

# M54 to M6 Link Road TR010054 8.12 Outline Arboricultural Mitigation Strategy

Regulation 5(2)(q)

Planning Act 2008

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

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#### Infrastructure Planning

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

#### M54 to M6 Link Road

Development Consent Order 202[]

#### **8.12 Outline Arboricultural Mitigation Strategy**

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#### 1. Introduction

- 1.1.1 This Outline Arboricultural Mitigation Strategy (OAMS) details the general specification for tree protection measures that will be used by the Principal Contractor (PC) to mitigate the effects on trees during construction and outlines how sensitive operations are to be achieved in close proximity to trees to be retained. It also addresses the general management of the Scheme activities to ensure that retained trees are not inadvertently damaged.
- 1.1.2 This document will be reviewed and updated during the detailed design phase to ensure that all operations in proximity to trees have been fully considered. The final agreed version of the Arboricultural Mitigation Strategy (AMS) must be read in conjunction with the Tree Protection Plans (TPPs) and copies of both documents must be permanently available on site for reference throughout the development. All site personnel must be made fully aware of its contents and the implications for work they may be involved in.

#### 1.2 Responsibilities

1.2.1 The PC shall appoint an Arboricultural Specialist in accordance with the roles and responsibilities set out in Section 2 of the Outline Environmental Management Plan (OEMP) [TR010054/APP/6.11]. Contact details are to be provided as noted in Section 4.

#### 1.3 Purpose of the OAMS

1.3.1 The purpose of this OAMS is to outline the arboricultural principles and procedures for works within the Root Protection Area (RPA) of retained trees to be utilised throughout the construction of the Scheme. The detailed AMS will ensure that the requirements of relevant environmental legislation, the measures relied upon in the assessment of effects as reported in the Environmental Statement (ES) [TR010054/APP/6.1], and any conditions of environmental permits or other permissions/licences are complied with during construction. It shall be the responsibility of the PC to ensure the Scheme is executed in a manner compliant with the AMS.

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#### 2. Overview of works

- 2.1.1 The following sets out the order of operations in relation to trees to be undertaken during the construction of the Scheme:
  - 1 Pre commencement site meeting;
  - 2 Preliminary tree works;
  - 3 Site briefing for site personnel;
  - 4 Installation of protective fencing;
  - 5 Installation of ground protection;
  - 6 Enabling works;
  - 7 Re adjustment of protective fencing and ground protection as required;
  - 8 Construction operations;
  - 9 Installation of new hard surfaces and new areas of soft ground;
  - 10 Site signed off on agreed completion of significant development works;
  - 11 Dismantling of tree protection measures; and
  - 12 Soft landscaping works within the Root Protection Area (RPA) of retained trees.

#### 2.2 Pre commencement site meeting

2.2.1 Prior to the commencement of works on the Scheme a meeting must take place including the Site Manager and Site Arboriculturist and if available the Local Authority tree officer. This meeting will allow a further discussion of the programme of works, tree protection measures, the locations of the areas for storage/site organisation and the agreement of any changes to the AMS which will then be formally updated and approved as required.

#### 2.3 Preliminary tree works

- 2.3.1 All approved tree works are to be completed by suitably qualified and insured contractors and must take place before protective fencing is installed and any site works begin. A list of contractors approved by the Arboricultural Association is available at www.trees.org.uk.
- 2.3.2 All tree works must be carried out in line with the principles of BS3998: 2010 Tree work recommendations and be conducted in such a way that no damage is caused to any tree to be retained. The tree works contractor must avoid the production of ruts on unmade ground.
- 2.3.3 A tree works specification which identifies trees to be felled or pruned is included as Appendix 1. This also includes tree works for preliminary management (regardless of development) which are likely to be required on safety grounds or for good



- arboricultural management and should be completed in advance of any development works on site.
- 2.3.4 Where partial groups are to be removed the remaining trees must be inspected by the Site Arboriculturist in relation to the loss of companion shelter and their suitability for retention as edge trees. The final extent of trees to be retained will also be determined by the RPAs of individual tree features within groups with the tree protective fenceline amended to accommodate the RPAs of edge trees where possible. If the RPAs extend beyond the tree protective fenceline ground protection (see Section 2.6) will be used.
- 2.3.5 If further additional tree works are deemed to be required during the development the advice of the Site Arboriculturist is to be obtained.
- 2.3.6 Prior to the commencement of any tree works a thorough check for protected species (including nesting birds, bats and badgers) is to be undertaken. If evidence of any protected species is discovered the advice of a suitably qualified ecologist must be obtained. Tree works are to be undertaken outside of the bird nesting season (typically March to September) although outside of this period any individual trees will be inspected for evidence of nesting birds by a suitably qualified person prior to works being carried out.

#### 2.4 Site briefing for site personnel

2.4.1 The site manager is responsible for ensuring that all personnel are made fully aware of the constraints posed by retained trees on site and the measures in place to ensure they are protected, including having full on-site access to the AMS and TPPs. It is good practice for the Site Arboriculturist to be involved in the site briefing to ensure all constraints and tree protection measures are clearly understood.

#### Tool-box talk

2.4.2 A Tool-box Talk should be provided to site workers to highlight the need for safe driving of plant and working within the defined corridor to ensure that accidents and resulting potential damage to trees not covered by tree protection measures are eliminated. A copy of the TPP should be used in the process of explaining to all personal the requirements to ensure retained trees are not damaged and copies of both the TPP and the AMS must be available in the site office at all times.

