

# ARBORICULTURAL IMPACT ASSESSMENT

Ref: 15484

# REGARDING PROPOSED DEVELOPMENT WITHIN THE CURTILAGE OF LAND ADJACENT TO CHECKETTS, OLD CHURCH ROAD, COLWALL WR13 6ET

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Tree Constraints Plan

## 1 Summary

- 1.1 The purpose of this report is to provide an assessment of the arboricultural impacts that arise from the proposed development of land adjacent to Checketts, Old Church Road, Colwall.
- 1.2 All trees that could be affected by the proposals have been considered in accordance with the guidance detailed in BS5837: 2012 "Trees in relation to design, demolition and construction – Recommendations".
- 1.3 The likely arboricultural impacts of the proposals are as follows:

Impact	TreesLevel ofAffectedImpace		Proposed Mitigation	Residual Impact
Trees felled	H3, T4, T5, H8 & T9	Low	New plantings	Very low
Removal of structures / hard surfaces within RPA	None	N/a N/a		N/a
Building within RPA	T1 Moderate		Trial excavations	Low
Hard surfaces within RPA	None	N/a	N/a	N/a
Proximity of structures to retained trees	T1	Very low	Minor crown reduction	Negligible

Table 1: Summary of potential impacts

## 2 Introduction

#### 2.1 Instructions

2.1.1 I have prepared this Arboricultural Impact Assessment on the instructions of Mr G Walker, in order to discharge part of Condition 7 of Herefordshire Council planning permission reference P193186/O.

#### 2.2 Terms of Reference

- 2.2.1 The outline permission provides for: *erection of 1 no. residential dwelling*.
- 2.2.2 The purpose of this document is to provide the Local Planning Authority sufficient information to assess the likely impacts the proposed scheme will have upon the tree stock present and the effect of this on the character of the local area. It assesses how trees may be impacted by the construction of the proposals as well as how they may be affected by the change in use of the site. It also identifies any mitigation measures necessary to minimise the significance of these impacts as well as factors that will need to be considered when protecting retained trees.

#### 2.3 Documents Provided

- 2.31 I have been provided with and referred to the following information in the production of this document:
  - Current site layout: Site plan
  - Proposed site layout: Overlay site plan

- 2.4.1 Section 3 of this document summarises the findings of the tree survey and provides a brief description of the site and any relevant statutory designations known to be in place along with relevant local planning policy.
- 2.4.2 Section 4 provides a summary of the constraints trees pose to development in general terms and forms the basis of the criteria against which the impacts identified in Section 5 are assessed. Sections 6 and 7 provide conclusions and recommendations respectively while Section 8 identifies those matters that will need to be addressed within an Arboricultural Method Statement.
- 2.4.3 Full details of the surveyed trees are provided within Appendix 1 with any works recommended in the interests of good arboricultural management listed in Appendix 2. These are separate from those works detailed in Appendix 3 which contains works necessary to implement the scheme and which form part of the planning application.
- 2.4.4 Appendix 4 contains the Tree Constraints Plan which details tree locations, reference numbers species, category of retention, canopy extent and Root Protection Areas. These details are transposed onto the proposals to form the Indicative Tree Protection Plan in Appendix 5. This plan also details any tree removals necessary along with protective measures for retained trees.

#### 2.5 Report Limitations

- 2.5.1 The survey of the trees is of a preliminary nature only and does not assess the degree of risk they may pose.
- 2.5.2 The trees were surveyed on the basis of the Visual Tree Assessment (VTA) method as developed by Mattheck and Breloer (1994) and were surveyed from ground level only with no climbing inspections undertaken. It is not always possible to access every tree and as such some measurements may have to be estimated. Where this has been necessary, it will be highlighted in Appendix 1.
- 2.5.3 Trees are living organisms whose health and condition can change rapidly; the health, condition and safety of trees should be checked on a regular basis, preferably at least once a year. The conclusions and recommendations in this report are based upon the assumption that the trees will be inspected on an annual basis in the future and therefore are only valid for a period of one year.
- 2.5.4 This period of validity may be reduced in the case of a change of conditions to or in proximity to the tree. Such changes may include but are not limited to: changes in ground level, tree works, extreme weather events or hydrological changes.
- 2.5.5 Assessment as to whether protected species such as birds, bats, bees or badgers may be affected by any tree works recommended herein has not been made. Specialist ecological advice should be obtained before carrying out any tree works with the potential to affect protected species.

## 3 Findings



Photograph 1: Application site looking towards Old Church Road, note made up ground to right

#### 3.1 Site Visit

3.1.1 I visited the site on the 7<sup>th</sup> of September 2020 recording relevant qualitative data in order to assess the condition of the trees present and any constraints they may pose to development in accordance with BS5837: 2012.

