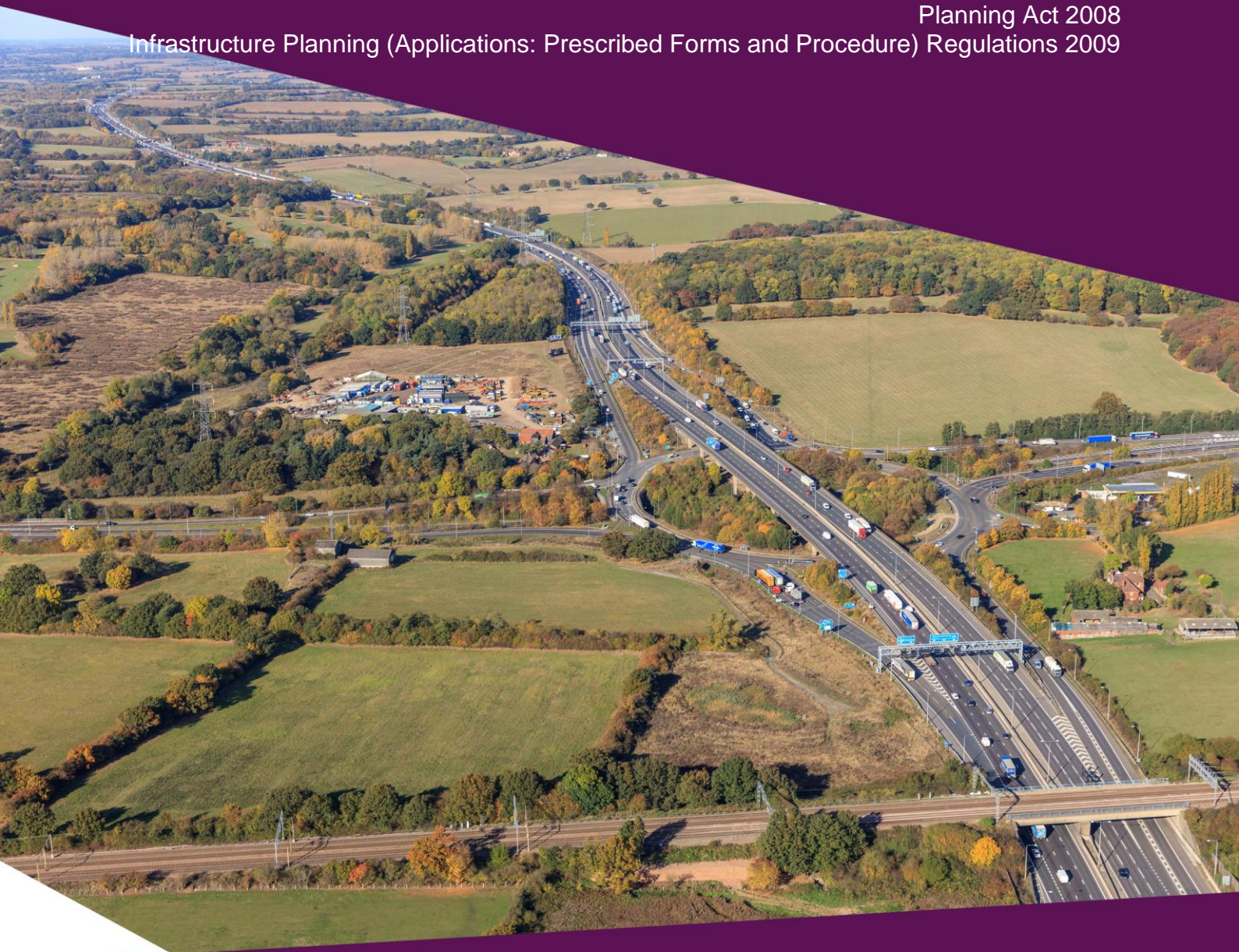


# **M25 junction 28 improvement scheme TR010029**

## **6.3 Environmental Statement Appendix 7.7: Arboricultural impact assessment**

APFP Regulation 5(2)(a)  
Planning Act 2008

Infrastructure Planning (Applications: Prescribed Forms and Procedure) Regulations 2009



# Infrastructure Planning

## Planning Act 2008

### The Infrastructure Planning (Applications: Prescribed Forms and Procedure) Regulations 2009

#### M25 junction 28 scheme Development Consent Order 202[x ]

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#### 6.3 ENVIRONMENTAL STATEMENT APPENDIX 7.7: ARBORICULTURAL IMPACT ASSESSMENT

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<b>Regulation Number:</b>	Regulation 5(2)(a)
<b>Planning Inspectorate Scheme Reference:</b>	TR010029
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<b>Author:</b>	M25 junction 28 improvement scheme project team, Highways England

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# Table of contents

Chapter	Pages
<b>1. Introduction</b>	<b>6</b>
1.1 Scope of assessment	6
1.2 Scheme description	6
<b>2. Methodology</b>	<b>8</b>
2.1 General	8
2.2 Planning policy and definition of veteran trees	8
2.3 Statutory protection	10
2.4 Spatial scope	10
2.5 Survey	10
2.6 Data gathering	10
2.7 Limitations to survey	11
<b>3. Existing tree data</b>	<b>13</b>
3.1 Existing tree stock	13
3.2 Historic tree data	14
3.3 Veteran trees	16
3.4 TPO trees	34
<b>4. Arboricultural impacts</b>	<b>37</b>
4.1 General	37
4.2 Root protection areas	37
4.3 Arboricultural impacts – Veteran trees	38
4.4 Arboricultural impacts – Remaining trees	40
4.5 Arboricultural impacts – TPO trees	41
<b>5. Mitigation</b>	<b>42</b>
5.1 General	42
5.2 Arboricultural mitigation measures	43
5.3 Arboricultural compensation measures	43
<b>Appendix A. Tree survey key and method for measurements and categorisation criteria</b>	<b>46</b>
A.1 Survey key	46
A.2 Measuring table	48
A.3 BS5837:2012 Cascade chart	49
<b>Appendix B. Tree survey schedule</b>	<b>50</b>
B.1 Tree survey schedule	50
<b>Appendix C. Tree Protection Plans</b>	<b>66</b>

## Tables

Table 2.1: Girth sizes to classify ancient trees .....	9
Table 3.1: Veteran trees recorded .....	17
Table 4.1: Veteran trees potentially impacted by the Scheme .....	38
Table 4.2: Arboricultural impact table – remaining trees surveyed .....	40

## Figures

Figure 3.1: The 1866 edition of the Ordnance Survey map, showing the western part of the Scheme .....	14
Figure 3.2: An extract from Charles Budgen's map of 1799 showing the Roman road approaching Brentwood from the south-west; Vicarage and Lower Vicarage Woods are shown to the west of the 'Parsonage' .....	15
Figure 3.3: Extract from the 1866 Ordnance Survey map showing Vicarage and Lower Vicarage Woods....	16
Insert A.1: BS5837:2012 measurement of tree stems dependant on tree form methods .....	48
Insert A.2: BS5837:2012 cascade chart for tree quality assessment .....	49



# **Appendix 7.7**

## **Arboricultural impact assessment**

# 1. Introduction

## 1.1 Scope of assessment

- 1.1.1 Atkins Limited (Atkins) was commissioned by Highways England (the “Applicant”) to undertake a tree survey in support of an Environmental Impact Assessment (EIA) and Environmental Statement (ES) for the M25 junction 28 improvement scheme (referred to as the “Scheme”). The Scheme will be a Nationally Significant Infrastructure Project (NSIP). This means that a Development Consent Order (DCO) application is being made to the Secretary of State under Section 37 of the Planning Act 2008 to seek authorisation to build the Scheme.
- 1.1.2 This report is an Arboricultural Impact Assessment (AIA) and presents the findings of the tree survey which has been undertaken for the Scheme. It is a scheme-wide AIA and reports on the impacts on the recorded trees within and adjacent to the DCO boundary where access was permitted, and it is supplemented by the production of Tree Protection Plans (TPPs), which are included within Appendix C of this AIA.
- 1.1.3 This AIA forms an Appendix to the Biodiversity chapter (Chapter 7) of the ES, and data is also referenced by further chapters within the ES.
- 1.1.4 The trees, woodlands and hedgerows have been recorded in accordance with the British Standard *BS5837:2012 ‘Trees in Relation to Design, Demolition and Construction – Recommendations’* to report on the impacts of the Scheme.
- 1.1.5 The tree survey also identified veteran trees, this included those trees which can be considered as ancient.
- 1.1.6 The Scheme involves works around the M25 Junction 28. The Order limits within which the Scheme may be carried out are shown on the TPPs.

## 1.2 Scheme description

- 1.2.1 The Scheme is an alteration of junction 28 on the M25, including the provision of a dedicated link for the northbound M25 heading eastbound on the A12 and other improvements to the existing roundabout.
- 1.2.2 The Scheme comprises the following key works elements. These should be read in conjunction with Works plans (application document TR010029/APP/2.3) and Schedule 1 of the Development Consent Order (application document TR010029/APP/3.1). Further details are provided in Chapter 2 of the ES (application documents TR010029/APP/6.1):
- Highways works:
    - The creation of a new two lane loop road with hard shoulder, for traffic travelling from the M25 northbound carriageway onto the A12 eastbound carriageway, including the provision of three new bridges (Alder Wood bridge, Duck Wood bridge and Grove bridge) and an underpass (Grove Farm underpass) to carry the new loop road over a proposed access track (Work No. 14).
    - Realignment of the existing A12 eastbound exit (off-slip) road (Work No. 2) to accommodate the new loop road including the provision of a new bridge (Maylands bridge) and the extension of the existing Grove culvert.

- Improvements to the existing A12 eastbound and westbound carriageways and A12 eastbound entry (on-slip) road (Work Nos. 1, 3 and 4).
- Realignment of the existing M25 northbound on-slip (Work No. 8).
- Improvements to the existing junction 28 roundabout, the existing M25 northbound carriageway and the M25 northbound off-slip (Work Nos. 5, 7 and 12).
- New gantries over the M25 carriageway (Work Nos. 9, 10 and 11).
- Alterations of existing private access and egresses and the provision of new private means of access to accommodate the new loop road (Work Nos. 13, 14, 15 and 16).
- Earthworks and drainage works:
  - Earthworks including the deposit of surplus construction materials on two identified sites (Work Nos. 17 and 18).
  - Three new attenuation ponds and associated drainage and access roads (Works Nos. 19A, 19B, 20A, 20B, 21A and 21B) and a new drainage outfall pipe (Work No. 22).
- Realignment of watercourses:
  - Realignment of the Weald Brook and the Ingrebourne River (Work Nos. 23A, 23B, 23C and 23D).
- Environmental mitigation:
  - Two new flood compensation areas (Work Nos. 24A and 24B) and the provision of new ecological compensation and mitigation areas (Work Nos. 25 and 26) and two new environmental ponds (Work Nos. 27 and 28).
- Utilities:
  - Diversion of an already underground high pressure gas pipeline and diversion underground of an existing overhead electric line (Work Nos. 29 and 30).
- Accommodation works:
  - Accommodation works to provide replacement facilities for Maylands Golf Course (Work No. 32).

## 2. Methodology

### 2.1 General

- 2.1.1 This AIA has been undertaken in accordance with *BS5837:2012 Trees in Relation to Design, Demolition and Construction – Recommendations*. The Standard gives recommendations and guidance on the relationship between trees and the design, demolition and construction process, setting out the principles and procedures to be applied to achieve a harmonious and sustainable relationship between trees and structures.
- 2.1.2 *BS5837:2012* does not set explicit parameters for measuring the sensitivity of an arboricultural resource; nor does it assess the magnitude of impact of a proposed development on trees (other than by providing a record of the number of trees that would need to be removed to facilitate the development). Rather, the British Standard provides parameters which enable the arboriculturist to assess the quality of all the trees, hedges and other arboricultural features that may be affected by the development that is proposed. Whilst the BS categories are open to varied interpretation, the guidelines in the cascade chart of *BS5837:2012* (see insert A.1 in Appendix A of this AIA) provide details on how to determine tree qualities and can be used to inform the design process to retain those trees of higher quality where possible.

### 2.2 Planning policy and definition of veteran trees

- 2.2.1 In regards to aged or veteran trees, the National Policy Statement for National Networks (NPS NN), paragraph 5.32 states:
- “The Secretary of State should not grant development consent for any development that would result in the loss or deterioration of irreplaceable habitats including ancient woodland and the loss of aged or veteran trees found outside ancient woodland, unless the national need for and benefits of the development, in that location, clearly outweigh the loss. Aged or veteran trees found outside ancient woodland are also particularly valuable for biodiversity and their loss should be avoided. Where such trees would be affected by development proposals, the applicant should set out proposals for their conservation or, where their loss is unavoidable, the reasons for this.”* This has a footnote stating, *“This does not prevent the loss of such trees where the decision-maker is satisfied that their loss is unavoidable”*.
- 2.2.2 The NPS NN provides clear consideration of veteran trees, but does not present a definition.
- 2.2.3 The definition of veteran trees for the purposes of this assessment follows the core standing advice and planning policy.
- 2.2.4 The Standing<sup>1</sup> advice on ancient woodland, ancient trees and veteran trees provides guiding principles for the classification of ancient and veteran trees. These principles are also covered within the Forestry Commission and Natural England guidance.
- 2.2.5 The standing advice clearly defines veteran trees as:

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<sup>1</sup> <https://www.gov.uk/guidance/ancient-woodland-and-veteran-trees-protection-surveys-licences>



*“All ancient trees are veteran trees, but not all veteran trees are ancient. A veteran tree may not be very old, but it has decay features, such as branch death and hollowing. These features contribute to its biodiversity, cultural and heritage value”.*

2.2.6 The definition provides a degree of ambiguity, but provides clear guiding principles namely that veteran trees have:

- *Decay features, such as branch death and hollowing; and*
- *These features contribute to its biodiversity, cultural and heritage value.*

2.2.7 The definition of ancient trees supplements this by focusing the definition of veteran trees arguably (but not definitively) on:

- *Great age;*
- *Size;*
- *Condition;*
- *Biodiversity value as a result of significant wood decay and the habitat created from the ageing process; and*
- *Cultural and heritage value.*

*Very few trees of any species become ancient.*

2.2.8 As such this assessment has proceeded on the basis that the classification of veteran trees should take account of the specific features of trees (size and condition) alongside their biodiversity, cultural and heritage value.

2.2.9 Further guidance to assist in classifying trees as old for their species based on stem size criteria was obtained from Neville Fay’s ‘*Defining and surveying veteran and ancient trees*’ (Fay, 2007). The relevant section of the table has been reproduced in Table 2.1.

**Table 2.1: Girth sizes to classify ancient trees**

Age Class	Tree Stem Size		
	>2.5m stem girth >795mm stem diameter	>4.0m stem girth >1273mm stem diameter	>4.5m stem girth >1432mm stem diameter
Ancient	Field maple Rowan Yew Birch Holly and other smaller trees	Oaks Ash Scots Pine Alder	Sycamore Lime Horse chestnut Sweet chestnut Elm species Poplar species Beech Willows Other pines and exotics

Table Source: information taken from Table 1 of Neville Fay’s ‘*Defining and surveying veteran and ancient trees*’, March 2007.

## 2.3 Statutory protection

- 2.3.1 Trees may be protected through a Tree Preservation Order (TPO). The law on TPOs is in Part VIII of the Town and Country Planning Act 1990 as amended and in the Town and Country Planning (Tree Preservation) (England) Regulations 2012.
- 2.3.2 A TPO is made by a local authority in respect of a tree(s) as the tree is considered to bring amenity value to the surrounding area. A TPO makes it an offence to cut down, uproot, lop, top, wilfully damage or wilfully destroy a protected tree without authorisation. The local authorities of the London Borough of Havering and Brentwood Borough Council were contacted to determine the presence of any TPO's or Conservation Areas within the DCO boundary.

## 2.4 Spatial scope

- 2.4.1 The survey has targeted trees within and adjacent to the DCO boundary (as shown on the plans in Appendix C). Where trees were recorded adjacent to the DCO boundary this is to make sure they are not impacted upon by the Scheme.
- 2.4.2 This AIA is targeted at the impacts on the trees. It does not cover the subsequent impacts such tree removal would have on ecological or landscape receptors which are outlined in the Biodiversity (Chapter 7) and Landscape and Visual (Chapter 9) chapters of the ES. The TPPs (see Appendix C of this report) illustrate the trees that have been surveyed.

## 2.5 Survey

- 2.5.1 The tree survey was undertaken by qualified and experienced arboriculturists. An entomologist also attended site during the survey to assess the suitability of the veteran trees for saproxylic invertebrates.
- 2.5.2 The approach to the survey involved ground level walked assessments.
- 2.5.3 The locations of individual trees and the start and end points of groups/hedgerows were, where possible, plotted using proprietary GIS data capture software on Trimble hand-held mobile mappers. These locations were verified using available aerial imagery and available topographical data showing tree locations.
- 2.5.4 The various arboricultural features were numbered sequentially from 001: individual trees recorded were prefixed with a 'T' (e.g. T001), groups of trees with a 'G', woodlands with a 'W' and hedges with an 'H'. No numbered aluminium tree tags were used for the survey, but where already fixed to trees these were noted within the survey schedule.

## 2.6 Data gathering

- 2.6.1 Data has been collected in accordance with *BS5837:2012*, as outlined in Appendix A of this report. The purpose of the tree categorisation method applied by the arboriculturist is to identify the quality and value (in a non-fiscal sense) of the recorded tree stock, allowing informed decisions to be made concerning which trees should be removed and which retained if development is to occur.
- 2.6.2 For a tree to qualify under any given category, it should fall within the scope of that category's definition as defined in Appendix A of this report (categories U, A,

B, C) and, for trees in categories A to C, it should qualify under one or more of the three subcategories (1, 2, 3). Subcategories 1, 2 and 3 are intended to reflect arboricultural and landscape qualities, and cultural values, respectively.

- 2.6.3 Veteran trees are specifically noted in A3 category on the cascade chart. However, where the veteran habitat features significantly increase the risk of harm to adjacent people or property the estimated remaining life expectancy and safety issues were also considered in the assigning of tree categories.
- 2.6.4 Trees were recorded as individual specimens, groups, hedgerows and woodlands. Where trees were recorded as groups, hedgerows or woodlands measurements were taken from the largest tree within the group/hedgerow/woodland. The method of measuring diameters is defined in Appendix A of this report.
- 2.6.5 This level of survey meets the requirements of BS5837:2012, which states that 'trees growing as groups or woodland should be identified and assessed as such'. The standard defines the term group as 'trees that form cohesive arboricultural features either aerodynamically (e.g. trees that provide companion shelter), visually (e.g. avenues or screens) or culturally including for biodiversity (e.g. parkland or wood pasture)'.
- 2.6.6 Crown spreads of the surveyed trees were given as an average measurement where the tree's crowns were balanced. Where there was a notable difference in crown spread to a cardinal point, these were recorded. The average measurement was taken from the cardinal point relevant to the direction of the Scheme. This level of survey is deemed sufficient by the arboriculturist to establish the extent of the crown spread in the direction of any future proposals. All crown spread measurements should be taken from the tree survey schedules (see Appendix B of this report).

## 2.7 Limitations to survey

- 2.7.1 Where access permitted, trees were identified and inspected from ground level only and were not climbed. No invasive examination techniques (such as increment boring, or internal decay detection) were carried out and as such no assessment of the internal condition of the wood of these trees can be given.
- 2.7.2 Where access was restricted by health and safety limitations, the tree data was estimated from available vantage points. This was limited to only a small number of areas that included existing motorway verge vegetation and in some cases trees along Weald Brook. These trees were recorded as groups in line with the BS5837 guidance on what constitutes a 'group' of trees (see paragraph 2.6.5 above) Therefore, an outline of the groups was plotted using available aerial imagery to capture the combined crown extents of the groups, meaning the use of exact measurements was not required.
- 2.7.3 The tree survey undertaken is not intended to be a tree risk management survey targeting safety-related issues. However, where specific hazards have been identified these have been recorded and management recommendations provided and are detailed within the tree survey schedules (see Appendix B of this AIA).
- 2.7.4 As some trees are veteran specimens the features they contain are often defects that pose a safety risk, meaning any management recommendations would need to be commensurate with the risk of harm to adjacent people or property and be

confirmed through consultation with Natural England. This work should be limited to those trees that would impact on the Scheme.

- 2.7.5 The identification of veteran tree status required assessment from a range of specialists to verify its veteran status. Where the tree is not classified as ancient, then the level to which the habitat features provide suitable saproxylic habitat for invertebrates, mimicking ancient trees, required detailed specialist assessment. It is only after such detailed assessment that the tree can be determined as to whether it provides habitat characteristics of sufficient quality and quantity to classify its status further as veteran. If it does not meet these criteria, then the tree was not classified as a veteran. Further considerations around the cultural and heritage value of the trees were also considered in the classification of veteran trees.
- 2.7.6 Validity, accuracy and findings of the tree locations will relate directly to the accuracy of the supplied topographical data, available aerial imagery and the GIS data capture software being used. As such the accuracy of the tree locations is potentially open to discrepancies and their locations may need verifying.
- 2.7.7 Where tree groups have been illustrated as an outline this covers the extents of the tree group. It does not always illustrate individual trees within the groups. Where individual trees were identified they were plotted separately.
- 2.7.8 The report does not comment on possible effects of trees on neighbouring properties, including in relation to subsidence or heave, or with regard to possible hazards presented by trees surveyed.
- 2.7.9 Trees are living organisms subject to changes outside human control. Trees and their environment alter with the seasons and it is as well to inspect trees whilst in full leaf and when out of leaf. Following harsh or unexpected weather conditions, or heavy storms it is also prudent to inspect trees. Changes to ground water conditions will affect the root growth of a tree. Such changes are not always the result of human influence and other factors may be involved.



## 3. Existing tree data

### 3.1 Existing tree stock

- 3.1.1 The existing tree stock form part of woodland areas and linear groups of trees and shrubs. The linear groups lining Weald Brook, the golf course boundary and verges along the M25 and A12 roads.
- 3.1.2 The trees are a mixture of primarily broadleaf specimens, with oak being the dominant tree species and hawthorn or hazel most prevalent for the shrub species.
- 3.1.3 The age of the tree stock varies from young to over-mature trees. The over-mature specimens tending to be the lapsed willow pollards (crowns cut at height to promote multi-stem regeneration) growing along the banks of Weald Brook.
- 3.1.4 These trees are in varying stages of decline, some still with relatively full regenerated crowns with occasional collapsed branches or stems, others with limited or no live growth and extensive branch or stem failures. Over-mature willows are prone to branch or stem failures, especially if they have been historically pollarded and not kept under cyclical management of the subsequent regrowth. This is due to the weak branch/stem unions on the regenerated growth that can fail more readily if allowed to get large.
- 3.1.5 The trees and shrubs growing along the banks of Weald Brook are mainly multi-stem, suggesting past felling to ground level and subsequent regeneration. The trees are a mixture of willow, alder, field maple and ash; whilst the shrubs include hawthorn and hazel.
- 3.1.6 Some trees/shrubs have collapsed given the lack of any recent or ongoing management intervention. The collapsed branches or stems lie over or in the brook in some cases. These collapses being due in part to bank erosion undermining the root plate of trees or as a result of the large regrowth and subsequent weak branch/stem attachment points typical of regenerated growth.
- 3.1.7 There are three woodland areas within or immediately adjacent to the Scheme extents, these being The Grove positioned to the north of the A12; Alder wood to the west of the M25, and north of The Grove; and Lower Vicarage Wood to the east of the M25 and north of the A12. This woodland is an Ancient and Semi-Natural Woodland. The composition of the woodlands is detailed within the survey schedules, and each has either been split into specific compartments based on composition changes, or due to age variations.
- 3.1.8 The Lower Vicarage area of ancient woodland stops short of the A12, its boundary following the line of a historic tracked access to the field in the west. The vegetation between this track and the A12 includes primarily oak, but also a plantation of hybrid poplars at its south western extents.
- 3.1.9 The oaks present include several mature specimens, some of which can be classified as veteran specimens. The mature oaks are located in various locations; however, they are concentrated within a hedgerow linking The Grove with Alder Wood; along the western boundary of Alder Wood, and sporadically adjacent to Weald Brook close to the north extents of the Scheme.

## 3.2 Historic tree data

- 3.2.1 Old maps show that much of the woodland at the Scheme site dates from at least the eighteenth century, with some individual trees apparently indicated on mid-19<sup>th</sup> century maps.
- 3.2.2 The Ordnance Survey (OS) map of 1866 illustrated in Figure 3.1 below shows two woods in the western part of the Scheme site. The shape of The Grove wood remains little changed today. The Oaks wood has been absorbed into larger woodland, on the east side of the M25 carriageway; the fields directly to the west and south-west of The Oaks were planted as woodland at a later date (they appear on the OS map of 1920) and named Alder Wood.
- 3.2.3 The veteran trees at the west edge of Alder Wood are likely to be trees that originally stood in the hedgerow shown running parallel to the Weald Brook, and some are likely to have been depicted individually on the 1866 map (e.g. trees T109, T112, T114). The same is true of other veteran trees at the site, including the oak T065, on the western boundary of the recycling centre, and the outstanding oak tree T021A, in the field directly to the south of The Grove.

**Figure 3.1: The 1866 edition of the Ordnance Survey map, showing the western part of the Scheme**



- 3.2.4 The wooded areas further to the east shown on present-day mapping as Vicarage and Lower Vicarage Woods appear on OS draughtsman Charles

Budgen's 1799 map of the Brentwood area (see Figure 3.2). The small woodland on the left edge of the map may be The Grove.

- 3.2.5 These woods are shown on the OS map of 1866 (Figure 3.3) and appear little changed in shape in the present day.

**Figure 3.2: An extract from Charles Budgen's map of 1799 showing the Roman road approaching Brentwood from the south-west; Vicarage and Lower Vicarage Woods are shown to the west of the 'Parsonage'**





**Figure 3.3: Extract from the 1866 Ordnance Survey map showing Vicarage and Lower Vicarage Woods**





### 3.3 Veteran trees

- 3.3.1 Those individual trees that have been classified as veteran specimens are referenced as 'V' within the life stage classification column of the survey schedule, and they are blocked in yellow on the TPPs (Appendix C). A total of 15 veteran trees were identified as part of the assessment. See Table 3.1 below for those trees recorded as veteran specimens.




