



Mill Lane, West Derby, Liverpool Arboricultural Impact Assessment

Report Ref: TEP.5520.001
December 2015

Genesis Centre
Birchwood Science Park
Warrington
WA3 7BH

T: 01925 844004
F: 01925 844002
E: tep@tep.uk.com
W: www.tep.uk.com



**Mill Lane, West Derby, Liverpool
Arboricultural Impact Assessment
Report Reference: TEP.5520.001
Version 1.0
December 2015**

**Prepared by:
Karen O'Shea
Arboricultural Consultant**

**TEP
Genesis Centre
Birchwood Science Park
Warrington
WA3 7BH
Tel: 01925 844004
Fax: 01925 844002
e-mail: tep@tep.uk.com**

for

**Redrow Homes Limited
Matrix Office Park
Buckshaw Village
Chorley
Lancashire
PR7 7NA**

| Written: | Checked: | Approved: |
|----------|----------|-----------|
| KJO | RMG | JGS |



**MILL LANE, WEST DERBY, LIVERPOOL
ARBORICULTURAL IMPACT ASSESSMENT**

| CONTENTS | PAGE |
|---|-------------|
| 1.0 INTRODUCTION | 1 |
| 2.0 THE SITE AND SURROUNDINGS..... | 2 |
| 3.0 STATUTORY PROTECTION | 3 |
| 4.0 TREE POPULATION..... | 5 |
| 5.0 IMPACTS OF THE PROPOSED DEVELOPMENT..... | 8 |
| 6.0 TREE PROTECTION REQUIREMENTS | 9 |
| 7.0 ARBORICULTURAL RECOMMENDATIONS | 11 |
| 8.0 SUMMARY | 13 |

APPENDICES

Appendix 1: Arboricultural Survey Data Sheets

Appendix 2: Survey Method

DRAWINGS

| | | |
|-------------------|---|---------------------------|
| Drawing 1: | Tree Constraints Plan: | D5520.001 |
| Drawing 2: | Tree Removal Plan: | D5520.002 |
| Drawing 3: | Tree Protection Plan: | D5520.003 |
| Drawing 4: | Temporary Tree Protection Fencing: | D.TREE_FENCING.001 |



1.0 INTRODUCTION

- 1.1 TEP has been commissioned by Redrow Homes to conduct an arboricultural survey of land off Mill Lane in West Derby, Liverpool. This report details the arboricultural impact of developing the site, subsequent mitigation recommendations and protective measures.
- 1.2 The survey was carried out in December 2015 by means of inspection from ground level by a qualified Arboricultural Consultant. Trees were assessed in accordance with *BS 5837:2012 Trees in relation to design, demolition and construction – Recommendations*.
- 1.3 Under the British Standard the assessment of trees is made objectively. The categorisation method identifies the quality and value of the existing tree stock.
- 1.4 A topographical survey was used to record the position of trees and vegetation (Ref: 06717-T-1). Where the age distribution and species mix of tree cover was relatively uniform, trees were plotted as groups. For the purposes of this report it is assumed that the detail on the drawing is accurate. A number of trees were not shown on the topographical surveys and therefore TEP's surveyor estimated their locations.
- 1.5 A total of 45 individual trees (T1-T45) and 4 groups of trees (G1-G4) were surveyed and mapped (refer to Drawing 1). All arboricultural information recorded during the survey is presented at Appendix 1.
- 1.6 The nature of the soils on site was not assessed during the survey. The possibility of minor soil movement due to tree root activity cannot be discounted. Prior to the undertaking of foundation depth calculations the exact location of all trees in relation to structures will be required.
- 1.7 This report provides the results of the survey and includes the following:
 - A schedule of all trees located on, or within influencing distance of the proposed development site (Appendix 1);
 - An assessment based on *BS 5837:2012*, of trees in terms of their potential value within any future development. On the basis of this assessment trees have been categorised into one of four categories: A, B, C or U (Appendices 1 & 2);
 - An assessment, based on *BS 5837:2012*, of the requirement for protection of trees during the construction phase (Section 6);
 - Advice on removal, retention and management of trees (Sections 5 & 7);
 - A Tree Constraints Plan detailing tree quality categories, canopy spreads and Root Protection Areas (**RPA**) for all trees surveyed (Drawing 1); and
 - A Tree Removal Plan detailing trees to be retained and removed (Drawing 2); and
 - A Tree Protection Plan detailing the development proposals, trees to be retained and temporal tree protection measures (Drawing 3).

2.0 THE SITE AND SURROUNDINGS

- 2.1 The site is situated off Mill Lane in West Derby. West Derby is a suburb in the north of Liverpool, Merseyside and lies approximately 5 miles north-east of the city centre.
- 2.2 The site is currently an area of unused grassland following the demolition of Ernest Cookson School. It is accessed via a locked gate off Mill Lane. A railway line runs adjacent to the site along the eastern boundary.

Insert 1: Site Location Plan



Contains ordinance survey data @ crown copyright and database right 2015.

- 2.3 The topography of the survey area is predominantly flat with minor undulations and two raised soil mounds centrally to the site.
- 2.4 Weather conditions during the survey were dry and overcast.
- 2.5 Inspection of trees was restricted in some cases by fences and those on third party ownership. These trees were surveyed insofar as was possible from accessible areas of the site and from the public highway.

Development Proposals

- 2.6 The proposed development includes the construction of 23 houses with private associated garden and parking spaces. New access is proposed off Mill Lane to the north of the existing access.
- 2.7 Detail of the proposals is shown on Drawing 2 and is based on the proposed site plan (Ref:DSL-001) supplied by Redrow Homes.

3.0 STATUTORY PROTECTION AND GUIDANCE

National Planning Policy Framework (NPPF)

- 3.1 The NPPF assumes protection of all ancient woodland and veteran trees unless it can be clearly demonstrated that the need for, or benefits of, development outweigh the loss. In this respect ancient woodland is defined as an area which has been wooded continuously since at least 1600 AD and a veteran as a tree of exceptional value for wildlife, in the landscape, or culturally because of its great age, size or condition
- 3.2 On this site there are no ancient woodland or veteran trees.

Tree Preservation Orders & Conservation Area Designations

- 3.3 Local authorities reserve the right to create Tree Preservation Orders (TPO) to protect the amenity value conferred to a location by a tree or group of trees. Where a TPO is in force, lopping, topping, felling, uprooting or wilful damage caused to a tree is prohibited and such actions may be prosecuted and incur an unlimited fine. Works to TPO protected trees must only be undertaken with the written consent of the local authority.
- 3.4 Liverpool City Council has confirmed that no trees with the site were subject to a TPO and the site does not lie within a Conservation Area.
- 3.5 Trees on land abutting the southern boundary are protected by Area 1 of TPO:51 – Sandforth Road L12 but no trees from this TPO affect the site.

Protected Species – Bats

- 3.6 Mature trees often contain cavities, crevices and hollows which are a potential habitat for roosting bats. Bats are afforded protection under Schedule 5 of the *Wildlife and Countryside Act 1981* (as amended), as well as under Schedule 2 of the *Conservation of Species and Habitats Regulations 2010*, and as such causing damage to a bat roost constitutes an offence.
- 3.7 A preliminary ground level appraisal of the wildlife habitat value of each tree was undertaken as part of the arboricultural survey. No trees were noted as having features suitable to support roosting bats.
- 3.8 Should the presence of a bat roost be suspected whilst undertaking works on any trees and groups on site, operations must be halted until a licensed bat handler or ecologist can provide advice.

Protected Species - Birds

- 3.9 Trees are a potential habitat for nesting birds, which (as well as their nests and eggs) are protected under the *Wildlife and Countryside Act 1981* (as amended). This makes it an offence to intentionally or recklessly, damage or destroy an active birds nest or any part thereof.

- 3.10 Due to the suitability of the trees within the survey boundary for nesting birds, all tree work should ideally be undertaken outside the bird nesting season (British bird nesting season: March to August inclusive).
- 3.11 If this is not possible then a detailed inspection of each tree should be undertaken by a qualified ecologist immediately prior to the arboricultural works. Should an active nest be found (being built, containing eggs or chicks) then any work likely to affect the nest must be halted until the nest becomes inactive.

National House Building Council

- 3.12 This report has been written in accordance with, and to satisfy the requirement of BS 5837:2012.
- 3.13 The nature of the soils on site was not assessed during the survey. The possibility of soil movement due to tree root activity cannot be discounted.
- 3.14 A number of trees were not shown on the topographical survey used to record the position of trees and groups and therefore TEP's surveyor estimated their locations. Prior to the undertaking of foundation depth calculations the exact location of all trees in relation to structures will be required.
- 3.15 Any discrepancies in tree location or missing trees will require further discussion with a qualified Arboricultural Consultant.

4.0 TREE POPULATION

- 4.1 45 individual trees (T1-T45) and 4 groups of trees (G1-G4) were recorded within influencing distance of the site. A schedule of all trees and groups in terms of species, condition, age, management recommendations and *BS 5837:2012* quality categories is provided at Appendix 1.
- 4.2 The site has a dense population of trees. The majority are located centrally within the site and along the south-western boundary.
- 4.3 3 mature silver birch (T14, T24 and T32) are the highest value trees on site due to their good condition and form. Both T24 and T32 have approximately 10 degree stem leans to the east although many branches still overhang into neighbouring properties along St James Close.
- 4.4 Trees T1 and T2 are both middle aged cherry located on the roadside verge. They have limited rooting space and exposed roots in the grass surface. Many lower branches are snapped as a result of possible vandalism. However, they have some visual amenity and will provide a seasonal interest along Mill Lane.
- 4.5 2 common whitebeam and 1 sweet chestnut (Trees T5 to T7 respectively) are growing in a row along the northern boundary. Both whitebeams have minor stem leans to the south-east and multi-stemmed unions that are typical of species. The sweet chestnut has a large bark wound to the west from two previous large limb failures. The stem wound also has signs of moderate decay. At present the tree is still in good health and vigour although it should be monitored to assess the degree of decay progression in the trunk.
- 4.6 Group G1 comprises 4 middle aged sycamore. The trees form one canopy due to their close proximity although one of the trees has been suppressed and has a much smaller height and crown spread. In an attempt to compete for light it has formed a south-western stem lean and as such has little arboricultural value compared to the 3 other trees in the group.
- 4.7 Two mature sycamore (T3 and T4) are situated in the north-western corner of the site. One has been pollarded many years ago and the other has been pruned poorly to the eastern side. Despite the poor crown forms, both trees are in good condition with only a minor amount of deadwood present in the canopies. They have amenity value due to their location as roadside trees and are large, prominent trees along Mill Lane.
- 4.8 Trees T9 to T18 are growing in close proximity on one of the raised soil mounds centrally to the site. They comprise common ash, common lime, Persian ironwood, wych elm, sycamore and silver birch. They generally have an asymmetrical crown form due to competing canopies, although their joining canopies affords them with a group value more than their individual merit. Trees T15 and T17 have stripped bark around the whole circumference of the trunk, possibly through vandalism.