#### 3.2 The Site

3.2.1 The site formerly comprised part of the garden of Checketts, which stands to the immediate west of the application site. It is generally level but the area in along the eastern boundary has previously been made up by approximately 500mm with elements of hard landscaping visible.

#### 3.3 Surveyed Trees

- 3.3.1 A total of 7 individual trees and 2 hedgerows were surveyed, of the trees, 1 is of moderate quality (B category) and 6 are of low quality. while the hedgerows were surveyed for the sake of completeness, they do not constitute a planning constraint and as such have not been categorised for quality.
- 3.3.2 A full schedule of tree condition is included within this document at Appendix 1 with works recommended in the interests of good arboricultural management at Appendix 2. It will be noted that these works are considered necessary regardless of the development considered herein proceeding.

#### <u>3.4 Statutory Tree Protection</u>

3.4.1 Information available on Hereford Council's administrative map indicates that the common ash T1 is subject to a Tree Preservation Order and that the site lies within a Conservation Area, both of which designations will affect the trees referred to herein: a criminal offence to prune, damage or fell such trees without permission from the local authority.

#### 3.5 Planning Context

- 3.5.1 Relevant local planning policy comprises Policies LD1 and LD3 of the Herefordshire Local Plan Core Strategy.
- 3.5.2 On the 23<sup>rd</sup> of March 2020, Herefordshire Council granted outline planning consent for the erection of 1 dwelling on the application site which included a number of planning conditions. The condition this document seeks to discharge part of is listed below:

7 With the exception of site clearance and groundworks, no further development shall commence until details of both hard and soft landscape works have been submitted to and approved in writing by the local planning authority. These details shall include:

**a)** A statement setting out the design objectives and how these will be delivered.

**b)** A plan showing existing and proposed finished levels or contours.

c) A drawing detailing hard surfacing materials

d) Boundary treatments and means of enclosure.

e) Vehicle parking layouts

f) Trees and hedgerow to be removed.

**g)** Trees and hedgerow to be retained, setting out measures for their protection during construction, in accordance with BS5837:2012.

**h)** All proposed planting, accompanied by a written specification setting out species, size, quantity, density and cultivation details.

**i)** An implementation programme – setting out phasing of work where appropriate.

**Reason:** To safeguard and enhance the character and amenity of the area in order to conform with policies SS6, LD1 and LD3 of the Herefordshire Local Plan – Core Strategy and the National Planning Policy Framework.

## 4 General Tree Constraints

- 4.1 The constraints trees can pose to development can be broadly grouped as being above or below ground. Above ground constraints primarily consist of the current and ultimate height and spread of the trees with species characteristics such as susceptibility to honeydew drip, branch drop *etcetera* also forming a consideration.
- 4.2 Beyond the physical constraints to development the above ground parts of trees pose, consideration must also be given to the future relationship between the occupiers of the developed site and retained trees. Trees retained in close proximity to buildings can cause concern over the level of shade they cast or their safety. Against this must be measured the benefits that trees provide to both the occupiers of the site and society / the environment more widely. Assessment of the likelihood of post-development conflict developing is therefore not straightforward and the significance of any conflict must be viewed in the light of the value of the tree in question.
- 4.3 Below ground constraints comprise the Root Protection Area (RPA) around each retained tree. BS5837: 2012 defines a tree's RPA as a "layout design tool indicating the minimum area around a tree deemed to contain sufficient roots and rooting volume to maintain the tree's viability, and where the protection of the roots and soil structure is treated as a priority". Paragraph 4.6.2 of the Standard states that this is calculated as an area equivalent to a circle with a radius 12 times the stem diameter. It must be remembered that the circular RPA put forward in the British Standard is a notional, arbitrary representation of the minimum area to be protected rather than an accurate representation of where the roots are likely to be found.

- 4.4 Paragraph 4.6.2 of the British Standard goes on to state that where preexisting site conditions or other factors indicate that rooting is likely to have occurred asymmetrically, a polygon of equivalent area shall be produced that reflects a soundly based arboricultural assessment of the likely root distribution.
- 4.5 It should not be assumed that construction activities within RPAs will be permitted, the default position of BS5837: 2012 is that structures should be located outside the RPAs of trees to be retained. Whilst the Standard also recognises that overriding design reasons may justify construction within RPAs, this is dependent upon the use of technical solutions such as low-invasive foundations that may not be appropriate to every site.
- 4.6 The quality of the tree in question will also have a bearing on the significance of the constraint it poses. Ordinarily, only moderate quality (category B) and above trees will pose a constraint to development although the removal of significant numbers of low quality (category C) trees may pose a constraint in certain circumstances.

