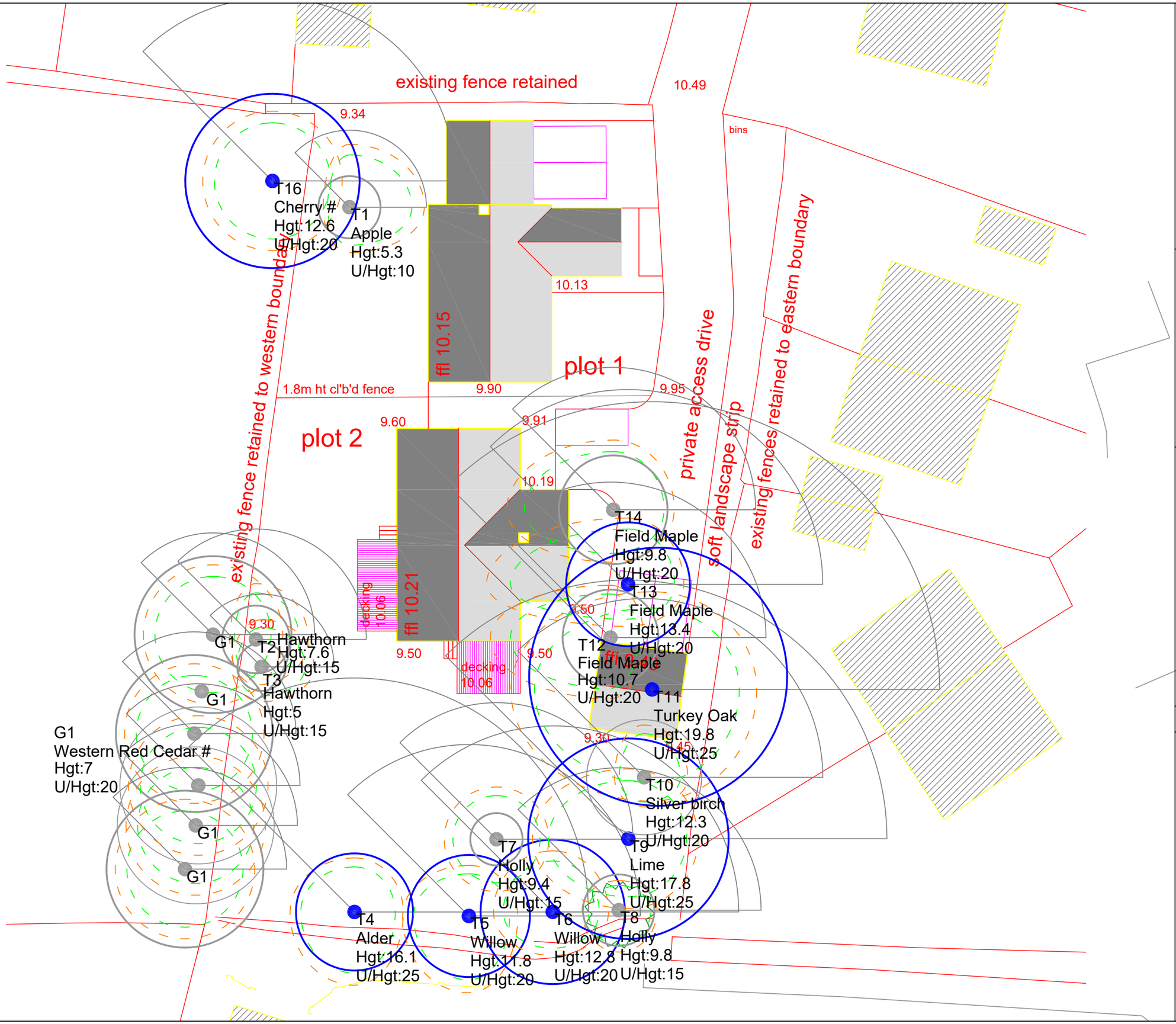
SURVEYED BY Andrew Coombes of A.T. COOMBES ASSOCIATES LTD
# denotes estimated dimensions due to lack of access to tree