Photograph 1: View north-west from the centre of the site

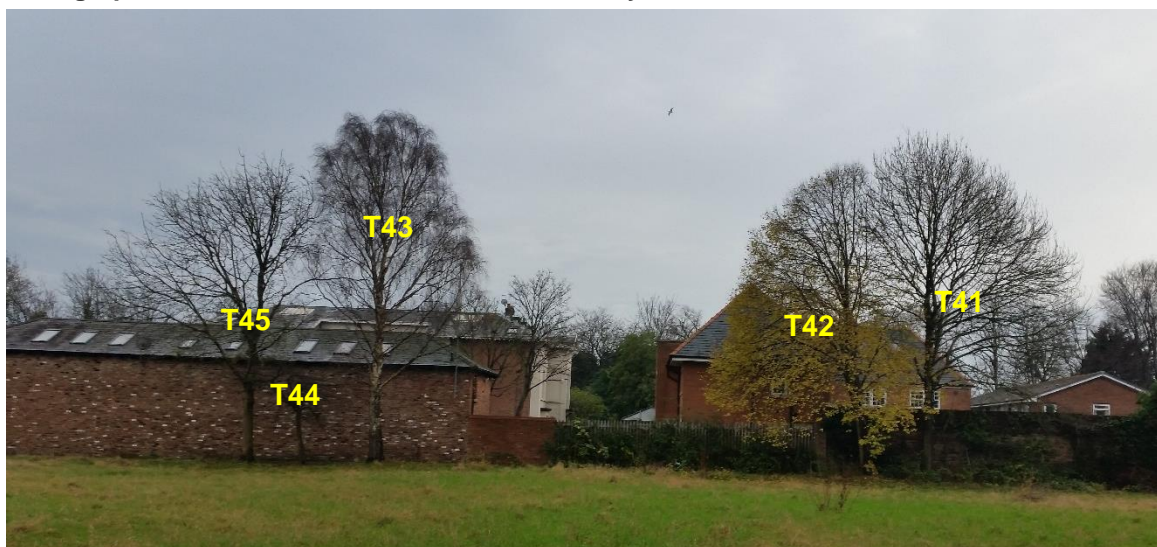
- 4.9 Trees T19 to T30 form a dense group on a second soil mound located to the west of the site. As well as tree T24, trees T21 a common ash, and T26, T28 and T29, three common lime have prominence due to their larger size and conditions. A silver birch (T19) and hawthorn (T25) have been severely suppressed by the other canopies. As a group of trees they create an attractive feature although are only visible from within the site and from the rear gardens of St James Close.

Photograph 2: View south-east from the north of the site

- 4.10 A dense linear group of trees forms a boundary feature along the south western side of the site (T31 to T40 and G2). They comprise common ash, silver birch, Persian ironwood, common lime, sycamore and elm. Many have imbalanced crowns with the majority of branches overhanging into neighbouring rear gardens. Self-set sycamore within G2 are growing between the site mesh fence and the wooden garden fences. They add to the boundary feature although have little arboricultural value.

- 4.11 Trees T41 to T45 are situated along the southern boundary. T41 a common ash and T42 a common lime have canopies that are growing together as one. They have minor amounts of crown deadwood and the new property to the south as lead to the requirement for the overhanging branches that are now touching the dwelling to be reduced back. T44, a Persian ironwood has a good crown form although is suppressed by T43, a silver birch and T45 a common ash.

Photograph 3: View towards the southern boundary



- 4.12 A large linear group (G3) forms a dense screen from the adjacent railway line running parallel to the site. It comprises young to middle aged common ash, sycamore, silver birch, turkey oak and willow. Many of the trees have dense ivy covering the trunks. Their branches overhang into the site by up to approximately 8m in places.
- 4.13 Tree and group locations, their quality categories and canopy spreads are shown on Drawing 1.

Tree Quality Categorisation

- 4.14 Under *BS 5837:2012 Trees in relation to design, demolition and construction – Recommendations* trees and groups are objectively assigned a quality category designed to quantify their value within any future development. Table 1 (overleaf) presents a summary of the categories presented in the British Standard. The full table has been reproduced at Appendix 2.

Table 1: Summary of BS 5837 tree quality categorisation criteria

| | |
|-------------------|---|
| Category A | Trees of high value including those that are particularly good examples of their species and/or those that have visual importance or significant conservation or other value |
| Category B | Trees of moderate value including those that do not qualify as Category A due to impaired condition and/or those that collectively have higher value than they would as individuals; also trees with material conservation or other value |
| Category C | Trees of low value including those with very limited merit or impaired condition; trees offering transient or temporary landscape benefits |
| Category U | Trees with irremediable defects and anticipated early loss due to collapse; dead trees or those in immediate decline and those with infectious pathogens that threaten other trees |

5.0 IMPACTS OF THE PROPOSED DEVELOPMENT

5.1 Table 2 lists the number and quality of trees that will require removal in order to facilitate the development proposals and those that can be retained. This is the result of an assessment based on the proposed site plan and discussions with the client regarding their application strategy.

Table 2: Arboricultural implications of the proposed development

| | Tree Quality Category | | | |
|--|------------------------------|---|---|----------|
| | A | B | C | U |
| Trees and groups that can be retained | T32 | T3, T4, T34, T41, T42 | T31, G2 | - |
| Total | 1 | 5 | 2 | 0 |
| Trees and groups that require removal to facilitate development | T14, T24, | T5, T6, T7, T9, T21, T26, T28, T29, T36, T38, T40, T43, T45, G1 | T1, T2, T10, T11, T12, T13, T15, T16, T17, T18, T19, T20, T22, T23, T25, T27, T30, T33, T37, T39, T44 | - |
| Total | 2 | 14 | 21 | 0 |
| Trees located on third party land | - | G3 | T8, T35, G4 | - |
| Total | 0 | 1 | 3 | 0 |

See Appendix 1, Arboricultural Data Sheets for subcategories

- 5.2 36 individual trees and 1 tree group (totalling 40 trees) must be removed to facilitate the development proposals as they are located within the proposed footprint of new dwellings or would suffer substantial root damage from the installation of new paths and roads. The majority of these are low or moderate value with the exception of 2 that are high value trees.
- 5.3 The greatest impact of the development on trees will be the loss of arboricultural value, as many are of large size and in good health, and on views across the site which are currently dominated by trees. The maturity of the tree stock means that it can not be recreated in the short term and there will be insufficient space within the development to plant a high number of larger growing trees. Development will therefore have a permanent negative impact on tree cover.
- 5.4 Existing hard standing around the rooting area of tree T8 is proposed to be excavated and landscaped. The breaking-out of hard-surfacing and the excavation of material will need to be conducted in a sensitive and controlled manner.
- 5.5 Group G3 overhangs the site by up to 8m in places and consequently there will be a requirement to prune back these trees during the construction phase and cyclically during future occupancy, however the layout has been designed with larger rear gardens to these plots to allow for future growth.
- 5.6 Garden boundary fencing is proposed in the root protection areas of trees T33, T35, T41 and T42. In order to avoid damage to the tree and its roots a specified method of installation should be followed (See section 7.3).
- 5.7 Fencing to protect the retained trees within the site will be necessary. This will reduce the useable area for works and storage of materials during development.
- 5.8 Where planning permission is granted, the retention schedule shown in Table 2 and Drawing 2 would normally form a part of that permission. Any change to this schedule would therefore be likely to require an application to vary the consent.

6.0 TREE PROTECTION REQUIREMENTS

Root Protection Areas

- 6.1 As per *BS 5837:2012*, the **Root Protection Area (RPA)** is calculated using each tree's diameter at 1.5 metres (refer to Appendix 1) and represents the minimum area around each tree that must be left undisturbed to ensure their survival.
- 6.2 Tree roots typically spread two times the width of the crown, although this figure may be significantly increased for certain species and where specific ground conditions are present. The majority of tree roots are found in the top 600 mm of soil and most of the fine roots that absorb water and nutrients are found in the top 100 mm.
- 6.3 The morphology of roots is influenced by past and present site conditions (the presence of roads, structures and underground services), soil type, topography and drainage. This means that a tree's roots may not be uniform in their extent and the **RPA** may not be a circular area centred on the tree stem.

- 6.4 On this site the majority of trees are growing in relatively homogeneous material. The only barriers to growth are likely to be compacted entrance, the boundary wall surrounding T8 and public highway to the north of the site. Roots are unlikely to be absent in all these areas but where unfavourable conditions exist, growth will certainly be impeded.
- 6.5 The **RPA** may be adjusted or offset to most accurately represent the likely spread of roots for each individual tree (refer to Drawing 1).