#### Site monitoring

- 2.4.3 An auditable system of site monitoring shall be established to guide contractors on site, ensure that tree protection measures are implemented and adhered to.
- 2.4.4 This includes site visits by the Site Arboriculturist (as appointed by the developer) to confirm the correct installation of protective fencing, to oversee sensitive elements of works within the RPA of retained trees and to sign off the site when works are complete before fencing can be dismantled.
- 2.4.5 The frequency of site monitoring will be discussed with the Local Authority tree officer and agreed in writing before works begin on site (but is recommended to be every four weeks in addition to ad hoc monitoring of particularly sensitive operations



near retained trees as required). An outline schedule of site monitoring is included as Appendix 2 of this OAMS.

#### 2.5 Installation of protective fencing

- 2.5.1 The default position as set out by BS 5837:2012 is that retained trees must be protected from construction operations with the erection of robust protective fencing positioned on the outer edge of the RPA or crown spread (whichever is greatest). All site operations will be restricted to the area outside of tree protection fencing and this area will form a Construction Exclusion Zone (CEZ) unless agreed otherwise. Protection measures will be installed as set out in the Tree Protection Plans included as Annex C of the Appendix 7.1: Arboricultural Impact Assessment [AS-101/6.3].
- 2.5.2 The area inside the fence will be sacrosanct and any additional tree protection measures will be strictly adhered to.
- 2.5.3 Fencing shall be constructed with robust vertical and horizontal scaffold framework with weldmesh panels firmly attached in accordance with BS 5837:2012 figure 2, as illustrated in Figure 1 below. Vertical support poles and bracing poles must be located with care to avoid underground utility services and will be sited to avoid the structural roots of retained trees.

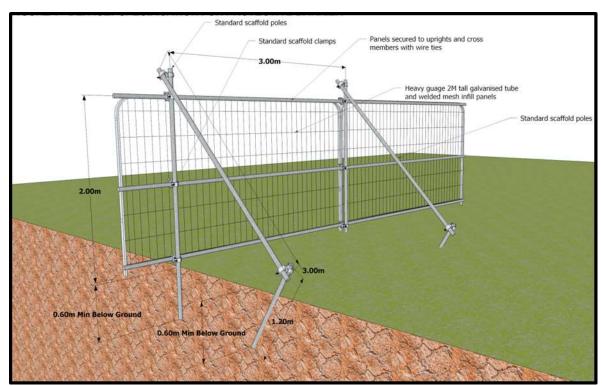


Figure 1 Default specification for tree protection barrier in accordance with BS5837:2012 figure 2.

- 2.5.4 Alternative equivalent robust and immovable fencing specification including site hoarding will also be appropriate.
- 2.5.5 Suitable all-weather signage will be fixed to fencing to notify site staff and visitors of the construction exclusion zone and its purpose (example included as Appendix 3 of this OAMS).



- 2.5.6 Damage to trees protected by Tree Preservation Orders is a criminal offense with fines of up to £20,000 per tree or an unlimited fine in a crown court.
- 2.5.7 When entering and exiting the site the fencing contractor must avoid the production of ruts on the unprotected surface of the ground.
- 2.5.8 Protective fencing and ground protection shall stay in place until all construction operations are completed and removal is agreed with the Site Arboriculturist.

#### 2.6 Installation of ground protection

- 2.6.1 In general tree protection fencing will ensure a construction exclusion zone is maintained for all RPAs. However, there are a number of instances were small incursions into the RPA of trees would likely occur. These are at the points where the Scheme links into the existing A460 and along Hilton Lane. Where access is required in these areas and within unsurfaced RPAs ground protection must be provided.
- 2.6.2 Fit for purpose ground protection must be in place which is sufficient to protect the structure of the soil from damage based on the heaviest anticipated load. This must be installed prior to the commencement of any development activity on this area of the site and be signed off by the Site Arboriculturist.
- 2.6.3 As set out in section 6.2.3.3 of BS5837:2012 the following ground protection measures will be appropriate:
  - Suitable ground protection for pedestrian only access will comprise a single thickness of scaffold boards set on a compressible layer of 100 mm of woodchip on a geotextile separation layer.
  - Pedestrian operated plant up to two tonnes in weight would require the use of a proprietary ground protection system (such as Ground Guards, Eki mats, Eve Trakway or equivalent) set on a minimum depth of 150 mm woodchip or sharp sand.
  - Heavier loads will require ground protection to an engineering specification in conjunction with arboricultural advice.
- 2.6.4 As a guide the threshold beyond which root development is significantly affected is a bulk density ranging from 1.4g per cm<sup>3</sup> for clay soils, to 1.75g per cm<sup>3</sup> for sandy soils.
- 2.6.5 The existing hard surfacing within the RPA of a number of trees along the A460 will act as suitable ground protection throughout the construction phase and must be retained in-situ unless otherwise approved by the Site Arboriculturist.
- 2.6.6 Tree protective measures shall stay in place until all construction operations are completed and removal is agreed with the Site Arboriculturist.



#### 2.7 Construction operations

## Movement of Vehicles and People and the Movement and Operation of Machinery

2.7.1 Due to the number of trees to be retained around site, construction works and in particular the use of machinery must be carefully co-ordinated to avoid damage to retained trees. A banksman must be in place for any operations which occur within 5 m of any part of a retained tree. Protective fencing will be in place to ensure that the vast majority of tree canopies and root systems are fully protected during the main construction works.

#### Site organisation, storage and mixing of materials

- 2.7.2 The final detailed locations for temporary site organisation and compounds will be agreed at the pre commencement site meeting.
- 2.7.3 The storage and mixing of materials and any re-fuelling shall take place at least 5 m from the RPA of any retained trees and also take into account any potential for run off. Where this is an issue measures such as bunding with robust impermeable polythene sheeting and sandbags must be put in place to prevent accidental run off reaching the rooting zone of retained trees.
  - No changes in ground level are permitted within the RPA of a retained tree.
  - No fires shall take place within an RPA or within 5 m of any part of a retained tree.
  - No signs, cables or other items are to be attached to any part of a retained tree.