## 5 Arboricultural Impacts of Proposals

#### 5.1 Direct Impacts

- 5.1.1 The principal impact of the proposals comprises the removal of T4, T5 and T9 as well as H3 and H8. The loss of the low-quality trees is assessed as being of low impact to both the site and wider Conservation Area and can readily be mitigated through replacement planting. The loss of the hedgerows is not considered an impact in planning terms with their replacement postdevelopment likely in fact to provide betterment when the new plantings have established.
- 5.1.2 The proposed garage encroaches within the RPA of T1 by an amount too small to measure accurately. This is assessed as being likely to be of negligible impact to the tree with no constructional variation required.
- 5.1.3 Removal of the built-up ground between the new dwelling and T1 is also proposed in order to rationalize site levels. On plan, this comprises a potentially significant amount of the RPA of the tree. In order to determine the impact to the tree in practice it will be necessary to manually excavate a series of trial trenches to assess the level of root colonisation within the made-up ground. It is recommended that the first trench be located at the line of excavation closest to the tree. If significant rooting is found in this trench, it will be necessary to excavate a trench further away from the tree and so on until a relatively root-free section (as agreed by Herefordshire Council's Arboricultural Officer) can be located.

- 5.1.4 BS5837: 2012 establishes at Paragraph 5.3.1 that RPA encroachments may be necessary with the proviso that in such cases, the project arboriculturalist should a) demonstrate that the tree(s) can remain viable and that the area lost to development can be compensated for elsewhere, contiguous with its RPA and b) propose a series of mitigation measures to improve the soil environment that is used by the tree for growth.
- 5.1.3 Tree viability is most likely to be threatened by root loss resulting in a compromised ability to uptake primarily water but also nutrients. There is relatively little published science on the effect of root loss on established trees, a deficit exacerbated by the need to consider the loss of parts of a tree's RPA rather than its entire root system. However, Benson *et al.* (2019) found significant differences in trunk diameter increases only when all roots beyond 3x stem diameter were severed, significant differences in shoot extension growth only when all roots beyond 9x stem diameter were severed and significant differences in leaf area index only when all roots beyond 3x stem diameter were severed.
- 5.1.4 In more general terms, Coder *et al.* (2006) assert that a healthy tree can tolerate the loss of 30-50% of its root system. This is supported by the work of Pretzsch *et al.* (2016) who found that mature trees who lost up to 40% of their roots were able to recover within three years.
- 5.1.5 On the basis that, following the trial excavations detailed above, the RPA encroachments necessary in these proposals represent only a fraction of the root loss referenced to in the studies above, it can be demonstrated that the affected tree(s) can remain viable. Compensatory areas equivalent to those lost to development are shown on the Indicative Tree Protection Plan in Appendix 4. Measures to improve the soil environment that is used by the tree for growth are provided at Section 5.4 below.

#### 5.2 Indirect Impacts

5.2.1 The juxtaposition of T1 to the new dwelling means that it (and its rear garden) will be subject to some minor levels of shading during the first part of the day. The minor level and duration of this shading means that this is not likely to result in post-development conflict. Notwithstanding this, any nuisance from T1 can be readily mitigated by cutting back the northern part of its canopy by approximately 2m which will also return some symmetry to the crown.

## 5.3 Infrastructure Requirements

5.3.1 The installation of services within the rooting zones of trees can have a large detrimental impact on the long-term survival of retained trees leading to their unnecessary loss or root failure in high winds. It should not be assumed that it will be possible to install services within a retained tree's RPA.

## 5.4 Mitigation Measures

5.4.1 The rooting environment of T1 within the application site will be improved through the addition of biochar to its RPA. This should be undertaken following the level alterations detailed in paragraph 5.1.3.

## 6 Conclusions

- 6.1 9 trees and hedges were assessed as having the potential to be affected by the proposals. Of these 5 are to be felled and 1 has their RPA encroached
- 6.2 The trees and hedges to be felled are of low individual or collective value and their loss will not affect the character of the local area over the longterm, provided replacement plantings are included as part of a landscaping scheme.
- 6.3 The low level of RPA encroachment(s) mean that the affected tree(s) will remain viable with equivalent compensatory areas provided. Mitigation measures to improve the soil environment that is used by the tree for growth have been specified.
- 6.4 The protective measures detailed on the Indicative Tree Protection Plan in Appendix 5 will need to be installed to ensure that impacts to retained trees do not exceed those identified herein.
- 6.5 On the basis that the mitigation methods specified within this document are adhered to and that retained trees are adequately protected through development, the arboricultural impacts of the scheme are considered low. The proposals therefore comply with Policies SS6, LD1 and LD3 of the Herefordshire Local Plan – Core Strategy and the National Planning Policy Framework.

