A.T. COOMBES ASSOCIATES Ltd.
CHARTERED FORESTERS AND CONSULTING ARBORICULTURISTS

6 Chapel Street, Barford, Norwich, Norfolk, NR9 4AB
Arboricultural Impact Surveys Tree Health and Safety Arboricultural Project Design and Management
Consulting Arboriculturalist Tree Surveys for Mortgage, Insurance and Subsidence purposes

Mr & Mrs Cooper
The Old Rectory
The Street
Fritton
Norwich
NR15 2QT

28th September 2015

Dear Mr Cooper,

Tree Report at The Old Rectory, The Street, Fritton, NR15 2QT

The aim of this report is to inspect the copper beech (*Fagus sylvatica* 'Purpurea') at the above address for health & safety purposes and provide recommendations for work on the grounds of good arboricultural management. Further to my site visit I am pleased to provide the survey findings as detailed below.

This tree is protected by a Tree Preservation Order (TPO) served by South Norfolk District Council.

Site Conditions

The tree is situated on a lawn to the north of the dwelling and dominates the garden landscape. Surrounding the copper beech there is moderately dense tree cover to the north, east and west which currently offer partial protection from wind exposure. Measured from the stem, the tree is at a distance of approximately 21 m from the nearest wall of the building. Prevailing winds are typically south westerly and the surrounding area is generally quite flat. No recent site changes where identified during the site visit which could affect wind loading. The soil texture is likely to consist of Lowestoft Formation which typically forms an extensive sheet of chalky till, together with outwash sands and gravels, silts and clays as indicated by the British Geological Survey.

Target Assessment

Targets considered within this assessment consist of the following;

- People situated inside the dwelling (to the south within a distance of 1x the height of the tree),
- The dwelling (to the south within a distance of 1x the height of the tree),
- Residents using the garden area (within extents of canopy),
- Third parties driving along the adjacent highways (within 1.5x the height of the tree to the east)

The first two targets, relating to the dwelling, are within falling of the tree if it were to fail at the base. Beneath the canopy spread of the tree residents using the garden have also been noted. The remaining highways target is considered to be within a distance 1.5x the total height of the tree. The only target whereby it is considered practical to restrict access to are those beneath the canopy drip line /spread of the tree.

Tree Survey Details

One tree has been included in this report, a plan has not been provided as the tree is easily identifiable from the description and photographs provided. The tree was not climbed but inspected from ground level with the aid of soft hammer and probe, details are as follows in the table below;

Copper beech (*Fagus sylvatica* 'Purpurea')	**No. T1**
Stem diameter at 1.5m above ground level	1900mm, secondary stem at 940mm
Height	28m
Canopy spread	N – 14.4m, E – 13.5m, S – 13.0m, W – 13.3
Live Crown Ratio (LCR)	60-70%
Dead twigs, branches and limbs	10-20% of total with a maximum diameter of 180mm
Vitality	Overall fair
Comments on Condition	**Crown and Branches;** Large balance crown originating from four large stems at 1.5-3.0m, historical installation of wire bracing consisting of what appears to be a single steel cable between two stems, large tensile unions present. The northern to south-eastern portion of canopy is thin / sparse with dieback as opposed to the south eastern through to north western canopy which is in good health containing relatively dense foliage and leaf coverage, thin crown reflects the presence of fungal activity / decay in roots and buttresses as described below. Two notably large pieces of deadwood; one in central crown at approximately 20m and the second, an entire limb to the north east in lower crown, other deadwood present throughout crown but mostly in the north eastern portion of the crown. **Trunk;** Main trunk above buttressing and below unions in good condition, multi-stemmed formation of main leaders is considered structurally moderate, although there are no obvious signs of cracking or significant weaknesses the unions are very large and not well-formed tensile U-shapes. **Roots and Buttress;** Historically, it was reported by the owners that fungal fruiting bodies had been present in previous years near the stem of the to the east, during the site visit four fructifications were present growing from buttress roots within 1 m of the main stem with fronds at a diameter of 40cm, two at 35cm and 15cm. The wood decay fungus has been positively identified as Giant Polypore (*Meripulus giganteus*) which typically decays the underside of the trees root system and lower buttresses, soft rot in the initially phases of degradation occurs followed by a white rot whereby wood becomes brittle and liable to fracture both across the grain and longitudinally, the significance of this fungus is it has a relatively high incidence of catastrophic failure at base / uprooting. It is report that some trees can withstand ongoing decay for many years whilst others fail with little to no symptoms of ill health