Appendix 2: Notes on the Column Headings in Appendix 1

Col#	Title	Notes
1	Tree No.	Tree numbers to correspond with those shown on the TCP.
2	Species	Each tree has been identified and the common name given in each case.
3	Ht (m)	Height of the tree
4	Stem dia (mm)	The stem diameter measured in millimetres at 1.5 metres above ground. For multi-stemmed trees the stem diameter has been calculated according to the formula given in BS 5837:2012. For trees with up to 5 stems, each stem has been measured at 1.5m, squared and added together. The diameter shown is the square root of the total. For multi-stemmed trees with over 5 stems a sample of five diameters has been taken at 1.5m, averaged and squared, then multiplied by the total number of stems. The square root of this sum gives the stem diameter figure.
5	Number of Stems	Total number of stems on the tree.
6	Branch Spread	The branch spread measured in metres from the stem to the tip of the outer branches has been measured in four directions of the compass North, South, East and West.
7	Height and Direction of First Branch spread (m)	First significant branch and direction of growth (relative to the four cardinal compass points).
8	Canopy Ht	Mean height of the canopy above ground level.
9	Life Stage	The life stage of the tree has been assessed into one of the following categories: Y =Young, SM = Semi Mature, EM = Early Mature M = Mature, OM = Over mature and V = Veteran.
10 and 11	Condition	The British Standard recommends that a note is made of the structural and physical condition of the tree.

Col#	Title	Notes
12	Preliminary Management Recommendations	This column includes all work considered necessary to, as far as is practicable, ensure health and safety and for the good arboricultural management of the trees. These works are not associated with the development proposals. All work to be carried out to BS 3998: 2010 "Tree Work-Recommendations". Recommendations given in respect of Health and Safety remain current for 12 months from the date of this assessment after which further inspection is recommended. It should be noted that trees are dynamic structures subject to the forces of nature, which can fail without showing external symptoms.
13	Estimated remaining Contribution (Yrs)	The estimated remaining contribution of each tree in years has been assessed, using personal experience, into the following groupings: < 10 = Less than 10 years 10+ years = More than 10 years 20+ years = More than 20 40+ years = More than 40 years
14	Category grading	U = Those in such a condition that any existing value would be lost within 10 years and which should in the current context, be removed for reasons of sound arboricultural management. (Trees that have serious, irremediable structural defects, such that their early loss is expected due to collapse or ill health including trees that will become at risk due to the loss of other U category trees). **A** = Those trees of high amenity quality and value in such a condition as to be able to make a substantial contribution (a minimum of 40 years is suggested) 1) Trees that are particularly good examples of their species if rare unusual or essential components of groups or formal or semi-formal arboricultural features 2) Trees, groups or woodlands which provide a definite screening or softening effect to the locality in relation to views in or out of the site, or those of particular visual importance. 3) Trees groups or woodlands of significant conservation, historical, commemorative or other value (e.g. veteran tree or wood pasture)

Col#	Title	Notes
14 cont	Category grading cont	**B** = Those of Moderate quality and amenity value: those in such a condition as to a significant contribution (a minimum of 20 years is suggested) 1) Trees that might be included in the high category but are downgraded because of impaired condition (e.g. remediable defects) 2) Trees and woodland that forming distinct landscape features but do not form essential components 3) Trees with clearly identifiable conservation or other cultural benefits. **C** = Those of low quality and amenity value currently in adequate condition to remain until new planting is established (minimum of 10 years is suggested) or trees under 150 mm stem diameter. 1) Tree not qualifying in higher categories 2) Trees present in groups or woodlands but not with a significantly higher landscape value and or offering low or temporary screening benefit. 3) Trees with very limited conservation or other cultural benefits. Note: Category C trees are the least suitable for retention, where they would impose a significant constraint on the development their removal for development purposes may be considered acceptable by the LPA. Trees with a stem diameter under 150mm could be considered for relocation.
15	Radius of RPA (m)	The distance that would form the radius of a circular protection zone is given in metres calculated by multiplying the stem diameter given in column 4 by 12. The methods for calculating the stem diameter of multi-stemmed trees is given in section 4 above.
16	RPA (m^2)	The area of the RPA is given in square metres calculated by the following formula: Single Stemmed Trees; $$RPA\ m^2 = \left(\frac{(stem\ diameter\ mm\ @\ 1.5m \times 12)}{1000}\right)^2 \times 3.142$$ The methods for arriving at the stem diameter for multiple stemmed trees are described above in the notes for column 4.