## 7 Recommendations

- 7.1 The recommendations provided in Appendix 2 do not form part of the current application and any planning permission granted for the proposals considered herein does not constitute consent for these works should the relevant trees be protected as per Section 3.3 of this report. Regardless of the proceeding of the proposed development, the site owner / manager has a legal duty to prevent foreseeable injury / damage from tree hazards.
- 7.2 Recommendations for works required to facilitate development are found in Appendix 2. Any tree removals recommended within this report should only be carried out with Local Authority consent.
- 7.3 Retained trees will need to be protected by the mitigation methods detailed in Sections 5.4 and 8. This is likely to require the production of an Arboricultural Method Statement to formalise these arrangements.

## 8 Arboricultural Method Statement Heads of Terms

- 8.1 Any trees which are in close proximity to the proposed development should be protected with a Tree Protection Barrier (TPB) in the location shown on the Plan in Appendix 5. Protective barrier fencing should be installed immediately following the completion of the tree works, remaining in situ for the entire duration of the development unless otherwise agreed in writing by the Council. It should be appropriate for the intensity and proximity of the development, usually comprising steel, mesh panels 2.4m in height ('Heras') and should be mounted on a scaffolding frame (shown in Fig 2 of BS5837:2012). The position of the TPB can be shown on plan as part of the discharge of conditions, once the layout is agreed with the planning authority. The TPB should be erected prior to commencement of works, remain in its original form on-site for the duration of works and be removed only upon full completion of works.
- 8.2 A TPB may no longer be required during soft landscaping work but a full arboricultural assessment must be performed prior to the undertaking of any excavations within the RPA of a tree. This will inform a decision about the requirement of protection measures. It is important that all TPBs have permanent, weatherproof notices denying access to the RPA.
- 8.3 The use of heavy plant machinery for building demolition, removal of imported materials and grading of surfaces should take place in one operation. The necessary machinery should be located above the existing grade level and work away from any retained trees. This will ensure that any spoil is removed from the RPAs. It is vital that the original soil level is not lowered as this is likely to cause damage to the shallow root systems.
- 8.4 Any pruning works must be in accordance with British Standard 3998:2010 Tree work [BS3998].

- 8.5 If the RPA of a tree is encroached by underground service routes then BS5837:2012 and NJUG VOLUME 4 provisions should be employed. If it is deemed necessary, further arboricultural advice must be sought.
- 8.6 Numerous site activities are potentially damaging to trees e.g. parking, material storage, the use of plant machinery and all other sources of soil compaction. In operating plant, particular care is required to ensure that the operational arcs of excavation and lifting machinery, including their loads, do not physically damage trees when in use.
- 8.7 To enable the successful integration of the proposal with the retained trees, the following points will need to be taken into account:
  - 1) Plan of underground services.
  - 2) Schedule of tree protection measures, including the management of harmful substances.
  - 3) Method statements for constructional variations regarding tree proximity (e.g. foundations, surfacing and scaffolding).
  - 4) Site logistics plan to include storage, plant parking/stationing and materials handling.
  - 5) Tree works: felling, required pruning and new planting. All works must be carried out by a competent arborist in accordance with BS3998.
  - 6) Site supervision: the Site Agent must be nominated to be responsible for all day-to-day arboricultural matters on site. This person must:
    - be present on site for the majority of the time;
    - be aware of the arboricultural responsibilities;
    - have the authority to stop work causing, or may cause harm to any tree;

 ensure all site operatives are aware of their responsibilities to the trees on site and the consequences of a failure to observe these responsibilities; arrange with the retained arboricultural consultant an initial prestart briefing to inspect tree protection measures and agree a schedule of monitoring thereof on an initial monthly basis to be reviewed over the duration of works.

■ give advance notice (ideally 2 weeks) to retained arboricultural consultant to arrange for supervision of any excavation (especially for services and foundations) within RPA

 make immediate contact with the local authority and/or a retained arboricultural consultant in the event of any tree related problems occurring.

- 8.8 These points can be resolved and approved through consultation with the planning authority via their Arboricultural Officer.
- 8.9 The sequence of works should be as follows:

i) initial tree works: felling, stump grinding and pruning for working clearances;

- ii) installation of TPB;
- iii) installation of underground services;
- iv) main construction;
- v) removal of TPB;
- vi) soft landscaping.