#### 2.8 Earthworks within proximity of trees

- 2.8.1 Generally earthworks will be carried out beyond tree protective fencing and therefore outside of the RPAs of retained trees to avoid any changing of ground levels within RPAs.
- 2.8.2 Where ground levels would be increased this would consist of uncompacted granular fill where possible.
- 2.8.3 Where excavation is required this would be carried out under the supervision of the Site Arboriculturist and machinery must work from outside of the RPA or from suitable ground protection (refer to Section 2.6) or existing hard surfacing.
- 2.8.4 Exposed roots must be treated in accordance with the guidelines in Section 3.

#### 2.9 Removal and/or replacement of an existing hard surface within an RPA

- 2.9.1 Some modification will be made to the layout of the existing roads where they link into the Scheme and as such some existing hard surfacing within the RPAs of a number of trees will be removed or removed and replaced.
- 2.9.2 During the initial works it is anticipated that such surfacing will be retained in-situ serving as ground protection until the specific removal and replacement works take place. The methodology for the removal and/or replacement will be as follows.



#### Removing the existing hard surfacing:

- 2.9.3 Following the completion of the new road links from the Scheme the existing surfacing will be removed under supervision by the Site Arboriculturist. The existing surface must be 'rolled back' with contractors working from the existing hard surface. It will be acceptable to use light tracked machinery such as an excavator with an untoothed bucket (or where unavoidable, the smallest teeth feasible) to assist with the removal of the existing surfacing where this can be achieved without damage to any significant roots beneath.
- 2.9.4 Machinery must work from existing hard standing only. Where surface roots are obviously present and at the junction between hard and soft ground, surfacing is to be removed by hand only.

#### Restoring hard surfacing to soft ground:

2.9.5 Where the hard surfacing will be restored to soft ground the sub-base, following removal of the wearing course, is to be broken up by hand via pedestrian only access. Materials must be removed using wheelbarrows or via hand loading of long reach machinery positioned on adjacent hard surfacing or ground protection. The sub-base is to be rolled back. Following removal any low points or hollows are to be filled with sharp sand or gravel and topsoil be applied to the required level. This area must then be completely fenced off for the remainder of the development works.

### Installing replacement pedestrian or light vehicular hard surfacing on an existing sub-base.

- 2.9.6 The sub-base must be retained intact, ameliorated as required and utilised for the new surface. Levels are to be increased using inert granular fill by a maximum of 100 mm. The sub-base must be hand tamped only to prevent significant compaction of the underlying soil.
- 2.9.7 Exposed roots must be treated in accordance with the guidelines in Section 3 of this OAMS.
- 2.9.8 Following the removal of existing hard surfacing the unprotected ground within RPAs must be immediately protected with protective fencing and or ground protection (where access is required) as set out in Section 2.5 and 2.6 of this OAMS to ensure that the structure of the soil and tree roots are protected.
- 2.9.9 Pedestrian only access onto the exposed and retained sub-base will be acceptable to allow the installation of replacement hard surfacing. The new surface should be laid as quickly as possible.
- 2.9.10 Any exposed roots greater than 25 mm in diameter must be assessed by the Site Arboriculturist. If roots which are to be retained are exposed at ground level these should be covered with a thin layer of sharp sand and adjacent levels built up around it. This layer must not be significantly compacted and only hand tamped.

#### Installing replacement heavy vehicular hard surfacing on an existing subbase:

2.9.11 The sub-base must be retained intact, ameliorated as required and utilised for the new surface. Exposed roots are unlikely to be encountered due to the heavily



- engineered sub-base of the existing surface. Where encountered any roots must be treated in accordance with the guidelines in Section 3 of this OAMS. The new surface must be rolled out working from the existing sub-base only.
- 2.9.12 Surfacing operations are to be conducted solely from the existing footprint of the road. Access beyond the footprint will be restricted with Tree Protection Barriers.

#### **Edging:**

- 2.9.13 Existing edging within the RPA of a retained tree will be retained intact and used as the edging for the new surface where possible.
- 2.9.14 Where the removal of existing edging is unavoidable within an RPA this will be removed carefully by hand under the supervision of the Site Arboriculturist.
- 2.9.15 Plant positioned outside of the RPA or on existing hard surfacing within the RPA may reach in to assist in lifting edging out of its position using slings but must not be used to excavate around the edging.
- 2.9.16 No new edging is anticipated to be installed within the RPAs of existing trees to be retained.

#### 2.10 Installation of drainage within RPAs

- 2.10.1 Excavation to install drainage runs has the potential to result in unacceptable root severance which could result in instability, dysfunction or the death of trees.
- 2.10.2 The default position will therefore be that all drainage routes will be outside of the RPA of retained trees.
- 2.10.3 Where drainage runs must be routed within the RPA of a retained tree the following general principles will apply.
- 2.10.4 Under supervision of the Site Arboriculturist hand-operated compressed air excavation will be used to ensure significant roots remain undamaged. Drainage pipes will be installed to avoid significant roots and where root pruning is necessary this will be carried out in line with the principles set out in Section 3.

#### 2.11 Installation of services within RPAs

- 2.11.1 Excavation to install services has the potential to result in unacceptable root severance which could result in instability, dysfunction or the death of trees. Repeated incursions are particularly damaging and must be avoided by bundling services wherever possible.
- 2.11.2 The default position will therefore be that all services be routed outside of the RPA of retained trees. The following general principles will apply and where services must be routed within the RPA of a retained tree. The principles of the National Joint Utilities Group (NJUG) Volume 4 guidance must be adhered to.
- 2.11.3 All services must be bundled as far as possible and installed within RPAs using hand/compressed air excavation (e.g. for shallow service runs) or trenchless techniques such as impact moling (thrust boring) with all access pits and inspection chambers being located outside of the RPA. The route must run as far from the main stem of a retained tree as possible and must be at a minimum depth so that



- the upper 1m of the soil profile is undisturbed. The depth of the run may need to be adjusted to account for soil type and species variation and this must be determined subject to the advice of an arboriculturist.
- 2.11.4 Any water pipes must be constructed so as to be resistant to ingress by tree roots (both existing trees, and newly planted trees) which could include the use of root barriers where appropriate.