Protective Fencing and Exclusion Zones

- 6.6 Temporary protective barrier fencing will be required to demarcate a **Construction Exclusion Zone (CEZ)** around retained trees. This must be put in place prior to the commencement of any development works, including bringing machinery or materials onto site or the erection of site huts.
- 6.7 The **CEZ** acts to protect both tree roots and branches and has been extended to incorporate canopy spread where appropriate.
- 6.8 Protective fencing alignment is shown on Drawing 2 and assumes that all trees identified for removal have been felled prior to installation.
- 6.9 The fencing must be fixed into the ground to withstand accidental impact from machinery and to ensure that a sufficient protective area is maintained. Details of recommended protective fencing are shown on Drawing 4.
- 6.10 A weatherproof notice stating 'Construction Exclusion Zone – Keep Out' must be fixed to each fencing panel. An example notice is shown on Drawing 4.
- 6.11 Any alteration to the fencing alignment to allow for approved activities will be made in agreement with the council's Arboricultural Officer.
- 6.12 The protective fencing must not be removed until the physical construction phase has been completed and all vehicles have been removed from site, to the satisfaction of the council's Arboricultural Officer.

Ground Contamination

- 6.13 Storage areas for liquids such as fuels, oil or paint should not be located within 10m of any trees on or within proximity to the site due to the risk of soil contamination caused by accidental spillage.
- 6.14 Particular care must be taken when working on or close to sloping ground to avoid unintentional runoff into the rooting area of retained trees.

Underground Utility Issues

- 6.15 No utility drawings were provided and no assessment has been made of the juxtaposition of tree roots and the likely location of new services. It has been presumed for the purposes of this report that all utilities will be installed outside of the **Construction Exclusion Zone** shown on Drawing 2.

- 6.16 Where the installation of services within the **Construction Exclusion Zone** of retained trees is unavoidable, appropriate work methods will be required to ensure the safe long-term survival of those trees. This process will require additional consultation with a qualified Arboricultural Consultant and is likely to be more expensive than conventional trench installation.

Ground Level Changes

- 6.17 A rise or reduction in soil level can have major implications on the longevity and health of the trees. Minor changes (up to 100mm) can be tolerated in some cases but is heavily dependent on tree species, condition and growing environment.
- 6.18 Existing ground levels within the **Construction Exclusion Zone** should be respected as far as is reasonably practicable. The advice of a qualified Arboricultural Consultant should be sought if level changes are required.

Drainage & Storm Water Run-off Issues

- 6.19 Drainage and storm water run-off requires due consideration and construction requirements (e.g. permeable surfacing) to prevent excessive and/or polluted run-off into the rooting area of trees to be retained.

7.0 ARBORICULTURAL RECOMMENDATIONS

Tree Work

- 7.1 In addition to the tree removals required to facilitate the development proposals, the tree surgery operations presented in Table 3 are also recommended.

Table 3: Recommended Tree Surgery Works

| Feature Reference | Tree Work Description |
|-------------------|---|
| G3 | Reduce back overhanging branches to 3-4m from boundary to the rear of plots 5 – 8 and gable of plot 9 (see drawing 2) |

- 7.2 All tree surgery work should be carried out by a qualified contractor in accordance with *BS 3998:2010 Tree work – Recommendations*.

Trees requiring Special Mitigation

- 7.3 Under the current proposals garden boundary fencing is proposed in the root protection areas of trees T33, T35, T41 and T42. The following method is recommended:

Boundary treatment

- 7.3.1 Party fences will be installed at the alignment shown within the following parameters;
- 7.3.2 No strip footings will be permitted within the CEZ;
- 7.3.3 The precise location of individual holes will be subject modification, such that major roots are avoided;

- 7.3.4 No fence post will be located within 2m of any retained tree.
- 7.3.5 Fence posts will be installed into hand-dug holes and no roots larger than 25mm will be severed;
- 7.3.6 The maximum diameter of holes will be 300mm;
- 7.3.7 Holes will be lined with an impermeable membrane to prevent contact between concrete and the soil.

Mitigation for the removal of trees

- 7.4 40 trees require removal to facilitate the development proposals. Mitigation for their loss and associated habitat may be required in the form of replacement tree planting.
- 7.5 34 new trees are proposed on the site including an avenue along the central road. Species such as small leaved lime (*Tilia cordata* 'Greenspire') birch, (*Betula ermanii*), Maidenhair tree (*Ginkgo biloba*), Whitebeam (*Sorbus aria* Mitchellii) or rowan (*Sorbus aucuparia*), would be suitable selections.
- 7.6 Aftercare is vital to the survival of newly planted trees. Provision should be made for a minimum of two years maintenance of newly planted trees and include watering, formative pruning and the checking of tree ties and stakes.
- 7.7 The National Planning Policy Framework (NPPF) is a material consideration in the planning process and promotes a presumption in favour of sustainable development. In terms of the natural environment, development should minimise impacts on biodiversity and provide a net gain in biodiversity where possible.
- 7.8 In respect of trees, a sustainable development will be one whereby the total number, value or function provided by trees is maintained or increased or where the long-term prospects of the existing tree stock can be substantially improved. Net gains in biodiversity may be demonstrated where the number of tree species, variety of tree ages or range of niche habitats can be increased. Native, old, large or dead trees are likely to have a relatively significant impact on a scheme's environmental credentials, as will the connectivity of trees, hedges and woodland.
- 7.9 It is the recommendation of this report that mitigation in the form of tree planting will be unable to completely mitigate the proposed losses and therefore development will result in a net loss of long-term tree cover (estimated at 20-40 years post-construction). The magnitude of this loss is wholly dependent on appropriate species selection, tree quality and high establishment rates.
- 7.10 The extent of mitigation planting will ultimately be determined in agreement with Liverpool City Council.

Post Construction Tree Care

- 7.11 Hazard recommendations are based on observations at the time of survey. Trees are dynamic living organisms whose structure is constantly changing. Even those in good condition can suffer from damage or stress. Following site development, regular (annual or biennial) inspections of all retained trees should be undertaken by a qualified Arboricultural Consultant.

8.0 SUMMARY

- 8.1 The site is densely tree populated with the majority located centrally within the site and along the south-western boundary.
- 8.2 Based on an objective assessment made in accordance with *BS 5837:2012 Trees in relation to design, demolition and construction – Recommendations*, there are 3 Category A, 20 Category B, and 26 Category C trees and groups on or within influencing distance of the site.
- 8.3 36 individual trees and 1 tree groups (totalling 42 stems) require removal to facilitate the development proposals. The majority of these are low or moderate value with the exception of 2 that are high value trees, refer to Table 2.
- 8.4 The main impact in regards to trees will be the loss of high and moderate value trees both visually and arboriculturally, and the high loss of canopy cover from within this site. These trees could not easily be replaced in the short term and could not be replaced with the same number of large trees specimens.
- 8.5 Due to the location of G3 the pruning back of branches will be required during the construction phase. Future reduction and pruning requests by new residents could also have an impact on the health of these trees in the longer term.
- 8.6 Existing hard standing around the rooting area of tree T8 is proposed to be excavated and landscaped. The breaking-out of hard-surfacing and the excavation of material will need to be conducted in a sensitive and controlled manner.
- 8.7 Liverpool City Council confirmed that no trees with the site were subject to Tree Preservation Orders but the land abutting the site to the south is protected by Area 1 of TPO:51 – Sandforth Road L12. This TPO area does not affect the site as no trees overhang.
- 8.8 The site does not lie within a Conservation Area.
- 8.9 No trees were found to have features of a size and condition desirable to bats.
- 8.10 Protective barrier fencing will be required to demarcate a Construction Exclusion Zone (**CEZ**) around retained trees prior to the commencement of development. Fencing alignment is shown on Drawing 3 and details of the recommended Heras fencing are shown on Drawing 4. This will restrict movements on the site which should be considered early in the construction process.
- 8.11 Mitigation for the loss of trees, should it be a requirement, is recommended to take the replacement planting. This will ultimately be agreed with Liverpool City Council. It is the recommendation of this report that mitigation in the form of tree planting will be unable to completely mitigate the proposed losses and therefore development will result in a net loss of long-term tree cover (estimated at 20-40 years post-construction). The magnitude of this loss is wholly dependent on appropriate species selection, tree quality and high establishment rates.

APPENDIX 1

ARBORICULTURAL SURVEY DATA SHEETS

APPENDIX 1: Arboricultural Survey Data Sheets



Surveyor Karen O'Shea
Date 03.12.15
Town Liverpool
Site Mill Lane
Dwg Ref D5520.001

