

South West Milton Keynes

Arboricultural Assessment

FPCR Environment & Design Ltd

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1.0 INTRODUCTION

- 1.1 This report has been prepared by FPCR Environment and Design Limited on behalf of South West Milton Keynes Consortium to present the findings of an arboricultural assessment and survey of trees on land located south west of Milton Keynes (hereafter referred to as the site). The site is centered on the Ordnance Survey Grid Reference SP483 232 as shown in Figure 1. The site was originally surveyed in December 2008 however this report is based upon a re-survey carried out on 1st October 2012 which was broadly based upon the findings of the original survey.
- 1.2 The tree survey and assessment of existing trees has been carried out in accordance with British Standard 5837:2012 '*Trees in Relation to Design, Demolition and Construction - Recommendations*' (hereafter referred to as BS5837). The guidelines give recommendations on the relationship between trees and design, demolition and construction processes to achieve a harmonious and sustainable relationship between trees and structures through the application of various principles and procedures.
- 1.3 The purpose of the report is to present the results of an assessment of the existing trees' arboricultural value, based on their current condition and quality in accordance with the recommendations, to accompany a planning application for the creation of a mixed use development which will provide residential areas, employment, education, a local centre and areas of public open space. The tree survey has therefore focused on any trees present within or bordering the site that may potentially be affected by the future proposals or will pose a constraint to any proposed development.
- 1.4 Trees have been considered following an iterative process into one of four categories (U, A, B & C) as outlined in BS5837. The purpose of the categorisation method is primarily to identify the arboricultural quality and value of the existing tree stock following which informed decisions can be made concerning which trees should be retained in the event of development occurring. The categories also provide an indication of a trees importance in relation to the site and the local landscape as well as their arboricultural merit all of which assist in the decision making process.
- 1.5 The site comprised predominantly of arable fields which were divided by many internal boundary hedgerows. The site is bisected by Weasel Lane from east to west and bounded to the east by an area of housing. To the north of the site there were a number of large industrial units which were situated on the far side of the A421, Buckingham Road. The southern boundary consisted of landscape buffer planting for a disused railway line. The tree stock contained predominantly mature specimens, with the most frequently occurring species being common ash *Fraxinus excelsior* and English oak *Quercus robur*. Trees were largely distributed across the area within dense managed hawthorn *Crataegus monogyna* hedgerows and isolated individuals were occasional within arable field compartments.
- 1.6 It is understood following consultation with the LPA that there are no tree preservation orders or conservation area designations that would apply to any trees present on, or in close proximity to the assessment site and therefore no statutory constraints would apply to the development in respect of trees. The Local Planning Authority for the site is Aylesbury Vale District Council.

1.7 The following report comprises:

- Chapter 2 briefly describes the methodology by which the tree survey and assessment has been undertaken, additional details of the methodology have been included in Appendix A.
- Chapter 3 presents a summary of the results of a tree survey and provides more detail regarding trees of note or those which were considered to present a hazard.
- Chapter 4 evaluates the findings of the survey and assessment in respect of the development proposals in the form of an arboricultural impact assessment and also provides principle recommendations for mitigation and future management where appropriate.
- Chapter 5 presents an indication of the tree protection measures to be required from a general viewpoint such as typical fencing requirements.
- Chapter 6 provides a conclusion to the findings of the assessment.

1.8 It must be understood should any specific tree protection be required, this would need to be separately considered where needs arise prior to the commencement of construction activity following approval. This would be in the form of an arboricultural method statement produced in accordance with guidance in BS5837 and is beyond the scope of this arboricultural assessment.

2.0 METHODOLOGY

2.1 The survey of trees has been carried out in accordance with the criteria set out in Chapter 4 of BS5837. The survey has been undertaken by a suitably qualified and experienced arboriculturist and recorded information relating to all those trees within the site and those adjacent to the site which may be of influence to any proposals. Trees were assessed for their arboricultural quality and benefits within the context of proposed development in a transparent, understandable and systematic way.