#### 2.12 Removal of existing services

- 2.12.1 Where existing services become redundant within the RPA of a retained tree, the default position must be that they be decommissioned and left in situ. Where this is not feasible the following principles are to be observed.
- 2.12.2 Existing services are to be removed by winching out from an access/inspection chamber located outside of an RPA. It may be acceptable to fill redundant pipe work with an inert material or undertake pipe bursting where necessary within the RPA of retained trees.
- 2.12.3 Redundant pipe work will be sealed off and will not be removed via excavation within the RPA of a retained tree. Redundant pipe work can be filled with an inert material or if confirmed to be fully watertight may be filled with foamed concrete applied from an access point located outside the RPA of all retained trees. Concrete must be stored and mixed in accordance with Section 2.7 of this OAMS.

#### 2.13 Installation of new hard surfacing within RPAs

2.13.1 The very small areas of new hard surfacing in the RPA of some trees along the A460 and Hilton Lane can be constructed using hand excavation supervised by an arboriculturist. Due to the very small incursion within RPAs no specialist construction measures are required. No roots greater than 25 mm in diameter will be severed without the consent of the arboriculturist. A 0.5 m wide strip of pedestrian only access to facilitate the installation of the new surface, will be provided utilizing ground protection as set out in Section 2.6 of this OAMS.

#### 2.14 Dismantling of tree protection measures

2.14.1 All protective fencing and ground protection must remain in place until all significant site works have been completed and agreement has been reached with the Site Arboriculturist.

## 2.15 Soft landscaping works within the Root Protection Area (RPA) of retained trees.

- 2.15.1 Landscaping works within the RPAs of retained trees can result in damage primarily through compaction by machinery, excavation for new plantings, herbicide damage and altered soil levels. In order to avoid tree damage the following principles will be followed:
  - All vehicles and machinery should remain outside of the RPAs except for small tracked machinery which will not cause compaction.



- Only contact herbicides may be used within proximity of trees. Any stripping of the top ground vegetation will be limited to 100mm depth.
- Planting pits for new plantings should be carried out by hand to retain significant roots and to limit any potential root damage. No strip pits will be excavated within RPAs.
- New top-soil and mulching material will not alter the existing soil levels by more than 200mm within RPAs.
- Where encountered any roots must be treated in accordance with the guidelines in Section 3 of this OAMS.



## 3. General principles for the management of tree roots

- 3.1.1 Where agreed excavation by hand tools or compressed air takes place within a root protection area the following principles will apply:
  - Individual or small groups of roots less than 25 mm in diameter will be retained
    where possible but can be severed with a sharp tool such as secateurs or
    pruning saws to leave a clean cut end (ideally 100 mm back from the face of
    the excavation to account for future regrowth) where they pose an obstruction.
  - Where roots are encountered which are larger than 25 mm in diameter or where significant groups of smaller roots are found, the advice of the site arboriculturist must be sought to decide an appropriate course of action (following consultation with the Local Planning Authority where appropriate).
  - Roots must only be exposed for the minimum period possible. In the interim
    period any exposed roots (including the face of any excavation within an RPA)
    must be completely covered with dampened hessian sacking (which may
    require ongoing re wetting) to avoid drying out and exposure to light. Backfill
    for excavations should ideally utilise the parent material and must not be
    significantly compacted.



#### 4. Contact details

(To be confirmed).

Site Manager: To be confirmed

Site Arboriculturist: To be confirmed

Local Authority Tree Officer: To be confirmed



#### **Appendix 1: Tree Works Schedule**

Ref. No	Species  Common Name (Scientific name)	Preliminary Management Recommendations	Tree Works to Facilitate the Development Proposals
W1*	Common Oak (Quercus robur), Ash (Fraxinus excelsior), Common Alder (Alnus glutinosa), White Willow (Salix alba), Goat Willow (Salix caprea)		Remove area as shown on the TPP.
T2*	White Willow (Salix alba)	Coppice (< 3 months)	Fell
T3*	White Willow (Salix alba)	Coppice (< 3 months)	Fell
G4*	Common Oak (Quercus robur), Scots Pine (Pinus sylvestris)		Remove area as shown on the TPP.
T5*	Common Alder (Alnus glutinosa)		Fell
G6	Common Alder (Alnus glutinosa), White Willow (Salix alba)		Fell
G8*	White Willow (Salix alba)		Fell
T9*	White Willow (Salix alba)	Fell (< 1 month)	Fell
T10*	Crack Willow (Salix fragilis)	Remove partially failed branches. (< 3 months)	Fell for creation of attenuation pond.
T11*	White Willow (Salix alba)	Remove dead wood Low access area. (When funds allow)	Fell
T12*	White Willow (Salix alba)		Fell
T13*	White Willow (Salix alba)		Fell
T14*	Goat Willow (Salix caprea)		Fell for creation of attenuation pond.
T15*	Common Alder (Alnus glutinosa)		Fell for creation of attenuation pond.
T16*	White Willow (Salix alba)		Fell
G17*	Goat Willow (Salix caprea), White Willow (Salix alba), Common Alder (Alnus glutinosa)		Fell for creation of attenuation pond.
T18*	White Willow (Salix alba)		Fell
T19*	White Willow (Salix alba)		Fell
T20*	Common Alder (Alnus glutinosa)		Fell for creation of attenuation pond.
T21*	Goat Willow (Salix caprea)		Fell
T22*	Willow (Salix sp.)		Fell for creation of attenuation pond.