| Ref | Species | Height | Stem Dia. | No. of stems/ individuals | Crown Spread North | Crown Spread South | Crown Spread East | Crown Spread West | Height of Lowest Branch | Direction of Lowest Branch | Maturity | Condition | Comments on form, condition, health and significant defects | BS5837 Tree Quality Assess. | Radius of RPA guide circle | BS5837 RPA Area | Management Recommendations | Estimated Remaining Contribution | TPO |
|--------------|----------------|--------|-----------|---------------------------|--------------------|--------------------|-------------------|-------------------|-------------------------|----------------------------|---------------------------|---------------------------|---|-----------------------------|----------------------------|-----------------|----------------------------|----------------------------------|-----|
| | | (m) | (mm) | arising below 1.5m | (m) | (m) | (m) | (m) | (m) | (m) | Young, Middle Age, Mature | Good, Fair, Poor, Veteran | | A,B,C,R (1,2,3) | (m) | (m2) | | Long, Medium, Short | (*) |
| Trees | | | | | | | | | | | | | | | | | | | |
| T1 | Cherry sp. | 5.0 | 320.0 | 1.0 | 3.0 | 2.0 | 4.0 | 3.0 | 3.0 | E | Middle Age | Fair | Snapped lower branches with a 5 degree easterly lean. Moderate amounts of crown dead wood with some minor exposure of roots. Crossing branches in canopy. Previously reduced. | C,1 | 3.8 | 46.3 | | Long | |
| T2 | Cherry sp. | 5.0 | 300.0 | 1.0 | 4.0 | 3.0 | 3.0 | 4.0 | 3.0 | W | Middle Age | Fair | Lamp-post close by. Minor stem deformity at 1m with minor amounts of crown dead wood and lower snapped branches. Crossing branches. Previously reduced. | C,1 | 3.6 | 40.7 | | Long | |
| T3 | Sycamore | 12.0 | 550.0 | 1.0 | 4.0 | 4.0 | 4.0 | 5.0 | 4.0 | N | Mature | Fair | Tall and slender form. Bifurcate at 2m with minor amounts of crown dead wood. Poor previous pruning to south eastern side. Branches overhanging pavement. | C,1 | 6.6 | 136.8 | | Long | |
| T4 | Sycamore | 14.0 | 700.0 | 1.0 | 6.0 | 7.0 | 6.0 | 4.0 | 3.0 | E | Mature | Good | 10 degree south easterly lean. Basal epicormic growth with minor amounts of crown dead wood. Pollarded some years ago with good re-growth | B,1 | 8.4 | 221.7 | | Long | |
| T5 | Whitebeam | 5.0 | 290.0 | 1.0 | 3.0 | 4.0 | 4.0 | 4.0 | 3.0 | S | Middle Age | Good | Basal stem fluting. Good form with a balanced crown. 5 degree south easterly lean. Lower branches snapped on south side. Multiple attachments forming crown at 2m. Splits in stem to south side | B,1 | 3.5 | 38.0 | | Long | |
| T6 | Whitebeam | 5.0 | 320.0 | 1.0 | 4.0 | 3.0 | 4.0 | 4.0 | 3.0 | S | Middle Age | Good | Good form with a balanced crown, no visible significant defects. Multiple attachments forming crown at 2m. 5 degree easterly lean. | B,1 | 3.8 | 46.3 | | Long | |
| T7 | Sweet chestnut | 11.0 | 510.0 | 1.0 | 6.0 | 7.0 | 7.0 | 4.0 | 3.0 | S | Middle Age | Good | 2 large lower limb failures resulting in large stubs. Bifurcate at 3m with a good form and a reasonably balanced crown. | B,1 | 6.1 | 117.7 | | Long | |
| T8 | Sycamore | 11.0 | 900.0 | 3.0 | 5.0 | 4.0 | 4.0 | 5.0 | 4.0 | N | Middle Age | Good | Third party. Basally multi-stemmed. Branches overhanging pathway. Various debris around base. Reasonably balanced crown with some minor stem wounds at 2m. | C,1 | 10.8 | 366.4 | | Long | |

APPENDIX 1: Arboricultural Survey Data Sheets

| Ref | Species | Height | Stem Dia. | No. of stems/ individuals | Crown Spread North | Crown Spread South | Crown Spread East | Crown Spread West | Height of Lowest Branch | Direction of Lowest Branch | Maturity | Condition | Comments on form, condition, health and significant defects | BS5837 Tree Quality Assess. | Radius of RPA guide circle | BS5837 RPA Area | Management Recommendations | Estimated Remaining Contribution | TPO |
|-----|------------------|--------|-----------|---------------------------|--------------------|--------------------|-------------------|-------------------|-------------------------|----------------------------|---------------------------|---------------------------|--|-----------------------------|----------------------------|-----------------|----------------------------|----------------------------------|-----|
| | | (m) | (mm) | arising below 1.5m | (m) | (m) | (m) | (m) | (m) | (m) | Young, Middle Age, Mature | Good, Fair, Poor, Veteran | | A,B,C,R (1,2,3) | (m) | (m2) | | Long, Medium, Short | (*) |
| T9 | Common ash | 12.0 | 420.0 | 1.0 | 7.0 | 5.0 | 6.0 | 5.0 | 4.0 | E | Middle Age | Good | Dense crown with minor amounts of crown dead wood. Crown epicormic shoots present. | B,1,2 | 5.0 | 79.8 | | Long | |
| T10 | Common lime | 9.0 | 320.0 | 1.0 | 3.0 | 2.0 | 1.0 | 3.0 | 3.0 | E | Middle Age | Fair | Basal epicormic growth present. Imbalanced crown with minor amounts of dead wood. Suppressed by tree T9. | C,1,2 | 3.8 | 46.3 | | Long | |
| T11 | Persian ironwood | 5.0 | 280.0 | 1.0 | 3.0 | 3.0 | 2.0 | 3.0 | 3.0 | N | Middle Age | Good | Dense crown with minor amounts of crown dead wood. Suppressed by tree T10. Many crossing branches in canopy. | C,1,2 | 3.4 | 35.5 | | Long | |
| T12 | Wych elm | 10.0 | 340.0 | 1.0 | 2.0 | 3.0 | 2.0 | 3.0 | 4.0 | S | Middle Age | Fair | Tall and slender form. Moderate amounts of crown dead wood. Bifurcate at 2m. | C,1,2 | 4.1 | 52.3 | | Long | |
| T13 | Sycamore | 10.0 | 320.0 | 1.0 | 2.0 | 4.0 | 4.0 | 3.0 | 3.0 | E | Middle Age | Good | Imbalanced crown with minor amounts of crown dead wood. | C,1,2 | 3.8 | 46.3 | | Long | |
| T14 | Silver birch | 14.0 | 570.0 | 1.0 | 6.0 | 6.0 | 4.0 | 6.0 | 3.0 | NE | Mature | Good | Good form with a balanced crown. Visually prominent tree with no significant visible defects. | A,1 | 6.8 | 147.0 | | Long | |
| T15 | Persian ironwood | 6.0 | 220.0 | 1.0 | 3.0 | 3.0 | 4.0 | 2.0 | 2.0 | W | Middle Age | Good | Good form with a reasonably balanced crown. Suppressed by T13. Bark wounds around circumference of trunk. | C,1,2 | 2.6 | 21.9 | | Long | |
| T16 | Silver birch | 10.0 | 330.0 | 1.0 | 6.0 | 1.0 | 4.0 | 1.0 | 2.0 | S | Middle Age | Fair | 20 degree north easterly lean with an imbalanced crown containing minor amounts of dead wood. | C,1,2 | 4.0 | 49.3 | | Long | |
| T17 | Wych elm | 6.0 | 250.0 | 1.0 | 4.0 | 3.0 | 3.0 | 2.0 | 3.0 | W | Middle Age | Fair | Tall and slender form with no visible significant defects. unsymmetrical crown form due to competition with tree T18. Bark stripped around circumference of trunk. | C,1,2 | 3.0 | 28.3 | | Long | |
| T18 | Common ash | 10.0 | 340.0 | 1.0 | 5.0 | 4.0 | 4.0 | 4.0 | 5.0 | N | Middle Age | Good | Tall and slender form with no visible significant defects. Asymmetrical crown form due to competition with tree T17. Bifurcate at 3m. | C,1,2 | 4.1 | 52.3 | | Long | |
| T19 | Silver birch | 9.0 | 150.0 | 1.0 | 1.0 | 1.0 | 1.0 | 4.0 | 3.0 | W | Middle Age | Poor | Failed central leader leaving very imbalanced crown form. Severely suppressed by tree T28. Bark wounds. | C,1,2 | 1.8 | 10.2 | | Medium | |
| T20 | Common lime | 9.0 | 270.0 | 1.0 | 5.0 | 2.0 | 2.0 | 4.0 | 2.0 | N | Middle Age | Fair | Imbalanced crown due to suppression from nearby trees. 5 degree easterly lean. Epicormics shoots at base. | C,1,2 | 3.2 | 33.0 | | Long | |
| T21 | Common ash | 12.0 | 470.0 | 1.0 | 7.0 | 4.0 | 5.0 | 6.0 | 4.0 | N | Middle Age | Good | Good form with a reasonably balanced crown containing moderate amounts of crown dead wood. | B,1,2 | 5.6 | 99.9 | | Long | |
| T22 | Sycamore | 12.0 | 370.0 | 1.0 | 3.0 | 2.0 | 3.0 | 3.0 | 3.0 | SE | Middle Age | Good | Tall and slender form with moderate amounts of crown dead wood. | C,1,2 | 4.4 | 61.9 | | Long | |