**Table 3.1: Veteran trees recorded**


Tree ref	Species	Location	Summary of value	Tree photographs
T002	Common Oak	Easing:55658547 Northing:19242145  Grove Farm, garden.  TPP: HE551519-ATK-ELS-XX-DR-LL-000202 (Appendix C)	<p><b><u>Size:</u></b> Large stem girth in comparison to other trees in locality.</p> <p><b><u>Condition:</u></b> Multi-stem form from approximately 3m, suggesting historic past pollard. Decay features present including hollowing main stem, revealing heartwood decay. Dead branches in crown with desiccated white rot.</p> <p><b><u>Biodiversity value:</u></b> Decayed heartwood rot and white rot providing habitat for saproxylic invertebrates.</p> <p><b><u>Cultural and heritage value:</u></b> Tree appears to be present on 1866 OS mapping. Partially visible from M25 westbound on-slip.</p> <p><b><u>Age:</u></b> It's diameter of 1110mm means it has a girth of 3.48m and means it is included within the 'locally notable' criterion of girth in relation to age as shown in Figure 1.3 of 'Ancient and other veteran trees: further guidance on management' (Lonsdale, 2013).</p>	

Tree ref	Species	Location	Summary of value	Tree photographs
T004	Common Oak	Easing: 556575.05 Northing: 192428.7  Grove Farm, garden.  TPP: HE551519-ATK-ELS-XX-DR-LL-000202 (Appendix C)	<p><b><u>Size:</u></b> Large stem girth in comparison to other trees in locality.</p> <p><b><u>Condition:</u></b> Crown previously reduced in places. Decay features present including hollowing main stem, revealing heartwood decay. Extensive dead branches in crown with desiccated white rot.</p> <p><b><u>Biodiversity value:</u></b> Decayed heartwood rot and extensive dead branches in crown with desiccated white rot. Habitat value for saproxylic invertebrates.</p> <p><b><u>Cultural and heritage value:</u></b> Tree appears to be present on 1866 OS mapping. Partially visible from M25 westbound on-slip.</p> <p><b><u>Age:</u></b> It's diameter of 1000mm means it has a girth of 3.14m and means it is included within the 'locally notable' criterion of girth in relation to age as shown in Figure 1.3 of 'Ancient and other veteran trees: further guidance on management' (Lonsdale, 2013).</p>	





Tree ref	Species	Location	Summary of value	Tree photographs
T019	Common Oak	<p>Easing: 55675922 Northing:19227193</p> <p>Adjacent to A12 SB on-slip from junction 28 roundabout.</p> <p>TPP: HE551519-ATK-ELS-XX-DR-LL-000202 (Appendix C)</p>	<p><b><u>Size:</u></b> Large stem girth in comparison to other trees in locality.</p> <p><b><u>Condition:</u></b> Multi-stem form from approximately 3-4m, suggesting historic past pollard. Decay features present including hollowing main stem, revealing heartwood decay. Dead branches in crown with desiccated white rot. Further large diameter old branch wounds in crown, showing heartwood decay. Water pockets.</p> <p><b><u>Biodiversity value:</u></b> Decayed heartwood rot and white rot providing habitat for saproxylic invertebrates.</p> <p><b><u>Cultural and heritage value:</u></b> Tree appears to be present on 1866 OS mapping. Highly visible location – views from A12 and M25</p> <p><b><u>Age:</u></b> It's diameter of 1290mm means it has a girth of 4.05m and means it is included within the 'locally notable' criterion of girth in relation to age as shown in Figure 1.3 of 'Ancient and other veteran trees: further</p>	




Tree ref	Species	Location	Summary of value	Tree photographs
			guidance on management' (Lonsdale, 2013).	
T021 A	Common Oak	Easing: 556555.2 Northing: 192334.1  Grove Farm, South edge of The Grove Wood.  TPP: HE551519-ATK- ELS-XX-DR-LL- 000202 (Appendix C)	<p><b><u>Size:</u></b> Large stem girth in comparison to other trees in locality.</p> <p><b><u>Condition:</u></b> Decay features present including hollowing main stem, revealing heartwood decay. Basal cavity and raised buttress roots indicative of reaction wood laid down to an internal defect. Dead branches in crown with desiccated white rot. Further large diameter old branch wounds in crown, showing heartwood decay. Water pockets. Crown to south bending low to ground, one large limb resting on ground; small entrances to hollow basal cavities.</p> <p><b><u>Biodiversity value:</u></b> Decayed heartwood rot and white rot providing habitat for saproxylic invertebrates. Woodpecker holes.</p> <p><b><u>Cultural and heritage value:</u></b> Tree appears to be present on 1866 OS mapping. Partially visible from A12 and M25.</p> <p><b><u>Age:</u></b> It's diameter of 1460mm means it has a girth of 4.58m and means it is included</p>	




Tree ref	Species	Location	Summary of value	Tree photographs
			within the 'veteran/notable' criterion of girth in relation to age as shown in Figure 1.3 of 'Ancient and other veteran trees: further guidance on management' (Lonsdale, 2013).	
T059	Common Oak	Easing: 55629447 Northing: 19266471  Grove Farm, growing within hedgerow linking The Grove Wood and Alder Wood.  TPP:	<b><u>Size:</u></b> Large stem girth in comparison to other trees in locality.  <b><u>Condition:</u></b> Decay features present including hollowing main stem, revealing developing heartwood decay. Occasional dead branches in crown with desiccated white rot.	


Tree ref	Species	Location	Summary of value	Tree photographs
		HE551519-ATK-ELS-XX-DR-LL-000203 (Appendix C)	<p>Crown lost vitality to east, dieback and dead wood present in upper and middle crown extents. Potential natural retrenchment given age, or ground compaction in root zone to east. Sections of loose bark.</p> <p><b><u>Biodiversity value:</u></b></p> <p>Decayed heartwood rot and white rot providing habitat for saproxylic invertebrates.</p> <p><b><u>Cultural and heritage value:</u></b></p> <p>Tree appears to be present on 1866 OS mapping.</p> <p>Limited visibility from surrounding views given existing tree stock and site topography.</p> <p><b><u>Age:</u></b></p> <p>It's diameter of 1100mm means it has a girth of 3.45m and means it is included within the 'locally notable' criterion of girth in relation to age as shown in Figure 1.3 of 'Ancient and other veteran trees: further guidance on management' (Lonsdale, 2013).</p>	




Tree ref	Species	Location	Summary of value	Tree photographs
T065	Common Oak	<p>Easing: 556365.3 Northing: 192516.1</p> <p>Grove Farm, growing within hedgerow linking The Grove Wood and Alder Wood.</p> <p>TPP: HE551519-ATK-ELS-XX-DR-LL-000203 (Appendix C)</p>	<p><b><u>Size:</u></b> Large stem girth in comparison to other trees in locality.</p> <p><b><u>Condition:</u></b> Decay features present including hollow main stem, revealing developing heartwood decay. Occasional large diameter dead branches in crown with desiccated white rot. Sections of loose bark.</p> <p><b><u>Biodiversity value:</u></b> Decayed heartwood rot and white rot providing habitat for saproxylic invertebrates.</p> <p><b><u>Cultural and heritage value:</u></b> Tree appears to be present on 1866 OS mapping. Limited visibility from surrounding views given waster site to east and site topography.</p> <p><b><u>Age:</u></b> It's diameter of 1120mm means it has a girth of 3.51m and means it is included within the 'locally notable' criterion of girth in relation to age as shown in Figure 1.3 of 'Ancient and other veteran trees: further guidance on management' (Lonsdale, 2013).</p>	

Tree ref	Species	Location	Summary of value	Tree photographs
T074	Common Ash	Easing: 55626752 Northing:19271439  Grove Farm, west boundary of Alder Wood.	<p><b><u>Size:</u></b> Large stem girth in comparison to other ash trees in locality.</p> <p><b><u>Condition:</u></b> Decay features present including extensive internal decay and hollowing main stem, revealing heartwood decay. Pronounced basal swelling, indicative of reaction wood to an internal defect. Cavities on main stem and at old branch wounds and storm damage in crown. Elongated cavities visible in middle crown, and exposed decayed desiccated white rot.</p> <p><b><u>Biodiversity value:</u></b> Decayed heartwood rot and white rot providing habitat for saproxylic invertebrates.</p> <p><b><u>Cultural and heritage value:</u></b> Tree does not appear present on 1866 OS mapping. Limited visibility from surrounding views given existing tree stock and site topography.</p> <p><b><u>Age:</u></b> It's diameter of 900mm means it has a girth of 2.82m and means it is included within the 'locally notable' criterion of girth in relation to age as shown in Figure 1.3 of 'Ancient and other veteran trees: further</p>	





Tree ref	Species	Location	Summary of value	Tree photographs
			guidance on management' (Lonsdale, 2013).	
T077	Common Ash	<p>Easing: 556250 Northing:192753</p> <p>Grove Farm, west boundary of Alder Wood.</p> <p>TPP: HE551519-ATK-ELS-XX-DR-LL-000203 (Appendix C)</p>	<p><b><u>Size:</u></b> Large stem girth in comparison to other ash trees in locality.</p> <p><b><u>Condition:</u></b> Decay features present including extensive internal decay and hollowing main stem, revealing heartwood decay. Pronounced basal swelling, indicative of reaction wood to an internal defect. Cavities on main stem and at old branch wounds and storm damage in crown. Large diameter dead wood in crown.</p> <p><b><u>Biodiversity value:</u></b> Decayed heartwood rot and white rot providing habitat for saproxylic invertebrates.</p> <p><b><u>Cultural and heritage value:</u></b> Tree potentially present on 1866 OS mapping. Limited visibility from surrounding views given existing tree stock and site topography.</p> <p><b><u>Age:</u></b> It's diameter of 950mm means it has a girth of 2.98m and means it is included within the 'locally notable' criterion of girth in relation to age as shown in Figure 1.3 of 'Ancient and other veteran trees: further</p>	




Tree ref	Species	Location	Summary of value	Tree photographs
			guidance on management' (Lonsdale, 2013).	
T095	Common Oak	Easing: 55617256 Northing:19309512  Grove Farm, north of Alder Wood.  TPP: HE551519-ATK-ELS-XX-DR-LL-000205 (Appendix C)	<p><b><u>Size:</u></b> Large stem girth in comparison to other trees in locality.</p> <p><b><u>Condition:</u></b> Decay features present including elongated wound on north west side of main stem, exposed and desiccated dead wood. Heartwood decay developing. Moderate diameter dead wood in middle crown. Frayed old branch sounds. Cracks and fissures in pieces of dead wood.</p> <p><b><u>Biodiversity value:</u></b> Decayed heartwood rot and white rot providing habitat for saproxylic invertebrates.</p> <p><b><u>Cultural and heritage value:</u></b> Tree appears to be present on 1866 OS mapping. Partially visible from views to east from M25, and views to west from golf course.</p> <p><b><u>Age:</u></b> It's diameter of 1010mm means it has a girth of 3.17m and means it is included within the 'locally notable' criterion of girth in relation to age as shown in Figure 1.3 of 'Ancient and other veteran trees: further guidance on management' (Lonsdale, 2013).</p>	




Tree ref	Species	Location	Summary of value	Tree photographs
T097	Common Oak	<p>Easing: 55610556 Northing:19319146</p> <p>Grove Farm, north extents of scheme, adjacent to M25.</p> <p>TPP: HE551519-ATK-ELS-XX-DR-LL-000206 (Appendix C)</p>	<p><b><u>Size:</u></b> Large stem girth in comparison to other trees in locality.</p> <p><b><u>Condition:</u></b> Decay features present including hollowing main stem, revealing heartwood decay.</p> <p>South west scaffold branch historically failed, now resting on the ground and partially attached to main stem. Large wound remaining.</p> <p>Exposed desiccated dead wood visible. Crossing and natural propping of branches in crown. Elongated cavity at old branch failure to south at 6m, and further storm damage recorded in crown.</p> <p><b><u>Biodiversity value:</u></b> Decayed heartwood rot and white rot providing habitat for saproxylic invertebrates.</p> <p><b><u>Cultural and heritage value:</u></b> Tree appears to be present on 1866 OS mapping. Partially visible from views to east from M25, and views to west from golf course.</p> <p><b><u>Age:</u></b> It's diameter of 1430mm means it has a girth of 4.49m and means it is included within the 'veteran/notable' criterion of girth in relation to age as shown in Figure 1.3 of 'Ancient and other veteran trees:</p>	


Tree ref	Species	Location	Summary of value	Tree photographs
			further guidance on management' (Lonsdale, 2013).	
T109	Common Oak	<p>Easing: 556189.4 Northing: 193014.5</p> <p>Grove Farm, growing within hedgerow extending north of Alder Wood.</p> <p>TPP: HE551519-ATK-ELS-XX-DR-LL-000205 (Appendix C)</p>	<p><b><u>Size:</u></b> Large stem girth in comparison to other trees in locality.</p> <p><b><u>Condition:</u></b> Decay features present including occasional deadwood branches to 250mm diameter with desiccated white rot.</p> <p><b><u>Biodiversity value:</u></b> Decayed white rot providing habitat for saproxylic invertebrates.</p> <p><b><u>Cultural and heritage value:</u></b> Tree appears to be present on 1866 OS mapping. Partially visible from views to east from M25, and views to west from golf course.</p> <p><b><u>Age:</u></b> It's diameter of 1290mm means it has a girth of 4.05m and means it is included within the 'locally notable' criterion of girth in relation to age as shown in Figure 1.3 of 'Ancient and other veteran trees: further guidance on management' (Lonsdale, 2013).</p>	



Tree ref	Species	Location	Summary of value	Tree photographs
T112	Common Oak	<p>Easing: 556186.5 Northing: 192911.4</p> <p>Grove Farm, west extents of Alder Wood.</p> <p>TPP: HE551519-ATK-ELS-XX-DR-LL-000205 (Appendix C)</p>	<p><b><u>Size:</u></b> Large stem girth in comparison to other trees in locality.</p> <p><b><u>Condition:</u></b> Decay features present including extensive dead branches in crown with desiccated white rot. Developing heartwood decay at old branch wounds.</p> <p><b><u>Biodiversity value:</u></b> Decayed heartwood rot and white rot providing habitat for saproxylic invertebrates.</p> <p><b><u>Cultural and heritage value:</u></b> Tree appears to be present on 1866 OS mapping. Tree not visible from views to the east given existing tree stock and topography, potentially view from golf course views to west.</p> <p><b><u>Age:</u></b> It's diameter of 1060mm means it has a girth of 3.33m and means it is included within the 'locally notable' criterion of girth in relation to age as shown in Figure 1.3 of 'Ancient and other veteran trees: further guidance on management' (Lonsdale, 2013).</p>	




Tree ref	Species	Location	Summary of value	Tree photographs
T114	Common Oak	Easing: 556206.7 Northing: 192805.1  Grove Farm, west extents of Alder Wood.  TPP: HE551519-ATK-ELS-XX-DR-LL-000205 (Appendix C)	<p><b><u>Size:</u></b> Large stem girth in comparison to other trees in locality.</p> <p><b><u>Condition:</u></b> Decay features present including hollow main stem, revealing extensive heartwood decay.  Large diameter dead branches in crown with desiccated white rot. Historic pollard.</p> <p><b><u>Biodiversity value:</u></b> Decayed heartwood rot and white rot providing habitat for saproxylic invertebrates.</p> <p><b><u>Cultural and heritage value:</u></b> Tree appears to be present on 1866 OS mapping.  Tree not visible from views to the east given existing tree stock and topography, potentially view from golf course views to west.</p> <p><b><u>Age:</u></b> It's diameter of 1380mm means it has a girth of 4.33m and means it is included within the 'veteran/notable' criterion of girth in relation to age as shown in Figure 1.3 of 'Ancient and other veteran trees: further guidance on management' (Lonsdale, 2013).</p>	

Tree ref	Species	Location	Summary of value	Tree photographs
T168	Common Oak	<p>Easing: 55687514 Northing:19265226</p> <p>Growing within grassed field to west of A12, north of junction 28.</p> <p>TPP: HE551519-ATK-ELS-XX-DR-LL-000204 (Appendix C)</p>	<p>Partially visible from surrounding views from M25 junction 28 off-slip.</p> <p><b><u>Size:</u></b> Large stem girth in comparison to other trees in locality.</p> <p><b><u>Condition:</u></b> Decay features present including hollow main stem, revealing extensive heartwood decay.</p> <p>Extensive storm damage recorded, loss of main leader. Exposed heart wood decay. Water pocket in main stem. Remaining crown relatively intact. Dead wood piled at base. Desiccated white rot in crown. Occasional dead branch.</p> <p><b><u>Biodiversity value:</u></b> Decayed heartwood rot and white rot providing habitat for saproxylic invertebrates.</p> <p><b><u>Cultural and heritage value:</u></b> Tree potentially present on 1866 OS mapping. Tree not visible from views to the east given existing tree stock and topography, potentially view from golf course views to west. Tree outside of Lower Vicarage ancient woodland.</p> <p><b><u>Age:</u></b> It's diameter of 1380mm means it has a girth of 4.33m and means it is included</p>	 <p>Aerial photo of T168 from taken from Google Earth, March 2020 as health and safety concerns restricted photograph being taken.</p>

Tree ref	Species	Location	Summary of value	Tree photographs
			within the 'veteran/notable' criterion of girth in relation to age as shown in Figure 1.3 of 'Ancient and other veteran trees: further guidance on management' (Lonsdale, 2013).	



Tree ref	Species	Location	Summary of value	Tree photographs
T180	Common Oak	Easing: 55625384 Northing: 19260157  Glebelands Estate, west of The Weald Brook  TPP: HE551519-ATK-ELS-XX-DR-LL-000203 (Appendix C)	<p><b><u>Size:</u></b> Large stem girth in comparison to other trees in locality.</p> <p><b><u>Condition:</u></b> Decay features present including extensive basal wounds to east and west, revealing onset of hollowing and heartwood decay. Large area of desiccated white rot on surface of dysfunctional wood. Extensive large diameter (&gt;200mm) storm damage recorded in crown. Frayed wounds. Large diameter dead wood in crown and around base.</p> <p><b><u>Biodiversity value:</u></b> Decayed heartwood rot and white rot providing habitat for saproxylic invertebrates.</p> <p><b><u>Cultural and heritage value:</u></b> Tree potentially present on 1866 OS mapping. Partially visible from views from golf course to west.</p> <p><b><u>Age:</u></b> It's diameter of 1250mm means it has a girth of 3.92m and means it is included within the 'locally notable' criterion of girth in relation to age as shown in Figure 1.3 of 'Ancient and other veteran trees: further guidance on management' (Lonsdale, 2013).</p>	

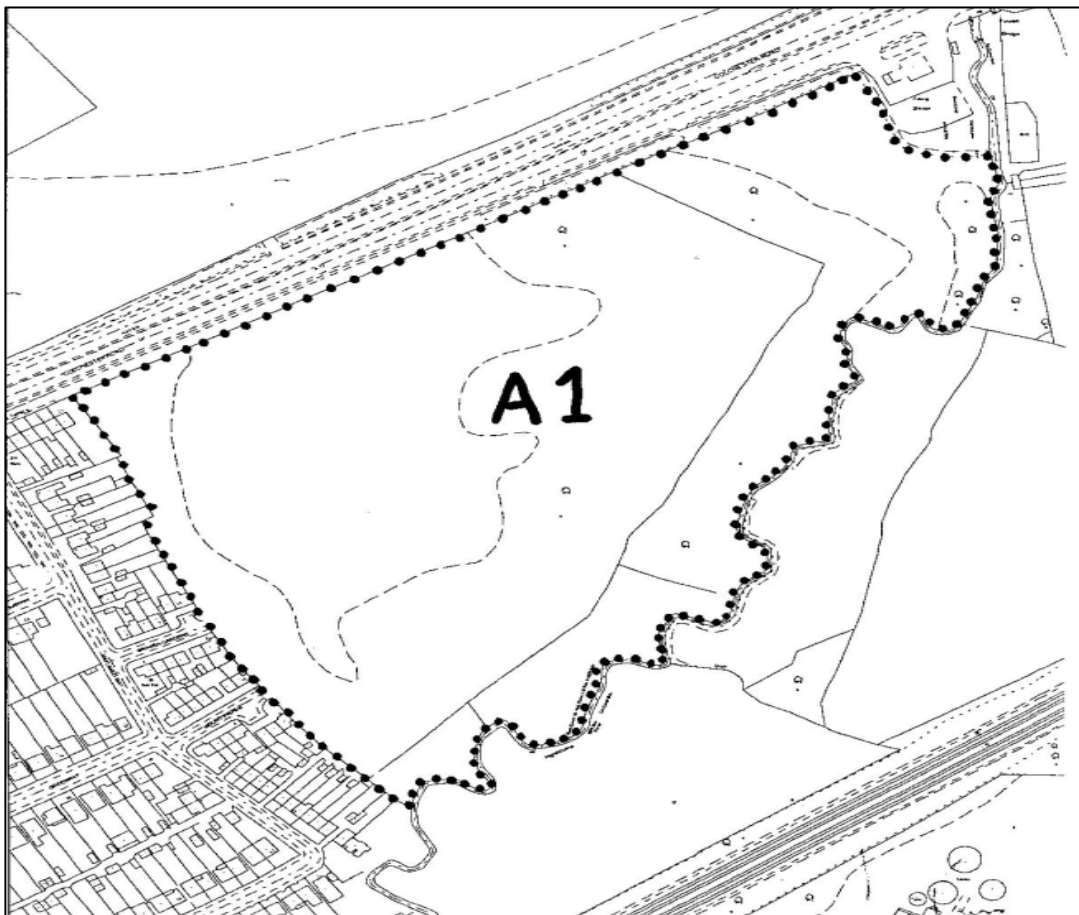
3.3.2 The impacts of the Scheme on the veteran trees are detailed in section 4 of this report.

### 3.4 TPO trees

3.4.1 There are trees protected by TPOs within the DCO boundary. A TPO makes it an offence to cut down, uproot, lop, top, wilfully damage or wilfully destroy a protected tree without authorisation. However, a DCO may include powers to undertake works to trees which are subject to a TPO.

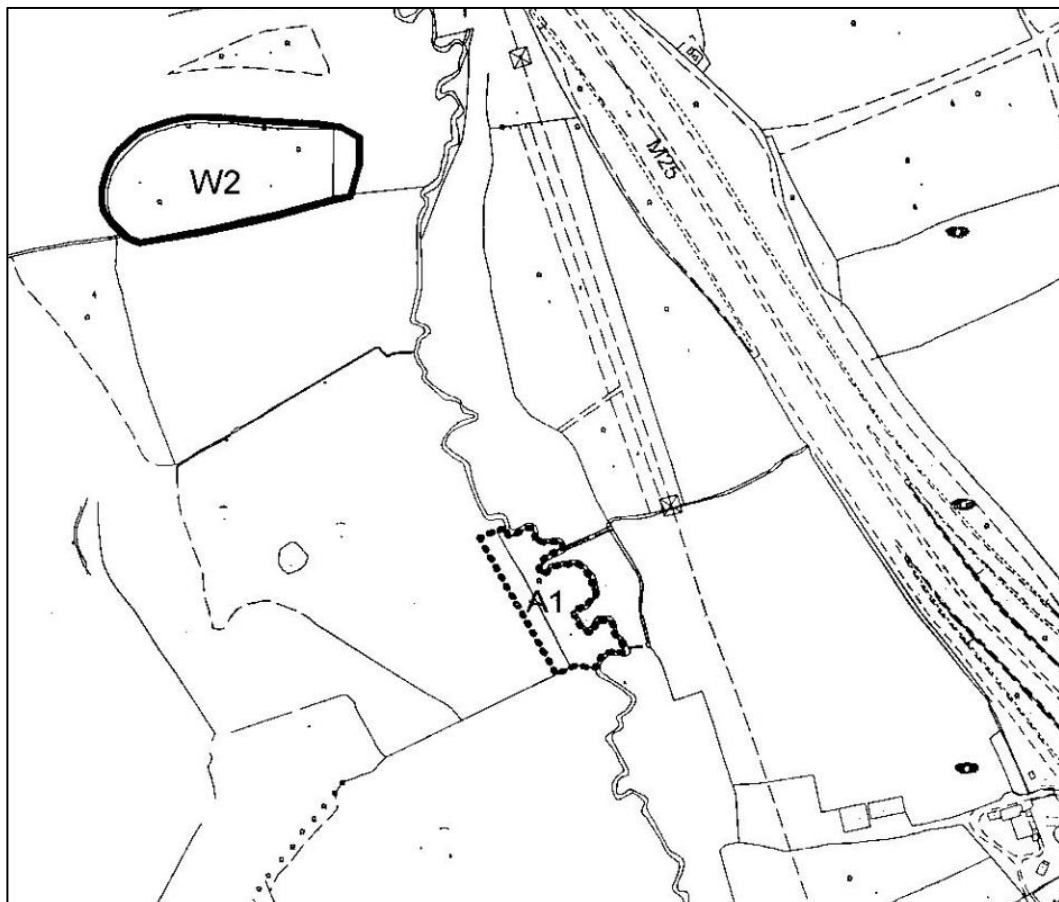
3.4.2 The outline of the TPOs within the DCO boundary are illustrated on the TPPs Appendix C). They are referenced as:

- TPO 2-02 – A1 'Land on south side of Colchester road.



*Insert 1.0: TPO 2-02 location provided by Havering District Council*

- TPO 18-06 – A1 'Maylands Golf Course, Colchester road, Romford.
- TPO 18-06 – W2 'Maylands Golf Course, Colchester road, Romford.



*Insert 2.0: TPO 18-06 location provided by Havering District Council*



- TPO 5/1948 – Map 16 Alder wood (see insert 3.0 below).
- TPO 5/1948 – Map 21 Grove Wood (see insert 3.0 below).



*Insert 3.0: TPO 5/1948 (indicative locations provided by Brentwood District Council),  
Figure Source: Google Earth, 2020*

- 3.4.3 Trees may also be protected as part of a Conservation Area designation, but none were identified within the DCO boundary.

## 4. Arboricultural impacts

### 4.1 General

- 4.1.1 This report determines the impact of the Scheme on the recorded tree stock. It provides details on the recorded trees including their condition and in some cases suitability for retention.
- 4.1.2 The report is supplemented by the TPPs (Appendix C of this report) that illustrate the Scheme, the DCO boundary, the recorded trees and trees that would require removal or potential removal to facilitate the Scheme.
- 4.1.3 The description of the authorised development in Schedule 1 to the draft DCO (application document TR010029/APP3.1), together with the Works plans (application document TR010029/APP/2.3) explain the works required to deliver the Scheme. Temporary construction working areas will also be required by the Principal Contractor in order to construct the permanent structures of the Scheme. Where veteran trees fall within the areas, they are noted within Table 4.1. The assessment of tree loss is based on a reasonable worst-case scenario given the scale of the proposed earthworks making tree loss unavoidable. The ability to retain trees through bespoke engineering options could be explored to retain those trees **not directly** within the footprint of proposed earthworks and in consultation with the arboriculturist. This will not be possible for all trees within the direct footprint of the works, which includes the two veteran trees to be lost.
- 4.1.4 Confirmation on tree removals will be undertaken prior to construction and detailed within an Arboricultural Method Statement (AMS), which will also confirm protection measures for the retained trees.
- 4.1.5 The tree survey schedules within Appendix B of this AIA cover all the trees recorded as part of this assessment in line with the BS5837:2012 guidance. A column has been included to indicate the impact of the works.
- 4.1.6 Entries in the impact column include removal (abbreviated as REM and highlighted as red); part removal (abbreviated as PRG and highlighted as orange); and retained (abbreviated as RET and highlighted as green). Where the trees fall outside the Scheme Boundary, the default entry is retained.

### 4.2 Root protection areas

- 4.2.1 The root protection area (RPA), as defined in the BS5837:2012, is 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. This area should be protected from disturbance "in order to avoid unacceptable damage to the tree as a result of severance or asphyxiation of the root system."
- 4.2.2 The recommended minimum area (m<sup>2</sup>) to avoid potentially harmful disturbance has been calculated and entered into the tree schedules (see Appendix B of this AIA) for all trees. The RPA for each individual tree has been illustrated on the TPPs as a circle centred on the tree's stem, while the RPAs of the tree groups and woodlands have been illustrated as an offset from the canopy extents, unless trees have specifically been recorded within the groups.
- 4.2.3 The use of RPAs will become more prevalent during the detailed design process: the infringement into these areas should be reduced where possible through

sympathetic engineering approaches. The current TPPs are to be used to inform the continued progression of the scheme, similarly, the survey schedules which contain RPA details for the groups recorded.