Ref. No	Species  Common Name (Scientific name)	Preliminary Management Recommendations	Tree Works to Facilitate the Development Proposals
T23*	Sycamore (Acer pseudoplatanus)		Fell
G24	Birch (Betula sp.), Hawthorn (Crataegus monogyna), Willow (Salix sp.), Sycamore (Acer pseudoplatanus)		Fell
G25	Common Alder (Alnus glutinosa)		Fell
G26	Common Alder (Alnus glutinosa), Aspen (Populus tremula), Silver Birch (Betula pendula), Common Oak (Quercus robur)		Fell
G27*	Hawthorn (Crataegus monogyna), Ash (Fraxinus excelsior)		Fell
G28*	Goat Willow (Salix caprea), White Willow (Salix alba), Aspen (Populus tremula), Hawthorn (Crataegus monogyna)		Fell
G29	Goat Willow (Salix caprea)		Remove area as shown on the TPP.
G31	Aspen (Populus tremula), Common Oak (Quercus robur), Hawthorn (Crataegus monogyna), Sycamore (Acer pseudoplatanus)		Fell
T32*	Common Alder (Alnus glutinosa)		Fell
G33	Common Alder (Alnus glutinosa)		Fell
T34*	White Willow (Salix alba)		Fell
G35*	Goat Willow (Salix caprea), Common Alder (Alnus glutinosa)		Fell
G36*	Silver Birch (Betula pendula), Common Oak (Quercus robur), Hawthorn (Crataegus monogyna)		Remove area as shown on the TPP.
T44*	Sycamore (Acer pseudoplatanus)		Fell
T46	Ash (Fraxinus excelsior)	Fell (< 1 month)	
T54	Sycamore (Acer pseudoplatanus)	No action.	Fell
T60	Ash (Fraxinus excelsior)	Create monolith at 8m. (< 1 month)	
T63	Lime (Tilia sp.)		Fell
T66	Common Oak (Quercus robur)	Remove hung up branches (< 12 months)	Fell



Ref. No	Species  Common Name (Scientific name)	Preliminary Management Recommendations	Tree Works to Facilitate the Development Proposals
T68	Common Oak (Quercus robur)	Deadwood if target.	
G69	Cypress (Chamaecyparis sp.), Hawthorn (Crataegus monogyna), Common Alder (Alnus glutinosa), Common Oak (Quercus robur)		Remove section as shown on the TPP if necessary, for construction access
T72	Common Oak (Quercus robur)		Fell
G74	Sycamore (Acer pseudoplatanus), Common Alder (Alnus glutinosa)		Fell
T75	Common Oak (Quercus robur)		Fell
T77	Common Oak (Quercus robur)		Fell
T78	Common Oak (Quercus robur)		Fell
T79	Common Oak (Quercus robur)		Fell
T81	Sycamore (Acer pseudoplatanus)		Fell
T84	Common Oak (Quercus robur)		Fell
T87	Common Oak (Quercus robur)		Fell
T88	Common Oak (Quercus robur)		Fell
T90	Common Oak (Quercus robur)		Fell
T91	Common Oak (Quercus robur)		Fell
T92	Common Oak (Quercus robur)		Fell
T94	Beech (Fagus sylvatica)		Fell
T95	Sessile Oak (Quercus petraea)		Fell
W96	Yew (Taxus baccata), Sycamore (Acer pseudoplatanus), Silver Birch (Betula pendula), Common Oak (Quercus robur)		Fell
T97	Scots Pine (Pinus sylvestris)	Remove limb to leave 7m stick.	
T98	Sycamore (Acer pseudoplatanus)	Fell (< 1 month)	Fell
T99	Sycamore (Acer pseudoplatanus)	Fell (< 1 month)	Fell
T100	Common Oak (Quercus robur)		Fell
T101	Common Lime (Tilia X europaea)		Fell
T102	Common Lime (Tilia X europaea)		Fell
T110	Common Oak (Quercus robur)		Fell
T111	Sycamore (Acer pseudoplatanus)	Fell (< 1 month)	Fell
T112	Sycamore (Acer pseudoplatanus)	Remove dead wood (< 3 months)	Fell
T113	Common Lime (Tilia X europaea)		Fell



Ref. No	Species  Common Name (Scientific name)	Preliminary Management Recommendations	Tree Works to Facilitate the Development Proposals
G119	Common Alder (Alnus glutinosa), Sycamore (Acer pseudoplatanus), Downy Birch (Betula pubescens)		Fell
T120	Common Lime (Tilia X europaea)		Fell
T122	White Poplar (Populus alba)	Top at 8m.	
T130	Common Oak (Quercus robur)		Fell
W138	Sycamore (Acer pseudoplatanus)		Remove section as shown on TPP.
T140*	Downy Birch (Betula pubescens)	No action.	Fell
T145	Common Oak (Quercus robur)	Fell or monolith	
T146	Beech (Fagus sylvatica)	Fell (Asap)	
T151	Common Oak (Quercus robur)	Reduce canopy on secondary stem by 40%.	
T152	Common Alder (Alnus glutinosa)	Fell within 1 week.	Fell
G153	Sycamore (Acer pseudoplatanus)	Owner to fell (Asap)	
T155	Beech (Fagus sylvatica)	Remove deadwood and hanging branches if access.	
W159	Sycamore (Acer pseudoplatanus), Downy Birch (Betula pubescens), Common Alder (Alnus glutinosa), Beech (Fagus sylvatica)		Remove section as shown on TPP.
T160	Sycamore (Acer pseudoplatanus)	Remove Ivy	
T168	Ash (Fraxinus excelsior)	Fell or reduce live limb by 50%	
T180	Willow (Salix sp.)	Remove canopy to leave stick	
T183	Common Oak (Quercus robur)		Fell
G184	Common Oak (Quercus robur), Sycamore (Acer pseudoplatanus), Holly (Ilex aquifolium), Other		Remove section as shown on TPP.
T186	Sycamore (Acer pseudoplatanus)	Remove dead wood (< 1 month)	
G187	Sycamore (Acer pseudoplatanus), Hazel (Corylus avellana)	Remove dead wood Deadwood within sycamore canopies. (< 1 month)	
T191	Beech (Fagus sylvatica)	Remove dead wood (< 1 month)	