APPENDIX 1: Arboricultural Survey Data Sheets

| Ref | Species | Height | Stem Dia. | No. of stems/ individuals | Crown Spread North | Crown Spread South | Crown Spread East | Crown Spread West | Height of Lowest Branch | Direction of Lowest Branch | Maturity | Condition | Comments on form, condition, health and significant defects | BS5837 Tree Quality Assess. | Radius of RPA guide circle | BS5837 RPA Area | Management Recommendations | Estimated Remaining Contribution | TPO |
|-----|------------------|--------|-----------|---------------------------|--------------------|--------------------|-------------------|-------------------|-------------------------|----------------------------|---------------------------|---------------------------|--|-----------------------------|----------------------------|-----------------|----------------------------|----------------------------------|-----|
| | | (m) | (mm) | arising below 1.5m | (m) | (m) | (m) | (m) | (m) | (m) | Young, Middle Age, Mature | Good, Fair, Poor, Veteran | | A,B,C,R (1,2,3) | (m) | (m2) | | Long, Medium, Short | (*) |
| T23 | Common lime | 12.0 | 360.0 | 1.0 | 2.0 | 4.0 | 2.0 | 5.0 | 2.0 | W | Middle Age | Good | Imbalanced crown containing minor amounts of crown dead wood. Bifurcate at 4m. Tight branch unions. | C,1,2 | 4.3 | 58.6 | | Long | |
| T24 | Silver birch | 14.0 | 450.0 | 1.0 | 4.0 | 7.0 | 6.0 | 7.0 | 3.0 | N | Mature | Good | Branches overhanging property. Good form with a balanced crown containing minor amounts of crown dead wood. 10 degree easterly lean with no visible significant defects. | A,1,2 | 5.4 | 91.6 | | Long | |
| T25 | Hawthorn | 5.0 | 120.0 | 1.0 | 1.0 | 3.0 | 1.0 | 1.0 | 2.0 | N | Middle Age | Good | Imbalanced crown due to suppression from nearby trees. | C,1,2 | 1.4 | 6.5 | | Long | |
| T26 | Common lime | 14.0 | 470.0 | 1.0 | 6.0 | 6.0 | 4.0 | 3.0 | 3.0 | E | Middle Age | Good | Bifurcate at 3m with minor amounts of crown dead wood. Branch failures evident within crown. Low growing canopy. | B,1,2 | 5.6 | 99.9 | | Long | |
| T27 | Sycamore | 12.0 | 300.0 | 1.0 | 3.0 | 4.0 | 5.0 | 2.0 | 4.0 | SW | Young | Good | Tall and slender form with an imbalanced crown due to suppression from tree T28. | C,1,2 | 3.6 | 40.7 | | Long | |
| T28 | Common lime | 14.0 | 580.0 | 1.0 | 7.0 | 5.0 | 6.0 | 4.0 | 3.0 | E | Middle Age | Good | Minor amounts of dead wood with a slightly imbalanced crown. Bifurcate at 3m. Large bark wound to east side at base. | B,1,2 | 7.0 | 152.2 | | Long | |
| T29 | Common lime | 14.0 | 540.0 | 1.0 | 7.0 | 7.0 | 7.0 | 5.0 | 3.0 | N | Middle Age | Good | Multiple attachments forming crown at 2m. Minor crown dead wood with no visible significant defects. | B,1,2 | 6.5 | 131.9 | | Long | |
| T30 | Wych elm | 4.0 | 400.0 | 3.0 | 1.0 | 5.0 | 3.0 | 1.0 | 1.0 | E | Middle Age | Fair | 25 degree south easterly lean with minor amounts of crown dead wood. Multi-stemmed at base. Many crossing branches. Previously reduced. | C,1,2 | 4.8 | 72.4 | | Long | |
| T31 | Common ash | 12.0 | 330.0 | 1.0 | 4.0 | 4.0 | 1.0 | 4.0 | 3.0 | SW | Middle Age | Good | Imbalanced crown with branches slightly overhanging garden. | C,1,2 | 4.0 | 49.3 | | Long | |
| T32 | Silver birch | 14.0 | 430.0 | 1.0 | 4.0 | 6.0 | 5.0 | 5.0 | 4.0 | N | Mature | Good | 10 degree easterly lean with branches slightly overhanging garden. No visible significant defects. Ivy on trunk to west. | A,1,2 | 5.2 | 83.6 | | Long | |
| T33 | Persian ironwood | 5.0 | 200.0 | 1.0 | 3.0 | 2.0 | 3.0 | 3.0 | 3.0 | S | Middle Age | Good | Good form with a balanced crown and no significant visible defects. Slightly suppressed by T32. | C,1,2 | 2.4 | 18.1 | | Long | |
| T34 | Common lime | 9.0 | 320.0 | 1.0 | 5.0 | 4.0 | 4.0 | 3.0 | 3.0 | E | Middle Age | Good | Multiple attachments forming crown at 3m. Very poor previous pruning. | B,1,2 | 3.8 | 46.3 | | Long | |
| T35 | Sycamore | 4.0 | 400.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 4.0 | E | Middle Age | Fair | Restricted survey due to access on third party land and dense ivy coverage. Pollarded at 3m. | C,1,2 | 4.8 | 72.4 | | Long | |
| T36 | Common ash | 12.0 | 400.0 | 1.0 | 6.0 | 5.0 | 5.0 | 5.0 | 4.0 | NE | Middle Age | Fair | Imbalanced crown through poor previous pruning. Minor amounts of crown dead wood. Bifurcate at 4m. | B,1,2 | 4.8 | 72.4 | | Long | |
| T37 | Sycamore | 12.0 | 450.0 | 1.0 | 3.0 | 3.0 | 5.0 | 5.0 | 4.0 | E | Middle Age | Fair | Bifurcate at 2m with poor previous pruning. Branches overhanging garden with minor amounts of crown dead wood. | C,1,2 | 5.4 | 91.6 | | Long | |

APPENDIX 1: Arboricultural Survey Data Sheets

| Ref | Species | Height | Stem Dia. | No. of stems/ individuals | Crown Spread North | Crown Spread South | Crown Spread East | Crown Spread West | Height of Lowest Branch | Direction of Lowest Branch | Maturity | Condition | Comments on form, condition, health and significant defects | BS5837 Tree Quality Assess. | Radius of RPA guide circle | BS5837 RPA Area | Management Recommendations | Estimated Remaining Contribution | TPO |
|---------------|---|--------|-----------|---------------------------|--------------------|--------------------|-------------------|-------------------|-------------------------|----------------------------|---------------------------|---------------------------|--|-----------------------------|----------------------------|-----------------|----------------------------------|----------------------------------|-----|
| | | (m) | (mm) | arising below 1.5m | (m) | (m) | (m) | (m) | (m) | (m) | Young, Middle Age, Mature | Good, Fair, Poor, Veteran | | A,B,C,R (1,2,3) | (m) | (m2) | | Long, Medium, Short | (*) |
| T38 | Silver birch | 12.0 | 500.0 | 1.0 | 3.0 | 7.0 | 4.0 | 4.0 | 3.0 | N | Mature | Good | Imbalanced crown with a stem deformity between 3m and 8m. Crossing branches and branches overhanging garden. | B,1,2 | 6.0 | 113.1 | | Long | |
| T39 | Elm sp. | 11.0 | 364.0 | 2.0 | 3.0 | 2.0 | 3.0 | 3.0 | 1.0 | W | Middle Age | Good | Good form with a balanced crown. Basal epicormic growth and minor amounts of crown dead wood. Low growing canopy to west. Bifurcate at base. Climbing plant twisted into canopy. | C,1,2 | 4.4 | 59.9 | | Long | |
| T40 | Sycamore | 12.0 | 500.0 | 1.0 | 7.0 | 6.0 | 5.0 | 5.0 | 4.0 | S | Middle Age | Good | Good form with a reasonably balanced crown. Bifurcate at 2m with minor branches overhanging garden. | B,1,2 | 6.0 | 113.1 | | Long | |
| T41 | Common ash | 12.0 | 450.0 | 1.0 | 3.0 | 6.0 | 3.0 | 5.0 | 3.0 | N | Middle Age | Good | Good form with an imbalanced crown. Bifurcate at 3m with minor branches overhanging wall. Minor amounts of crown dead wood. | B,1,2 | 5.4 | 91.6 | | Long | |
| T42 | Common lime | 12.0 | 400.0 | 1.0 | 3.0 | 6.0 | 3.0 | 5.0 | 3.0 | S | Middle Age | Good | Good form with an imbalanced crown. Minor amounts of crown dead wood with branches overhanging wall. | B,1,2 | 4.8 | 72.4 | Reduce back by 2m from property. | Long | |
| T43 | Silver birch | 14.0 | 520.0 | 1.0 | 5.0 | 6.0 | 3.0 | 5.0 | 3.0 | W | Mature | Good | Good form with a balanced crown. Minor basal damage with minor amounts of crown dead wood and branches that overhang property. | B,1,2 | 6.2 | 122.3 | | Long | |
| T44 | Persian ironwood | 4.0 | 150.0 | 1.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | W | Mature | Good | Small tree with good balanced crown. Suppressed by trees T43 and T45. Many twisted branches in canopy. | C,1,2 | 1.8 | 10.2 | | Long | |
| T45 | Common ash | 12.0 | 450.0 | 1.0 | 6.0 | 5.0 | 5.0 | 6.0 | 3.0 | N | Mature | Good | Branches overhanging property. Minor amounts of crown dead wood. | B,1,2 | 5.4 | 91.6 | | Long | |
| Groups | | | | | | | | | | | | | | | | | | | |
| G1 | Sycamore | 11.0 | 200-700 | 4.0 | | | | | | | Middle Age | Good | 3 trees, one of which is basally bifurcate. Moderate amounts of crown dead wood and minor stem wounds at 2m. Smallest of stems has a 20 degree south westerly lean. | B,2 | Refer to Drawing | n/a | Remove smaller leaning stem. | Long | |
| G2 | Sycamore | 10.0 | 200-350 | 4.0 | | | | | | | Young to Middle Age | Fair | Trees growing between wire mesh fence and second fence to rear of gardens. Restricted survey due to dense ivy and fence blocking view. | C,2 | Refer to Drawing | n/a | | Long | |
| G3 | Common ash, sycamore, silver birch, Turkey oak and willow | 16.0 | 100-400 | C.10 | | | | | | | Young to Middle Age | Good | Third party trees. Linear group forming screening for railway line running parallel to site. Japanese knotweed present on site. Restricted survey due to access and areas of dense ivy coverage. | B,2 | Refer to Drawing | n/a | | Long | |

APPENDIX 1: Arboricultural Survey Data Sheets

| Ref | Species | Height | Stem Dia. | No. of stems/ individuals | Crown Spread North | Crown Spread South | Crown Spread East | Crown Spread West | Height of Lowest Branch | Direction of Lowest Branch | Maturity | Condition | Comments on form, condition, health and significant defects | BS5837 Tree Quality Assess. | Radius of RPA guide circle | BS5837 RPA Area | Management Recommendations | Estimated Remaining Contribution | TPO |
|-----|---------------------------|--------|-----------|---------------------------|--------------------|--------------------|-------------------|-------------------|-------------------------|----------------------------|---------------------------|---------------------------|---|-----------------------------|----------------------------|-----------------|----------------------------|----------------------------------|-----|
| | | (m) | (mm) | arising below 1.5m | (m) | (m) | (m) | (m) | (m) | (m) | Young, Middle Age, Mature | Good, Fair, Poor, Veteran | | A,B,C,R (1,2,3) | (m) | (m2) | | Long, Medium, Short | (*) |
| G4 | Ornamental garden species | 4.0 | 75-100 | 5.0 | | | | | | | Young | Fair | Restricted survey due to access on third party land and location behind solid fence. Very poor pruning to one tree. | C,2 | Refer to Drawing | n/a | | Long | |

APPENDIX 2

SURVEY METHOD

APPENDIX 2: SURVEY METHOD

The survey of trees is conducted from ground level only. The nature of the soils on site is not assessed.