- 4.2.4 Where the veteran trees specimens could be impacted upon by the proposals then the actual root zones of the trees could be mapped using sonic-tomography to determine extent of any root loss that could occur, and to reduce or remove works in these locations.

### 4.3 Arboricultural impacts – Veteran trees

- 4.3.1 Efforts have been made within the design to avoid veteran trees including proposed departures from Highways Standards where necessary.
- 4.3.2 The impacts of the work have been assessed, and Table 4.1 covers the veteran trees within the DCO boundary and the impacts of the works. The suggested mitigation measures refer to construction exclusion zones. These may be defined as all the soft surfaces within the RPAs of trees that are to be retained outside of the works areas and the areas behind the tree protection fencing or site hoarding. These zones prohibit site operations without consultation with an arboriculturist including the storage of plant, equipment or materials, vehicular or plant access, washing down of vehicles or machinery, handling, discharge or spillage of any substances, including cement washings, and actions likely to cause localised water-logging. Also, no mechanical digging, scraping or excavation, nor earthworks or changes in the finished ground levels other than those agreed by an arboriculturist.

**Table 4.1: Veteran trees potentially impacted by the Scheme**

Tree ID	Tree species	Potential impact	Suggested mitigation
T002	Common Oak	<b>No direct impact</b>	Not applicable
T004	Common Oak	<b>No direct impact</b>	Not applicable
T019	Common Oak	<b>No direct impact</b>	Not applicable
T021A	Common Oak	<b>Removal</b>	Compensation strategy to be agreed with Natural England.
T059	Common Oak	<b>Potential construction impact</b>	Within construction working area. RPA and Crown extents will require protection measures, including the provision of barriers to define a construction exclusion zone around the tree, details would need to be confirmed within an AMS.
T065	Common Oak	<b>Potential construction impact</b>	On the periphery of construction working area. RPA and Crown extents will require protection measures, including the provision of barriers to define a construction exclusion zone around



Tree ID	Tree species	Potential impact	Suggested mitigation
			the tree, details would need to be confirmed within an AMS.
T074	Common Ash	<b>Removal</b>	Compensation strategy to be agreed with Natural England.
T077	Common Ash	<b>Potential construction impact</b>	Within construction working area. RPA and Crown extents will require protection measures, including the provision of barriers to define a construction exclusion zone around the tree, details would need to be confirmed within an AMS.
T095	Common Oak	<b>Potential construction impact</b>	On the periphery of construction working area. RPA and Crown extents will require protection measures, including the provision of barriers to define a construction exclusion zone around the tree, details would need to be confirmed within an AMS.
T097	Common Oak	<b>Potential construction impact</b>	Within construction working area. RPA and Crown extents will require protection measures, including the provision of barriers to define a construction exclusion zone around the tree, details would need to be confirmed within an AMS.
T109	Common Oak	<b>Potential construction impact</b>	On the periphery of construction working area. RPA and Crown extents will require protection measures, including the provision of barriers to define a construction exclusion zone around the tree, details would need to be confirmed within an AMS.
T112	Common Oak	<b>No direct impact</b>	Not applicable
T114	Common Oak	<b>No direct impact</b>	Not applicable
T168	Common Oak	<b>Potential construction impact</b>	On the periphery of construction working area. RPA and Crown extents will require protection measures, including the provision of barriers to define a construction exclusion zone around the tree, details would need to be confirmed within an AMS.

Tree ID	Tree species	Potential impact	Suggested mitigation
T180	Common Oak	<b>Potential construction impact</b>	Within construction working area. RPA and Crown extents will require protection measures, including the provision of barriers to define a construction exclusion zone around the tree, details would need to be confirmed within an AMS.

- 4.3.3 Two veteran trees (T021A and T074) have been identified that would be permanently lost as a result of the Scheme. The layout and design of the Scheme has a number of constraints, including highways safety and clearance from floodplain. Efforts have been made within the design to avoid veteran trees including proposed departures from Highways Standards where necessary. However, there are no feasible design options available to retain these two trees. A departure from Highways Standards has been proposed to allow the retention of Tree T059, but a workable re-design to avoid the removal of trees T021A and T074 has not been possible.
- 4.3.4 A further eight veteran trees lie within temporary construction working areas and all would be retained during construction through appropriate mitigation measures.

## 4.4 Arboricultural impacts – Remaining trees

- 4.4.1 Table 4.2 below reflects the current **tree totals** for the remaining surveyed trees required for removal or potential removal to facilitate the works

**Table 4.2: Arboricultural impact table – remaining trees surveyed**

Type	BS Category Reference			
	Category A no./area (m <sup>2</sup> )/m	Category B no./area (m <sup>2</sup> )/m	Category C no./area (m <sup>2</sup> )/m	Category U no./area (m <sup>2</sup> )/m
Individual Tree (T) and individual trees in groups	8no.	62no.	62no.	4no.
Groups (G)	1,577m <sup>2</sup>	5,652m <sup>2</sup>	33,749m <sup>2</sup>	-
Woodland (W)	2,917m <sup>2</sup>	17,200m <sup>2</sup>	-	-
Hedgerows (H)	-	-	-	-

- 4.4.2 These trees are currently located within the footprint of the DCO boundary. Where trees are partly within the footprint of the proposed works the arboriculturists have used the percentage of RPA encroachment to determine whether a tree(s) could be retained. Where over approximately 20% of their RPAs are severed by the works the trees have been identified for removal. The 20% figure being referenced within *BS5837:2012* for what is deemed potentially acceptable in terms of RPA infringement. But this is also dependant on existing site conditions, which have also been considered by the arboriculturists. The ability to retain some trees through detailed design is to be explored as the

Scheme progresses but excludes the potential to retain the two veteran trees T021A and T074, whose loss is unavoidable.

## **4.5 Arboricultural impacts – TPO trees**

4.5.1 There are TPO trees within the DCO boundary and some would be impacted upon by the Scheme.

4.5.2 The TPO's that could be impacted upon are:

- TPO 2-02 – A1 Land on south side of Colchester road
- TPO 18-06 – A1 Maylands Golf Course, Colchester road
- TPO 5/1948 – Map 16 Alder wood
- TPO 5/1948 – Map 21 Grove wood

4.5.3 The impacts of the works include the removal of trees to facilitate the Scheme. Those trees that are not directly within the proposed earthworks that could potentially be retained through specific working measures would need to be confirmed and any specific working measure would need to be confirmed within an AMS.



## 5. Mitigation

### 5.1 General

- 5.1.1 Mitigation measures and compensation for habitat loss and landscape effects is outlined in the relevant EA chapters (Chapter 7 Biodiversity and Chapter 9 Landscape and Visual) and will be further developed during detailed design of the Scheme and approved prior to commencement of construction.
- 5.1.2 The avoidance, mitigation and compensation measures pertaining to veteran trees is provided in Section 7.9 Design, mitigation and enhancement measures, in the Biodiversity chapter (Chapter 7) of the ES.
- 5.1.3 An Outline Construction Environmental Management Plan (CEMP) (application document TR010029/APP/7.2) has been developed and will be adopted into a CEMP for all construction operations to protect retained veteran trees. Measures regarding the protection of retained veteran trees and actions to be taken to limit the adverse impacts of construction and compensate for veteran tree loss are also provided as environmental commitments in the Register of Environmental Actions and Commitments (REAC) (application document TR010029/APP/7.3) which include the following:
- The location of access tracks, haul roads, site compounds and material storage areas will be sited away from retained veteran trees.
  - Protection of retained trees following standard practice (i.e. BS 5837:2012 Trees in relation to design, demolition and construction – recommendations). A construction exclusion zone will be established using steel mesh panel fencing, or similar, around retained veteran trees where works are not limited by the existing carriageway to protect veteran trees from accidental incursion.
  - Protection of retained veteran trees from pollution during all clearance and construction works by adherence to the Pollution Prevention Guidelines (PPGs), the Construction Industry Research and Information Association (CIRIA) guidance on the control of water pollution from construction sites, and mitigation measures set out in the Outline CEMP under the relevant headings of air quality, noise and vibration, and road drainage and water environment.
  - An Ecological Clerk of Works (ECoW) and arboricultural specialist will be consulted, as required, to advise on the above measures during construction.
- 5.1.4 The retained veteran trees shall be assessed by an arboriculturist prior to construction to inform on any potential remedial works that maybe required to manage any structural or physiological defect(s) that increase the likelihood of full or partial failure of the tree or tree part within falling distance of the works. This forms part of a duty of care to both people and property laid down in the Occupiers Liability Acts 1957 and 1984, the Highways Act 1980 and Health and Safety at Work Act 1974. Veteran habitat features are often defects, meaning any potential works will be sympathetic, whilst being reasonable in order to manage the risk of harm to people or property.
- 5.1.5 A Landscape and Ecology Management and Monitoring Plan (LEMP) (see the Outline LEMP, Appendix 7.16, application document TR010029/APP/6.3) will be implemented for the maintenance and appropriate management of newly created habitats (particularly new woodland and individual trees) to ensure their successful establishment. Monitoring will take the form of

arboricultural/ecological surveys (as required) of newly planted trees (focussing on those planted with the aim of developing into veteran trees) and woodland to inform appropriate ongoing management practices.

- 5.1.6 Monitoring will be undertaken by walkover survey annually in the first two years after planting during the establishment period. Newly planted trees will be monitored annually throughout the maintenance period. After the initial two years, an ongoing schedule of monitoring of newly created habitats will be agreed with the Principal Contractor.
- 5.1.7 The remaining trees fall outside of the direct works, and where they fall within the construction working areas they will require mitigation measures to ensure their retention. All protection measures would need to be detailed within an AMS once detailed designs have been finalised and working measures agreed.

## **5.2 Arboricultural mitigation measures**

- 5.2.1 The tree survey schedules (see Appendix B of this AIA) show management recommendations for those trees which at the time of the survey were identified as requiring management intervention. Any works recorded for retained trees will be confirmed prior to construction and included within an AMS.
- 5.2.2 As part of the Scheme, designers have sought to avoid impacts on trees and have achieved this in some cases. Those trees that can be retained have no red cross on the TPPs or do not fall within red hatched areas.
- 5.2.3 Trees that are to be retained would be protected using temporary fencing to be installed around RPAs or any confirmed buffer zone. The location of any protective fencing for retained trees would need to be confirmed prior to construction and included within updated TPPs and supplemented by an AMS.
- 5.2.4 The specification for the protective fencing should be a 'Heras'-type fencing, which should be installed to protect both the crowns and RPAs of trees and to establish a Construction Exclusion Zone (CEZ) around the trees. Site operations not permitted in the CEZ without consultation with an arboriculturist include the storage of plant, equipment or materials; vehicular or plant access; the washing down of vehicles or machinery; the handling, discharge or spillage of any substances, including cement washings. No mechanical digging, scraping or excavation shall be permitted in the CEZ and no earthworks or changes in the finished ground levels other than those agreed by an arboriculturist.

## **5.3 Arboricultural compensation measures**

- 5.3.1 Proposed compensation measures for the loss of the two veteran trees include:
- For each veteran tree lost, eight trees of the same native species will be planted with space around them to develop into an open crown. As, one veteran oak and one veteran ash are lost, six trees will be planted. This will include three oak and, as it is not recommended to plant ash due to ash dieback, three hornbeam trees. Hornbeam has been selected to replace ash as there are older specimens of this species at the edge of Alder Wood, in nearby Ancient Woodland and it is currently not under threat of disease or damage from pests. The locations of the new trees to be planted will be determined during detailed design.

- Standing and fallen deadwood from the lost veteran trees will be salvaged through translocation and other means to provide ecological benefits and maximise the value of the features. During detailed design the appropriate approach on an individual tree-by-tree basis will be determined.
- At least two retained trees within the DCO boundary and selected in consultation with an arboriculturist and ecologist will be 'veteranised' to promote dead wood habitat to benefit invertebrates and other specialist wildlife. The trees to be made subject to these works will be determined during detailed design and will be of broad leaf species as those lost and in an appropriate location to complement the existing veteran tree resource. Examples of veteranisation will include ring-barking of main stem and/or major limbs to promote heartwood and sapwood decay, coronet cuts and/or deliberate snapping or shattering of limbs to enable ingress of water and subsequently fungal attack and felling of whole trees to be retained in situ to benefit species that prefer deadwood in direct contact with, and under the ground.
- Where other (non-veteran) trees are felled, some will be retained on-site and repositioned into a range of optimal situations from damp shady situations to full sun to benefit the widest range of invertebrates possible from damp-loving fly species to sun-loving stem-nesting bees and wasps. These felled trees and limbs will be retained in as large a single unit as possible since large volume pieces of wood remain ecologically viable for a much longer timeframe than sectioned-up material. These trees will not be cut up into rings or sawn up and stacked into log piles.

5.3.2 Further details are provided in the Biodiversity chapter (Chapter 7) of the ES.



# Appendices

# Appendix A. Tree survey key and method for measurements and categorisation criteria

## A.1 Survey key

**Tree No:** Sequential reference number given to the tree or group of trees as shown on the tree survey drawings.

**Species:** This is the common name given to the tree. The botanical name is sometimes given.

**Height (Ht):** tree height from the base of the tree to its full stem height, measured in metres (m). Measurements are taken to the nearest half metre.

**Stem diameter (mm):** measured in accordance with figure A1 below. Measurements are rounded to the nearest 10mm.

**Branch spread (m):** measurement of crown spread to the four cardinal points; if the crown is balanced a single measurement is given. Crown spread plotted on the tree survey drawings. Measurements are taken to the nearest half metre.

**1<sup>st</sup> significant branch and direction of growth (m):** measurement of the height of the first significant branch above ground level, given in metres and direction of growth e.g. 2.4-N.

**Canopy height (m):** height of the canopy above ground level. Measurements are taken to the nearest half metre.

**Life stage:** The following abbreviations are used:

Y = Young trees <1/5 life expectancy

SM = Semi-Mature trees 1/5 – 2/5 life expectancy

EM = Early Mature trees 2/5 – 3/5 life expectancy

M = Mature trees 3/5 – 4/5 life expectancy

OM= Over-Mature trees >4/5 life expectancy

**Vitality: Good, fair, poor or dead**

Good – a tree with little or no obvious physiological defects; leaf density and colour is typical for the species, bud, flower and fruit production are good and there are no signs of dieback at any point throughout the crown.

Fair – a tree with moderate physiological defects; leaf density is less than typical for the species, leaf cover is chlorotic, bud, flower or fruit production are deficient, there are signs of minor dieback within the crown, there is a moderate degree of deadwood within the crown.

Poor – a tree with major or multiple physiological defects; evidence of extensive crown thinning, bud, flower or fruit production is poor or missing, there are signs of advanced dieback throughout the crown, there is extensive or major deadwood throughout the crown.

Dead – a tree that has died due to either old age, drought, disease, pest infestation, physical damage to the main stem or rooting system, or a combination of these factors.

**General observations, particularly of structural and/or physiological condition:** e.g. observations of any decay and physical defect.

**Preliminary management recommendations:** any identified preliminary management to rectify defects recorded in general observations. These may include the need for further detailed inspection, or works to address immediate hazard to life or property.

**Estimated remaining contribution, in years:**

<10

10+

20+

40+

**Category grading:** As per BS5837:2012 chart in accordance with figure A2 below.

A – Illustrated as light green (RGB code 000-255-000)

B – Illustrated as mid blue (RGB code 000-000-255)

C – Illustrated as grey (RGB code 091-091-091)

U – Illustrated as dark red (RGB code 127-000-000)

**Root Protection Area (m<sup>2</sup>):** plotted around each of the category A, B and C trees on relevant drawings, illustrating the minimum area around a tree deemed to contain sufficient roots and rooting volume to maintain the tree's viability. The protection of the roots and soil structure is treated as of paramount importance.

**Impact:**

Remove – abbreviated as REM in red highlighted box

Part remove – abbreviated as PRG in orange highlighted box

Potential remove – abbreviated as POT REM in blue highlighted box

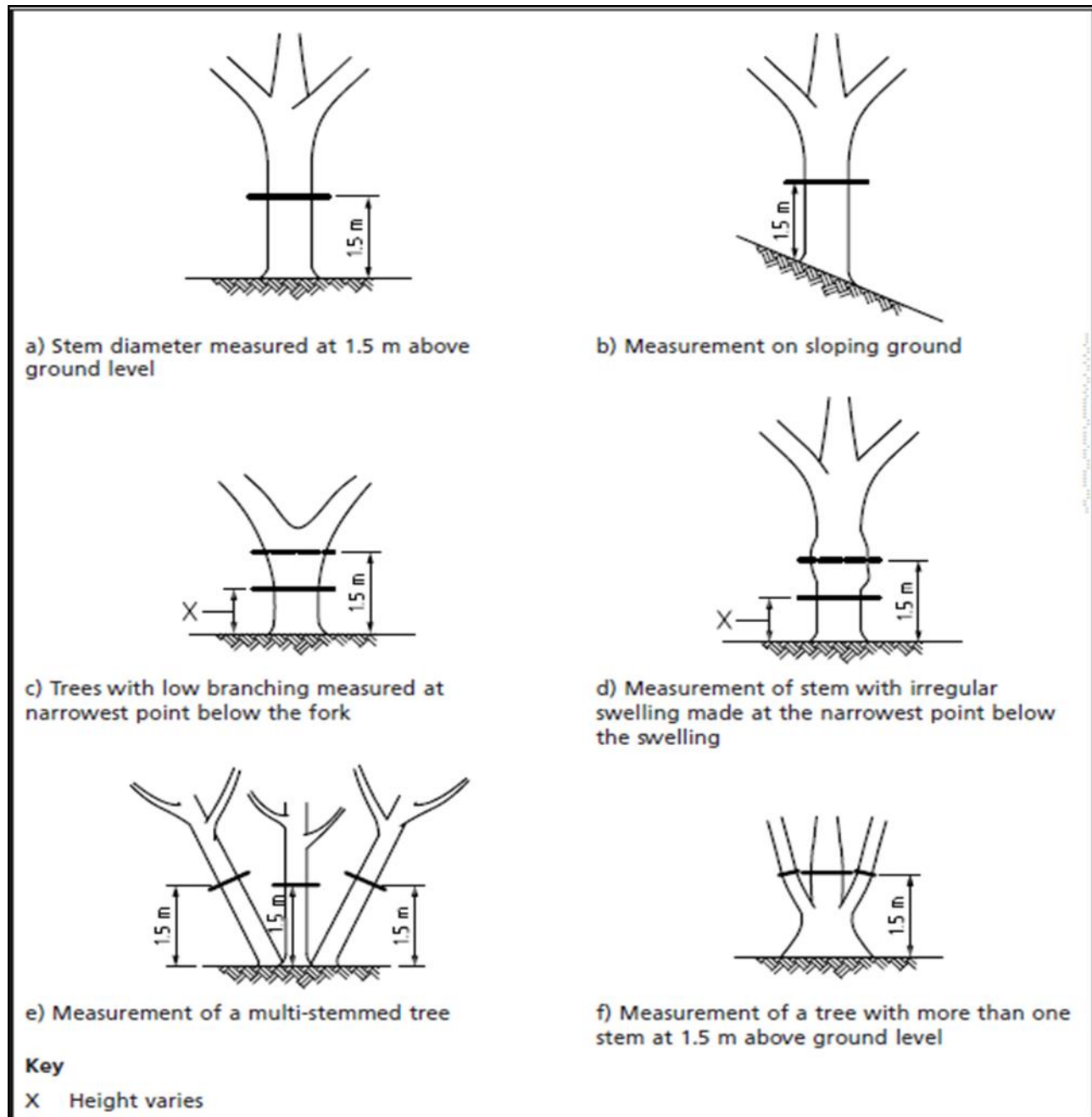
Retain – abbreviated as RET in a green highlighted box



## A.2 Measuring table

### A.2.1 Measurement of tree stems dependant on tree form

#### Insert A.1: **BS5837:2012** measurement of tree stems dependant on tree form methods



## A.3 BS5837:2012 Cascade chart

### A.3.1 Cascade chart for tree quality assessment from BS5837:2012

#### Insert A.2: BS5837:2012 cascade chart for tree quality assessment

Category and definition	Criteria (including subcategories where appropriate)		
<b>Trees unsuitable for retention</b> (see Note)			
<b>Category U</b> Those in such a condition that they cannot realistically be retained as living trees in the context of the current land use for longer than 10 years	<ul style="list-style-type: none"><li>Trees that have a serious, irremediable, structural defect, such that their early loss is expected due to collapse, including those that will become unviable after removal of other category U trees (e.g. where, for whatever reason, the loss of companion shelter cannot be mitigated by pruning)</li><li>Trees that are dead or are showing signs of significant, immediate, and irreversible overall decline</li><li>Trees infected with pathogens of significance to the health and/or safety of other trees nearby, or very low quality trees suppressing adjacent trees of better quality</li></ul> <p><i>NOTE Category U trees can have existing or potential conservation value which it might be desirable to preserve; see 4.5.7.</i></p>		
	<b>1 Mainly arboricultural qualities</b>	<b>2 Mainly landscape qualities</b>	<b>3 Mainly cultural values, including conservation</b>
<b>Trees to be considered for retention</b>			
<b>Category A</b> <b>Trees of high quality</b> with an estimated remaining life expectancy of at least 40 years	Trees that are particularly good examples of their species, especially if rare or unusual; or those that are essential components of groups or formal or semi-formal arboricultural features (e.g. the dominant and/or principal trees within an avenue)	Trees, groups or woodlands of particular visual importance as arboricultural and/or landscape features	Trees, groups or woodlands of significant conservation, historical, commemorative or other value (e.g. veteran trees or wood-pasture)
<b>Category B</b> <b>Trees of moderate quality</b> with an estimated remaining life expectancy of at least 20 years	Trees that might be included in category A, but are downgraded because of impaired condition (e.g. presence of significant though remediable defects, including unsympathetic past management and storm damage), such that they are unlikely to be suitable for retention for beyond 40 years; or trees lacking the special quality necessary to merit the category A designation	Trees present in numbers, usually growing as groups or woodlands, such that they attract a higher collective rating than they might as individuals; or trees occurring as collectives but situated so as to make little visual contribution to the wider locality	Trees with material conservation or other cultural value
<b>Category C</b> <b>Trees of low quality</b> with an estimated remaining life expectancy of at least 10 years, or young trees with a stem diameter below 150 mm	Unremarkable trees of very limited merit or such impaired condition that they do not qualify in higher categories	Trees present in groups or woodlands, but without this conferring on them significantly greater collective landscape value; and/or trees offering low or only temporary/transient landscape benefits	Trees with no material conservation or other cultural value

# Appendix B. Tree survey schedule

## B.1 Tree survey schedule



## M25 junction 28 improvement scheme

## Appendix B: Tree Survey Schedule

Tree ID	Species	Height (m)	Stem Diameter (mm)	Branch spread N (m)	Branch spread E (m)	Branch spread S (m)	Branch spread W (m)	First significant branch height (m)	Canopy height (m)	Life Stage	Vitality	General observations	Preliminary mangement recommendations	Estimated Remaining Contribution (Years)	Category Grading	RPA Radius (m)	Impact: Remove / Part Remove / Retain (REM, PRG, RET)
T001	Common Oak	10	990	6.0	8.0	6.0	7.0	3-NE	2.5	M	Good	Crown break at 2m into 4no. Stems. Unions appear sound. Crown historically reduced. Occluded and unoccluded wounds present. Moderate diameter dead wood in middle crown. Frayed wounds in places. Block paving in root zone to east and south.	No works presently required	40+	A3	11.9	RET
T002	Common Oak	16	1110	9.0	8.0	8.0	9.0	5-W	3	V	Good	VETERAN TREE: Grass surface around base. Existing concrete access road 2.5m west. No direct damage recorded from surface root activity, potential root barrier to growth. Base of tree approximately 1m higher than level of road. Crown break at 2m into 4no. Stems. Cavity in main stem beneath multi-stem unions. Revealing heartwood decay. Occasional moderate diameter dead wood in middle crown.	No works presently required	40+	A3	13.3	RET
T003	Common Oak	4.5	630	1.0	1.0	1.0	1.5	4-W	4	OM	Dead	Standing dead tree. Dessicated exposed deadwood and areas of cubicle rot on internal decayed heartwood. Hollowing main stem. Elongated cavity. No live crown present. Veteran habitat features. Tree not of advanced age.	No works presently required	40+	B3	7.6	RET
T004	Oak	13	1000	5.0	4.0	4.0	4.0	2	2.5	V	Good	VETERAN TREE; existing tag 0402; on grassy knoll, with edge of <i>in situ</i> concrete road 500mm from base; stem extensively hollow, historic vertical slit cavity from ground level to crown break, north side, similar vertical decay trenches ascending two of three principal limbs above crown break; these three limbs all topped; 5% dieback at top of crown; historic branch tears, stubs, deadwood branches to 100mm diameter; impact damage from vehicles at 4m on western flank	No works required at present	40+	A3	12.0	RET
T005	Common Oak	14	1100	5.0	5.0	5.0	4.0	2-S	2.5	OM	Poor	Loss of vitality. Dieback and dead wood throughout crown. Roots severed to west. Main stem leans to south east. Historic lean. Epicormic growths on main stem.	Pollard at 5m.	40+	B3	13.2	RET
T006	Apple	4.5	430	3.0	3.0	5.0	3.0	1.5-SW	1.5	M	Good	Decay cavities in main stem. Crown historically reduced, decay at old pruning wounds. Good regrowth in crown. Main stem leans to south. Existing concrete access road 1.5m west, no direct damage recorded from surface root activity, potential root barrier to growth.	No works presently required	10+	C2	5.2	REM
T007	Common Ash	16	450;200	6.0	6.0	4.0	3.5	3-S	5	EM	Fair	Existing concrete access road 400mm east. No direct damage recorded from surface root activity. Potential root barrier to growth. Crown previously reduced to east for access. Elongated wound on main stem to east, wood decay fungi <i>Inonotus hispidus</i> present. Further attachment points visible in crown. Occasional small to moderate diameter dead wood in lower and upper crown.	Remove deadwood overhanging access road	10+	C2		REM
T008	Oak	19	640	6.0	8.0	10.0	6.0	4.5-S	4	M	Good	At side of in situ concrete road, crown lifted on west (road) side; low southern limb cut back and some encroachment into root zone for recent installation of security gate 3m from stem; rounded open crown has occasional branch tears; frequent deadwood branches to 150mm diameter in shaded lower crown area	Remove deadwood if adjacent to proposed works	40+	B2	7.7	REM
T009	Silver Birch	10	350	5.0	3.0	5.0	4.0	2.5-NW	2	SM	Fair	Manhole in root zone to west, 300mm from base. Fibrous roots visible after recent excavation to reveal cover. Crown lifted, unoccluded wounds present and stubs of dead wood.	No works presently required	10+	C2	4.2	REM
G010	Cherry, apple, crack willow, Norway maple, blackthorn, ash, elder, Hawthorn	12	300	4.0	4.0	4.0	4.0	N/A	0	Y-EM	Fair to good	Planted and self sown stock. Growing on steep sloped bank, down to brook. Dead willow close to waters edge. Habitat value. Relatively young trees.	No works presently required	20+	B2	3.6	REM
T011	White Willow	18	590 at 1000	10.0	10.0	10.0	6.0	1.5	2	EM-M	Good	On steep bank 5m above stream; planted specimen - stake remains in place; rapid growth compared with surrounding trees planted at same time; crown growth suppressed to west by neighbouring trees; branches arching, some crossing; small diameter deadwood in shaded crown interior	Remove deadwood if works proposed within crown extents	20+	B2	7.1	REM
G012	A Group	to 15	to 300	5.0	5.0	5.0	5.0	1.5	1	EM	Good	Mixed vegetation on bank above stream, mostly planted as screen for property to north; group extending into garden of property; principal species whitebeam, Norway maple, alder near stream including some multi-stemmed; planting stakes still in place; understorey of blackthorn in dense clusters; some hawthorn, goat willow; vitality generally good; 1no larger willow recorded separately	No works required at present	20+	B2	3.6	PRG
G013A-F	Norway maple, whitebeam	8	330	4.0	4.0	4.0	4.0	N/A	1	Y-SM	Good	Planted group. Tree stakes still present, now redundant. Mutually suppressed crowns.	Remove tree stakes	10+	C2	4.0	PRG
T014	Cherry Plum	5	250	4.0	3.0	2.0	1.0	1.5-E	1	SM	Fair	Main stem leans to east. Crown resting on chainlink fence. Manhole in root zone to south.	No works presently required	10+	C2	3.0	RET
G015A-D	Common Beech	14	350	5.0	5.0	5.0	5.0	2.5-E	2	SM	Fair	Group of planted trees. Concrete raft foundation in root zones to north and east. East tree late into leaf and moderate diameter dead wood in lower crown. Mutually suppressed crowns.	Remove dead wood if within falling distance of works area.	20+	B2	4.2	RET