Ref. No	Species  Common Name (Scientific name)	Preliminary Management Recommendations	Tree Works to Facilitate the Development Proposals
T194	Beech (Fagus sylvatica)	Remove dead wood (< 1 month)	
T195	Sycamore (Acer pseudoplatanus)	Fell within 1 month.	
T197	Sycamore (Acer pseudoplatanus)	Fell	
T201	Whitebeam (Sorbus aria)	Fell on safety grounds.	
T209	Sweet Chestnut (Castanea sativa)	Fell	
T211	Sweet Chestnut (Castanea sativa)	Remove deadwood to make safe only.	
W212	Sycamore (Acer pseudoplatanus), Common Oak (Quercus robur), Holly (Ilex aquifolium), Scots Pine (Pinus sylvestris)		Fell
T222	Beech (Fagus sylvatica)	Fell	
T225	Sycamore (Acer pseudoplatanus)	Fell within 1 week on safety grounds.	
T226	Ash (Fraxinus excelsior)	Management options to be considered if access within falling distance.	
G228*	Common Oak (Quercus robur), Hazel (Corylus avellana), Common Alder (Alnus glutinosa), Ash (Fraxinus excelsior)	Fell dead stems. (< 3 months)	
G232	Sycamore (Acer pseudoplatanus), Holly (Ilex aquifolium), Yew (Taxus baccata), Common Oak (Quercus robur)		Remove section as shown on TPP.
G234*	Common Oak (Quercus robur), Sycamore (Acer pseudoplatanus), Hawthorn (Crataegus monogyna)		Fell
T237#	Atlantic Cedar (Blue) (Cedrus libani atlantica 'Glauca')	Remove deadwood and hanging branch.	Fell
T238*	Other	Fell (< 1 month)	
T239	Sycamore (Acer pseudoplatanus)		Fell
G240	Hawthorn (Crataegus monogyna), Holly (Ilex aquifolium)		Fell
T241*	Indian Horse Chestnut (Aesculus indica)	Fell girdled stem. (Asap)	
T242	Common Oak (Quercus robur)		Fell
T244*	Other	Remove dead wood (< 1 month)	
G246	English Elm (Ulmus procera)	Fell dead elm within group.	



Ref. No	Species  Common Name (Scientific name)	Preliminary Management Recommendations	Tree Works to Facilitate the Development Proposals
T257*	Sycamore (Acer pseudoplatanus)	Fell (< 1 month)	
T259*	Goat Willow (Salix caprea)	Fell (< 1 month)	
G265	Sycamore (Acer pseudoplatanus), Common Oak (Quercus robur), Ash (Fraxinus excelsior), Holly (Ilex aquifolium)	Fell Dead trees within falling distance of road. (< 1 month)	Remove section of group as shown on TPP.
T278*	Elm (Ulmus sp)	Fell (< 1 month)	
T280	Hawthorn (Crataegus monogyna)		Fell
T282	Holly (Ilex aquifolium)		Fell
G286	Holly (Ilex aquifolium), Hawthorn (Crataegus monogyna), Common Alder (Alnus glutinosa)		Fell
T289	Ash (Fraxinus excelsior)		Fell
G290	Hawthorn (Crataegus monogyna), Common Alder (Alnus glutinosa)		Remove section of group as shown on TPP.
T295	Ash (Fraxinus excelsior)		Fell
T297	Sycamore (Acer pseudoplatanus)		Fell
T298*	Common Oak (Quercus robur)	Remove dead wood Remove deadwood. (< 1 month)	
T300	Common Oak (Quercus robur)		Fell
T301	Scots Pine (Pinus sylvestris)		Fell
T305*	Common Oak (Quercus robur)		Fell
T306	Common Alder (Alnus glutinosa)		Fell
T307	Scots Pine (Pinus sylvestris)		Fell
G308	Common Alder (Alnus glutinosa), Common Oak (Quercus robur), Hawthorn (Crataegus monogyna), Elder (Sambucus nigra)		Fell
T309	Common Alder (Alnus glutinosa)	Fell (When funds allow)	Fell
G310	Common Alder (Alnus glutinosa)		Fell
T311	Crack Willow (Salix fragilis)		Fell
T313	Common Alder (Alnus glutinosa)		Fell
T314*	Common Alder (Alnus glutinosa)	Fell if working area required. (When funds allow)	Fell
T315	Common Alder (Alnus glutinosa)		Fell



