## Report

| Priority 1 trees | | Survey Comment | Work required |
|---|---|---|---|
| 155 | Common ash *Fraxinus excelsior* | Tree is located up an earthen bank. Ganoderma australe on buttress roots. Tension roots sheared. Tree is hung up and has potential to strike the highway. | Fell |
| 161 | Common ash *Fraxinus excelsior* | A very large mature Ash tree in close proximity to the road and car park. Kretzchmaria duesta on buttress roots, Ganoderma ssp. Brackets at stem base and Inonotus hispidus on major limb at 11m angle NW projecting over car park. Cavity in main stem western aspect. | Fell |
| 164 | Common ash *Fraxinus excelsior* | A prominent tree. Inonotus hispidus fungal fruiting bodies at 3m angle southern side of stem above 2nd branch. Further brackets at 10m on both leading stems with cavity above the largest bracket. Decay column likely. Uppermost bracket at 13m. Retention of tree unrealistic. | Fell |
| 170 | Common beech *Fagus sylvatica* | Large area of necrotic bark on main stem, southern aspect extending to a height of 1.8m. Chondrostereum purpureum causing bark necrosis. Kretzchmaria duesta noted on stem base western aspect. Tree is located in close proximity to the road. | Fell |
| 175 | Common ash *Fraxinus excelsior* | Lowest limb projecting over road has Inonotus hispidus fungal fruiting bodies at 14m. Tertiary limb projecting east from this is decayed. Reduce both portions of this limb as prescribed. Large sections of deadwood overhanging path and road. | Reduce faulted limbs/stems By 5.0m<br>Remove major deadwood<br>Reduce crown by 3m |
| 190 | Common Oak *Quercus robur* | Ganoderma resinaceum fruiting bodies noted on main stem western aspect to a height of 1.6m angle. Tree is extensively decayed. | Monolith at a height of 5-12m: Crown reduction at the break of crown. |

| Priority 2 Tree Examples | | Survey Comment | Work required |
|---|---|---|---|
| 159 | Common Oak *Quercus robur* | Large amount of decay in tree structure. Large sections of deadwood overhanging highway and telecommunications lines. | Remove major deadwood |
| 160 | Common Oak *Quercus robur* | Fistulina hepatica fruiting bodies on buttress roots of tree, NW aspect. Large cavity in stem at 4m angle. Conduct resistograph inspection of internal stem decay before making management recommendations. Tree overhangs car park. | Further inspection On internal trunk decay. |
| **166** | Common Oak *Quercus robur* | Tree is in advanced state of decline. Large sections of deadwood overhanging path. Large internal stem cavity at 2.4m angle. Numerous phone lines pass through canopy. Reduce upper canopy to secondary canopy. MEWP required to limit damage to retained tree structure. | Reduce in height by 6m<br>Remove major deadwood |

## A summary of the fungi mentioned in the report:

*Ganoderma australe* describes two fungi: *G. applanatum* and *G. adspersum* (only distinguishable by microscopic examination) which affect a wide range of broadleaved hosts. Fruiting bodies are shelf like, perennial brackets which grow in annual increments and can reach up to 500mm wide and 150mm deep. In early stages, decay is a localised delignification (white rot) which advances to cause regions of almost total delignification, usually in the stem base.

*Ganoderma resinaceum.* Similar to *G. australe* but occurring almost exclusively in Oak (*Quercus*): commonly with more severe effects due to a greater breakdown of cellulose along with the delignification associated with *Ganoderma*.

*Kretzchmaria duesta (Ustulina duesta)* affects a wide range of broadleaved hosts with flat, grey fruiting bodies usually at the base of a host tree. *K duesta* causes a soft-rot, destroying cellulose until a brittle, ceramic-like fracture is induced. This fungus is particularly dangerous as the fruiting bodies, at the base of the tree, are often hidden and the soft rot nature of decay can leave few other outward signs.

*Inonotus hispidus* can affect a number of broadleaved hosts and is the most common fungus to be found on Ash *(Fraxinus excelsior)*. A simultaneous white rot occurs, and the resultant loss of both tensile and compressive strength means its presence indicates that breakage of the affected branch/ trunk could be imminent.

### Types of Decay in Trees

Decay in living trees is almost exclusively caused by Fungi, which usually invades a tree through a break in bark cover, and which could have numerous causes. Decayed trees are not always dangerous, and trees hosting fungi can often live for many years. Different types of fungi cause different types of decay depending on the nature of the fungi and species of tree. Wood decay can be categorised into 3 main types:

***1. Brown Rot:*** This affects the Cellulose in wood, (cellulose brings wood its flexibility hence the significant tensile strength) leaving the Lignin (the woody organic polymer that gives rigidity or compressive strength) unaffected. Affected wood is therefore brittle and vulnerable to cracking/ fracturing and has a characteristic brown colour.

***2. White rot:*** This affects both the lignin and cellulose, but at different rates depending on the type of fungi. Either both are attacked simultaneously, affecting both stiffness and strength, or the lignin is attacked more quickly, leaving a soft, pale in colour, rot.

***3. Soft rot:*** Causes a loss of tensile strength, similar to brown rot, but the method of cell invasion means that the fungi can travel through the living cell wall and create cavities in the wood in conditions where brown rot would not survive.

*Chondrostereum purpureum.* Commonly known as 'the silver leaf disease fungus'; it has purplish, thin, frond like fruiting bodies and affects Oak. This fungus is associated with killing, rather than decaying, trees and after entering a susceptible host through a wound, it rapidly invades and kills the affected area. This is through damage to water vessels within the affected sap-wood, however it also produces a toxin which can travel to the leaves and produce a dull, leaden colour. *C purpureum* itself cases a slight, white rot; however structural failure of the host is usually caused by decay from a secondary fungus which invades the dead wood.

*Fistulina hepatica* commonly affects oak, but also other broadleaves, and is known as the 'Beefsteak fungus' due to its purpleish/red-brown fleshy brackets which are edible and, when broken, are marbled like a raw steak. The initial decay of the heartwood of Oak produces a brown stain which is actually highly valued by timber merchants, and is of a soft rot mechanism. The later stages of decay occur extremely slowly as brown rot; therefore *F. hepatica* does not represent a hazard until present for many years.

*Information Taken from The Aboricultural Association & Forestry Commission's guide 'Research for Amenity trees No.7: Principles of Tree Hazard Assessment and Management' David Lonsdale 1999*