Trees are dynamic living organisms with a constantly changing structure; even trees in good condition can suffer from damage or stress. The information recorded is presented as being correct at the time of survey.

The following features of each tree, group of trees or wood may have been recorded in the Arboricultural Survey Data Sheets at Appendix 1.

| | | |
|-----------------------------------|--|--|
| Species | The common name is given. The Latin name may also be given if further clarification is required. | |
| Height | Top height of tree recorded in metres. | |
| Stem Diameter | For single-stemmed trees the measurement is taken at 1.5 metres above ground level and recorded in millimetres. For multi-stemmed trees an average all stems measured at 1.5m above ground level is used. For tree groups a range from minimum to maximum diameters is provided based on measurements taken using one of the aforementioned methods. | |
| No. of Stems | A count of stems arising below a height of 1.5 metres. | |
| Crown Spread | The N, S, E and W branch spreads are recorded in metres to provide a representative crown shape. | |
| Height of Lowest Branch | Crown clearance above ground level recorded in metres. | |
| Direction of Lowest Branch | The direction of growth of the first significant branch from the point of attachment. | |
| Maturity | Young | Trees that can reasonably be relocated or replaced like for like, without undue cost; |
| | Middle Age | Trees in the established growth stage of their life with the potential to continue increasing in size; |
| | Mature | Trees that have reached their ultimate size, given their location and surroundings; |
| Condition | Good, Fair, Poor. An overall assessment of a tree's physiological and structural state in which factors that may increase its susceptibility to the effects of development are taken into account. Veteran. Trees that are in such a condition as to significantly increase their biological, cultural or aesthetic value. This is characteristic of, but not exclusive to, individuals surviving beyond the typical age range for the species concerned. | |
| Comments | A brief evaluation and description of the tree with comments on form, vitality, health and any significant defects or symptoms of ill-health. | |

BS 5837 Tree Quality Assessment

The tree quality assessment is based on Table 1 of BS 5837:2012 (See below). Four categories (A, B, C and U) are used to denote tree quality (A = High, B = Moderate, C = Low, U = Unsuitable for retention). Subcategories (1-3) denote the specific function value of the trees and the reasoning behind the allocation of a specific category (the subcategories may be used in combination but do not accumulate collective weight).

Root Protection Area (RPA)

The RPA is allocated to ensure that a sufficient area is left undisturbed during development. It is provided as an area (m²) and as the radius of a circle (m) typically plotted from the centre of the stem.

The RPA is calculated using a mathematical equation included in BS 5837:2012 (Section 4.6 and Table D.1) and is based on a tree's stem diameter. In some cases the RPA may need to be adapted to best reflect the likely area and position of roots required to ensure survival; this may be based on criteria such as the tree's condition, species, crown spread and any barriers to growth. Any alteration must be justifiable but is made at the Arboricultural Consultants discretion.

Recommendations

Recommendations for arboricultural works, etc. are based on the **current** land use, and take into account the tree or group attributes without bias to the proposed development.

APPENDIX 2: SURVEY METHOD

Estimated Remaining Contribution

An estimation of the life expectancy as healthy functioning tree. This will be influenced by species and the condition of the tree at the time of survey.

| | |
|---------------|--------------------|
| Long | > 40 years |
| Medium | 20 – 40 years |
| Short | less than 20 years |

Table 1 Cascade chart for tree quality assessment

| Category and definition | Criteria (including subcategories where appropriate) | | | Identification on plan |
|---|--|---|---|------------------------|
| Trees unsuitable for retention (see Note) | | | | |
| Category U 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">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)Trees that are dead or are showing signs of significant, immediate, and irreversible overall declineTrees 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 <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> | | | See Table 2 |
| | 1 Mainly arboricultural qualities | 2 Mainly landscape qualities | 3 Mainly cultural values, including conservation | |
| Trees to be considered for retention | | | | |
| Category A Trees of high quality 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) | See Table 2 |
| Category B Trees of moderate quality 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 | See Table 2 |
| Category C Trees of low quality 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 | See Table 2 |

British Standards Institute (2012) BS5837:2012 Trees in relation to design, demolition and construction – Recommendations. p.9

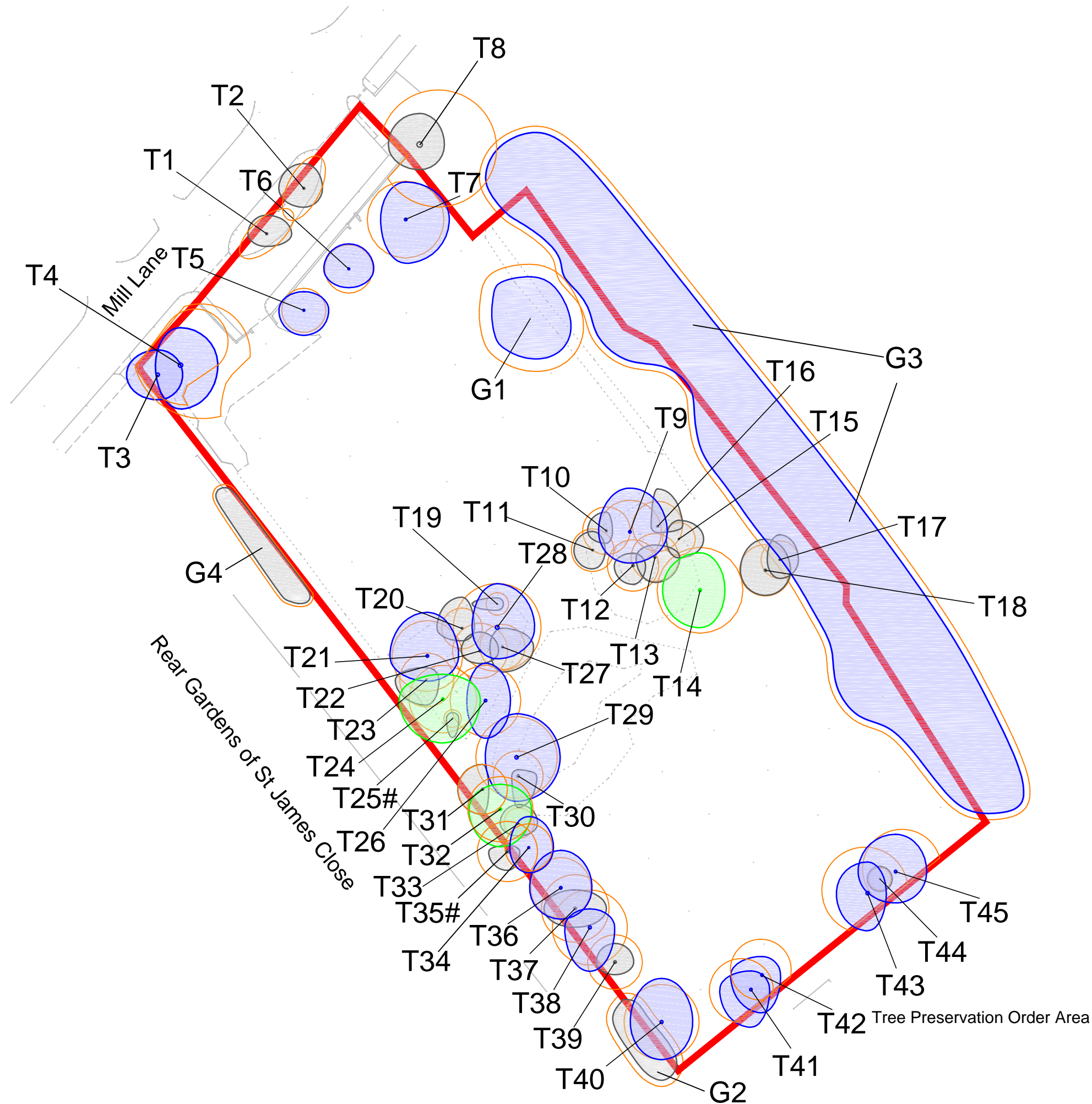
NOTES:

All young trees are assessed as quality category 'C' but this does not preclude their retention within a development.

For hedges the height, canopy spread and number of stems is recorded but they are not assigned a quality category.

DRAWING 1

TREE CONSTRAINTS PLAN



KEY

[This drawing must be reproduced in colour]

- T1 Individual trees
- G1 Groups of trees
- Root Protection Area (RPA)
- Survey Boundary
- # Approximate location
(Feature not shown on topo)

Tree Categorisation

(Tree quality assessment based on BS 5837:2012 Trees in relation to design, demolition and construction - Recommendations)

- Category A
(High quality)
- Category B
(Moderate quality)
- Category C
(Low quality)
- Category U
(Unsuitable for retention)