Ref. No	Species  Common Name (Scientific name)	Preliminary Management Recommendations	Tree Works to Facilitate the Development Proposals
G316	Common Alder (Alnus glutinosa),	Fell if working area required. Standing deadwood habitat value. (When funds allow)	Fell
T318	Common Alder (Alnus glutinosa)		Fell
T319	White Willow (Salix alba)	Remove hung up limb if working area is required. (When funds allow)	Fell
T321	White Willow (Salix alba)		Fell
T322	White Willow (Salix alba)		Fell
T323	Common Alder (Alnus glutinosa)		Fell
T324	Common Alder (Alnus glutinosa)		Fell
T325	White Willow (Salix alba)		Fell
T326	White Willow (Salix alba)	Coppice if track area is required for work. Use/risk level of track unknown. Future failure likely. (When funds allow)	Fell
G327*	White Willow (Salix alba), Hawthorn (Crataegus monogyna), Other, Other		Fell
T329	White Willow (Salix alba)	Coppice if track area is required for work. Use/risk level of track unknown. Future failure likely. (When funds allow)	Fell
G332	Elder (Sambucus nigra), Hawthorn (Crataegus monogyna)		Fell
T333	Hawthorn (Crataegus monogyna)		Fell
T334	Hawthorn (Crataegus monogyna)		Fell
G335	Crab Apple (Malus sylvestris), Hawthorn (Crataegus monogyna)		Fell
W342	Common Alder (Alnus glutinosa), Ash (Fraxinus excelsior), Crack Willow (Salix fragilis), Common Oak (Quercus robur)	No action.	Remove section as shown on TPP.
T344	English Elm (Ulmus procera)	Fell within 3 months	
G345	Ash (Fraxinus excelsior)	No action.	Remove section as shown on TPP.



Ref. No	Species  Common Name (Scientific name)	Preliminary Management Recommendations	Tree Works to Facilitate the Development Proposals
G346	Common Alder (Alnus glutinosa), Crack Willow (Salix fragilis), Hawthorn (Crataegus monogyna), Common Oak (Quercus robur)		Remove section as shown on TPP.
G348	Beech (Fagus sylvatica), Hazel (Corylus avellana), Elder (Sambucus nigra), Sycamore (Acer pseudoplatanus)	No action.	Remove section as shown on TPP.
T349	English Elm (Ulmus procera)	Fell within 3 months	
T350	English Elm (Ulmus procera)	Fell within 3 months	
T351	English Elm (Ulmus procera)	Fell within 3 months	
G352	Hawthorn (Crataegus monogyna), Ash (Fraxinus excelsior), Rowan (Sorbus aucuparia), Field Maple (Acer campestre)	No action.	Fell.
T353	English Elm (Ulmus procera)	Fell within 3 months	
T354	English Elm (Ulmus procera)	Fell within 3 months	
T355	English Elm (Ulmus procera)	Fell within 3 months	
T356	English Elm (Ulmus procera)	Fell within 3 months	
T358	English Elm (Ulmus procera)	Fell within 3 months	
T359	English Elm (Ulmus procera)	Fell within 3 months	
T360	English Elm (Ulmus procera)	Fell within 3 months	
G361	Ash (Fraxinus excelsior)	No action.	Fell
T363	English Elm (Ulmus procera)	Fell within 3 months	
T364	English Elm (Ulmus procera)	Fell within 3 months	
T365	English Elm (Ulmus procera)	Fell within 3 months	
T366	English Elm (Ulmus procera)	Fell within 3 months	
T367*	Common Oak (Quercus robur)		Fell
T368	English Elm (Ulmus procera)	Fell within 3 months	
G369*	Common Alder (Alnus glutinosa)		Fell
T371*	Sycamore (Acer pseudoplatanus)	Fell (When funds allow)	Fell
T372*	Common Oak (Quercus robur)		Fell
G374	Hawthorn (Crataegus monogyna), Common Alder (Alnus glutinosa)		Remove section as shown on TPP.
G375	Field Maple (Acer campestre), Common Oak (Quercus robur), Hawthorn (Crataegus monogyna)	No action.	Remove section as shown on TPP.



Ref. No	Species  Common Name (Scientific name)	Preliminary Management Recommendations	Tree Works to Facilitate the Development Proposals
T376	Sycamore (Acer pseudoplatanus)		Fell
G378*	Hawthorn (Crataegus monogyna), Hazel (Corylus avellana), Willow (Salix sp)		Fell
G379	Field Maple (Acer campestre), Hawthorn (Crataegus monogyna)		Fell
G381	Hawthorn (Crataegus monogyna), Apple (Malus sp), Rowan (Sorbus aucuparia), Goat Willow (Salix caprea)		Remove section as shown on TPP
T386*	Common Oak (Quercus robur)		Fell
G389	Common Oak (Quercus robur), Sycamore (Acer pseudoplatanus)		Fell
G392	Hawthorn (Crataegus monogyna)		Remove section as shown on TPP.
G397	Hawthorn (Crataegus monogyna), Hazel (Corylus avellana)		Fell
G398	Ash (Fraxinus excelsior), Field Maple (Acer campestre), Hawthorn (Crataegus monogyna), Elder (Sambucus nigra)		Fell
G400	Hawthorn (Crataegus monogyna), Sycamore (Acer pseudoplatanus), Hawthorn (Crataegus monogyna), Common Alder (Alnus glutinosa)		Fell
G402*	Hawthorn (Crataegus monogyna), Elder (Sambucus nigra), Willow (Salix sp)		Remove section as shown on TPP.
G403	Common Oak (Quercus robur), Ash (Fraxinus excelsior)		Fell
G404	Hawthorn (Crataegus monogyna), Field Maple (Acer campestre)		Remove section as shown on TPP.
G405	Hawthorn (Crataegus monogyna), Elder (Sambucus nigra)		Fell
T406*	Common Oak (Quercus robur)		Fell
G407*	Common Oak (Quercus robur), Hawthorn (Crataegus monogyna)		Fell
T409*	Common Oak (Quercus robur)		Fell