Copper beech (*Fagus sylvatica* 'Purpurea')	No. T1
Comments on Condition Cont.	present, in this instance however the onset of decay is considered significant with advanced levels of decay into the surface roots and buttressing where indicate with the sounding hammer. The sounding hammer indicated the presence of decay within the buttresses and adjoining roots spreading radially from the tree to the north, in relation to the existing fruiting bodies, and around to base the east where the presence of fruiting bodies had previously been report. Interesting the presence fructifications and decay on one side of the tree is mirrored with the thin and sparse crown on the north eastern side of the tree which is likely to indicate the advance stages of decay.
Protection Factors	In the event of uprooting protection factors considered during the inspection were the lower branches of the overall crown and the adjacent trees between the copper beech and the road that could arrest a tree failure.

Tree Risk Assessment

The perceived risk has been arrived at using a qualitative system of assessing risk known as TRAQ (Tree Risk Assessment Qualification) developed by the ISA (International Society of Arboriculture). The system considers the likelihood failure and combines this with the likelihood of impact to produce the combined likelihood of failure and impact. The risk is then calculated using a risk rating matrix which factors in the consequences of any failure to produce an overall estimate of risk in four categories low, moderate, high or extreme.

The risk rating associated with the tree has been identified as high. This has been given in relation to the entire tree uprooting and falling into the adjacent dwelling. Low risk levels have been associated with the tree falling into the house injuring residents inside the property and large bits of deadwood or limbs failing from the tree into the garden and hitting occupants.

Conclusion

The tree is, from an aesthetic point of view, a fine specimen with its large balanced crown. The tree also provides significant amenity and ecological value within the surrounding landscape. Unfortunately however, trees of this stature, age and condition often require continued remedial work and management to reduce the associated risk to an acceptable level. Please see my work recommendations below.

Work Recommendations

Due to the significance of this type fungus and the level of decay present further investigation work to uncover the root system is not advised due to the amount of evidence currently present.

Option 1; reduce the overall height of the tree to 20-22m retaining lower canopy branches, this height is around 1m less than the distance to the wall of the adjacent dwelling. Cleanout loose and dangerous deadwood.

This would allow for the retention of the tree whilst reducing the current level of risk from high to low whereby the associated risk would be limited to falling parts within the canopy dripline of the tree or top height. This scenario would however require ongoing management implications.

Option 2; completely remove the tree and plant with a replacement specimen to including stump grinding of the existing buttress and large surface roots eliminating the risk associated with this tree and ongoing management.

It is advised that either of the recommended works (Option 1 or 2) are carried out within 3 months of the date of this report.

Tree Survey Limitations and Re-inspection

Trees are dynamic organisms, subject to the forces of nature, and can fail without showing external symptoms of weakness or decay. In some circumstances trees fail without any decay being present. This survey can form part of an on-going system that ensures the land owner meets their duty of care. This does not mean that trees are maintained in a perfect condition, but that reasonable steps are carried out to an acceptable level of risk.

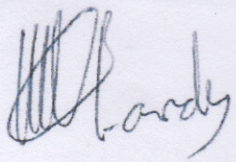
The inspection findings remain valid for 12 months. I would recommend a follow up professional inspection not more than two years after the reduction work associated with Option 1 has been carried.

Permissions and Constraints

The tree is subject to a Tree Preservation Order (TPO). Therefore written permission must be obtained from the Local Authority prior to commencing any work that may affect the condition of the protected tree.

If you have any further queries regarding this matter, please do not hesitate to contact me.

Yours sincerely,



Kit Hardy

Arboricultural Consultant
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Encl.

Photographs

Fig 1: Picture taken from southern aspect of tree with dwelling left of photo

Fig 2: Full extent of canopy spread and lawn area, picture taken from south west

Fig 3: Comparison between thin / sparse crown (north) and healthy (south)

Fig 4: Four *Meripulus giganteus* at base of tree to the north

Fig 5: Fruit body of *Meripulus giganteus* at base

Fig 6: Bruising of flesh indicating positive identification of *Meripulus giganteus*