#### 9 References

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Pretzch, H., Bauerle, T., Haberle, K.H., Matyssek, R., Schutze, G., Rotzer, T. (2016). Tree diameter growth after root trenching in a mature mixed stand of Norway spruce (Picea abies [L.] Karst) and European beech (Fagus sylvatica [L.]). *Trees.* 30: 1761-1773

# Appendix 1 – Schedule of Tree Condition and Retention Category

<u>Scientific Names</u>	
Apple	: Malus sp
Ash, Common	: Fraxinus excelsior
Elm, English	: Ulmus procera
Harlequin Gloryblower	: Clerodendrum trichotomum
Holly, Common	: Ilex aquifolium
Maple, Japanese	: Acer palmatum
Snowberry	: Symphoricarpos albus

Key:				
Age Class:	S-M – Semi-mature	<b>FM</b> – Farly mature	M – Mature	$\mathbf{OM} = \mathbf{Over}$ mature
I - Toung	<b>B-M</b> Benn-mature		<b>W</b> Wature	<b>OM</b> Over mature
Growth Vitalit Good – no signi Fair – symptom Poor – significa	<b>y</b> ificant health problems is of ill health that can be int ill health	eremediated		
Structural Con Good – no signi Fair – significar Poor – Significa	<b>ndition</b> ificant defects nt defects that can be ren ant defects no remedy	nediated.		
Category of re U – Unsuitable f A - High quality B - Moderate qu C - Low quality	<b>tention</b> : for retention regardless o value ality value value	of development		
<ol> <li>1 – Mainly arbox</li> <li>2 – Mainly lands</li> <li>3 – Mainly culture</li> </ol>	ricultural qualities scape qualities ıral values, including con	servation		
<b>RS</b> = Remote Su	rvey Only			

Tree ref.	Species	Ht (m)	Crown spread NESW (m)	Ht of lowest branch (m)	Trunk dia. @ 1.5m (mm)	RPA radius (m)	Age Class	Growth Vitality	Structural Condition	Observations	Category of Retention
1	Common ash	16	8555	1.5	750	9.0	М	Fair	Fair	Low pollard. Weak union between stems to west with significant adaptive rib growth visible. Full inspection of base not possible. Minor deadwood but no sign of Ash Dieback Disease at present. Previously crown lifted	B2
2	Holly	5	1111	3	95	1.1	SM	Fair	Fair		C2
Н3	Privet	1.5	1111	0						Not a planning constraint	-
4	Japanese maple	4	2222	0.5	2 x 75	1.3	М	Fair	Fair		C2
5	Harlequin gloryblower	3	3331	1	85	1.0	М	Fair	Fair		C2
6	English elm	10	2222	2	100	1.2	EM	Poor	Fair	90% dead	U
7	English elm	10	2222	2	100	1.2	EM	Poor	Fair	90% dead	U

Tree ref.	Species	Ht (m)	Crown spread NESW (m)	Ht of lowest branch (m)	Trunk dia. @ 1.5m (mm)	RPA radius (m)	Age Class	Growth Vitality	Structural Condition	Observations	Category of Retention
Н8	Snowberry	1	1111	0						Not a planning constraint	-
9	Apple	5	3332	1	200	2.4	М	Fair / poor	Fair	Dying back with low leaf area	C2

## Appendix 2 – Husbandry Recommendations

Tree ref on plan	Species	Category of retention	Observations	Recommended Husbandry Works	Priority
T1	Common ash	B2	Low pollard. Weak union between stems to west with significant adaptive rib growth visible. Full inspection of base not possible. Minor deadwood but no sign of Ash Dieback Disease at present. Previously crown lifted	Monitor weak union	Ongoing
Т6	English elm	U	90% dead	Fell	Within 6 months
T7	English elm	U	90% dead	Fell	Within 6 months

## Appendix 3 – Tree Works to Facilitate Development

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Tree ref on plan	Species	Category of retention	Observations	Recommended Works to Facilitate Development
T1	Common ash	B2	Low pollard. Weak union between stems to west with significant adaptive rib growth visible. Full inspection of base not possible. Minor deadwood but no sign of Ash Dieback Disease at present. Previously crown lifted	Cut back northern canopy by approximately 2m
H3	Privet	-	Not a planning constraint	Remove and replace
T4	Japanese maple	C2		Fell
Т5	Harlequin gloryblower	C2		Fell
Н8	Snowberry	*	Not a planning constraint	Remove and replace
Т9	Apple	C2	Dying back with low leaf area	Fell

Appendix 4 – Tree Constraints Plan



# Appendix 5 – Indicative Tree Protection Plan