Drawing Title:

Appendix 3 - Tree Constraints Plan

Site:

Land Off Prince Charles Close, Dersingham

Client:

Tom Suiter Construction

NORTH

To Scale 1:250 at A3

KEY

B Category RPA

C Category RPA

Current Crown Spreads

Ultimate Branch Spreads

Shade Patterns

Drawn By: ATC	Date:23/05/2019

TREE SURVEYS

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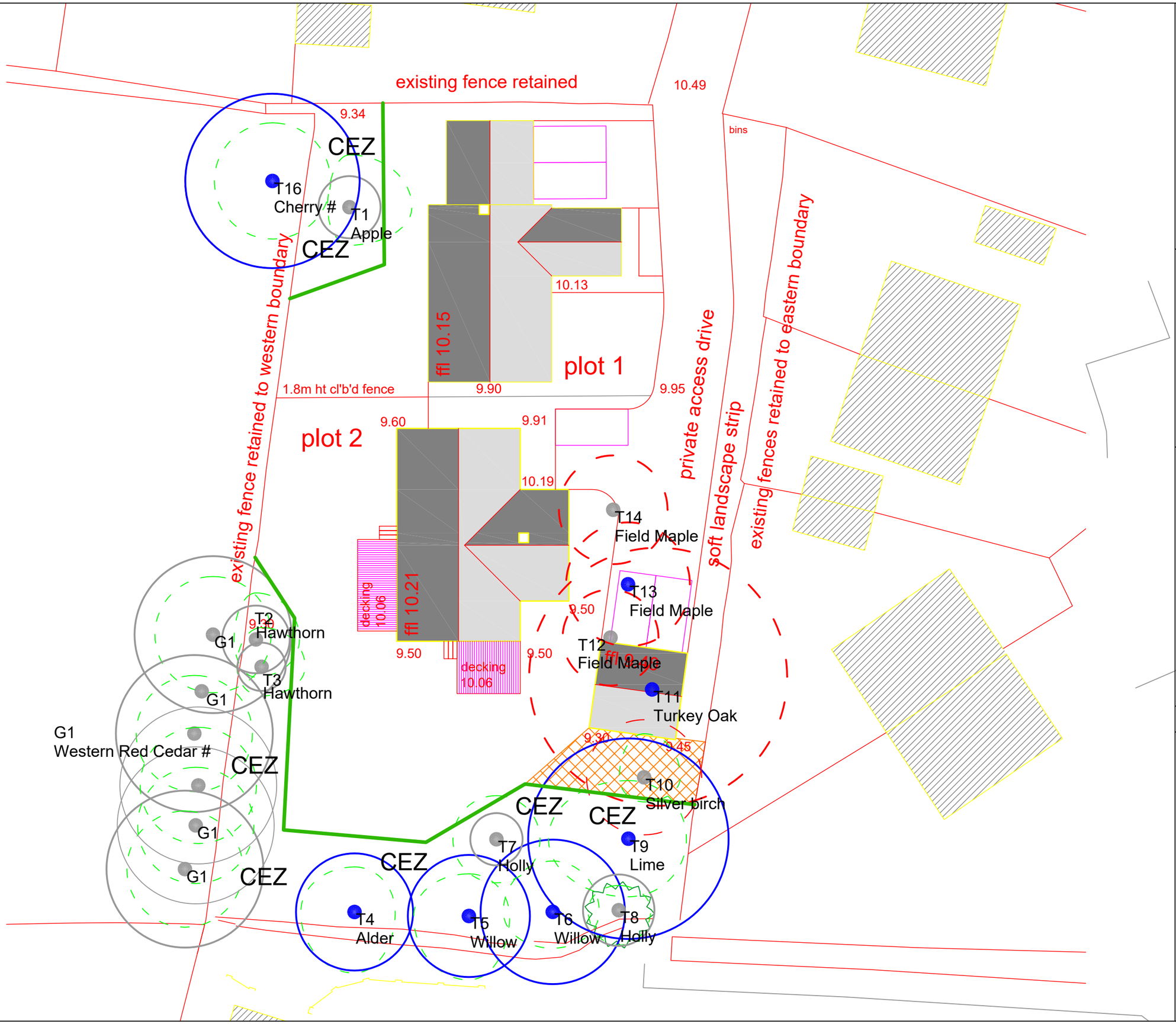