## M25 junction 28 improvement scheme

## Appendix B: Tree Survey Schedule

Tree ID	Species	Height (m)	Stem Diameter (mm)	Branch spread N (m)	Branch spread E (m)	Branch spread S (m)	Branch spread W (m)	First significant branch height (m)	Canopy height (m)	Life Stage	Vitality	General observations	Preliminary mangement recommendations	Estimated Remaining Contribution (Years)	Category Grading	RPA Radius (m)	Impact: Remove / Part Remove / Retain (REM, PRG, RET)
G016	Norway maple, crack willow. Rowan, ash, cherry, silver birch, hazel.	12	350	4.0	4.0	4.0	4.0	N/A	0	SM	Fair to good	Planted and self sown stock. Pockets of scrub. Bases not accessible. Habitat value. Relatively young age on trees.	No works presently required	20+	B2	4.2	PRG
G016	A Group	to 16	to 400	5.0	5.0	5.0	5.0	1.5	1	EM	Good	Attractive mixed screen planting on triangular bank between A12 carriageway and slip road; species include lime, ash, sycamore, hawthorn, blackthorn; 7-9m spacing typical between larger trees; frequent co-dominant forks among limes; bramble encroachment; screening and softening value	No works required at present	20+	B2	4.8	PRG
G017	A Group	to 16	to 400	5.0	5.0	5.0	5.0	1.5	1	EM	Good	Attractive mixed screen planting on triangular bank between A12 carriageway and slip road; species include lime, ash, sycamore, horse chestnut, elder, hawthorn, blackthorn; 7-9m spacing typical between larger trees; frequent co-dominant forks among limes; bramble encroachment; screening and softening value	No works required at present	20+	B2	4.8	RET
G018	Norway maple, lime, crack willow, silver birch, hazel, hawthorn	12	300	4.0	4.0	4.0	4.0	N/A	0	SM	Good	Informal group of planted and self sown stock. Bases not accessible. Single and multistem forms visible. Mutually suppressed crowns. Habitat value. Relatively young age on trees.	No works presently required	20+	B2	3.6	RET
T019 (627)	Common Oak	18	1290	12.0	8.0	12.0	9.0	3-N	3	V	Fair	Large stem circumference. Historical pollard, multi stem form from 3-4m. Evidence of more recent crown reduction in upper crown. Abrupt angles on some branches. Cavities in some old branch wounds. Small to moderate diameter dead wood throughout crown, appears a combination of natural crown retrenchment and storm damage. Open crown habit.	No works presently required	40+	A3	15.0	RET
T020	Oak	18	1100	8.0	8.0	8.0	8.0	2	1.5	M	Good	Former pollard beside dry field ditch, concrete headwall of culvert 1.5m to south; swellings on bole and pronounced buttress flare; regulation quantities of historic branch tears, pockets of decay where branches lost	No works required at present	40+	A3	13.2	RET
T021A	Oak	25	1460	15.0	10.0	14.0	12.0	2-S	0	V	Good	VETERAN TREE; existing tag 0415; vast, high quality specimen in field close to woodland boundary ditch; stem and crown angled towards open space to south, with crown bending low to ground, one large limb resting on ground; frequent large historic branch tears, deadwood branches to 300mm diameter; woodpecker holes; small entrances to hollow basal cavities; widespread mammal burrowing in southern root zone. Hollwing main stem. Heartwood decay.	No works required at present	40+	A1/3	15.0	REM
T021B	Common Oak	24	1000	8.0	14.0	13.0	6.0	0-SE	1	M	Good	Growing on edge of woodland. Slight lean on main stem to south east due to competition for light with woodland trees. Shallow dry ditch at base to north. Lowest south east branch in contact with ground, historic wound on upperside of branch, with exposed dessicated wood visible. Hung up moderate diameter dead wood in crown and also lying at base. Decay cavities in some old branch wounds.	No works presently required.	40+	A3	12.0	REM
G022	Hawthorn, blackthorn, oak, elder, ash.	12	250	4.0	4.0	4.0	4.0	N/A	0	SM	Fair to good	Informal intermittent groups of trees and scrub vegetation. Large amounts of self sown blackthorn scrub. Brook growing on east extents. Habitat value. Mammal grazing visible on lower stems. Good buffer zone for adjacent woodland.	No works presently required	20+	C2	3.0	REM
T023	Ash	14	430	5.5	4.0	4.0	5.5	2.5-N	3	EM	Fair	Growing on bank of brook. Late into leaf. Occasional small diameter dead wood in lower and middle crown.	No works presently required	20+	B2	5.2	REM
T024	Ash	19	400	4.0	6.0	11.0	9.0	2	2	EM-M	Good	On stream bank, stem extending horizontally over water, then turning 90° upwards; upper crown leaning to south, lower branches cut back on north side below telecommunications cables passing east to west; large surface roots extending along bank in both directions; large hanging branch resting on ground to north-east	Remove hanging branch if adjacent to proposed works	20+	B2	4.8	REM
G025	Common Alder	16	300 + 280 + 280	4.5	4.5	4.5	4.5	3	2	M	Good	Pair of three-stemmed trees 4m apart, c.2-3m from stream; stem removed from western tree; compression fork at base of northern pair of stems on eastern tree; form and situation characteristic of species	No works required at present	20+	B2	6.0	REM
T026 (418)	Common Oak	18	840	5.0	10.0	10.0	5.0	3-S	5	M	Fair	Growing on south edge of woodland, 4m from dry boundary ditch. Extensive storm damage recorded. Hanging 200mm diameter dead branch to north, dessicated wood visible and elongated cracks and fissures. Good habitat value, ecological assessment required. Hazard beam to south. Horizontal split in lowest branch, no resting in adjacent blackthorn. Further occasional moderate diameter dead wood in middle crown.	No works presently required	40+	A3	10.1	REM

## M25 junction 28 improvement scheme

## Appendix B: Tree Survey Schedule

Tree ID	Species	Height (m)	Stem Diameter (mm)	Branch spread N (m)	Branch spread E (m)	Branch spread S (m)	Branch spread W (m)	First significant branch height (m)	Canopy height (m)	Life Stage	Vitality	General observations	Preliminary mangement recommendations	Estimated Remaining Contribution (Years)	Category Grading	RPA Radius (m)	Impact: Remove / Part Remove / Retain (REM, PRG, RET)
T027	Oak	18	890	7.0	5.0	12.0	8.0	2-S	2	M	Good	Woodland edge tree, crown growth predominantly to south and west, suppressed to east by companion oak; regulation quantities of branch tears, sub-200mm diameter deadwood; hanging branch at centre of crown	Remove hanging branch and deadwood only if works proposed within crown	40+	A2	10.7	REM
T028	Oak	18	570 + 390	4.0	6.0	10.0	8.0	3-S	1.5	M	Fair	Tagged number 0138; forking at 600mm, dominant stem vertical, secondary stem leaning to west; light dieback at crown extents; frequent deadwood to 150mm diameter and hanging branches	Remove deadwood and hanging branches if adjacent to proposed works	20+	B2	8.0	REM
T029	Oak	21	620	8.0	8.0	10.0	9.0	4	4	M	Good	Tagged number 0149; locally dominant specimen, occasional branch tears, stubs, sub-100mm diameter deadwood; large crown slightly sparse; shear crack in branch to south-west at 9m	No works required at present	20+	B2	7.4	REM
T030	Oak	17	650	7.0	7.0	7.0	7.0	4-W	1.5	M	Good	Tagged number 0140; locally dominant, beside woodland path; upright form, light dieback at crown extents; deadwood branches to 200mm diameter in shaded lower crown area; cutting back from overhead electricity cables on south-west side	Remove larger deadwood if adjacent to proposed works	20+	B2	7.8	RET
W031	Poplar, oak, hornbeam, ash, hawthorn, pine, fir, hemlock, silver birch	18	500	7.0	7.0	7.0	7.0	N/A	0	Y-M	Fair to good	Mixed woodland. Broadleaf and coniferous trees. Scots pine abundant, frequent Douglas fir. Occasional young oak, ash, hornbeam. hawthorn and blackthorn frequent on south boundary as part of former hedgerow. Blue bell ground flora. Limited shrub vegetation further into wood. Relatively uniform vertical structure. Topography slopes downtown south. Rare standing dead wood. Dead wood on ground.	No works presently required	40+	B2	6.0	PRG
W032	A Woodland	20	1000	8.0	8.0	8.0	8.0	N/A	0	Y-M	Fair to good	Broadleaf dominated woodland. Oak abundant, young to mature trees. Frequent ash. Occasional poplar, birch. Rare rowan, hawthorn. Blue bell ground flora. Occasional scrub pockets. Varied topography and vertical structure. Woodland edge habitat mainly along south boundary. Crowns topped on trees beneath utility cables. Occasional standing and fallen dead stems.	No works presently required	40+	A2	12.0	PRG
G033	Hawthorn	13	550 at 300	4.0	4.0	4.0	4.0	1.5	1	M	Good	3no trees growing close to stream or adjacent small dry ditch; characteristic tangled multi-stemmed form above low crown break; small broken deadwood stems on eastern tree	No works required at present	10+	C2	6.6	REM
T034	Common Oak	5	260	3.0	3.0	3.0	3.0	1.8-E	1.5	Y	Fair	Growing on bank of brook. Crown topped for utility cable clearance.	No works presently required	10+	C2	3.1	REM
T035	Common Alder	10	200;200;200	3.5	3.5	2.0	3.0	3-N	3	SM	Fair	Growing on brook bank. Base not accessible. Multiple stems from ground level, suggesting past coppice. Decay at coppice stool. Past stem failure.	Consider re-coppice.	10+	C2	6.6	REM
T036	Common Alder	14	300 + 280 + 280 + 170 + 150	5.0	5.0	5.0	5.0	2	2	M-OM	Good	Approximately 5no stems rising from bole overhanging stream; aerial roots descending into stream; large decay cavity at historic branch failure point at 1m, east side	No works required at present	20+	B2	5.5	REM
G037	blackthorn, hawthorn, elder	4.5	150	3.0	3.0	3.0	3.0	N/A	0	SM-M	Fair	Intermittent lapsed woodland boundary hedgerow. Gaps in places, mainly where mature trees have out competed with understory vegetation. Multiple stems on shrubs. Pockets of bramble and scrub vegetation. woodland edge habitat. Dry shallow ditch along boundary. Crowns browsed in places by livestock.	No works presently required	20+	C2	1.8	PRG
T038	Common Alder	16	460	4.0	4.0	4.0	4.0	3	3	EM-M	Fair to poor	At top of stream bank, upright form; large fruiting body of <i>Ganoderma</i> fungus at base, stream side; barbed wire historically embedded in stem; woodpecker interest; 5no younger stems closely adjacent, possibly rising from same bole	No works required at present	10+	C2	5.5	REM
G039A, E	Common Hazel, Hawthorn	6	400	5.0	5.0	5.0	5.0	N/A	0	M	Good	Group of multistem hazel and hawthorn intermittently growing on bank of brook. The multistem forms being indicative of past felling to ground level and regeneration. No recent management visible, numerous stems that are touching and rubbing in places. Mutually suppressed crowns. Some collapsed stems, and small to moderate diameter dead wood. Some decay cavities.	No works presently required	20+	B2	4.8	REM
G040A, E	Alder	8	230;200;150 ;150	4.5	4.5	4.5	4.5	N/A	1	EM	Fair	Group of multistem trees growing intermittently along bank of brook. Tue multistem form being indicative of past felling to ground level and subsequent regeneration. Mutually suppressed crowns. Drawn stems in places, some collapsed or rubbing on adjacent stems. Occasional small black exudates on stems, potential phytophthora spp. Infection. No significant decline in vitality at this time.	No works presently required	20+	C2	15.0	PRG
T041	Ash	19	300 + 300 + 190 + 160	6.5	6.5	5.5	8.0	3-E	2	M	Good	Multi-stemmed, at top of stream bank; upright form, minimal deadwood; stem of companion ash on opposite bank fallen and wedged between stems	No works required at present	20+	B2	6.0	RET



## M25 junction 28 improvement scheme

## Appendix B: Tree Survey Schedule

Tree ID	Species	Height (m)	Stem Diameter (mm)	Branch spread N (m)	Branch spread E (m)	Branch spread S (m)	Branch spread W (m)	First significant branch height (m)	Canopy height (m)	Life Stage	Vitality	General observations	Preliminary mangement recommendations	Estimated Remaining Contribution (Years)	Category Grading	RPA Radius (m)	Impact: Remove / Part Remove / Retain (REM, PRG, RET)
G042	Field Maple	5	400	5.0	10.0	2.0	1.0	0-E	0	M	Good	Group of collapsed trees. East crowns in contact with ground. Root zones undermined to west. Trees on 45degree angle, crowns starting to correct, curving to vertical growth. Some branches browsed by livestock, leaving small and moderate diameter dead wood in crowns.	No works presently required	10+	C2	4.8	RET
G043A-E	Field Maple	6	250	3.5	3.5	3.5	2.0	N/A	0	SM	Good	Intermittent trees growing on bank of brook. Approximately 10no. Single and multistem. Root zones becoming undermined to west through water erosion of soils. Not significant at present. Mutually suppressed crowns.	No works presently required	10+	C2	3.0	PRG
T044	Crack Willow	23	700 + 600 + 500 + 470 + 360	12.0	10.0	7.0	11.0	2	1	OM	Fair	Tagged number 0442; on west bank of stream; five large stems rising from vast bole, leaning in all directions; stem over river to east torn out and part-fallen on east bank; top of stem to west also torn out, suspended at failure point; frequent large historic branch tears, extensive woodpecker activity; frequent dieback at crown extents; large deadwood on ground, deadwood on tree mostly small diameter; ivy encroachment into upper crown	If adjacent to proposed works, consider reduction of main stem; remove deadwood, and bring hanging branches to ground level	20+	B3	14.0	RET
T045	Field Maple	16	640	10.0	3.0	5.0	10.0	1-S	1	M	Good	Tagged number 0439; on promontory overhanging meandering brook, leaning to west; very dense ivy coverage restricts visual assessment; large network of exposed surface roots - possibly connected to smaller companion tree 3m to north-east; visible crown vitality good	No works required at present	20+	B2	7.7	RET
G046A-F	Common Alder	16	450 + 400	5.0	5.0	5.0	5.0	2	1	M	Good	Intermittent specimens, mostly multi-stemmed, growing by east bank of stream, stems of variable size, basal growth; frequent small diameter branch tears; some deadwood, mostly small diameter; tree T046-F is older specimen with large bole containing many cavities offering high habitat potential	No works required at present	20+	B2	7.0	PRG
T046	Sycamore	16	400	4.0	7.5	6.0	4.0	2-E	1.5	EM	Good	Growing on east bank of brook. Co-dominant stems from 3m, slight inclusion at union. Crown suppression to north.	No works presently required	20+	B2	4.8	RET
T047	White Willow	16	800;800	17.0	16.0	4.0	4.0	0-E	0	OM	Fair	Potentially two trees. Now collapsed over brook and resting on ground. Historic collapse. Remaining branches now growing vertical, leading to further collapses. Ivy clad stems in places. Moderate and large diameter dead wood in lower crowns, likely to be a result of livestock browsing.	Consider reductions of crown if within falling distance of works.	10+	C3		RET
T048	Ash	18	600	6.0	8.0	6.0	8.0	3	3	M	Fair	Upright stem, open crown has frequent sub-120mm diameter deadwood	Remove deadwood if closely adjacent to proposed works	10+	C2	7.2	REM
G049A-C	White Willow	8	550	4.0	11.0	4.0	2.0	0-E	0	OM	Fair	Collapsed trees, crowns re-establishing and curving vertically towards sunlight. Extensive cavities at failure points, revealing internal decay. Moderate diameter dead wood in lower crowns through previous livestock browsing. Root plates being undermined to west by brook.	Consider reductions of crowns if within falling distance of works	10+	C3	6.6	RET
T050	Ash	21	520 + 360	10.0	8.0	9.0	6.0	2-E	2	M	Good	On face of stream bank; smaller third stem has slot impact wound 0-1800mm, strong occlusive growth; decay at branch junction to south at 3m descending from wound above - possible future failure point, but location sheltered and target area very low risk	No works required at present	20+	B2	7.0	RET
T051	Common Oak	17	1000	8.0	9.0	5.0	8.0	3-E	3	M	Fair	Growing on east bank of brook. Main stem trifurcates at approximately 3m, unions appear sound. Stems curved. No live growth visible on west stem, large diameter dead wood present, and exposed dessicated wood. further Moderate to large diameter dead wood in lower and middle crowns of remaining stems. Cracks and fissures in decayed wood. Veteran habitat features throughout	No works presently required	40+	B3	12.0	RET
T052	Field Maple	20	660	7.0	7.0	7.0	7.0	2	1	M-OM	Good	Highly characterful specimen on north-west-facing bank of meandering stream, bending upwards from close to water, leaning slightly to north-west; top of high crown disturbed by heavily leaning very large willow to north-west; frequent dieback/deadwood throughout crown; hanging branch	Remove deadwood and hanging branch if closely adjacent to proposed works	20+	B2	7.9	REM
T053	Crack Willow	17	1000	5.0	7.0	6.0	6.0	3.5-S	2	OM	Fair	Extensive basal decay visible through cavity to north. Hollowing main stem. Vertical split in main stem extending from cavity to 1.5m above. Extensive storm damage recorded throughout crown, some broken branches now hanging in upper crown. Large diameter around base from past failures. Large diameter wounds in crown. Dieback and deadwood in upper crown extents.	If retained, tree to be reduced to monolith at approximately 4m.	10+	C3	12.0	REM
T054	White Willow	18	800	9.0	8.0	10.0	7.0	4	0	M	Fair	Co-dominant stem historically failed, north side, now layered and growing separately; larger lower branches torn out and suspended at failure point, arching to ground	Consider reduction of crown if adjacent to proposed works	10+	C2	9.6	RET
T055 (421)	Crack Willow	17	550	12.0	4.0	2.0	4.5	0-S	0	EM	Fair	Growing on bank of brook. South stem collapsed over brook, leaving large cavity in main stem. Further branch failures evident with large diameter wounds visible. Curved and kinked main stem, crown dominant to north.	Crown reduction to approximately 4m in height if within falling distance of works	10+	C3	6.6	REM

## M25 junction 28 improvement scheme

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Tree ID	Species	Height (m)	Stem Diameter (mm)	Branch spread N (m)	Branch spread E (m)	Branch spread S (m)	Branch spread W (m)	First significant branch height (m)	Canopy height (m)	Life Stage	Vitality	General observations	Preliminary mangement recommendations	Estimated Remaining Contribution (Years)	Category Grading	RPA Radius (m)	Impact: Remove / Part Remove / Retain (REM, PRG, RET)
T056	Ash	18	650	7.0	8.0	7.0	10.0	4	3	M	Good	Tagged number 0401; overhanging stream; historic tear-out of main stem at 8m - existing crown in large part re-growth around resulting decay cavity; remains of large fallen tree on opposite bank propped against lower tree	No works required at present	10+	C2	7.8	REM
G057	Hornbeam	to 17	to 490 at 300	5.0	5.0	5.0	5.0	1	1	M	Good	Pair of trees 2.5m apart, growing beside dry ditch; height of southern tree restricted by large oak to south; aerial roots; pockets of decay at branch failure points and low impact wounds; natural bracing - occlusion of branches	No works required at present	20+	B2	5.9	RET
G058	A Group	5	280	3.0	3.0	3.0	3.0	0	0	M-OM	Good	Linear group growing along dry field ditch, remnants of former hedge; species include hawthorn, elder, field maple, cherry plum; occasional ivy encroachment; intermittent large trees; gaps, but coherent canopy cover; signs of former laying; blackthorn becomes dominant at south end, where line turns 90° to east; green infrastructure value	No works required at present	20+	B2	3.4	RET
T059	Common Oak	19	1100	9.0	9.0	11.0	13.0	3-S	2.5	V	Fair	Veteran tree. Growing within dry shallow ditch. Crown lost vitality to east, dieback and dead wood present in upper and middle crown extents. Potential natural retrenchment given age, or ground compaction in root zone to east. Historic basal wounds, exposed dessicated wood present, and sections of lose bark. Occasional small black exudates on main stem, potential bacterial infection. Not significant at present.	Improve root zone conditions to east.	40+	A3	13.2	RET
T060	Common Oak	20	1160	13.0	10.0	14.0	14.0	4-NW	3	M	Good	Growing within dry shallow ditch. Occasional large diameter dead wood in lower crown, cracks and fissures visible in dead wood. Crown break at 4m into multistems, potential old pollard. Large full crown. No evidence of stem hollowing.	No works presently required	40+	A3	13.9	RET
T061	Oak	16	500	8.0	5.5	1.0	11.0	2-W	1	M	Good	Shaped by life beneath crown of larger neighbour to south; crown growth and lean to north-west; frequent sub-100mm diameter deadwood branches in shaded crown area; widespread epicormic growth	No works required at present	20+	B2	6.0	RET
T062	Common Oak	14	1100	5.0	4.0	4.0	6.0	3-N	0	OM	Dead	Formerly 3no. Stems from 2.5m, south and west stems failed. No live growth visible. Extensive large diameter dead wood present. Dessicated dead wood visible, and sections of rot. Tree creeper nesting in underside of bark layer on main stem to west. Large diameter dead wood around base. Cracks and tears. Sections of lose bark	Depending on proximity of works, remaining stem may require reduction	40+	B3	13.2	RET
T063	Oak	6	500 + 400	7.0	3.0	6.0	7.0	0	0	M	Fair	Growing on bank of dry ditch; apparently once part-windthrown, retaining some viable rooting area; historic branch tears; small-scale crown has light dieback and some deadwood	No works required at present	20+	B2	7.0	RET
T064 (415)	Common Oak	14	1000	6.0	6.0	6.0	6.0	4-W	2	M	Fair	Rubble covering majority of root zone and up to 2m on main stem. Large diameter dead wood present in upper crown. Loss in vitality likely to be from root zone compaction. Crown largely epicormic in growth habit.	Consider moving rubble and debris from root zone	20+	B3	12.0	RET
T065	Oak	20	1120	9.0	8.0	9.0	15.0	3	0.5	M	Good	VETERAN TREE; tagged number 0424; boundary tree, eastern half of RPA buried beneath landfill; massive limb tear-out cavity at crown break, large stem entirely hollow; crown predominantly to west, extending down to ground; deadwood branches in shaded lower crown area, some large, but overall vitality good	Remove larger deadwood only if works proposed within drip line of crown	40+	A3	13.4	RET
G066	A Group	6	260	3.0	3.0	3.0	3.0	0	0	M	Fair	Linear group, remnants of boundary hedge; eastern half of RPA buried beneath landfill - several specimens lost due to burial, leaving lengthy gaps in row; principal species blackthorn and hawthorn, 2no field maple specimens at north end	No works required at present	10+	C2	3.1	RET
G067A B	Common Ash	18	560	5.0	5.0	5.0	5.0	4-S	4	EM	Fair	Trees growing within intermittent boundary hedgerow. Rubble piled in root zones to east. Small to moderate diameter dead wood in middle crowns.	Remove ruble from root zones.	20+	B2	6.7	RET
T068	Common Oak	18	1100	9.0	9.0	9.0	9.0	4-NW	2	OM	Dead	Not current live growth visible. Potential epicormic growths yet to form leaf cover. Old pollard, multistems from 3.5m. Rubble in root zone to east, saturated ground in root zone to west. Both contributed to decline in vitality wood decay fungi Ganoderma spp. Visible on north west buttress roots.	Potential reduction of dead wood to reduce risk of harm to adjacent people.	40+	B3	13.2	RET
T069	Common Oak	15	900	5.0	3.0	7.0	7.0	2-SW	2	M	Fair	Growing on field boundary. Rubble piled around base to east and up main stem. Old pollard, multistem from 3m. Old branch tears. Small to moderate diameter dead wood in crown. Likely to be attributed to root zone compaction.	Remove rubble from root zone	20+	B3	10.8	RET
T070	Common Ash	12	260	5.0	5.0	5.0	5.0	4-S	2.5	SM	Good	Growing on bank of wet ditch. Co-dominant stems from 3m. Union appears sound. Balanced crown	No works presently required	20+	B2	3.1	RET
T071	Common Oak	16	600	2.5	2.0	6.5	8.0	2-W	3	EM	Fair	Growing on bank of wet ditch. Compacted ground to south for existing access point to adjoining field. Pronounced west scaffold branch. Small to moderate diameter dead wood in lower and middle crown. Likely to be attributed to competition for light with surrounding trees.	No works presently required	20+	B2	7.2	RET