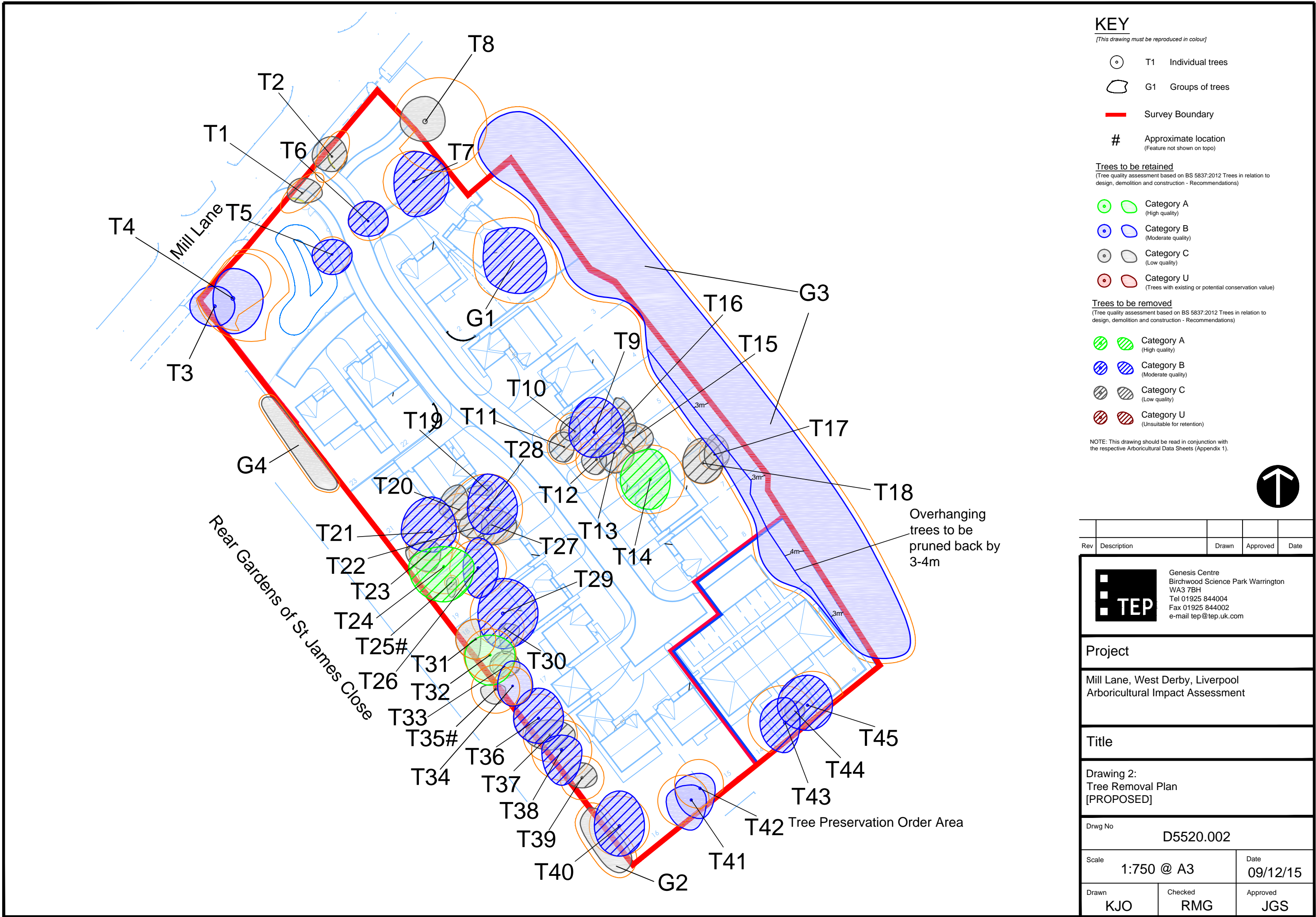
NOTE: This drawing should be read in conjunction with the respective Arboricultural Data Sheets (Appendix 1).



| Rev | Description | Drawn | Approved | Date |
|--|-------------|------------|----------|----------|
| <div><div><div></div><div></div><div></div><div></div></div><div>TEP</div></div> <div>Genesis Centre Birchwood Science Park Warrington WA3 7BH Tel 01925 844004 Fax 01925 844002 e-mail tep@tep.uk.com</div> | | | | |
| Project | | | | |
| Mill Lane, West Derby, Liverpool Arboricultural Impact Assessment | | | | |
| Title | | | | |
| Drawing 1: Tree Constraints Plan [EXISTING] | | | | |
| Drwg No | | D5520.001 | | |
| Scale | | 1:750 @ A3 | | Date |
| | | | | 09/12/15 |
| Drawn | Checked | Approved | | |
| KJO | RMG | JGS | | |

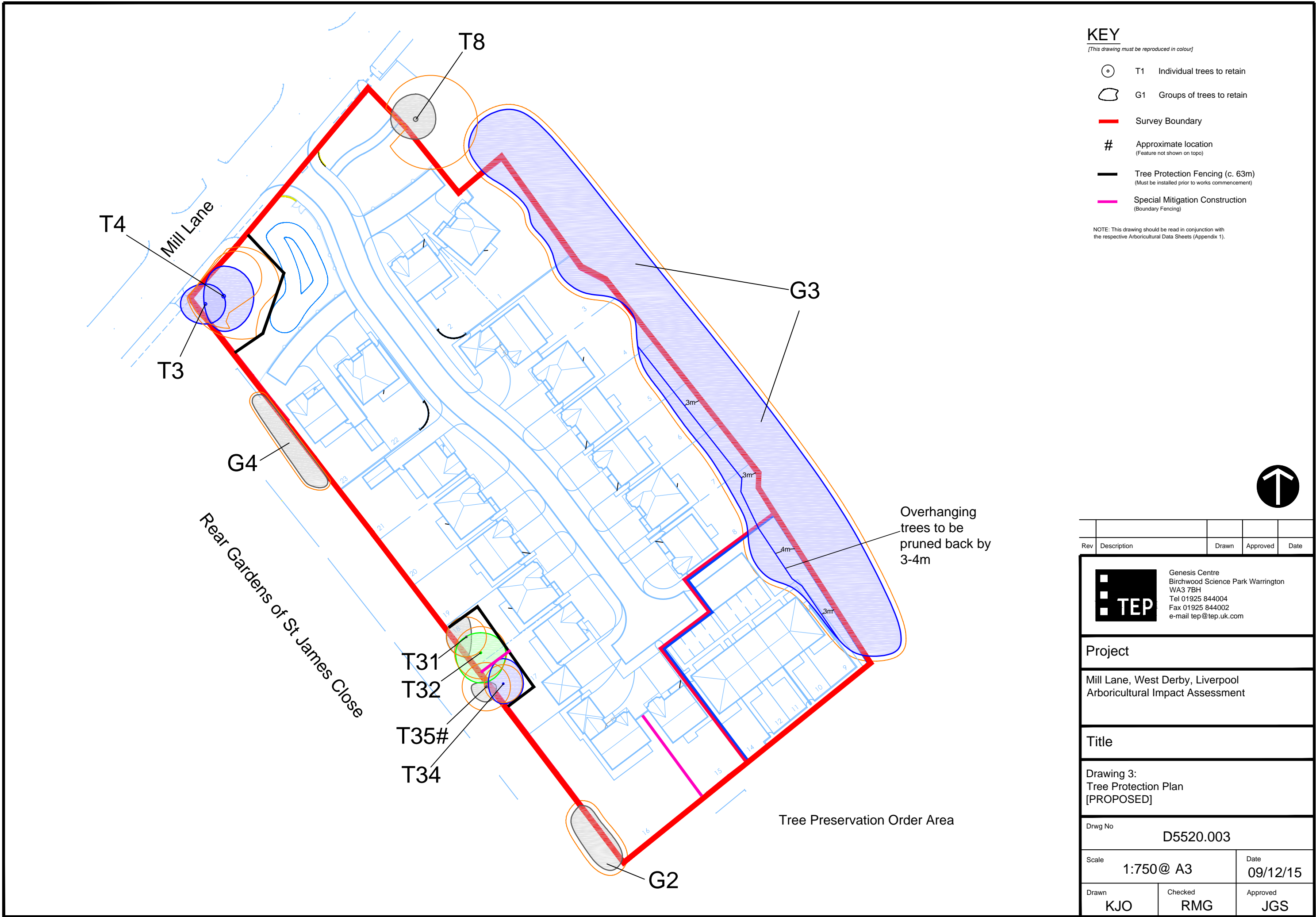
DRAWING 2

TREE REMOVAL PLAN



DRAWING 3

TREE PROTECTION PLAN



- KEY**
[This drawing must be reproduced in colour]
- T1 Individual trees to retain
 - G1 Groups of trees to retain
 - Survey Boundary
 - # Approximate location
(Feature not shown on topo)
 - Tree Protection Fencing (c. 63m)
(Must be installed prior to works commencement)
 - Special Mitigation Construction
(Boundary Fencing)

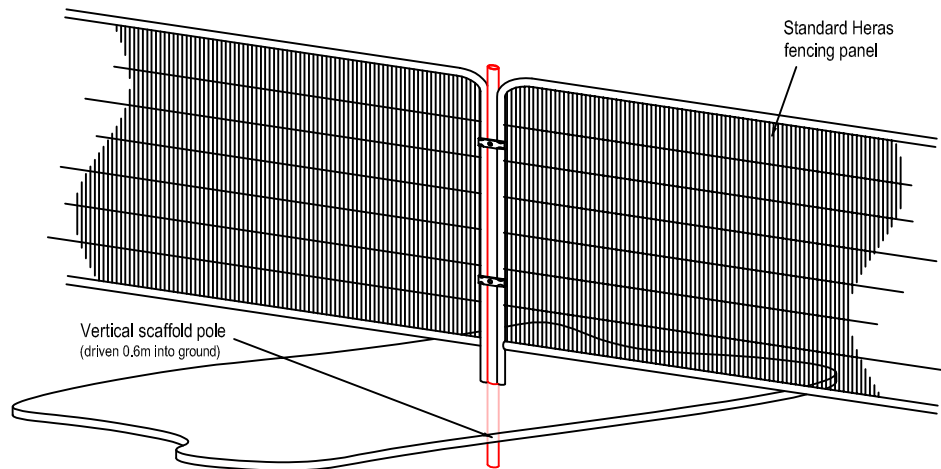
NOTE: This drawing should be read in conjunction with the respective Arboricultural Data Sheets (Appendix 1).