Drawing Title:

Appendix 4 - Tree Protection Plan

Site:

Land Off Prince Charles Close, Dersingham

Client:

Tom Suiter Construction

NORTH

To Scale 1:250 at A3

KEY

- A Category RPA
- B Category RPA
- C Category RPA
- Trees For Removal
- Current Crown Spreads
- Line of Protective Tree Barriers
- Temporary Ground Protection
- Construction Exclusion Zone CEZ

Drawn By: RG	Date: 29/06/2021

TREE SURVEYS

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Appendix 5: Arboricultural Method Statement for a Proposed Development at Land Off Prince Charles Close, Dersingham

1. Scope of the Works

1.1 The document provides a methodology for protection of trees during construction of two new dwellings at the above site and should be read in conjunction with the Tree Protection Plan Appendix 4 and Timetable for Protection Works Appendix 6.

1.2 The main features in the protection of the retained trees on site are as follows:

- Provision of temporary protective barriers
- Provision of temporary ground protection
- Audited arboricultural site monitoring

1.3 A meeting between the site manager/main contractor and a consulting arboriculturist must take place prior to construction work commencing so that the above protection measures set out in this document can be discussed and agreed. At this point a list of contact details for all relevant parties will be produced and circulated including the Tree Officer of the Local Planning Authority.

1.4 Protective measures must be in place prior to any ground or construction works take place.

2. Timing of Works

2.1 Tree protection works will be completed as detailed below according to the attached timetable Appendix 6.

2.2 The exact commencement date is not known. However, the timetable provided gives the order that the works need to be implemented to ensure the trees are fully protected and states when specific arboricultural input will be required.

3. Tree Protection Barriers

3.1 Remaining trees will be protected by forming Construction Exclusion Zones (CEZ) as shown on Appendix 4 the Tree Protection Plan (TPP).

3.2 Temporary barriers will be erected as shown by the thick green lines on the TPP to form the Construction Exclusion Zone (CEZ). The barriers will consist of 2m tall, welded mesh panels (Heras) supported on rubber or concrete feet. The fence panels should be joined together using a minimum of two anti-tamper couplers installed so they can be removed from the inside of the fence. The distance between couplers should be at least 1m and be uniform throughout the fence.

3.3 Panels should be supported on the inner side by stabilizer struts which should normally be attached to a base plate and secured with ground pins. Where the fence will be erected on hard surfacing, or it is otherwise unfeasible to use ground pins the struts should be mounted on a block tray.