## M25 junction 28 improvement scheme

## Appendix B: Tree Survey Schedule

Tree ID	Species	Height (m)	Stem Diameter (mm)	Branch spread N (m)	Branch spread E (m)	Branch spread S (m)	Branch spread W (m)	First significant branch height (m)	Canopy height (m)	Life Stage	Vitality	General observations	Preliminary mangement recommendations	Estimated Remaining Contribution (Years)	Category Grading	RPA Radius (m)	Impact: Remove / Part Remove / Retain (REM, PRG, RET)
T072	Common Oak	17	530	4.0	2.0	7.5	11.0	3-W	3	EM	Good	Growing on west extents of woodland, on bank of dry, shallow ditch. Co-dominant stems from 3m, union appears sound. Crown dominant to west. Occasional moderate diameter dead wood in middle crown.	No works presently required	40+	A2	6.4	RET
T073	Common Oak	18	800	5.0	2.0	10.0	13.0	2.5-NW	2.5	M	Good	Growing on west extents of woodland, on bank of dry ditch. Main stem growing on lean to west, correcting at approximately 5m. Occasional small to moderate diameter dead wood in lower crown. Likely to be attributed to competition for light with surrounding trees.	No works presently required	40+	A2	9.6	REM
T074 (436)	Common Ash	17	900	1.0	3.5	8.0	6.0	2-W	2	V	Fair	Growing on west extents of woodland. Dry, shallow ditch to west. Co-dominant stems from 3.5m. Large cavity beneath union in main stem. Likely to be extensive internal decay and hollowing of main stem. Pronounced basal swelling, indicative of reaction wood to an internal defect. Further cavities at old branch wounds and storm damage in crown. Elongated cavities visible in middle crown, and exposed decayed w9d	Live growth largely epicormic in habit. Ecological assessment required. Management required to crown if wind dynamics changed through loss of surrounding trees.	20+	B3	10.8	REM
T075	Common Oak	19	930	6.0	4.0	8.0	8.0	3-NW	2	M	Good	Growing on west extents of woodland, steep dry ditch to west. Crown break at 3m. Unoccluded pruning wounds visible in lower crown. Ringed bulges on main stem. Storm damage recorded to north, large frayed wound remains. Moderate diameter dead wood in middle crown to east.	No works presently required	40+	A2	11.2	REM
T076	Common Oak	24	920	7.0	2.0	10.0	10.0	2.5-S	2	M	Good	Growing on west extents of woodland. Shallow, dry ditch to west. Occluded wounds on main stem. Pronounced buttress roots to north west and west. Hung up large diameter dead wood in middle crown to east. Prominent tree given scale.	No works presently required	40+	A2	11.0	REM
T077	Ash	15	950	5.0	3.5	7.0	11.0	4	4	V	Fair	VETERAN TREE At west edge of wood beside boundary ditch; main stem historically torn out at 6m; numerous historic branch tears, majority fully or mostly occluded, but with frequent pockets of established decay; crown growth a handful of limbs on south half of tree, live growth mostly vertical shoots sprung from adventitious buds; sizeable deadwood to 150mm diameter at branch ends; deadwood on ground at base	Remove deadwood if adjacent to proposed works	20+	B2/3	11.4	RET
T078	Common Oak	16	420	2.0	2.0	5.0	5.0	N/A	6	SM	Poor	Extensive dieback and dead wood throughout crown. Live crown mainly epicormic in habit. Extensive black exudates on main stem, indicative of bacterial infection.	Fell if within falling distance of proposals. Carryout necessary precautions to prevent spread of any bacterial infection.	<10	U	5.0	REM
T079	Turkey Oak	16	360	4.0	4.0	4.0	4.0	N/A	4	SM	Dead	No live crown present. Extensive black exudates on main stem indicating bacterial infection.	Fell on the grounds of safety. Carryout necessary sanitation on completion of works to avoid spread of bacteria	<10	U	4.3	REM
T080	Ash	8	650	0.0	1.0	8.0	3.0	5-S	4	M	Poor	Stem torn out at 5m height, leaving monolith extensively decayed along its full length - vertical decay seam on east side; live growth all to south; extensive mammal burrowing throughout root zone; remains of stem above tear on ground to south	No works required at present	10+	C2	7.8	RET
T081	Oak	18	990	7.0	7.0	10.0	7.0	3	1.5	M	Good	Full-crowned specimen at south edge of wood, with crown growth primarily to south; large historic branch tear wounds on stem fully or largely occluded; frequent branch tears in crown, deadwood branches and stubs; some bleed marks on stem; buttress roots spreading outward in bell shape suggesting basal decay	Remove larger deadwood if works proposed close to tree	40+	A2/3	11.9	RET
W082 A	A Woodland	20	450	6.0	6.0	6.0	6.0	N/A	4	SM	Fair	Mixed broadleaf woodland. Mature trees growing along west boundary, on historic drainage channel. Varied age within the with some regeneration visible. Chainsaw activity visible, utility line clearance and processing of dead stems. Frequent hornbeam and field maple. Ash and Hawthorn abundant. Browsing damage on some stems from deer activity, possible squirrel browsing damage further up crowns. Some stems felled. No obvious signs of ash dieback. 6-8 stems per 10m2.	No works presently required	40+	B2	5.4	PRG



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Tree ID	Species	Height (m)	Stem Diameter (mm)	Branch spread N (m)	Branch spread E (m)	Branch spread S (m)	Branch spread W (m)	First significant branch height (m)	Canopy height (m)	Life Stage	Vitality	General observations	Preliminary mangement recommendations	Estimated Remaining Contribution (Years)	Category Grading	RPA Radius (m)	Impact: Remove / Part Remove / Retain (REM, PRG, RET)
W082 B	A Woodland	20	500	6.0	6.0	6.0	6.0	N/A	0	Y-M	Fair to good	Mixed broadleaf woodland. Mature trees growing along west boundary, on historic drainage channel. Varied age within the with some regeneration visible. Chainsaw activity visible, utility line clearance and processing of dead stems. Frequent hornbeam and field maple. Ash and Hawthorn abundant. Occasional sycamore at northern end. Varied vertical structure.	No works presently required	40+	B2	6.0	RET
G083A B	Common Oak	20	550	5.5	5.5	5.5	5.5	10-S	8	EM	Good	Growing within woodland. Pronounced basal flare. Good stem taper. No apparent significant structural defects recorded.	No works presently required	40+	B2	6.6	REM
G084	Oak	17	to 610	6.0	6.0	6.0	6.0	2	1.5	M	Fair to good	Mature oak trees growing on or adjacent to woodland boundary; trees to south of brook/ditch have landfill to 2m height up to base of stem, filling south half of RPA, but mostly good vitality - ditch appears to provide sufficient water supply; mutual crown suppression common - trees leaning in search of light and space; variable rates of dieback; occasional branch tears, deadwood branches and stubs to 150mm diameter in shaded interior	Remove larger deadwood if works proposed close to trees	20+	B2	7.3	REM
G085	A Group	12	300	6.0	6.0	6.0	6.0	0	1	M	Fair	Linear planting on either side of line of overhead high voltage electricity cables; typically one or two rows of hawthorn, with one or two rows of field maple behind; hawthorn low, good vitality, typically leaning and crowns extending into open space beneath power lines; maple often more upright, vitality more varied, frequently multi-stemmed, with stem wounds up to 1500mm height perhaps associated with deer browsing; some topping and cutting back of branches beneath lines; where group merges into woodland, several low vitality specimens, especially of ash on east side, including occasional dead or dying; relaxed spacing affords occasional encroachment by high forest trees	Remove dead or dying trees and deadwood if adjacent to proposed works	10+	C2	3.6	PRG
T086	Common Oak	18	600;300	4.0	7.0	7.0	3.0	2-S	2	M	Good	Growing on south extents of woodland. Wet ditch to north. Co-dominant stems from 1.2m, union appears sound. 2no. black exudates on south stem. Potential early onset of bacterial infection. Earthworks to east, compaction of root zone. Lower branches damaged and covered at tips.	Crown lift damaged branches.	20+	B2	3.6	REM
T087	Common Oak	20	900	9.0	9.0	9.0	6.0	3-S	3	M	Fair	Growing on south extents of woodland. Wet ditch to north. Ground level raised to south by up to 4m. Compaction in root zone. Damaged lower branches to south from earthworks. Occasional moderate diameter dead wood in lower and middle crown. Pronounced buttress roots. Crown break at 4m, into co-dominant stems. Union appears sound.	Crown lift or reduce damaged stems.	20+	A2	10.8	REM
W088	A Woodland	18	500	6.0	6.0	6.0	6.0	N/A	0	SM-M	Fair	Mixed broadleaf woodland average of 6stems per 10m2. Woodland edge to west. Wet ditch to south with intermittent oak. Fallen and standing dead wood. Relatively uniform vertical structure. Deer activity. Ash abundant throughout, ranging from semi to early mature. Planted specimens. Limited successional growth. Oak and hawthorn occasional. Alder and sycamore rare.	Fell any dead trees within falling distance of road	20+	B2	6.0	PRG
W089	A Woodland	18	500	6.0	6.0	6.0	6.0	N/A	0	Y-M	Fair to good	Mixed broadleaf woodland. Average of 8no. Trees per 10m2. Denser woodland, compared with others in area. Planted and self established. Standing and fallen dead wood. Evidence of chainsaw activity. Ash and hawthorn abundant, young to mature trees. Frequent field maple. Occasional oak and elder. Rare sycamore. Varied vertical structure. Deer	Fell any dead trees within falling distance of road.	20+	B2	6.0	PRG
G090	A Group	to 15	to 250	4.0	4.0	4.0	4.0	1	1	SM	Good	Screen planting on bank rising from motorway edge, bank widening towards north; predominantly native species including ash, field maple, oak, hawthorn, cherry, sycamore, with hornbeam most prominent; trees planted at 2-3m spacing, no apparent thinning or other post-planting management; occasional compression forks on most susceptible species; small diameter deadwood, most commonly found on ash, and in more shaded parts of canopy interior	Remove larger deadwood if adjacent to proposed works	10+	C2	3.0	REM
T091	Ash	19	520 + 480	5.0	12.0	8.0	9.0	7-NE	8	M	Fair	V-shaped tree at centre of wood, forking at 600mm; open crown has frequent 150mm diameter deadwood and infrequent dieback at crown extents; small hanging branches; frequent L-shaped branches indicative of re-growth following branch tears	Remove larger deadwood and hanging branches if adjacent to proposed works	10+	C2	8.5	REM
T092	Ash	16	600	4.5	4.5	4.5	4.5	4-S	4	M	Fair	Growing on east extents of woodland. Crown previously topped at approximately 4m. Good regrowth visible. Decayed stubs of dead wood at pruning points. Co-dominant stems from 2m. Union appears sound.	No works presently required	10+	C2	7.2	REM
T093	Turkey Oak	24	900	9.0	9.0	9.0	6.0	8-S	8	M	Good	Pronounced basal flare. Co-dominant stems from 10m, slight inclusion at union. Broad open crown.	No works presently required	40+	A2	10.8	RET

## M25 junction 28 improvement scheme

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Tree ID	Species	Height (m)	Stem Diameter (mm)	Branch spread N (m)	Branch spread E (m)	Branch spread S (m)	Branch spread W (m)	First significant branch height (m)	Canopy height (m)	Life Stage	Vitality	General observations	Preliminary mangement recommendations	Estimated Remaining Contribution (Years)	Category Grading	RPA Radius (m)	Impact: Remove / Part Remove / Retain (REM, PRG, RET)
G094	Hornbeam	15	600 + 500	7.0	9.0	7.0	8.0	2-N	1.5	M	Good	Several hornbeam growing along north boundary along ditch line; Prominent specimen to northeast, forking near ground level, bare lower stems have characteristic twisted form of species, pockets of decay at branch tear points, low limb to south removed by saw; crown dense, some small diameter deadwood	No works required at present	40+	A2	9.5	PRG
T095	Common Oak	18	1010	8.0	8.0	8.0	8.0	3-N	1.8	V	Good	Veteran tree. Brook in root zone to east. Concrete bridge to south. Pronounced buttress roots. Elongated wound on north west side of main stem, exposed and desiccated dead wood. Moderate diameter dead wood in middle crown. Frayed old branch sounds. Cracks and fissures in pieces of dead wood.	No works presently required	40+	A3	12.1	RET
G096	A Group	to 15	to 370	5.0	5.0	5.0	5.0	0.5	1	EM-M	Good	Trees growing on both banks of stream between motorway and concrete field bridge; predominantly hawthorn, with occasional early mature standard specimens of oak (2no), ash (1no, directly to south of bridge) and a cluster of field maple; infrequent elder; collective vitality good; occasional small diameter deadwood	No works required at present	20+	B2	4.4	PRG
T097	Common Oak	22	1430	12.0	7.0	17.0	7.0	0-SE	1	V	Good	Veteran tree. Brook 3m to west. Crown break at 2-3m, into 3no. Stems. Unions appear sound. South west scaffold branch historically failed, now resting on the ground and partially attached to main stem. Large wound remaining. Exposed desiccated dead wood visible. Crossing and natural propping of branches in crown. Elongated cavity at old branch failure to south at 6m, and further storm damage recorded in crown.	Exclusion zone around tree.	40+	A3	15.0	RET
G098	A Group	to 19	to 550	7.0	7.0	7.0	7.0	1.5	1.5	M	Good	2no ash and 1no sycamore on east bank of stream, overhanging water; mutual crown suppression, especially of shorter sycamore to north; occasional deadwood, mostly light; ivy encroachment into lower crown of central tree	Remove larger deadwood if adjacent to proposed works	20+	B2	6.6	RET
G099A, K	Sycamore, Ash, Oak.	10	220	3.5	3.5	3.5	3.5	N/A	2	SM	Good	Planted group of trees. Some co-dominant unions, slight inclusion visible at unions. Mutually suppressed crowns. Some bark wounds on main stems	No works presently required	20+	C2	2.6	REM
T100	Field Maple	16	550	3.5	6.0	6.0	4.5	6-E	4	M	Good	Growing on east bank of brook. Curved main stem. Evidence of past pruning and storm damage recorded in crown.	No works presently required	20+	B2	6.6	RET
T101	Field Maple	3.5	350	2.5	4.0	3.0	1.0	N/A	0	EM	Fair	Tree collapsed to east. Root plate heave. New growth now establishing.	No works presently required	<10	U	4.2	REM
T102	Hawthorn	4	200;200;200;200;200	4.0	3.0	3.0	4.0	1-NW	0	OM	Fair	Multi stem stem. Suggesting past coppice. Dieback and dead wood in crown. Likely to be competition for sunlight with adjacent tree. Partially collapsed north west stem.	No works presently required	10+	C2		RET
G103	Alder, Ash, Field Maple, Hazel, Hawthorn.	16	550	6.0	6.0	6.0	6.0	N/A	0	EM-M	Fair to good	Informal group growing on banks of brook. Multi stems on hazel and alder. Suggesting historic felling and regeneration. Old branch wounds on alder, and dieback in upper crown.	Remove dead wood in alder within falling distance of works.	20+	B2	6.6	RET
T104	Ash	20	1000	7.0	10.0	7.0	10.0	3-N	3	OM	Fair	Growing on north bank of brook. Crown break at 2.5m into 3no. Stems, unions appear sound. Extensive storm damage recorded in crown, large diameter frayed wounds remaining and hung up pieces of deadwood. Exposed desiccated decayed wood. Cavities at old wounds and wood decay fungi attachment points, specifically inonnotus hispidus.	Exclusion zone, or if works within falling distance of tree then remove dead wood.	20+	B3	12.0	RET
G105A	Goat Willow	14	to 480	6.0	6.0	6.0	6.0	1.5	1.5	EM-M	Good / poor	Pair of trees of similar form on opposite sides of brook: rounded crown above 1.5m high stem; crown of western tree 80% dead	Coppice western tree if adjacent to proposed works	10+	C2	5.8	RET
G105	A Group	6	150	4.0	4.0	4.0	4.0	0	0	EM-M	Good	Dense thicket of blackthorn with occasional hawthorn occupying triangular area inside curve of stream; varied stem size and spacing between stems; leaning stems; occasional part-fallen branches and deadwood	Remove deadwood and part-fallen branches as required	10+	C2	1.8	RET
T106	Alder	18	470 + 400	9.0	5.0	10.0	8.0	1.5	1.5	M	Good	2no principal stems rising from large bole overhanging stream; pockets of decay on stem where lower branches lost; re-growth at branch tear-out to east; occasional sub-120mm diameter deadwood branches and stubs; basal growth	No works required at present	20+	B2	7.4	RET
T107	Hawthorn	11	300 + 280 + 280 + 250 + 250	7.0	7.0	8.0	7.0	0.5	0.5	M	Good	Prime, spreading example of species, growing at north end of dry field boundary ditch; multiple stems, 'natural bracing' among rubbing and crossing stems and branches; lower crown browsed by deer	No works required at present	20+	B1/2	7.3	RET
G108A	Common Oak	17	830	5.0	5.0	5.0		3-SE	3	M	Fair	Part of a intermittent group of oak trees. Crown retrenchment visible. Moderate diameter dead wood in middle and upper crown. Basal decay viable.	Exclusion zone	40+	B3	10.0	RET
G108B	Common Oak	17	600	7.0	7.0	4.0	7.0	2.5-NE	2	M	Good	Crown lifted for high seat. Crown suppressed to south.	No works presently required	40+	A2	7.2	RET
G108C	Common Oak	17	780	8.0	4.0	8.0	8.0	3-SW	2	M	Good	Growing on west extents of woodland. Crown suppressed to east. Occasional moderate diameter dead wood in lower and middle crown.	No works presently required	40+	A2	9.4	RET
G108D	Common Oak	22	900	8.0	4.0	8.0	8.0	5-W	2	M	Good	Growing on west extents of woodland. Co-dominant stems from approximately 4m, union appears sound. Storm damage recorded in lower crown to west.	No works presently required	40+	A2	10.8	RET

## M25 junction 28 improvement scheme

## Appendix B: Tree Survey Schedule

Tree ID	Species	Height (m)	Stem Diameter (mm)	Branch spread N (m)	Branch spread E (m)	Branch spread S (m)	Branch spread W (m)	First significant branch height (m)	Canopy height (m)	Life Stage	Vitality	General observations	Preliminary mangement recommendations	Estimated Remaining Contribution (Years)	Category Grading	RPA Radius (m)	Impact: Remove / Part Remove / Retain (REM, PRG, RET)
G108E	Common Oak	17	700	8.0	6.0	8.0	8.0	2.5-W	1.5	M	Good	Growing on west extents of woodland. Co-dominant stems from approximately 4m, union appears sound. Occasional moderate diameter dead wood in lower crown.	No works presently required	40+	A2	8.4	RET
G108F	Common Oak	22	900	6.0	5.0	6.0	9.0	3-NW	1.5	M	Good	Growing on west extents of woodland. Pronounced buttress roots. Extensive storm damage recorded in crown, frayed wounds remaining. Cavities visible in some old branch wounds.	No works presently required	40+	A2	10.8	RET
G108 G	Common Oak	14	650	4.0	3.0	5.0	7.5	3-S	2	M	Good	Growing on west extents of woodland. Crown suppressed to north. Occasional moderate diameter in lower crown.	No works presently required	40+	A2	7.8	RET
T109	Oak	24	1290	6.5	9.0	8.5	10.5	4	4	V	Good	VETERAN TREE Outstanding specimen on bank of dry field boundary ditch, base on east side 1m higher than on west side; good vitality at crown extents suggesting retrenchment not imminent; lower crown growth to north suppressed by inferior companion; occasional deadwood branches to 250mm diameter; re-growth at branch end tears	No works required at present	40+	A1/2/3	15.0	RET
T110	Ash	24	1000	13.0	10.0	12.0	6.0	4-E	6	M	Fair to good	Extensive basal swelling, reaction wood to internal decay including that from wood decay fungi Ganoderma spp. Brackets visible to north, east and south. Sound wood when struck with a mallet surrounding brackets. Main stem growing on lean to east. Co-dominant stems from approximately 4m, union appears sound. Stems correcting lean and growing vertical. Cavities in south stem. Wood decay fungi attachment points visible, inonotus hispidus brackets fallen at base. Pieces of moderate diameter dead wood in lower crown. Large open crown structure. Extensive buttress roots, with mammal activity visible.	No works currently required	20+	A3	12.0	RET
T111	Common Oak	20	1030	7.0	7.0	7.0	7.0	4-N	5	M	Good	Growing on west extents of woodland. Crown break at 4m. Extensive storm damage recorded at break with 4no. Large diameter frayed wounds remaining. Exposed dessicated dead wood, cracks visible in stubs. Large diameter dead branches in lower crown to north and south, and large diameter fallen branch at base.	No works presently required	40+	A3	12.4	RET
T112	Oak		1060	8.0	5.0	11.0	9.0	3-N	2	V	Good	VETERAN TREE Locally dominant specimen on east bank of dry wood boundary ditch; crown growth suppressed on east side, perhaps by neighbours now vanished; several large historic branch tears in central crown, with established large areas of decay and decayed stubs; good occlusion where 600mm diameter limb lost at 2m, south side and where other lower branches lost; frequent sub-150mm diameter deadwood branches; good vitality at crown extents	Remove larger deadwood if adjacent to proposed works	40+	A2/3	12.7	RET
T113	Ash	17	800	3.0	5.0	6.0	2.0	4-N	4	M	Fair	Co-dominant stems from approximately 4m, west stem failed 1m above main union. Large diameter frayed wound remaining, daldinia concentrica on opposing side of wound and down main stem. Exposed decayed woody tissue visible. Further storm damage recorded in crown of east stem. Frayed wounds and decay cavities visible.	Exclusion zone, or potential further investigation into structural condition.	10+	B3	9.6	RET
T114	Oak	22	1380	6.0	5.5	8.5	9.5	5-W	1.5	V	Good	VETERAN TREE On east bank of dry wood boundary ditch, formerly pollarded specimen entirely hollow from opening at crown break to ground level; extent of spread of decay up three limbs not known; in upper crown, regulation quantities of branch tears, deadwood; 5m long trench decay slit in northern limb	No works required at present	40+	A2/3	15.0	RET
T115	Common Oak	20	1100	5.0	7.0	7.0	7.5	4-W	2	OM	Good	Storm damage recorded in lower crown, large diameter wounds remaining. Cavity visible in north west wound. Further storm damage recorded in middle crown, frayed wounds and decay cavities.	No works presently required	40+	A3	13.2	RET
T116	Crack Willow	22	950 at 500	12.0	9.0	9.0	9.0	1	1	M-OM	Fair	Possible former pollard, 4no stems collapsed at crown break; branch tears in straggling crown, frequent sub-150mm diameter deadwood	Recommended to pollard at lower-mid-crown height if adjacent to proposed works	20+	B2	11.4	RET
T117	Ash	16	400	6.0	6.0	6.0	6.0	2-S	4	EM	Good	Growing on south bank of brook. Blackthorn growing through crown. Crown lifted to east over access road. Occasional stubs of dead wood at pruning points.	No works presently required	20+	B2	4.8	REM
G118	Blackthorn, hawthorn, apple, ash, alder, oak, willow, cherry	16	350	4.0	4.0	4.0	4.0	N/A	0	Y-M	Fair to good	Long informal group of planted and self down trees and shrubs. Large pockets of dense blackthorn scrub. Intermittent standard trees. Crowns lifted over pavement to south. Screening function. Gaps in places, where bramble established.	No works presently required	20+	C2	4.2	REM



## M25 junction 28 improvement scheme

## Appendix B: Tree Survey Schedule

Tree ID	Species	Height (m)	Stem Diameter (mm)	Branch spread N (m)	Branch spread E (m)	Branch spread S (m)	Branch spread W (m)	First significant branch height (m)	Canopy height (m)	Life Stage	Vitality	General observations	Preliminary mangement recommendations	Estimated Remaining Contribution (Years)	Category Grading	RPA Radius (m)	Impact: Remove / Part Remove / Retain (REM, PRG, RET)
G119A-F	Ash	to 16	to 450	5.0	5.0	5.0	5.0	2	2	EM	Good	Standard ash trees growing on bank between slip road and stream; group includes one alder (G119-D) and one multi-stemmed tree (G119-B); branches on roadside trees cut back from pavement; small diameter deadwood, mostly in shaded lower crown area; light mutual crown suppression	Remove larger deadwood if adjacent to proposed works	20+	B2	5.4	REM
G120	Crack Willow	to 15	to 350	5.0	5.0	5.0	5.0	0	0.5	EM	Fair	Approximately 6no trees growing near top of bank between slip road and stream; mostly multi-stemmed, several stems leaning towards road recently removed; crowns also cut back from pavement; frequent sub-100mm diameter deadwood	Remove larger deadwood if adjacent to proposed works	10+	C2	4.2	REM
G121A-C	Apple, hawthorn, field maple	4.5	250	3.0	3.0	3.0	3.0	N/A	1	SM	Fair	Line of trees. Crowns previously lifted. Pavement to south, direct damage recorded from surface root activity with mounded surface. Stubs of deadwood at pruned branches.	No works presently required	10+	C2	3.0	REM
T122	Alder	14	350;350;350;200	3.5	4.0	3.5	4.0	2-N	1	M	Fair	Growing on south bank of brook. Multi stem form from ground level, suggesting past felling to ground level and regeneration. Stems reduced for utility cable clearance. Regrowth at pruning points. Mutually suppressed crowns.	No works presently required	10+	C2	7.0	REM
G123	A group														C2		PRG
G124 & G125	Crack Willow	14	600	6.0	3.0	1.0	5.0	2-N	1	M	Fair	Trees growing on south bank of brook. Extensive storm damage recorded. West tree has stem hungup in adjacent trees. Hazard beams in crown, old failure points and pruned stems have regrowth. Exposed heartwood rot on east tree on main stem. Crown previously reduced over brook. Regrowth present.	Reduce west stem back to 4m on west tree.	10+	C2	7.2	PRG
T126	Alder	4	450	5.0	1.0	0.0	2.0	1-NE	1	OM	Poor	Growing directly on brook bank. Main stem failed at approximately 1m, heartwood rot remains. Live growth limited to epicormic stems.	No works presently required	10+	C2	5.4	REM
T127	Common Alder	18	520	4.5	7.0	3.0	2.5	4-E	2	M	Good	Growing directly on brook bank. Suckering growths establishing. Crown suppression by adjacent trees.	No works presently required	20+	B2	6.2	REM
T128	Common Ash	17	450	6.0	3.0	6.0	6.0	3-W	2	EM	Good	Growing directly on brook bank. Slight drawn stem. Area of sunken bark on main stem at 6m, old branch wound, potential fungal attachment point.	No works presently required	20+	B2	5.4	REM
T129	White Willow	18	1150	5.0	8.0	10.0	8.0	4	4	M-OM	Fair	No access to base, potential stem hollowing, storm damage in crown, lean to south; upper crown tangling with field maple to south; torn branch hangs near ground on south side, part-suspended at tear	Remove hanging branch	10+	C2	13.8	REM
G130	Oak, Ash, Hornbeam, Hawthorn	20	550;550	8.5	8.5	8.5	8.5	N/A	1	M	Fair to good	Intermittent line of trees growing on old field boundary. Ash, oak, hornbeam. Mixed line of trees. Oak dominant. Collapsed branches and stems in places. Intermittent hawthorn. Mutually suppressed crowns. Ivy encroachment on some stems.Part of old field boundary.	No works presently required	40+	A2	12.0	PRG
G130A	Ash	18	560;700	11.0	6.0	4.0	13.0	5-W	2	M	Good	Co-dominant stems from 500mm. Union appears sound. Suppressed stems, growing on leans. Collapsed north west scaffold branch, resting on floor. Unoccluded wounds in crown from past failures. Occasional small to moderate diameter dead wood in lower crown.	No works presently required	20+	B3		REM
G130B	Common Oak	19	1000	7.0	11.0	8.0	11.0	4-W	3	M	Good	Growing along historic dry drainage ditch. No obvious stem hollowing. Crown suppression to north, collapsed branches to east. Small dessicated dead wood on lower crown. Prominent oak within group.	No work's presently required	40+	A2	12.0	REM
G131	Hazel, Field Maple, Alder.	6	400	5.0	5.0	5.0	5.0	N/A	1	M	Fair	Intermittent trees. Mutually suppressed crowns. Collapsed stems over brook. Multi stem forms on hazel.	No works presently required	10+	C2	4.8	REM
T132	Field Maple	18	500;300	7.0	7.0	7.0	7.0	3	3	M	Fair	No access to base; twin-stemmed, overhanging stream on steep bank; dense ivy covering stem and in crown	Sever and remove ivy to enable fuller assessment	20+	B2		REM
T133	Alder	15	350;200	3.5	3.5	3.5	3.5	1-E	1	EM	Fair	Growing on south bank of brook. Co-dominant stems from 200mm, union appears sound. Mutually suppressed crowns. North stem dieback in upper canopy. Ganoderma spp. Wood decay fungal brackets visible on north side of main stem.	Reduce north stem by approximately 5m.	10+	C2		REM
T134	Common Oak	8	750	0.5	0.5	0.5	0.5			OM	Dead	Branch canopy heights n/a; standing dead tree, monolithed stem only remaining; section of stem fallen to south-east; extensive heartwood decay	No works presently required	<10	C2	9.0	REM
T135	Field Maple	14	490	5.0	6.0	7.0	6.0	2-E	1.5	M	Good	Upright form, growth to north formerly restricted by T134, now gone		20+	B2	5.9	REM
T136	Common Hornbeam	14	350	4.5	4.5	4.5	4.5	3-W	0	SM	Good	Growing on bank of brook. Crown suppression by adjacent trees. Lean on main stem to east.	No works presently required	20+	B2	4.2	REM
T137	Not used																#N/A
T138	Common Ash	20	700	6.0	6.0	6.0	6.0	12-S	10	M	Good	Growing on south bank of brook. Potential old pollard, multi stem form at 12m. Further evidence of crown works or regrowth following storm damage in crown. Tear out wound in upper crown to north. Area of sunken bark and discolouration on main stem at 4m. Potential old fungal attachment point. Extensive exposed structural roots on brook bank. Elongated wound on west side of main stem from base to 12m, column of decay.	No works presently required	10+	B2	8.4	RET