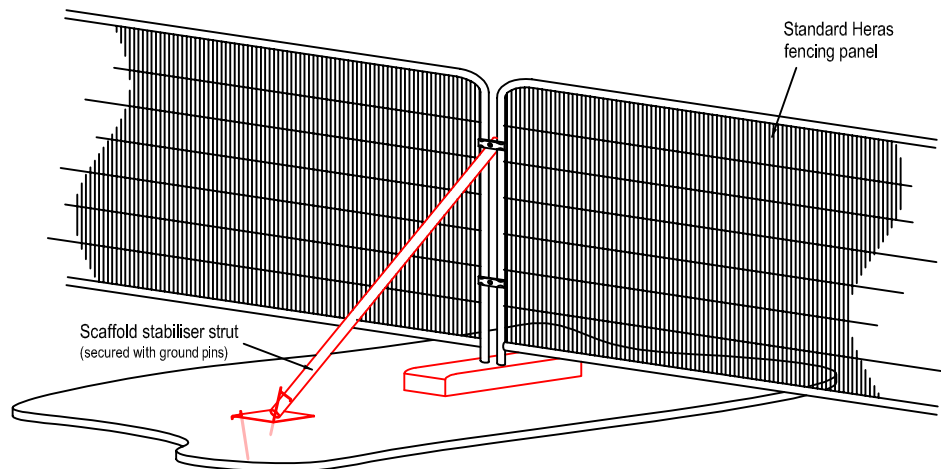
| | | | | |
|---|-------------|-----------|----------|----------|
| | | | | |
| Rev | Description | Drawn | Approved | Date |
| <div><div><div></div><div></div><div></div></div><div>TEP</div></div> <div>Genesis Centre Birchwood Science Park Warrington WA3 7BH Tel 01925 844004 Fax 01925 844002 e-mail tep@tep.uk.com</div> | | | | |
| Project | | | | |
| Mill Lane, West Derby, Liverpool Arboricultural Impact Assessment | | | | |
| Title | | | | |
| Drawing 3: Tree Protection Plan [PROPOSED] | | | | |
| Drwg No | | D5520.003 | | |
| Scale | | 1:750@ A3 | | Date |
| | | | | 09/12/15 |
| Drawn | Checked | Approved | | |
| KJO | RMG | JGS | | |

DRAWING 4

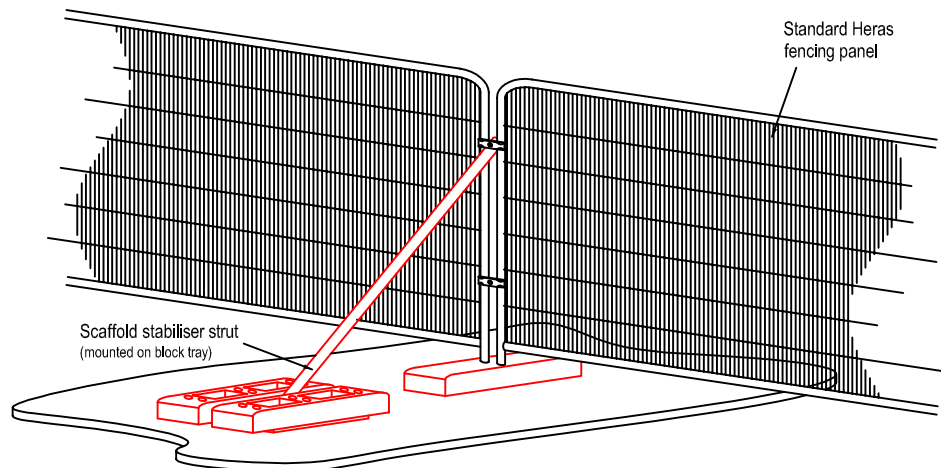
TEMPORARY TREE PROTECTION FENCING



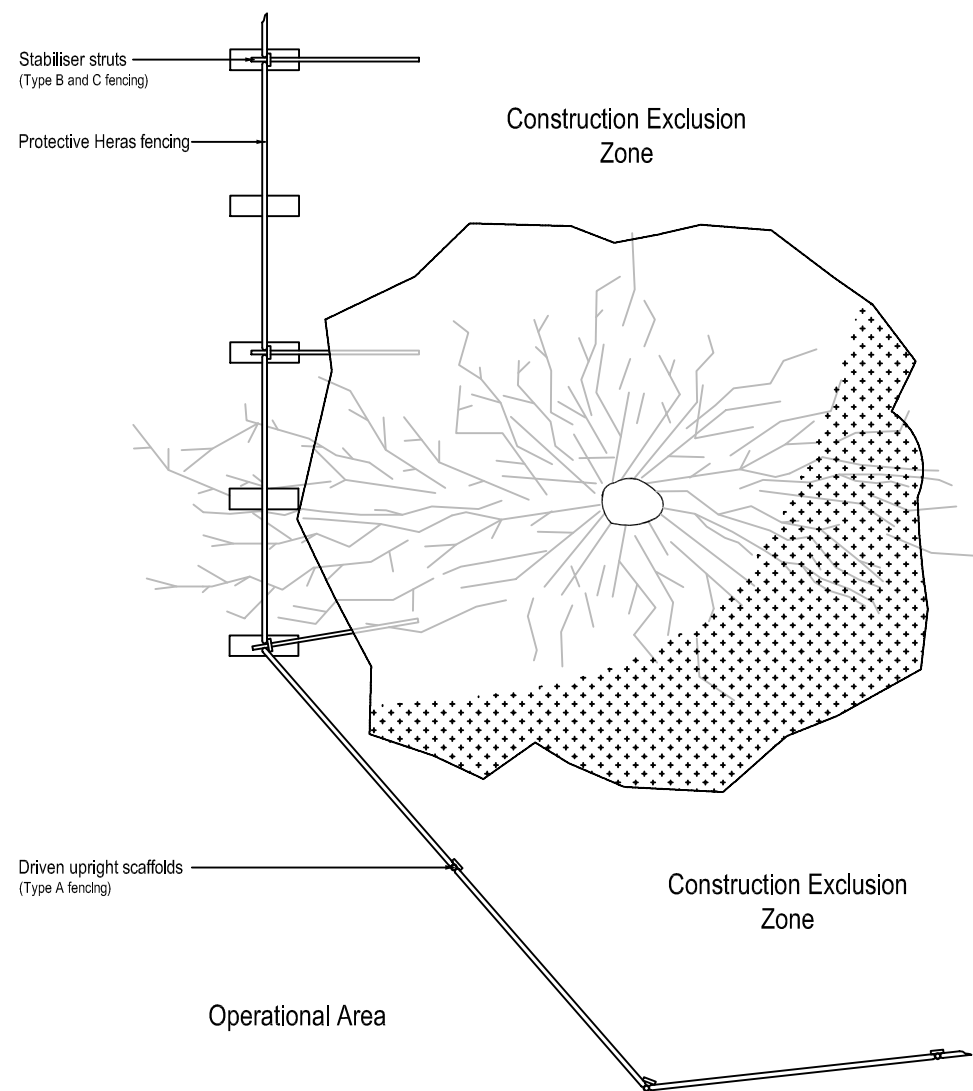
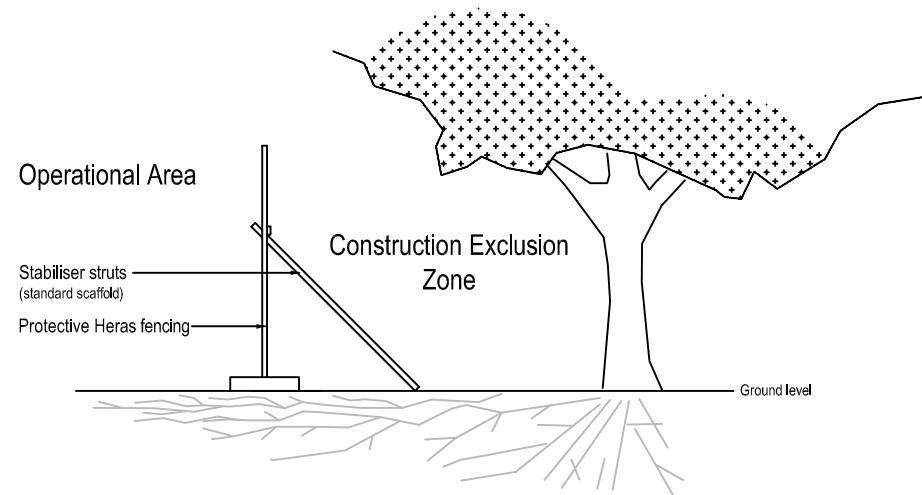
Type A Tree Protection Fencing: for use as standard
(see Tree Protection Plan for layout)



Type B Tree Protection Fencing: for use as directed
(e.g. where Type A would cause unacceptable damage to roots or underground services)



Type C Tree Protection Fencing: for use as directed
(e.g. on hard surfaces)



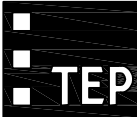
PROTECTIVE FENCING. THIS FENCING MUST BE MAINTAINED IN ACCORDANCE WITH THE APPROVED PLANS AND DRAWINGS FOR THIS DEVELOPMENT.



**TREE PROTECTION AREA
KEEP OUT !**
(TOWN & COUNTRY PLANNING ACT 1990)
TREES ENCLOSED BY THIS FENCE ARE PROTECTED BY PLANNING CONDITIONS AND/OR ARE THE SUBJECTS OF A TREE PRESERVATION ORDER.
CONTRAVENTION OF A TREE PRESERVATION ORDER MAY LEAD TO CRIMINAL PROSECUTION
ANY INCURSION INTO THE PROTECTED AREA MUST BE WITH THE WRITTEN PERMISSION OF THE LOCAL PLANNING AUTHORITY

Tree Protection Notice to be attached to fencing 1.5m from the ground, facing out of the Construction Exclusion Zone and located at regular intervals along the fence line.

The notice must be at least A4 in size

| | | | | |
|---|-------------|-------------|---------------|--------------|
| | | | | |
| Rev | Description | Drawn | Approved | Date |
| <div><div></div><div><div>Genesis Centre</div><div>Birchwood Science Park Warrington</div><div>WA3 7BH</div><div>Tel 01925 844004</div><div>Fax 01925 844002</div><div>e-mail tep@tep.uk.com</div></div></div> | | | | |
| Project | | | | |
| TEP Standard Detail | | | | |
| Title | | | | |
| Temporary Tree Protection Fencing (Detail for tree protection around Construction Exclusion Zones) | | | | |
| Drwg No D.TREE_FENCING.001 | | | | |
| Scale NTS @ A3 | | | Date 30/04/12 | |
| Drawn TDP | | Checked ROS | | Approved JGS |