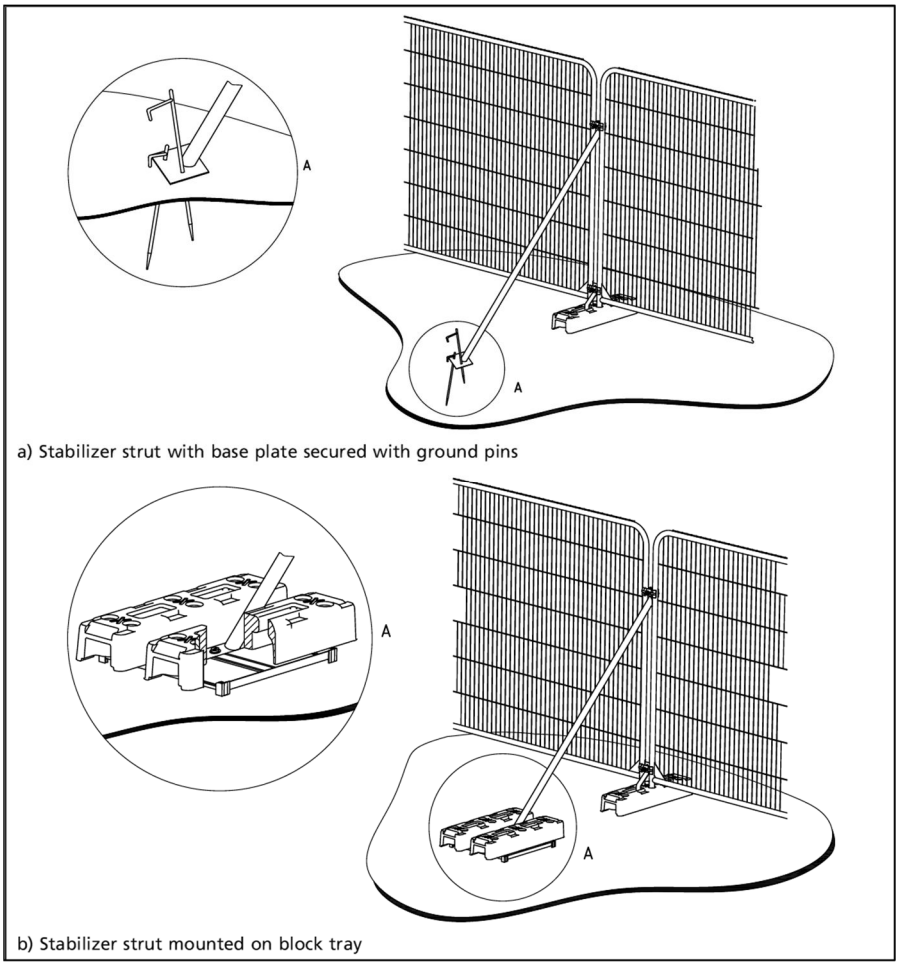

Fig 1: Temporary protective fencing as recommended by the British Standards (2012).

3.4 Figure 1 is an extract from BS5837:2012 showing the method of supporting the panels with ground pins and a block mounted tray for use on hard surfaces. Stabiliser struts should be fitted at each panel junction.

3.5 At least twelve all-weather notices should be erected on the barriers forming each CEZ stating "Construction Exclusion Zone – No Access ". These should face outwards towards the work area. Signs must be maintained in good condition and remain in place until completion of the works.

3.6 Barriers will be maintained throughout the duration of the works, ensuring that access is denied to the CEZ throughout the process.

4. Temporary Ground Protection

4.1 Temporary ground protection will be required as shown on the TPP with orange crosshatching. The ground protection should be constructed as follows depending on the type of traffic that will use it:

- Pedestrian traffic only – a single thickness of scaffold boards on top of a driven scaffold frame to form a suspended walkway, or on top of a compression resistant layer (100mm woodchip) laid on top of a geotextile membrane.
- Light plant up to a gross weight of 2t, proprietary ground protection boards linked to one another on top of a compression resistant layer (150mm woodchip) laid on a geotextile membrane.
- Plant exceeding gross weight of 2t, a specification devised by an engineer will be designed in conjunction with the arboricultural consultant to support the loading that the ground will be subjected to.

4.2 Compaction of the soil can occur from a single pass of a heavy vehicle, especially in wet conditions, and therefore the ground protection must be put in place before any access is allowed.