## M25 junction 28 improvement scheme

## Appendix B: Tree Survey Schedule

Tree ID	Species	Height (m)	Stem Diameter (mm)	Branch spread N (m)	Branch spread E (m)	Branch spread S (m)	Branch spread W (m)	First significant branch height (m)	Canopy height (m)	Life Stage	Vitality	General observations	Preliminary mangement recommendations	Estimated Remaining Contribution (Years)	Category Grading	RPA Radius (m)	Impact: Remove / Part Remove / Retain (REM, PRG, RET)
T139	Alder	17	400	7.0	7.0	7.0	5.0	2-SE	2	EM-M	Good	On stream bank, numerous aerial roots descending into stream on south side; upper stem bends away from large neighbouring ash to west; historic pockets of decay at branch failure points	No works presently required	10+	C2	4.8	RET
G140	White Willow	20	450;450;350;350;300	10.0	10.0	10.0	10.0	1	1	M	Good	Sprawling group of stems on east bank of stream, some leaning at >45degree angles, or collapsed; crown vitality good, with frequent deadwood small diameter only	No works presently required	10+	C2		RET
G141	Common Alder	12	550	5.0	5.0	5.0	5.0	1-E	1	EM	Fair	Growing directly on brook bank. Multi stem forms. Evidence of past storm damage, frayed wound on west stem of south tree at old failure point. Mutually suppressed crowns	No works presently required	10+	C2	6.6	RET
T142	Alder	15	300;300;250;250;200	8.0	8.0	7.0	8.0	2-NE	1.5	M	Good	to fair No access to base; on bank above stream, multi-stemmed re-growth following historic cutting to ground level; probable basal decay; small decay pockets at branch failure points; light dieback at crown extents	No works presently required	10+	C		REM
T143	Field Maple	8	200;200;200;200	3.0	3.0	3.0	3.0	3-SW	2	M	Good	Old coppice stool growing on south bank of brook. Evidence of decay at stool, including old branch failure points. Large open crown.	No works presently required	10+	C2	0.0	REM
G144	A Group	14	140	2.0	5.0	5.0	2.0	2	2	SM-EM	Good	Stems of hornbeam clustered at 1-2m spacings along stream; de facto woodland edge plants with phototropic form - leaning towards space to south-east; frequent occlusive growth and rubbing and crossing stems resulting in natural bracing; infrequent birch, occasional standard oak trees recorded separately (G144-A to C)	No works presently required	20+	B		RET
T145	Common Oak	18	850	9.0	8.0	8.0	3.0	3-E	2	M	Good	Historic drainage channel in root zone to north and east, leading to river. Steep bank to north. Main stem on slight lean to east, crown suppression to west. Occasional small to moderate diameter dead wood in lower and middle crown, likely to be a result of internal canopy shading.	No works presently required	40+	A	10.2	RET
T146	Common Oak	18	560	4.0	6.0	5.0	2.0	10-E	10	EM	Fair	Mutually suppressed crown. Small to moderate diameter dead wood in lower crown. Likely to be a result of sunlight competition. Ground falls to east.	No works presently required	40+	B2	6.7	RET
T147	Field Maple	18	430	4.0	8.0	5.0	4.0	1-E	1	M	Fair	Mutually suppressed crown. Ground falls away to east. Occasional small to moderate diameter dead wood in lower crown.	No works presently required	20+	B2	5.2	RET
T148	Common Oak	18	700	3.0	7.0	4.0	4.0	14-E	12	M	Fair	Ground level falls away to north. Small to moderate diameter dead wood in lower and middle crown (<120mm), likely to be a result of sunlight competition. Large diameter wound at historic branch failure at 10m. Exposed desiccated wood visible. Elongated cavity on south side of main stem revealing white rot and slight heartwood rot, not extensive at present. Potential woodpecker and larger bird habitat holes.	No works presently required	40+	B2	8.4	RET
T149	Common Hornbeam	16	430	5.0	5.0	5.0	5.0	3-S	3	EM	Good	Mutually suppressed crown. Cavities on main stem at old branch wounds. Occasional small diameter dead wood in lower and middle crown.	No works presently required	20+	B2	5.2	RET
T150	Common Hornbeam	18	550	5.0	8.0	2.0	6.0	5-E	4	M	Fair	Curved main stem. Frayed wounds at old branch failures, dessicated white rot visible and soft rot in wound at 2m to east. Occasional small to moderate diameter dead wood in lower and middle crown, likely to be a result of sunlight competition.	No works presently required	20+	B2	6.6	RET
T151	Common Hornbeam	22	530	5.5	5.5	5.5	5.5	4-E	5	M	Good	Growing on bank of former brook or historic drainage channel. Relatively balanced crown. 5no. black exudates recorded at base of tree to north. Basal stem to south east.	No works presently required	40+	B2	6.4	RET
T152	Crack Willow	17	480	5.0	9.0	8.0	9.0	5-E	5	M	Poor	Apparently growing on bank of former stream now re-routed; stem curving upwards from base and straightening vertically; crown area 60% dead, with 150mm diameter deadwood; live foliage in scattered clumps	Pollard if adjacent to proposed works	<10	C2	5.8	RET
G153	Alder	17	200;180	4.5	4.5	4.5	4.5	2	2	EM	Good	Predominantly alder, growing on north-west bank of stream, with poplar plantation on north-west side; frequently multi-stemmed, tending to lean towards space and light to south-east; 3-5m spacing between stems typical; characteristic EXOTHERMIC form of species; mutual crown suppression; aerial roots in stream; occasional hornbeam stems and infrequent poplar	No works presently required	20+	B2		RET
G154	Hornbeam, Birch	17	300	5.0	5.0	5.0	5.0	1.5	1	EM	Good	Self-set hornbeam with occasional birch growing on south-east bank of stream; hornbeam stems clustered at 1-2m spacing with mutual crown suppression; birches taller, with upright stems; occasional basal decay where co-dominant stems lost; 1no dead birch monolith, 1no alder; screening/amenity value - beside the A12	No works presently required	20+	B2	3.6	RET
T155	Birch	18	270	5.0	5.0	5.0	5.0	3	3	EM	Good	Locally dominant specimen at top of bank; surface roots descending bank towards stream	No works presently required	20+	B2	3.2	RET
T156	Oak	10	390	9.0	10.0	5.0	3.0	2-E	1	EM-M	Good	Standing precariously on sheer bank of stream, streamside roots exposed by erosion; old crown lifting dating from construction of concrete roadside revetment to east - full occlusion of wounds; crown growth suppressed on south-west side	No works presently required	20+	B2	4.7	RET

## M25 junction 28 improvement scheme

## Appendix B: Tree Survey Schedule

Tree ID	Species	Height (m)	Stem Diameter (mm)	Branch spread N (m)	Branch spread E (m)	Branch spread S (m)	Branch spread W (m)	First significant branch height (m)	Canopy height (m)	Life Stage	Vitality	General observations	Preliminary mangement recommendations	Estimated Remaining Contribution (Years)	Category Grading	RPA Radius (m)	Impact: Remove / Part Remove / Retain (REM, PRG, RET)
T157	Hornbeam	18	840	11.0	10.0	9.0	3.0	1.5	1.5	OM	Fair to good	Diameter measured at 1000mm; veteran habitat features. once pollarded, hollow-stemmed specimen on bank of former stream (re-routed); brown rot heartwood decay, roots on stream side exposed by erosion; crown growth suppressed by neighbour on north-west side; otherwise extensive and displaying good vitality; established ivy into mid-crown	No works presently required	20+	A2	10.1	RET
T158	Common Hornbeam	14	200;250	2.0	6.0	8.0	3.0	0-E	3	SM	Fair	Formerly three stems from ground level, east stem historically failed, laid on ground and extensively decayed. Mutually suppressed crowns on remaining stems.	No works presently required	10+	C2		RET
G159A F	Common Hornbeam, Sycamore	18	480	6.0	6.0	6.0	6.0	6-E	6	EM	Fair to good	Intermittent trees on west side of old brook or drainage channel. Mutually suppressed crowns, leans on stems towards available sunlight. Basal cavity on north tree, revealing heart wood decay. Small to moderate diameter dead wood in lower and middle crowns.	no works presently required	20+	B2	5.8	RET
G160A C	Common Oak	20	650	6.0	6.0	6.0	6.0	N/A	6	EM to M	Good	Intermittent trees along bank of former brook or drainage channel. Occasional small to moderate diameter dead wood in lower and middle crowns.	No works presently required	40+	B2	7.8	RET
T161	Sycamore	12	450	3.0	3.0	3.0	3.0	N/A	0	SM	Poor	Live growth limited to basal stem. Extensive dessicated white rot and areas of lose bark.	No works presently required	<10	U	5.4	RET
G162	Hybrid Black Poplar	28	600	7.0	7.0	7.0	7.0	6	6	EM-M	Fair to poor	plantation of approximately 45no trees in half-moon shaped space between former and current routes of stream; planting stakes still in place; collectively, physiological and structural condition poor; stems regrowing and reasserting apical dominance where leader failed; established decay cavities where limbs lost; edge trees leaning outwards in search of light and space; individual trees in group fallen, part-fallen and caught in neighbour, or dead . frequent large diameter deadwood and occasional dieback; 1no sycamore interloper.	Long-term management strategy required for group; bring part-fallen tree safely down to ground; remove deadwood if adjacent to proposed works C/U	<10	C2	7.2	RET
T163	Common Oak	16	550;600	5.0	7.0	6.0	6.0	2.5-E	2	M	Good	Twin stemmed from ground level. Small to moderate diameter dead wood in lower and middle crown. Mutually suppressed stems.	No works presently required	40+	B2		RET
G164	Common Alder, Field Maple	12	350	5.0	5.0	5.0	5.0	N/A	0	SM to EM.	Fair	Intermittent trees growing along former brook or drainage channel. Single and multi stem forms, suggesting past coppice. Collapsed stems in places.	No works presently required	10+	C2	4.2	RET
T165	Common Oak	18	990	7.0	7.0	7.0	8.0	3	3	M-OM	Good	At woodland edge, basal swelling around large cavity opening to east; decay rising from roots meeting decay descending from historic branch failure points at 2m - gap in eastern crown resulting from lost limb here	No works presently required	40+	A2	11.9	RET
T166	Common Oak	18	1000	8.0	7.0	8.0	8.0	2.5-N	2	M	Good	Growing on old earth bank. Crown break at 3m into multi stems. Unions appear sound. Large diameter (<250mm) present in crown. Cracks and fissures in dead wood. Dessicated white rot visible. Historic wounds on branches, revealing further white rot	No works presently required	40+	A2	12.0	RET
T167	Not used												No works presently required				#N/A
T168	Common Oak	16	1250	9.0	9.0	9.0	9.0	4-SW	2	V	Good	Veteran. Extensive storm damage recorded, loss of main leader. Exposed heart wood decay. Water pocket in main stem. Hollowing. Remaining crown relatively in tact. Dead wood piled at base. Dessicated white rot in crown. Occasional dead branch.	No works presently required	40+	A3	15.0	RET
G169	Alder, oak, hawthorn	18	600	6.5	6.5	6.5	6.5	N/A	0	Y-M	Good	Linear group of trees and shrubs on brook banks. More mature trees largely multi-stem alders, indicative of last felling to ground level and regeneration. Pockets of bramble scrub. Screen function. Occasional semi-mature Oak. Sheet piling for slip road works on opposing bank.	No works presently required	40+	B2	7.2	RET
T170	Common Oak	20	1100	8.0	8.0	11.0	8.0	3-SW	2	M	Good	Crown in tact. No obvious hollowing. Limited dead wood resource. Potential old pollard. Multi stem from 3m. Unions appear sound. Dense ivy encroachment on main stem. Dry ditch to north.	No works presently required.	40+	A1	13.2	RET
T171	Common Oak	16	1000	8.0	8.0	8.0	6.0	3-E	3	M	Good	Occasional small diameter dead wood in lower crown. Dessicated white rot. Old branch wound to north, revealing desiccated white rot. Basal wound showing column of internal decay. Limited heart rot visible.	No works presently required	40+	A1	12.0	RET
T172	Common Oak	18	1100	9.0	7.0	9.0	9.0	7-S	5	M	Fair	Old ditch line in root zone to north. Old fungal fruiting bodies on main stem. Ganoderma spp. Internal decay, but not extensive. No pronounced hollowing visible. Old branch tears in crown. Dessicated white rot visible.	No works presently required	40+	B2	13.2	RET
T173	Common Oak	18	1000	9.0	10.0	11.0	6.0	4-S	3	M	Fair	Dry deep ditch to north. No obvious hollowing. Old branch wounds. Exposed dessicated white rot visible. Crown in tact.	No works presently required	40+	A2	12.0	RET
T174	Common Oak	18	900	8.0	6.0	6.0	4.0	8-E	3	M	Fair	Crown loss of vitality. Thinning and small diameter dead wood in middle and upper crown. Woodpecker holes in old branch wounds in upper stem.	No works presently required	40+	B23	10.8	RET



## M25 junction 28 improvement scheme

## Appendix B: Tree Survey Schedule

Tree ID	Species	Height (m)	Stem Diameter (mm)	Branch spread N (m)	Branch spread E (m)	Branch spread S (m)	Branch spread W (m)	First significant branch height (m)	Canopy height (m)	Life Stage	Vitality	General observations	Preliminary mangement recommendations	Estimated Remaining Contribution (Years)	Category Grading	RPA Radius (m)	Impact: Remove / Part Remove / Retain (REM, PRG, RET)
T175	Common Oak	18	1100	8.0	9.0	9.0	9.0	6-E	6	M	Good	Main stem no obvious hollowing. Large volume of dessicated white rot. Scaffold branch to north west collapsed. Remaining crown relatively in tact. Growing within existing dry ditch.	No works presently required	40+	A2	13.2	RET
G176	A group	16	350	6.0	6.0	6.0	6.0	N/A	0	SM to EM.	Good	Oak dominated. Sporadic hornbeam, hawthorn and ash. Mutually suppressed crowns. Steep bank to brook. Drawn stems. Unbalanced crowns. Screen function. Multi-stem crack willow. 7no. 300mm diameter stems. Collapsed in places.growing on east bank. Multi-stem alder. North end of group.	No works presently required	20+	B2	4.2	RET
T177	Turkey Oak	15	600	6.0	6.0	6.0	6.0	2-E	2	M	Good	Root zone restricted by retaining structure for culvert. Balanced crown.	No works presently required	20+	B2	7.2	RET
W178	Oak, Hornbeam, Hazel, Ash	To 18	To 600	8.0	8.0	8.0	8.0	N/A	0	Y-M	Fair to good	Broadleaf dominated woodland. Oak abundant, young to mature trees. Occasional ash. Frequent Hazel. Limited ground flora at time of assessment. Occasional scrub pockets. Varied topography and vertical structure. Woodland edge habitat mainly along the brook	No works presently required	40+	A2	7.5	RET
G179	Hawthorn, Hazel,	To 12	To 300	4.0	4.0	4.0	4.0	N/A	0	Y-M	fair	Areas of dense scrub and individual trees. Single and multi-stem forms recorded. Informal groups.	No works presently required	10+	C2	3.5	REM
T180	Common Oak	18	1250	9.0	7.0	9.0	7.5	4-N	2	V	Fair	Tag 0441. Veteran tree. Large stem circumference for species. Extensive basal wounds to east and west, revealing onset of hollowing and heartwood decay. Large area of dessicated white rot on surface of dysfunctional wood. Extensive large diameter (>200mm) storm damage recorded in crown. Frayed wounds. Large diameter dead wood in crown and around base.	Remedial works maybe required if works within falling distance of tree.	40+	A3	15.0	RET
T181	Common Ash	17	650	8.0	6.0	6.0	8.0	6-N	5	OM	Fair to poor	Formerly multi stem from base. Three no. Stems collapsed. Failed at base. Potential root plate undermining by brook, or due to included bark junctions. Some growth on stems. Limited to epicormic. Dieback in crown of standing stem, historic tear out wounds in crown. White rot visible. Innontus hispidus attached to stems.	Top at 6m remaining stem and retain as dead wood habitat.	10+	C3	7.8	RET
G182	Alder, hawthorn, field maple	16	600	8.0	8.0	8.0	8.0	N/A	0	SM to M	Fair to good	Growing along brook bank. Single and multi stem forms. Collapsed stems in places.	No works presently required	20+	B2	7.2	RET
G183	Ash, Oak	17	600	7.0	7.0	7.0	7.0	N/A	1	EM to M	Fair to good	Habitat features throughout. Old storm damage with unoccluded wounds and pockets of decay. Three no. Stems on east tree. Small to moderate diameter dead wood in middle crowns. Hazard beams where branches and stems have vertical and horizontal cracks from end loading and dysfunctional wood. Elongated cavities visible, revealing decayed wood.	Remedial works maybe required if works within falling distance of trees.	20+	B3	7.2	RET
G183A	Ash	16	600	3.0	4.0	10.0	4.0	N/A	3	EM	Fair	Elongated vertial crack in main stem. Revealling internal decay, high risk of total collapse.	Agree remedial works with ecologists given potential habitat value.	<10	U	7.2	RET
T184	White Willow	12	1300	6.0	3.0	2.0	3.0	O-W	1	OM	Fair	Growing on west bank of brook. Collapsed west stem. Large wound remaining. Extensive decayed wood revealed. Extensive ivy cover on east stem.	Protect	10+	C3	15.0	RET
G185	Alder, White Willow, Crack willow, ash, Hawthorn, hazel, blackthorn	18	650	6.0	6.0	6.0	6.0	N/A		EM to M	Fair	Mixed group along west bank of brook. Ivy encroachment on some stems. Collapsed stems and branches in places. Regenerated branches in places. Multistem hazel. Pockets of blackthorn.	No works presently required	20+	B3	7.8	PRG
T186	Ash	17	400;400;400;400;400	7.0	7.0	8.0	8.0	2-SW	1	M	Good	Multistem from ground level. Growing on west bank of brook. Mutually suppressed crowns. Fused stems to west. Sap run on south stem. Small to moderate diameter dead wood in lower crown. Fallen in places. Grazing damage.	No works presently required	20+	B2		RET
T187	White Willow	14	1010	4.0	1.0	3.0	3.0	N/A		OM	Dead	Tag 0443. No obvious love growth present. Formerly pollarded at 3m. Potential hollowing of main stem. Large diameter dead wood remaining in crown.	Retain as dead wood habitat	10+	C3	12.1	REM
T188	White Willow	12	1200	2.0	4.0	8.0	6.0	0-S	0	OM	Fair	Hollow main stem. Collapsed branches. Historically pollarded. Extensive decayed wood visible. Large diameter	No works presently required	10+	C3	14.4	RET
T189	Common Ash	14	300;300;300;300	7.0	7.0	7.0	7.0	3-S	2	EM	Fair	Crown recently lifted for high seat access. 4no. Stems 1m, slight included bark at junctions. Tight union on north and central stems.	No works presently required	20+	B2		RET
T190	Ash	15	560	6.0	6.0	6.0	6.0	3-NW	3	EM	Good	Growing on top of concrete retaining structure. Survey ceased given health and safety incident.	No works presently required	20+	B2	6.7	RET
G191	Willow, ash, hazel, hawthorn	14	500	6.0	6.0	6.0	6.0	N/A	0	SM to M	Fair to good	Lining banks of brook. Single and multi stems recorded. Bases not accessible. Existing concrete access to east of group. Low crown heights over access road.	No works presently required	20+	B2	6.0	RET

## M25 junction 28 improvement scheme

## Appendix B: Tree Survey Schedule

Tree ID	Species	Height (m)	Stem Diameter (mm)	Branch spread N (m)	Branch spread E (m)	Branch spread S (m)	Branch spread W (m)	First significant branch height (m)	Canopy height (m)	Life Stage	Vitality	General observations	Preliminary mangement recommendations	Estimated Remaining Contribution (Years)	Category Grading	RPA Radius (m)	Impact: Remove / Part Remove / Retain (REM, PRG, RET)
G192	Alder, field maple, willow, ash	16	400	6.0	6.0	6.0	6.0	N/A	0	SM to EM	Good	Group of trees lining banks of brook. Bases not accessible. Land access not permitted. Internal screen function.	No works presently required	20+	B2	4.8	RET
G193	Leyland cypress, blackthorn, hawthorn, oak, crack willow, sycamore	10	150	2.5	2.5	2.5	2.5	N/A	0	Y to SM	Fair	Dense blackthorn scrub established along A12 pavement. Leyland planted along boundary fence. Fair to poor vitality. Crowns thinning throughout.	No works presently required	10+	C2	1.8	RET
T194	Wild Cherry	4	350	2.0	2.0	2.0	2.0	N/A	1	SM	Dead	Standing dead tree. No live crown present.	Fell to ground level	<10	U	4.2	REM
T195	Ash	14	400	6.0	6.0	6.0	6.0	4-E	1	SM	Good	Balanced crown. Occasional small diameter dead wood in lower crown.	No works presently required	20+	B2	4.8	RET
T196	Ash	14	450	7.0	7.0	7.0	7.0	1.6-W	2	SM	Good	Balanced crown. Mounding in root zone to north. Occasional small diameter dead wood in lower crown. Sloped embankment to pavement to south. French drain to north and south of base.	No works presently required	20+	B2	5.4	REM
T197	Norway Maple	12	360	6.0	6.0	6.0	6.0	2-N	2	SM	Good	Growing on sloped embankment. Surface roots visible to south abs west. Balanced crown.	No works presently required	20+	B2	4.3	REM
T198	Pear	5	250	1.0	5.0	4.0	1.0	2-E	1	SM	Fair	Growing on sloped embankment. Block of concrete in root zone to north. Crown suppressed to west.	No works presently required	10+	C2	3.0	REM
T199	Norway Maple	12	390	6.0	6.0	6.0	6.0	2-NE	1.5	SM	Good	Balanced crown. Growing on sloped embankment. Main stem historically struck. Elongated wound on south west side of main stem.	No works presently required	10+	C2	4.7	REM
G200	Norway Maple	3.5	85	1.5	1.5	1.5	1.5	N/A	1	Y	Good	Relatively new tree planting. Balanced crowns.	No works presently required	10+	C2	1.0	REM
T201	Common Oak	12	450;500	7.0	7.0	7.0	7.0	2-S	1.5	EM	Fair	Co-dominant stems from 1m, union appears sound. Stems fused by branch attachment at 2m. Occasional small diameter dead wood in lower crown. Area of standing water to north.	No works presently required	40+	B2	15.0	REM
T202	Common Oak	12	300;300	6.0	6.0	6.0	6.0	1.6-SE	1.5	SM	Good	Growing at the top of sloped embankment. Co-dominant stems from approximately 500mm. Fused stems at point of branch attachment. Occasional small diameter dead wood in lower crown.	No works presently required	20+	B2	15.0	REM
T203	Ash	16	200;200;200;200;200	6.0	6.0	6.0	6.0	4-SE	1.8	EM	Good	Multi stem from ground level. Manhole in root zone to south. Restricting root zone. Mutually suppressed crowns. Leans on some stems.	No works presently required	10+	C2		REM
T204	Elm	10	200;200;200;200	5.5	5.5	5.5	5.5	2-SE	1.5	EM	Fair to poor	Crown thinning. Multi stem form. Mutually suppressed crowns.	No works presently required	<10	C2		REM
T205	Ash	12	280	5.5	5.5	5.5	5.5	2-S	1.5	SM	Fair	Crown suppressed by adjacent trees and shrubs. Small diameter dead wood in lower crown. Base not accessible.	No works presently required	10+	C2	3.4	REM
G206	Hawthorn, crab apple, field maple	5	180;180;180	4.0	4.0	4.0	4.0	N/A	1.5	EM	Fair	Multi stem forms. Growing on grassed verge. Mutually suppressed crowns.Potential direct damage recorded from tree root activity to adjacenet pavement.	No works presently required	10+	C2		REM
G207	Hawthorn, Hazel, blackthorn	To 12	To 300	4.0	4.0	4.0	4.0	N/A	0	Y-M	fair	Areas of dense scrub and individual trees. Single and multi-stem forms recorded. Informal groups.	No works presently required	10+	C2	3.5	PRG
T208	Common Oak	16	700	9.0	9.0	9.0	9.0	1.5-N	2	M	Good	Balanced crown. Crown break at approximately 3m into mukti-stems.	No works presently required	40+	B2	8.4	REM
T209	Common Oak	12	440	7.0	7.0	7.0	7.0	1.6-N	1.8	SM	Good	Balanced crown.	No works presently required	20+	B2	5.3	RET
T210	Common Oak	8	380	5.0	5.0	5.0	5.0	1.5-N	1.5	SM	Good	Balanced crown	No works presently required	20+	B1	4.6	RET
G211	Field maple, blackthorn	8	300	3.0	3.0	3.0	3.0	N/A	0	SM	Fair	Scrub pockets. Intermittent boundary vegetation. Occasional young ash, oak. Live and dead elm.	No works presently required	10+	C2	3.6	RET
G212	Lime, maple, silver birch, whitebeam, white willow	17	750	10.0	10.0	10.0	10.0	N/A	2	SM to M	Good	Intermittent line of planted trees. Crowns lifted. Unoccluded pruning wounds.	No works presently required	20+	B2	9.0	RET
G213	Oak, field maple ash, Hawthorn, blackthorn	16	350	6.0	6.0	6.0	6.0	N/A	0	SM	Good	Informal linear belt of trees and shrubs. Screen function areas of scrub. Mutually suppressed crowns.	No works presently required	20+	B2	4.2	PRG
T214	Common Oak	10	550;430	7.0	7.0	7.0	7.0	N-2	1.8	M	Good	Co-dominant stems at approximately 600mm. Union appears sound. Drainage ditch to east. Occasional dessicated white rot present on moderate diameter dead wood in lower crown.	No works presently required	20+	B2	8.4	REM