Ref. No	Species  Common Name (Scientific name)	Preliminary Management Recommendations	Tree Works to Facilitate the Development Proposals
G410	Common Oak (Quercus robur), Sycamore (Acer pseudoplatanus), Hawthorn (Crataegus monogyna)		Fell
T412*	Common Oak (Quercus robur)		Fell
G413*	White Willow (Salix alba), Common Alder (Alnus glutinosa)	Fell if working area is required (< 3 months)	
G414	Sycamore (Acer pseudoplatanus), Hawthorn (Crataegus monogyna), Ash (Fraxinus excelsior), Hazel (Corylus avellana)		Remove section as shown on TPP.
G415*	Hawthorn (Crataegus monogyna)		Fell
T418	Ash (Fraxinus excelsior)		Fell
G419	Sycamore (Acer pseudoplatanus), Hawthorn (Crataegus monogyna), Field Maple (Acer campestre), Damson (Prunus domestica)		Remove section as shown on the TPP.
H422	English Elm (Ulmus procera)		Fell
G425	Common Oak (Quercus robur), Sycamore (Acer pseudoplatanus), Hawthorn (Crataegus monogyna)		Fell
T426*	Ash (Fraxinus excelsior)		Fell
G428*	Ash (Fraxinus excelsior), Hawthorn (Crataegus monogyna), Elder (Sambucus nigra)		Remove section as shown on TPP.
T431	Ash (Fraxinus excelsior)		Fell
G447*	Field Maple (Acer campestre), Ash (Fraxinus excelsior)		Remove section as shown on TPP.
G448*	Ash (Fraxinus excelsior), Field Maple (Acer campestre)		Remove section as shown on TPP.
G449*	Hawthorn (Crataegus monogyna), Elm (Ulmus sp)		Remove section as shown on TPP.
G460	Hawthorn (Crataegus monogyna), Common Alder (Alnus glutinosa), Ash (Fraxinus excelsior), Hazel (Corylus avellana)		Remove section as shown on TPP.



Ref. No	Species  Common Name (Scientific name)	Preliminary Management Recommendations	Tree Works to Facilitate the Development Proposals
T461*	Ash (Fraxinus excelsior)	Create monolith above woodpecker hole to retain as habitat, circa 7m, if working space is required within fall distance. (< 3 months)	
T463*	Common Oak (Quercus robur)	Remove dead wood Remove deadwood if working area is required. (When funds allow)	
G465	Field Maple (Acer campestre), Sycamore (Acer pseudoplatanus), Hawthorn (Crataegus monogyna), Common Oak (Quercus robur)		Remove section as shown on TPP.
T469*	Elm (Ulmus sp)	Fell (< 3 months)	
T472*	Elm (Ulmus sp)	Fell (< 3 months)	
G484	Hawthorn (Crataegus monogyna), Elder (Sambucus nigra), Hazel (Corylus avellana), Ash (Fraxinus excelsior)		Remove section as shown on TPP.
G485	Hawthorn (Crataegus monogyna), Goat Willow (Salix caprea), Sycamore (Acer pseudoplatanus)		Fell
G488	Hawthorn (Crataegus monogyna), Goat Willow (Salix caprea), Common Oak (Quercus robur)		Remove section as shown on TPP.
T494	Sycamore (Acer pseudoplatanus)	Fell in development / No action currently due to very low target.	
H496	Hawthorn (Crataegus monogyna), Common Oak (Quercus robur)		Remove section as shown on TPP.
T505	Oak (Quercus sp)	Crown thin fused limb by 50%	
G506	Ash (Fraxinus excelsior), Hazel (Corylus avellana), Hawthorn (Crataegus monogyna), Willow (Salix sp)		Remove section as shown on TPP.
W512	Common Oak (Quercus robur), Ash (Fraxinus excelsior), Sycamore (Acer pseudoplatanus), Lime (Tilia sp.), Beech (Fagus sylvatica)		Remove section as shown on TPP
G513	Field maple (Acer campestre), Ash (Fraxinus excelsior), Sycamore (Acer pseudoplatanus), Birch (Betula sp.), Common Oak (Quercus robur).		Remove section as shown on TPP



Ref. No	Species  Common Name (Scientific name)	Preliminary Management Recommendations	Tree Works to Facilitate the Development Proposals
G514	Ash (Fraxinus excelsior), Sycamore (Acer pseudoplatanus),		Fell
G515	Hazel (Corylus avellana), Hawthorn (Crataegus monogyna), Sycamore (Acer pseudoplatanus), Goat willow (Salix caprea)		Fell
W516	Sycamore (Acer pseudoplatanus), Birch (Betula sp.), Common Oak (Quercus robur), Common Beech (Fagus sylvatica), Sweet Chestnut (Castanea sativa),		
G517	Hazel (Corylus avellana), Hawthorn (Crataegus monogyna), Sycamore (Acer pseudoplatanus), Goat willow (Salix caprea)		Fell



#### **Appendix 2: Outline Schedule of Site Monitoring**

#### Pre commencement:

Pre commencement site meeting with the site manager and site arboriculturist to agree final positions for tree protection measures, location for site facilities and discuss any additional requirements.

#### General:

Site monitoring every 4 weeks to ensure tree protection measures are in place and fully implemented.

#### Installation of tree protection measures:

Site monitoring to approve correct installation of tree protection measures where trees lie in close proximity to the construction of the development and within the site compounds and storage areas.

#### Installation of ground protection:

Site monitoring to approve positioning of ground protection along A460 where needed.

#### Site monitoring to oversee works within RPAs:

Watching brief to oversee removal of the existing hard surfacing within the RPAs of trees along the A460.

Watching brief to oversee the installation of new hard surfacing within the RPAs of trees along the A460.

Watching brief to oversee the road alignment changes beneath adjacent tree canopies along Hilton Road.

Watching brief to oversee earthworks within RPAs of existing trees.

Watching brief to oversee the installation of services and drainage within RPAs of existing trees.



#### **Appendix 3: Tree Protection Signage (Example)**