5. Site Huts and Temporary Buildings

5.1 All site huts and temporary buildings will be sited outside the CEZ.

6. Additional Precautions

6.1 The movement of plant in proximity to retained trees should be conducted under the supervision of a banksman to ensure adequate clearance from the branches of the trees. Hydraulic cranes, forklifts, excavators or piling rigs (other than small rigs used for mini piling) must be avoided in the immediate vicinity the crown of the trees.

6.2 Cement, oil, bitumen or any other products which spillage would be likely to be detrimental to tree growth should be stored well away from the outer edge of the RPA of retained trees. Precautions should include ensuring all toxic liquids are stored in fully bunded containers. Equipment such as barriers or sandbags must be available on site to deal with any accidental spillages that may occur.

6.3 Lighting of fires on site should be avoided. Where they are unavoidable, they must be at such a distance from retained trees that there is no risk of the heat causing fire damage to the trunk or branches. Full account must be taken of wind direction. Fires must be attended at all times until they are completely extinguished.

7. Service Trenches

7.1 No details of new service runs have been provided at this stage. They should be routed to avoid the RPAs of trees. If this is not possible, special techniques must be employed to place the services within the RPA of the trees. The British Standard suggests a range of trenchless methods suitable for various applications including microtunnelling, surface launched directional drilling, Pipe ramming and Impact Moleing/thrust boring. It is important common ducts should be used where it is not possible to avoid the RPA. Further guidance on installing underground services adjacent to trees can be found in the NJUG Guidelines for the Planning, Installation and Maintenance of Utility Apparatus in Proximity to Trees (Volume 4 Issue 2). This document outlines a number of techniques that may be

used for trenching near trees, including trenchless techniques, discontinuous trenching and hand digging.

7.2 It will be necessary to prepare detailed plans for these services that should be produced in conjunction with an arboriculturist and include allowance for the space needed for access for the installations, and the levels across the proposed area.

7.3 Any overground services including CCTV must also be positioned to avoid the need for any regular or detrimental pruning to the trees.

8. Arboricultural Supervision and Aftercare

8.1 Arboricultural/site monitoring will be carried out throughout the construction phase by a nominated arborist who will be responsible for consultation with the Local Authority's Tree Officer.

8.2 The arborist will complete regular site visits to check that the tree protection measures are being carried out. The frequency of the visits will be dictated by the level of activity and degree to which the tree protection measures are being respected. A note of the date of each visit and a summary of the findings will be forwarded to both the Tree Officer and the Main Contractor to provide an audit trail enabling the proper implementation of the tree protection measures to be checked and verified.

8.3 There are two key stages where on-site arboricultural advice will be needed.

- Prior to commencement, to review the contents of the AMS, and deal with any queries the main contractor may have.
- To confirm that the protective fencing and ground protection is in place.

8.4 On completion of the works the trees will be inspected by the arborist to check the condition of the trees and advise if any remedial work is necessary.

A.T. Coombes Associates Ltd
29 June 2021

Appendix 6: Timetable for Tree Protection Works at Land Off Prince Charles Way, Dersingham

Item	Operation *	Before Commencing Construction Works	During Construction Works	On Completion
1.	Carry out a pre-commencement site meeting to discuss any tree protection matters arising.	X		
2.	Carry out any tree felling as set out in the AIA.	X		
3.	Erect temporary protective fencing (thick green line) on edge of the CEZ as specified in the AMS and TPP and put temporary ground protection in place (Orange Hatching).	X		
4.	Erect warning signs on fencing around each CEZ stating “Construction Exclusion Zone - Keep Out”.	X		
5.	Maintain Protective fences and signs in good condition.		X	
6.	Arboricultural supervision and advice including site visits during the course of the works to check the CEZ and liaison with the Local Authority.	X	X	X
7.	Remove protective fencing.			X
8.	Check condition of the protected trees and consider if remedial works are necessary.			X
9.	Plant replacement trees.			X
	** All work to comply with the attached Arboricultural Method Statement and BS5837: 2012 Trees in relation to design, demolition and construction - Recommendations"*			