M25 junction 28 improvement scheme

Appendix B: Tree Survey Schedule

Tree ID	Species	Height (m)	Stem Diameter (mm)	Branch spread N (m)	Branch spread E (m)	Branch spread S (m)	Branch spread W (m)	First significant branch height (m)	Canopy height (m)	Life Stage	Vitality	General observations	Preliminary mangement recommendations	Estimated Remaining Contribution (Years)	Category Grading	RPA Radius (m)	Impact: Remove / Part Remove / Retain (REM, PRG, RET)
G215	Field maple, blackthorn, oak, hawthorn, hornbeam	6	250	3.5	3.5	3.5	3.5	N/A	1	SM	Good	Informal linear group. Screen function.	No works presently required	20+	C2	3.0	RET
G216	Lombardy and Grey Poplar	18	450	8.0	8.0	8.0	8.0	N/A	2	EM	Good	Intermittent line of trees.	No works presently required	20+	B2	5.4	RET
G217	Comon Oak, field maple, ash, hawthorn, blackthorn	18	750	8.0	8.0	8.0	8.0	N/A	1	SM TO m	Good	Informal linear group. Screen function. Oak dominates.	No works presently required	40+	A2	9.0	RET
W218	A Woodland	18	700	10.0	10.0	10.0	10.0	N/A	0	SM to M	Good	To M. Mixed broadleaf. Abundant oak standards. Frequent lime, occasional sycamore and horse chestnut. Woodland edge to south. Lapsed. Drawn straggly forms. Mature oak on boundary. Sycamore and young oak on east boundary	No works presently required	40+	A2	8.4	RET
G219	Hawthorn	4	250	2.5	2.5	2.5	2.5	N/A	0	M	Fair	Lapsed hedgerow. Collapsed stems in places.	No works presently required	20+	C3	3.0	RET
G220	A group	18	700	10.0	10.0	10.0	10.0	N/A	0	SM-OM	Good	Brookside vegetation. Intermittent trees and shrubs. Hawthorn, alder, ash, willow.	No works presently required	40+	B2	8.4	RET
G221	Mixed group	18	600	6.0	6.0	6.0	6.0	N/A	0	SM-M	Good	Intermittent trees and larger groups. No access to bases. Measurements estimated.	No works presently required	20+	B2	7.2	RET
G222	Mixed group	18	600	6.0	6.0	6.0	6.0	N/A	0	SM-M	Good	Part of TPO.	No works presently required	20+	B2	7.2	RET
G223	Mixed group	18	600	6.0	6.0	6.0	6.0	N/A	0	SM-M	Good	Part of motorway verge vegetation.	No works presently required	20+	B2	7.2	RET



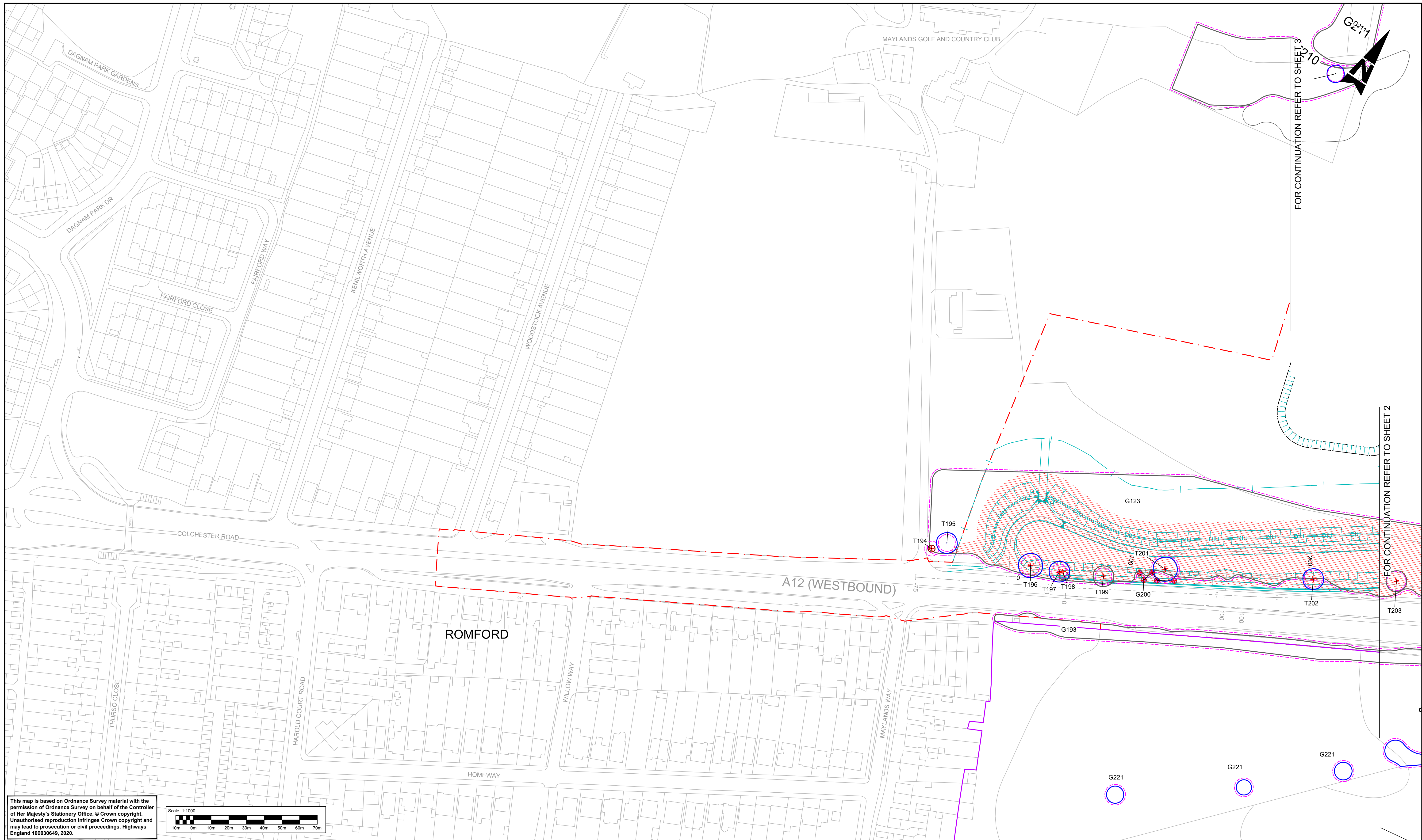
# Appendix C. Tree Protection Plans



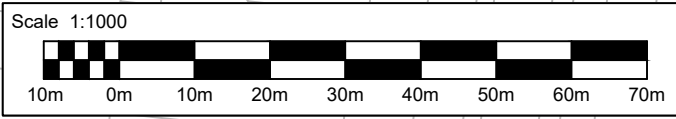
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Millimetres







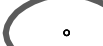





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KEY :

- |   |  |   |   |
|---|--|---|---|
|  | CATEGORY A TREE / GROUP / WOODLAND                           |  | TREE PRESERVATION ORDER (TPO) AREA / INDIVIDUAL     |
|  | CATEGORY B TREE / GROUP / WOODLAND                           |  | TREE TO BE REMOVED AS PART OF WORKS                 |
|  | CATEGORY C TREE / GROUP / WOODLAND                           |  | EXTENT OF TREE GROUP TO BE REMOVED AS PART OF WORKS |
|  | CATEGORY U TREE / GROUP / WOODLAND                           |  | PROPOSED SCHEME                                     |
|  | VETERAN TREE   |  | DCO BOUNDARY  |
|  | ROOT PROTECTION AREA   |   |   |
|  | REFERENCE NUMBER:<br>INDIVIDUAL TREE / TREE GROUP / WOODLAND |   |   |

## SAFETY, HEALTH AND ENVIRONMENTAL INFORMATION

In addition to the hazards/risks normally associated with the types of work detailed on this drawing, note the following significant residual risks (Reference shall also be made to the design hazard log).

Construction

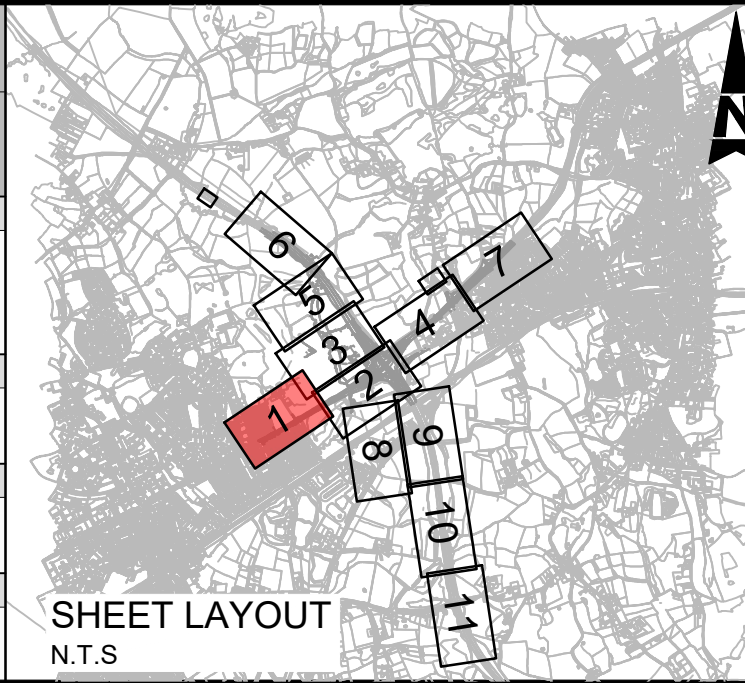
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| CII: WORKS IN CLOSE PROXIMITY OF O/H CABLES |
| CIII: WORKS IN CLOSE PROXIMITY OF NHP MAIN  |
| CIV: WORKS IN CLOSE PROXIMITY OF LHP MAIN   |
| Maintenance / Cleaning                      |
| CONVOLUTED WINTER MAINTENANCE ROUTE         |

Use	
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NONE IDENTITIES IN THIS STAGE

Decommissioning / Demolition

NONE IDENTITIES IN THIS STAGE



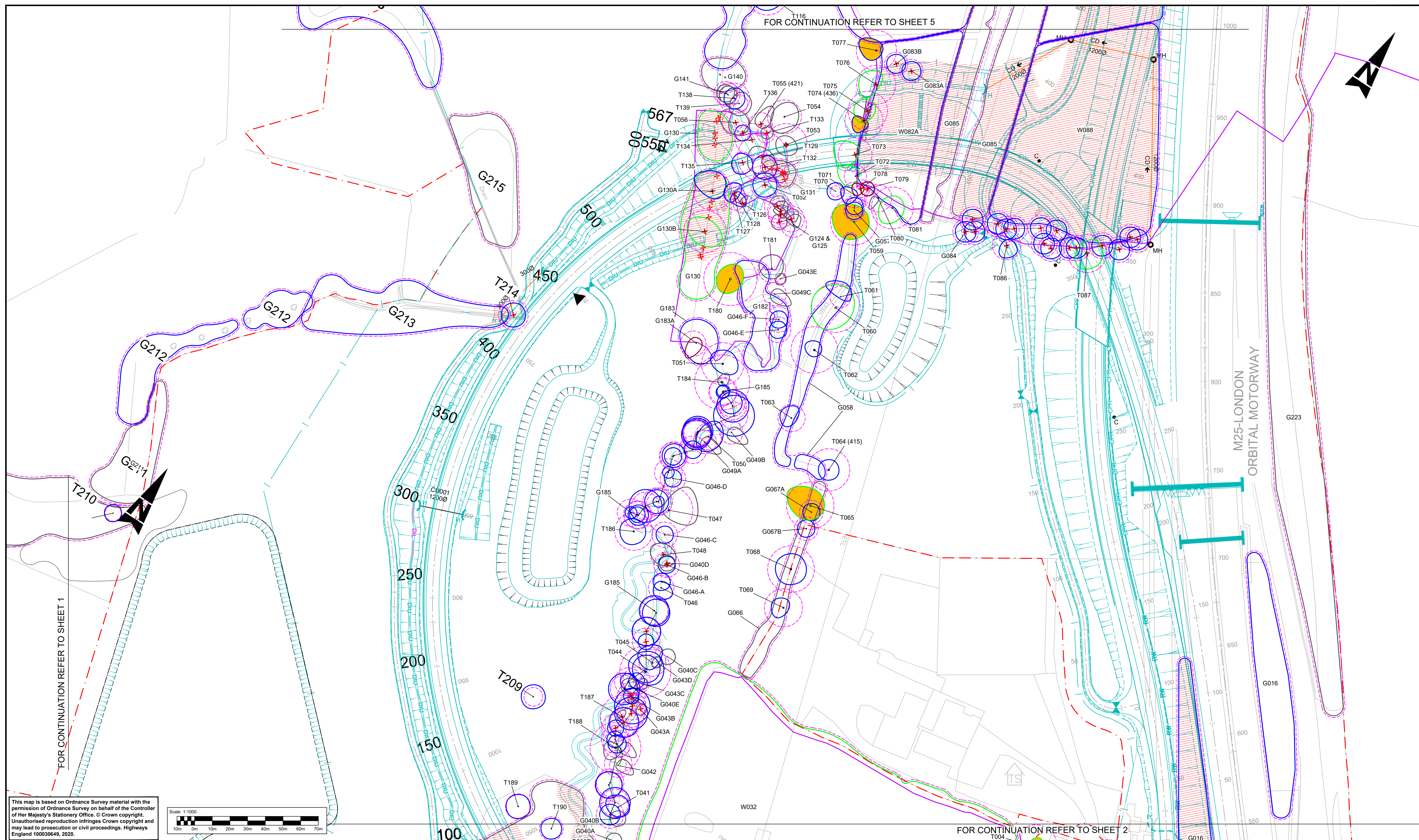
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Description						
Status	Revision	Drawn	Checked	Reviewed	Authorised	Issue Date

Drawing Suitability DCO APPLICATION		Status A4	Project Title M25 junction 28 improvement scheme		
 <b>SNC • LAVALIN</b> <b>ATKINS</b>  Member of the SNC-Lavalin Group Copyright © SNC Lavalin (2019)		Amlin House Atkins 4th Floor 90-96 Victoria Road Chelmsford Essex CM1 1QU Tel: +44 (0)1245 245245 Fax: +44 (0)1245 345010 www.atkinsglobal.com		Drawing Title  Tree Protection Plan Sheet 1 of 11	
Client  			Drawing Number Project HE551519 - ATK - ELS - XX - DR - LL - 000201  Location Type      Role      Number  Original Size: A1      Scale: 1:1000      Project Ref. No: 5158157      Sheet: 1 of 11      Rev: 0		

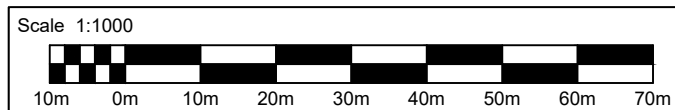



















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KEY :

- |   |                                    |   |   |
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|  | CATEGORY U TREE / GROUP / WOODLAND |  | PROPOSED SCHEME                                     |
|  | VETERAN TREE                       |  | DCO BOUNDARY  |
|  | ROOT PROTECTION AREA               |   |   |
| REFERENCE NUMBER:<br>INDIVIDUAL TREE / TREE GROUP / WOODLAND                        |                                    |   |   |

## SAFETY, HEALTH AND ENVIRONMENTAL INFORMATION

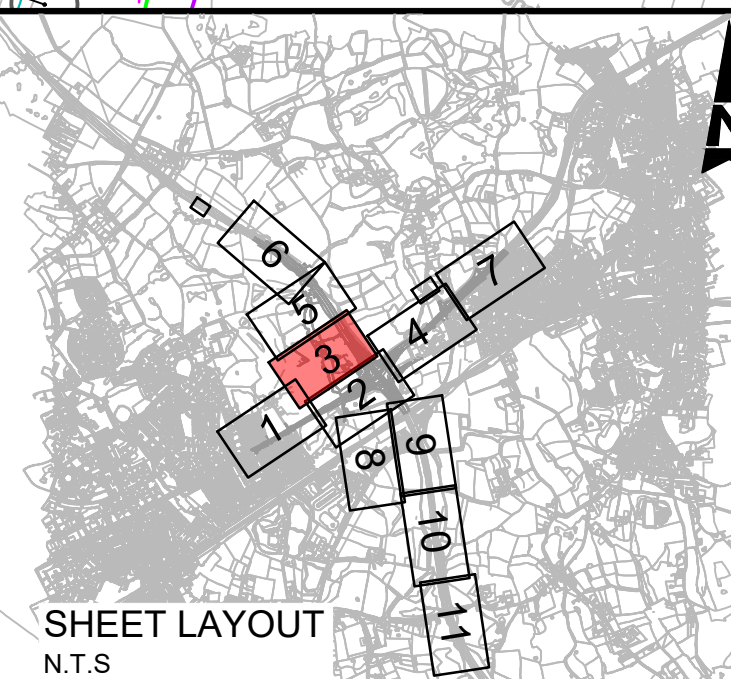
In addition to the hazards/risks normally associated with the types of work detailed on this drawing, note the following significant residual risks (Reference shall also be made to the design hazard log).



Construction
CI: WORKS IN CLOSE PROXIMITY OF BPA LINE
CII: WORKS IN CLOSE PROXIMITY OF O/H CABLES
CIII: WORKS IN CLOSE PROXIMITY OF NHP MAIN
CIV: WORKS IN CLOSE PROXIMITY OF LHP MAIN

CONVOLUTED WINTER MAINTENANCE ROUTE

Use
NONE IDENTITIES IN THIS STAGE

Decommissioning / Demolition
NONE IDENTITIES IN THIS STAGE

[illegible]

Drawing Suitability <b>DCO APPLICATION</b>		Status <b>A4</b>		Project Title <b>M25 junction 28 improvement scheme</b>													
 <b>SNC • LAVALIN</b> <b>ATKINS</b> Member of the SNC-Lavalin Group Copyright © SNC Lavalin (2019)		Amlin House Atkins 4th Floor 90-96 Victoria Road Chelmsford Essex CM1 1QU Tel: +44 (0)1245 245245 Fax: +44 (0)1245 345010 <a href="http://www.atkinsglobal.com">www.atkinsglobal.com</a>		Drawing Title  <b>Tree Protection Plan</b> <b>Sheet 3 of 11</b>													
Client <b>Working on behalf of</b> 		Drawing Number Project <b>HE551519 - ATK - ELS -</b> <b>XX - DR - LL - 000203</b> Location <table border="1"> <thead> <tr> <th>Original Size:</th> <th>Scale:</th> <th>Project Ref No:</th> <th>Type</th> <th>Volume</th> <th>Number</th> </tr> </thead> <tbody> <tr> <td><b>A1</b></td> <td><b>1:1000</b></td> <td><b>5158157</b></td> <td><b>Sh</b></td> <td><b>3 of 11</b></td> <td><b>0</b></td> </tr> </tbody> </table>				Original Size:	Scale:	Project Ref No:	Type	Volume	Number	<b>A1</b>	<b>1:1000</b>	<b>5158157</b>	<b>Sh</b>	<b>3 of 11</b>	<b>0</b>
Original Size:	Scale:	Project Ref No:	Type	Volume	Number												
<b>A1</b>	<b>1:1000</b>	<b>5158157</b>	<b>Sh</b>	<b>3 of 11</b>	<b>0</b>												



DO NOT SCALE

Millimetres

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INSET A

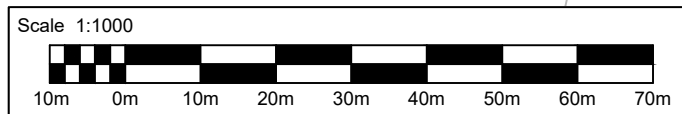
T168

A12 (EASTBOUND)

A12 (WESTBOUND)

FOR CONTINUATION REFER TO SHEET 2

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KEY:

- CATEGORY A TREE / GROUP / WOODLAND
- CATEGORY B TREE / GROUP / WOODLAND
- CATEGORY C TREE / GROUP / WOODLAND
- CATEGORY U TREE / GROUP / WOODLAND
- VETERAN TREE
- ROOT PROTECTION AREA
- REFERENCE NUMBER: INDIVIDUAL TREE / TREE GROUP / WOODLAND
- TREE PRESERVATION ORDER (TPO) AREA / INDIVIDUAL
- TREE TO BE REMOVED AS PART OF WORKS
- EXTENT OF TREE GROUP TO BE REMOVED AS PART OF WORKS
- PROPOSED SCHEME
- DCO BOUNDARY

### SAFETY, HEALTH AND ENVIRONMENTAL INFORMATION

In addition to the hazards/risks normally associated with the types of work detailed on this drawing, note the following significant residual risks (Reference shall also be made to the design hazard log).

Construction

Ci: WORKS IN CLOSE PROXIMITY OF BPA LINE

Cii: WORKS IN CLOSE PROXIMITY OF O/H CABLES

Ciii: WORKS IN CLOSE PROXIMITY OF NHP MAIN

Civ: WORKS IN CLOSE PROXIMITY OF LHP MAIN

Maintenance / Cleaning

CONVOLUTED WINTER MAINTENANCE ROUTE

Use

NONE IDENTITIES IN THIS STAGE

Decommissioning / Demolition

NONE IDENTITIES IN THIS STAGE

SHEET LAYOUT

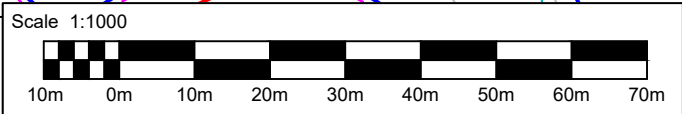
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Description	Status	Revision	Drawn	Checked	Reviewed	Authorised	Issue Date
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Description	Status	Revision	Drawn	Checked	Reviewed	Authorised	Issue Date
Description	Status	Revision	Drawn	Checked	Reviewed	Authorised	Issue Date
Description	Status	Revision	Drawn	Checked	Reviewed	Authorised	Issue Date


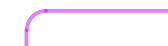









Drawing Suitability	DCO APPLICATION	Status	A4	Project Title	M25 junction 28 improvement scheme
		Amlin House Atkins 4th Floor 90-96 Victoria Road Chelmsford Essex CM1 1QU Tel: +44 (0)1245 245245 Fax: +44 (0)1245 345010 www.atkinsglobal.com		Tree Protection Plan Sheet 4 of 11	
Client		Working on behalf of 		Drawing Number Project HE551519 - ATK - ELS - XX - DR - LL - 000204	
Original Size: A1		Scale: 1:1000	Project Ref. No: 5158157	Sheet: 4 of 11	Rev: 0



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**KEY:**

	CATEGORY A TREE / GROUP / WOODLAND		TREE PRESERVATION ORDER (TPO) AREA / INDIVIDUAL
	CATEGORY TREE / GROUP / WOODLAND		TREE TO BE REMOVED AS PART OF WORKS
	CATEGORY C TREE / GROUP / WOODLAND		EXTENT OF TREE GROUP TO BE REMOVED AS PART OF WORKS
	CATEGORY U TREE / GROUP / WOODLAND		PROPOSED SCHEME
	VETERAN TREE		DCO BOUNDARY
	ROOT PROTECTION AREA		

T000 / G000 / W000

REFERENCE NUMBER:  
INDIVIDUAL TREE / TREE GROUP / WOODLAND

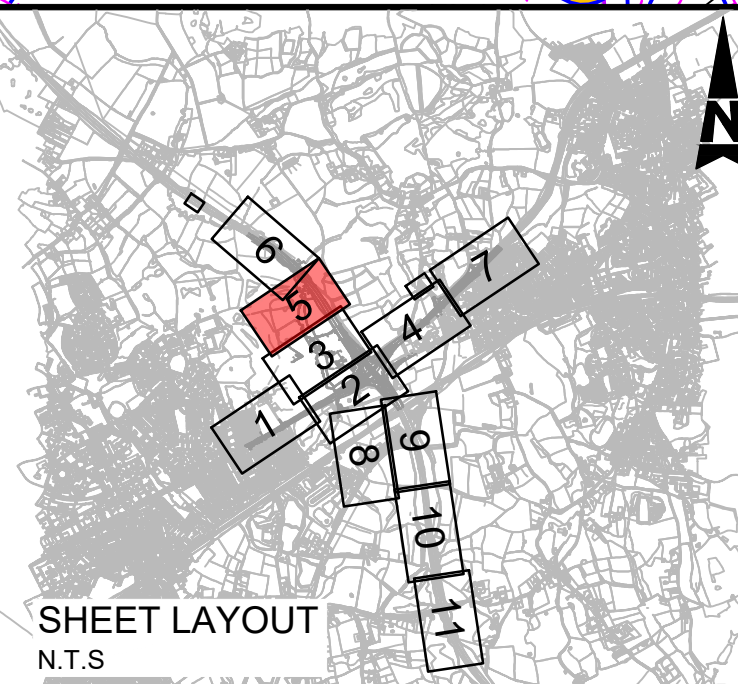
## SAFETY, HEALTH AND ENVIRONMENTAL INFORMATION

In addition to the hazards/risks normally associated with the types of work detailed on this drawing, note the following significant residual risks (Reference shall also be made to the design hazard log).



Construction
CI: WORKS IN CLOSE PROXIMITY OF BPA LINE
CII: WORKS IN CLOSE PROXIMITY OF O/H CABLES
CIII: WORKS IN CLOSE PROXIMITY OF NHP MAIN
CIV: WORKS IN CLOSE PROXIMITY OF LHP MAIN
Maintenance / Cleaning
CONVULATED WINTER MAINTENANCE ROUTE

Use
NONE IDENTITIES IN THIS STAGE

Decommissioning / Demolition
NONE IDENTITIES IN THIS STAGE



Description						
Status	Revision	Drawn	Checked	Reviewed	Authorised	Issue Date
Description						
Status	Revision	Drawn	Checked	Reviewed	Authorised	Issue Date
Description						
Status	Revision	Drawn	Checked	Reviewed	Authorised	Issue Date
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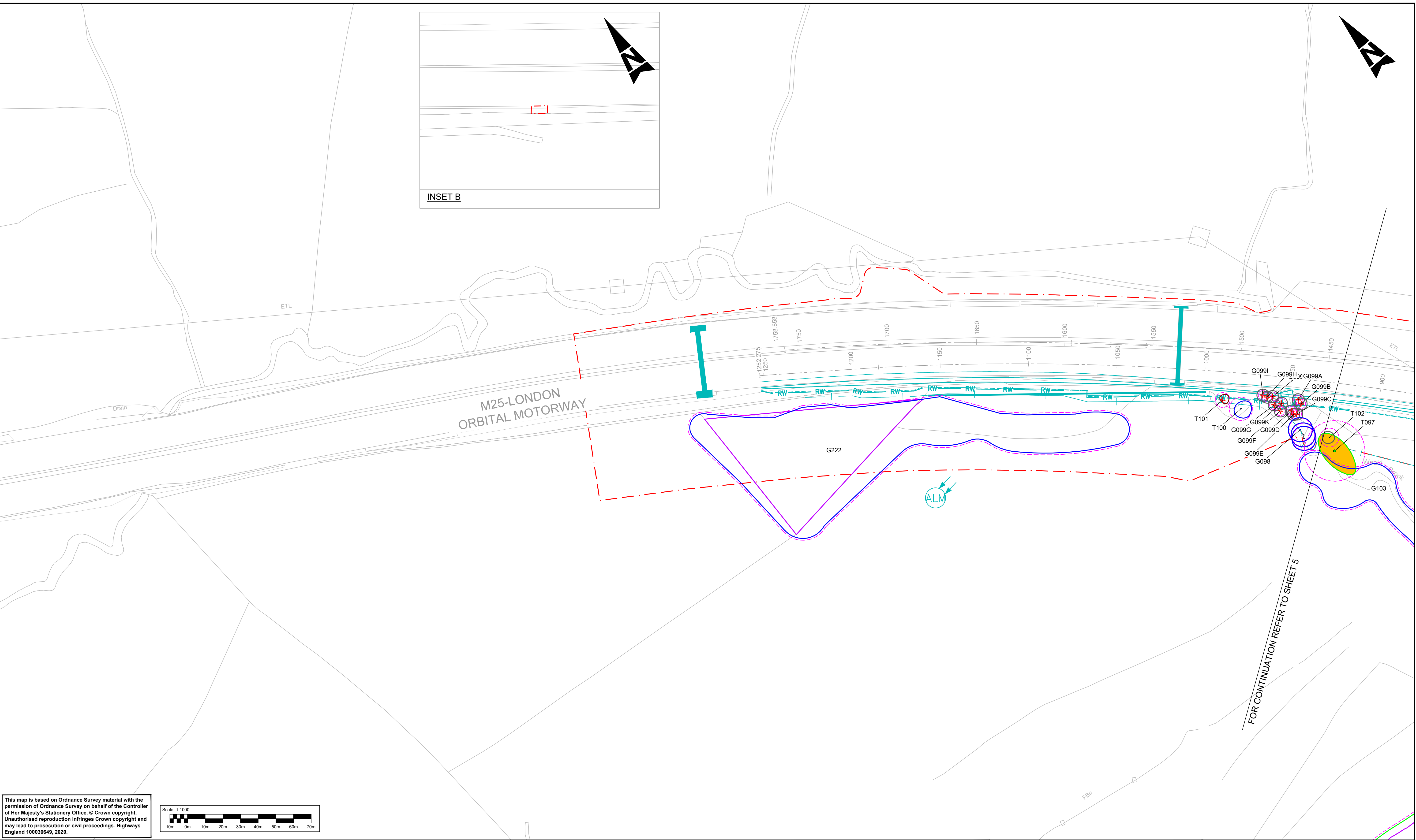
Drawing Suitability DCO APPLICATION		Status A4	Project Title M25 junction 28 improvement scheme																																	
 <b>SNC·LAVALIN</b> <b>ATKINS</b> Member of the SNC-Lavalin Group Copyright © SNC Lavalin (2019)		Amlin House Atkins 4th Floor 90-96 Victoria Road Chelmsford Essex CM1 1QU Tel: +44 (0)1245 245245 Fax: +44 (0)1245 345010 www.atkinsglobal.com		Drawing Title  Tree Protection Plan Sheet 5 of 11																																
Client 		<table><tr><td colspan="2">Drawing Number</td><td colspan="2">  Originator</td><td colspan="2">  Volume</td></tr><tr><td colspan="2">Project</td><td colspan="2">HE551519 - ATK</td><td colspan="2">- ELS -</td></tr><tr><td colspan="2">Location</td><td colspan="2">XX</td><td colspan="2">- DR - LL - 000205</td></tr><tr><td colspan="2"></td><td>Type</td><td>Role</td><td colspan="2">Number</td></tr><tr><td>Original</td><td>A1</td><td>Scale: 1:1000</td><td>Project Ref. No: 5158157</td><td>Sheet: 5 of 11</td><td>Rev: 0</td></tr></table>					Drawing Number		Originator		Volume		Project		HE551519 - ATK		- ELS -		Location		XX		- DR - LL - 000205				Type	Role	Number		Original	A1	Scale: 1:1000	Project Ref. No: 5158157	Sheet: 5 of 11	Rev: 0
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Project		HE551519 - ATK		- ELS -																																
Location		XX		- DR - LL - 000205																																
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Original	A1	Scale: 1:1000	Project Ref. No: 5158157	Sheet: 5 of 11	Rev: 0																															



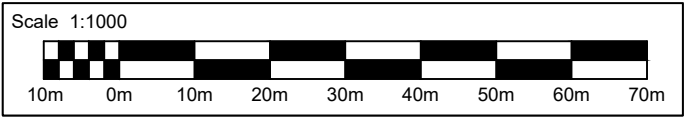
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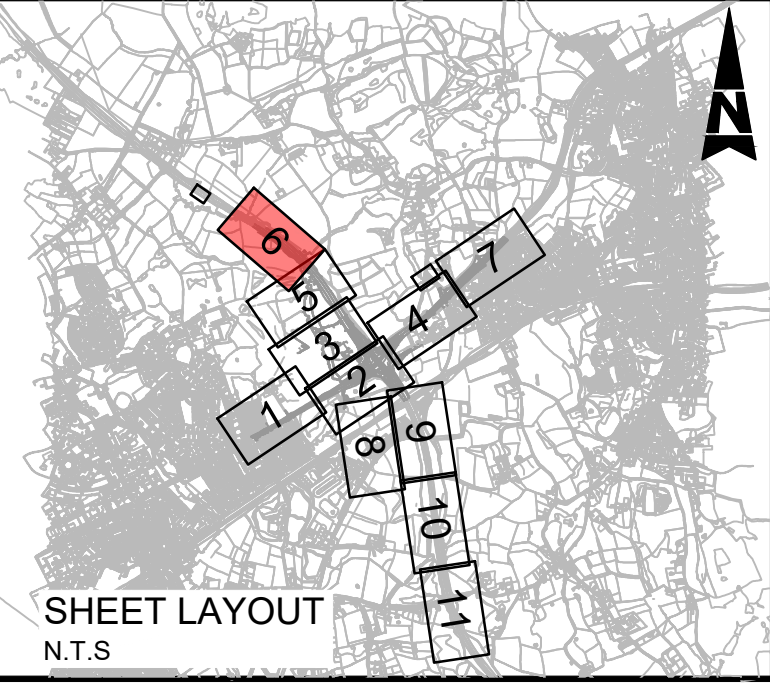
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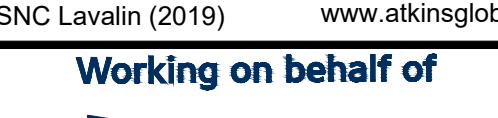
**KEY :**

	CATEGORY A TREE / GROUP / WOODLAND		TREE PRESERVATION ORDER (TPO) AREA / INDIVIDUAL
	CATEGORY TREE / GROUP / WOODLAND		TREE TO BE REMOVED AS PART OF WORKS
	CATEGORY C TREE / GROUP / WOODLAND		EXTENT OF TREE GROUP TO BE REMOVED AS PART OF WORKS
	CATEGORY U TREE / GROUP / WOODLAND		PROPOSED SCHEME
	VETERAN TREE		DCO BOUNDARY
	ROOT PROTECTION AREA		
T000 / G000 / W000	REFERENCE NUMBER: INDIVIDUAL TREE / TREE GROUP / WOODLAND		

SAFETY, HEALTH AND ENVIRONMENTAL INFORMATION	
In addition to the hazards/risks normally associated with the types of work detailed on this drawing, note the following significant residual risks (Reference shall also be made to the design hazard log).	
Construction	
CI: WORKS IN CLOSE PROXIMITY OF BPA LINE	
CII: WORKS IN CLOSE PROXIMITY OF O/H CABLES	
CIII: WORKS IN CLOSE PROXIMITY OF NHP MAIN	
CIV: WORKS IN CLOSE PROXIMITY OF LHP MAIN	
Maintenance / Cleaning	
CONVOLUTED WINTER MAINTENANCE ROUTE	
Use	
NONE IDENTITIES IN THIS STAGE	
Decommissioning / Demolition	
NONE IDENTITIES IN THIS STAGE	



Description						
Status	Revision	Drawn	Checked	Reviewed	Authorised	Issue Date
Description						
Status	Revision	Drawn	Checked	Reviewed	Authorised	Issue Date
Description						
Status	Revision	Drawn	Checked	Reviewed	Authorised	Issue Date
Description						
Status	Revision	Drawn	Checked	Reviewed	Authorised	Issue Date
Description						
Status	Revision	Drawn	Checked	Reviewed	Authorised	Issue Date

Drawing Subtitle DCO APPLICATION		Status A4	Project Title M25 junction 28 improvement scheme				
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Client  		Drawing Number Project HE551519 - ATK - ELS - XX - DR - LL - 000206 Location Type Role Number		Originator Volume           			
Original Size: A1		Scale: 1:1000		Project Ref. No: 5158157		Sheet: 6 of 11	Rev: 0



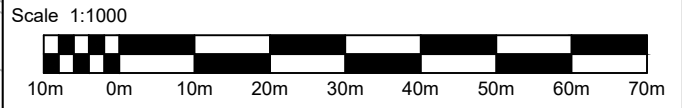
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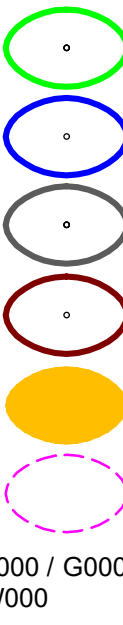
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FOR CONTINUATION REFER TO SHEET 4

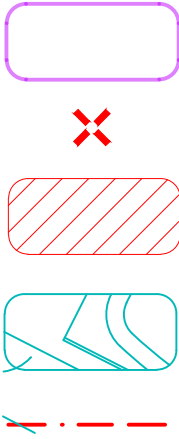
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KEY :



CATEGORY A TREE / GROUP / WOODLAND  
CATEGORY B TREE / GROUP / WOODLAND  
CATEGORY C TREE / GROUP / WOODLAND  
CATEGORY U TREE / GROUP / WOODLAND  
VETERAN TREE  
ROOT PROTECTION AREA  
REFERENCE NUMBER:  
INDIVIDUAL TREE / TREE GROUP / WOODLAND



TREE PRESERVATION ORDER (TPO) AREA / INDIVIDUAL  
TREE TO BE REMOVED AS PART OF WORKS  
EXTENT OF TREE GROUP TO BE REMOVED AS PART OF WORKS  
PROPOSED SCHEME  
DCO BOUNDARY

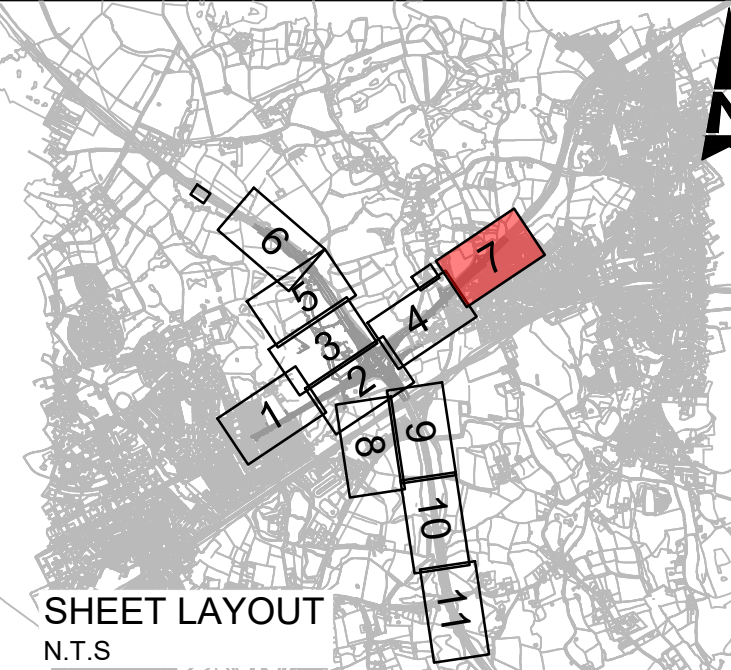
SAFETY, HEALTH AND ENVIRONMENTAL INFORMATION

In addition to the hazards/risks normally associated with the types of work detailed on this drawing, note the following significant residual risks (Reference shall also be made to the design hazard log).

Construction  
CI: WORKS IN CLOSE PROXIMITY OF BPA LINE  
CII: WORKS IN CLOSE PROXIMITY OF O/H CABLES  
CIII: WORKS IN CLOSE PROXIMITY OF NHP MAIN  
CIV: WORKS IN CLOSE PROXIMITY OF LHP MAIN  
Maintenance / Cleaning  
CONVOLUTED WINTER MAINTENANCE ROUTE



Use  
NONE IDENTITIES IN THIS STAGE

Decommissioning / Demolition  
NONE IDENTITIES IN THIS STAGE



SHEET LAYOUT  
N.T.S

Description						
Status	Revision	Drawn	Checked	Reviewed	Authorised	Issue Date
Description						
Status	Revision	Drawn	Checked	Reviewed	Authorised	Issue Date
Description						
Status	Revision	Drawn	Checked	Reviewed	Authorised	Issue Date
Description						
Status	Revision	Drawn	Checked	Reviewed	Authorised	Issue Date
Description						
Status	Revision	Drawn	Checked	Reviewed	Authorised	Issue Date

Drawing Suitability		DCO APPLICATION		Status	A4	Project Title				M25 junction 28 improvement scheme			
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Client		Working on behalf of				Drawing Number							
 <b>highways</b> <b>england</b>						Project		Originator		Volume			
						HE551519		- ATK		- ELS		-	
						XX		- DR		- LL		- 000207	
						Location		Type		Role		Number	
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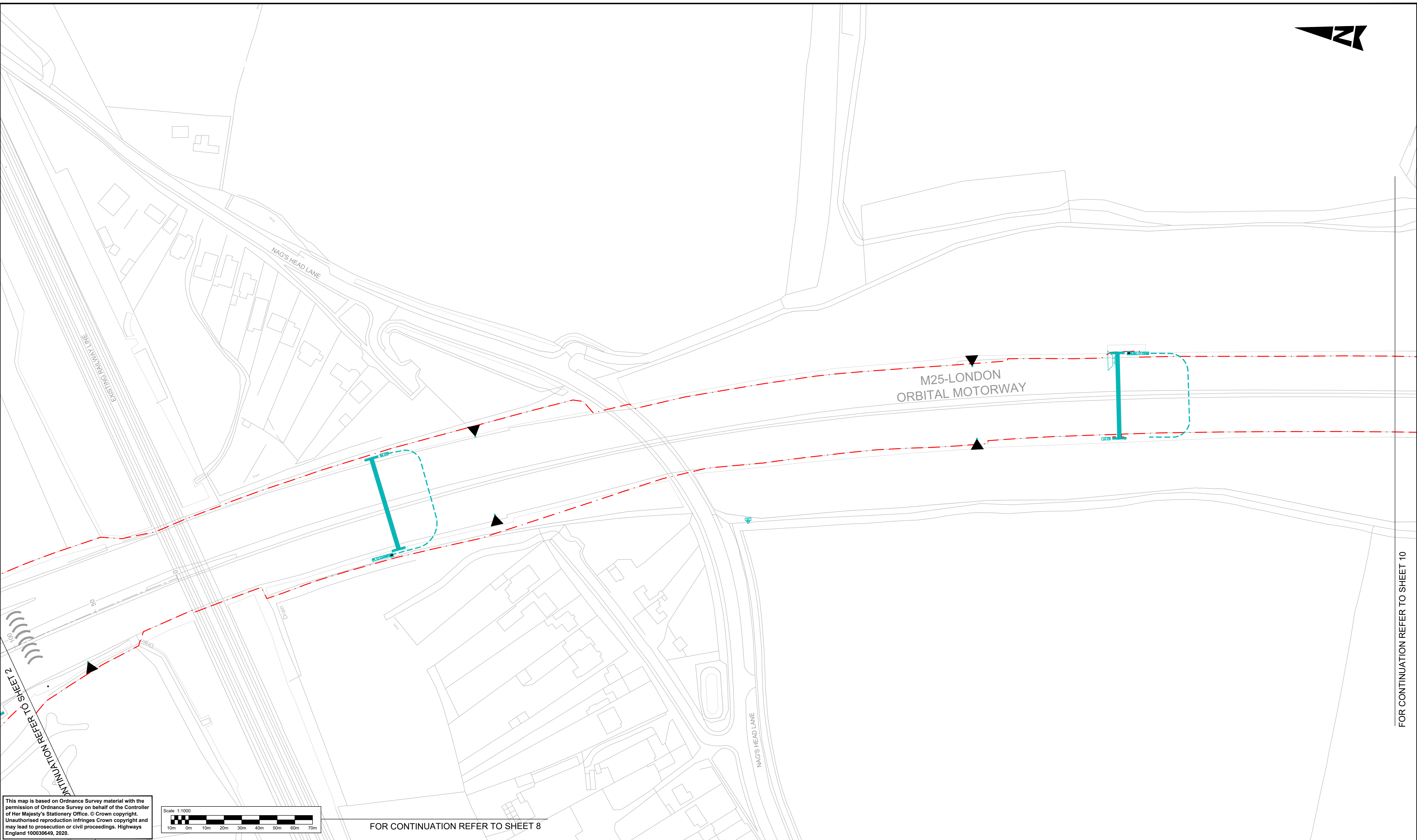
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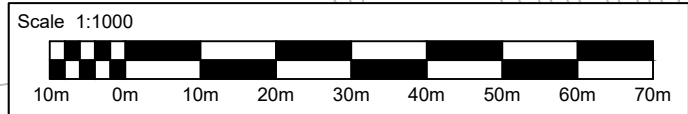
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FOR CONTINUATION REFER TO SHEET 8

FOR CONTINUATION REFER TO SHEET 10

**KEY :**

○

CATEGORY A TREE / GROUP / WOODLAND

○

CATEGORY B TREE / GROUP / WOODLAND

○

CATEGORY C TREE / GROUP / WOODLAND

○

CATEGORY U TREE / GROUP / WOODLAND

●

VETERAN TREE

○

ROOT PROTECTION AREA

T000 / G000 / W000

REFERENCE NUMBER: INDIVIDUAL TREE / TREE GROUP / WOODLAND

□

TREE PRESERVATION ORDER (TPO) AREA / INDIVIDUAL

✕

TREE TO BE REMOVED AS PART OF WORKS

▨

EXTENT OF TREE GROUP TO BE REMOVED AS PART OF WORKS

▨

PROPOSED SCHEME

---

DCO BOUNDARY

**SAFETY, HEALTH AND ENVIRONMENTAL INFORMATION**

In addition to the hazards/risks normally associated with the types of work detailed on this drawing, note the following significant residual risks (Reference shall also be made to the design hazard log).

Construction

Ci: WORKS IN CLOSE PROXIMITY OF BPA LINE

Cii: WORKS IN CLOSE PROXIMITY OF O/H CABLES

Ciii: WORKS IN CLOSE PROXIMITY OF NHP MAIN

Civ: WORKS IN CLOSE PROXIMITY OF LHP MAIN

Maintenance / Cleaning

CONVOLUTED WINTER MAINTENANCE ROUTE

Use

NONE IDENTITIES IN THIS STAGE

Decommissioning / Demolition

NONE IDENTITIES IN THIS STAGE

**SHEET LAYOUT**

N.T.S

Description	Status	Revision	Drawn	Checked	Reviewed	Authorised	Issue Date
Description	Status	Revision	Drawn	Checked	Reviewed	Authorised	Issue Date
Description	Status	Revision	Drawn	Checked	Reviewed	Authorised	Issue Date
Description	Status	Revision	Drawn	Checked	Reviewed	Authorised	Issue Date
Description	Status	Revision	Drawn	Checked	Reviewed	Authorised	Issue Date
Description	Status	Revision	Drawn	Checked	Reviewed	Authorised	Issue Date

Drawing Suitability	Status	Project Title
DCO APPLICATION	A4	M25 junction 28 improvement scheme

**ATKINS**

Amlin House  
Atkins 4th Floor  
90-96 Victoria Road  
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Essex CM1 1QU  
Tel: +44 (0)1245 245245  
Fax: +44 (0)1245 345010  
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**Working on behalf of**

Drawing Number	Project	Originator	Volume
HE551519	XX	- ATK	- ELS -
		- DR - LL	- 000209

Location	Type	Role	Number
Original Size: A1	Scale: 1:1000	Project Ref. No. 5158157	Sheet: 9 of 11
			Rev: 0



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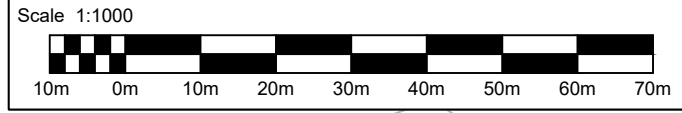
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FOR CONTINUATION REFER TO SHEET 9

FOR CONTINUATION REFER TO SHEET 11

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KEY :

CATEGORY A TREE / GROUP / WOODLAND

CATEGORY TREE / GROUP / WOODLAND

CATEGORY C TREE / GROUP / WOODLAND

CATEGORY U TREE / GROUP / WOODLAND

VETERAN TREE

ROOT PROTECTION AREA

REFERENCE NUMBER:  
INDIVIDUAL TREE / TREE GROUP / WOODLAND

TREE PRESERVATION ORDER (TPO) AREA / INDIVIDUAL

TREE TO BE REMOVED AS PART OF WORKS

EXTENT OF TREE GROUP TO BE REMOVED AS PART OF WORKS

PROPOSED SCHEME

DCO BOUNDARY

SAFETY, HEALTH AND ENVIRONMENTAL INFORMATION

In addition to the hazards/risks normally associated with the types of work detailed on this drawing, note the following significant residual risks (Reference shall also be made to the design hazard log).

Construction

Ci: WORKS IN CLOSE PROXIMITY OF BPA LINE

Cii: WORKS IN CLOSE PROXIMITY OF O/H CABLES

Ciii: WORKS IN CLOSE PROXIMITY OF NHP MAIN

Civ: WORKS IN CLOSE PROXIMITY OF LHP MAIN

Maintenance / Cleaning

CONVOLUTED WINTER MAINTENANCE ROUTE

Use

NONE IDENTITIES IN THIS STAGE

Decommissioning / Demolition

NONE IDENTITIES IN THIS STAGE

SHEET LAYOUT  
N.T.S

Description						
Status	Revision	Drawn	Checked	Reviewed	Authorised	Issue Date
Description						
Status	Revision	Drawn	Checked	Reviewed	Authorised	Issue Date
Description						
Status	Revision	Drawn	Checked	Reviewed	Authorised	Issue Date
Description						
Status	Revision	Drawn	Checked	Reviewed	Authorised	Issue Date
Description						
Status	Revision	Drawn	Checked	Reviewed	Authorised	Issue Date

Drawing Suitability	DCO APPLICATION	Status	A4	Project Title	M25 junction 28 improvement scheme
 Amlin House Atkins 4th Floor 90-96 Victoria Road Chelmsford Essex CM1 1QU Tel: +44 (0)1245 245245 Fax: +44 (0)1245 345010 www.atkinglobal.com		Drawing Title  TREE PROTECTION PLAN SHEET 10 OF 11			
Client 		Drawing Number Project HE551519 - ATK - ELS - XX - DR - LL - 000210			
Original Size: A1		Scale: 1:1000	Project Ref. No: 5158157	Sheet: 10 of 11	Rev: 0

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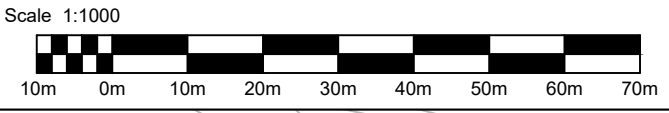
DO NOT SCALE

Millimetres

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FOR CONTINUATION REFER TO SHEET 10

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CATEGORY A TREE / GROUP / WOODLAND

CATEGORY TREE / GROUP / WOODLAND

CATEGORY C TREE / GROUP / WOODLAND

CATEGORY U TREE / GROUP / WOODLAND

VETERAN TREE

ROOT PROTECTION AREA

REFERENCE NUMBER:  
INDIVIDUAL TREE / TREE GROUP / WOODLAND

TREE PRESERVATION ORDER (TPO) AREA / INDIVIDUAL

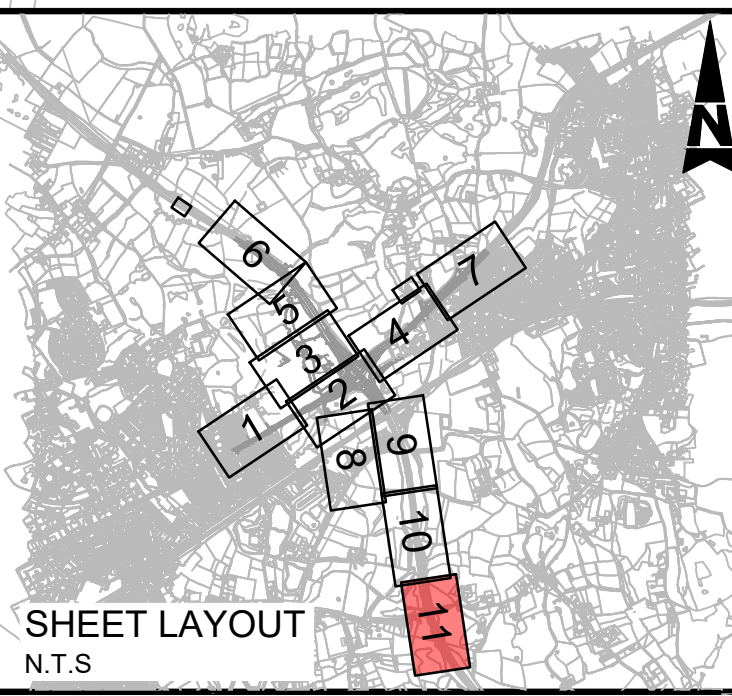
TREE TO BE REMOVED AS PART OF WORKS

EXTENT OF TREE GROUP TO BE REMOVED AS PART OF WORKS

PROPOSED SCHEME

DCO BOUNDARY

SAFETY, HEALTH AND ENVIRONMENTAL INFORMATION	
In addition to the hazards/risks normally associated with the types of work detailed on this drawing, note the following significant residual risks (Reference shall also be made to the design hazard log).	
Construction	Ci: WORKS IN CLOSE PROXIMITY OF BPA LINE Cii: WORKS IN CLOSE PROXIMITY OF O/H CABLES Ciii: WORKS IN CLOSE PROXIMITY OF NHP MAIN Civ: WORKS IN CLOSE PROXIMITY OF LHP MAIN
Maintenance / Cleaning	CONVOLUTED WINTER MAINTENANCE ROUTE
Use	NONE IDENTITIES IN THIS STAGE
Decommissioning / Demolition	NONE IDENTITIES IN THIS STAGE



Description						
Status	Revision	Drawn	Checked	Reviewed	Authorised	Issue Date
Description						
Status	Revision	Drawn	Checked	Reviewed	Authorised	Issue Date
Description						
Status	Revision	Drawn	Checked	Reviewed	Authorised	Issue Date
Description						
Status	Revision	Drawn	Checked	Reviewed	Authorised	Issue Date
Description						
Status	Revision	Drawn	Checked	Reviewed	Authorised	Issue Date
Description						

Drawing Suitability

DCO APPLICATION

Status

A4

Project Title

M25 junction 28 improvement scheme

ATKINS

Amlin House  
Atkins 4th Floor  
90-96 Victoria Road  
Chelmsford  
Essex CM1 1QU  
Tel: +44 (0)1245 245245  
Fax: +44 (0)1245 345010  
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Client

Working on behalf of

Drawing Number

HE551519

Project

XX

Location

Original Size

A1

Originator

ATK

Volume

ELS

Type

DR

Role

LL

Number

000211

Scale

1:1000

Project Ref. No.

5158157

Sheet

11 of 11

Rev.

0

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