2.2 Trees have been assessed as groups or woodlands where it has been determined appropriate. The term group has been applied where trees form cohesive arboricultural features either aerodynamically, visually or culturally including biodiversity or habitat potential for example parkland or wood pasture. An assessment of individual trees within the groups or woodlands has been made where there has been a clear need to differentiate between them for example. in order to highlight significant variation between attributes including physiological or structural condition or where a potential conflict may arise.

2.3 Trees have been divided into one of four categories based on Table 1 of BS5837, '*Cascade chart for tree quality assessment*'. For a tree to qualify under any given category it should fall within the scope of that category's definition (see below). Category U trees are those which would be lost in the short term for reasons connected with their physiology or structural condition. They are, for this reason not considered in the planning process on arboricultural grounds. Categories A, B & C are applied to trees that should be material considerations in the development process. Each category also having one of three further sub-categories (i, ii, iii) which are intended to reflect arboricultural, landscape and cultural or conservation values accordingly.

- 2.4 **Category (U) – (Dark Red):** Trees which are unsuitable for retention and are 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. Trees within this category are:
- Trees that have a serious irremediable structural defect such that their early loss is expected due to collapse and includes trees that will become unviable after removal of other category U trees.
 - Trees that are dead or are showing signs of significant, immediate or irreversible overall decline.
 - Trees that are infected with pathogens of significance to the health and or/safety of other trees nearby trees or are very low quality trees suppressing adjacent trees of better quality.
 - Certain category U trees can have existing or potential conservation value which may make it desirable to preserve.
- 2.5 **Category (A) – (Light Green):** Trees that are considered for retention and are of high quality with an estimated remaining life expectancy of at least 40 years with potential to make a lasting contribution. Such trees may comprise:
- Sub category (i) trees that are particularly good examples of their species, especially if rare or unusual, or are essential components of groups such as formal or semi-formal arboricultural features for example the dominant and/or principal trees within an avenue.
 - Sub category (ii) trees, groups or woodlands of particular visual importance as arboricultural and / or landscape features.
 - Sub category (iii) trees, groups or woodlands of significant conservation, historical, commemorative or other value for example veteran or wood pasture.
- 2.6 **Category (B) – (Blue):** Trees that are considered for retention and are of moderate quality with an estimated remaining life expectancy of at least 20 years with potential to make a significant contribution. Such trees may comprise:
- Sub category (i) trees that might be included in category A but are downgraded because of impaired condition for example the presence of significant though remediable defects, including unsympathetic past management and storm damage.
 - Sub category (ii) 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.
 - Sub category (iii) trees with material conservation or other cultural value.
- 2.7 **Category (C) – (Grey):** Trees that are considered for retention and are of low quality with an estimated remaining life expectancy of at least 10 years or young trees with a stem diameter below 150mm. Such trees may comprise:
- Sub category (i) unremarkable trees of very limited merit or such impaired condition that they do not qualify in higher categories.

- Sub category (ii) trees present in groups or woodlands, but without this conferring on them significantly greater collective landscape value or trees offering low or only temporary / transient screening benefits.
- Sub category (iii) trees with no material conservation or other cultural value.

Tree Schedule

- 2.8 Appendix A presents details of the individual trees and groups including heights, diameters at breast height, crown spread (given as a radial measurement from the stem), age class, comments as to the overall condition at the time of inspection, BS5837 category of quality and suitability for retention and the root protection area.
- 2.9 General observations particularly of structural and physiological condition for example the presence of any decay and physical defect and preliminary management recommendations have also been recorded where appropriate.

Conditions of Tree Survey

- 2.10 The survey was completed from ground level only and from within the boundary of the site. Aerial inspection of trees was not undertaken at this stage. Investigations as to the internal condition of a tree have also not been undertaken being beyond the scope of this assessment. Evaluation of tree condition given within this assessment applies to the date of survey and cannot be assumed to remain unchanged. It may be necessary to review these within 12 months, in accordance with sound arboricultural practice.

Site Plans

- 2.11 The individual positions of trees and groups have been shown on the Tree Survey Plan, Figure 2 (Drawing no. 3126-A-02.1 & 02.2). The positions of trees are based on a topographical / land survey, as far as possible, supplied by the client. The crown spread, root protection area and shade pattern (where appropriate) are indicated on this plan.
- 2.12 As part of the AIA a Draft Tree Retention / Removal Plan (drawing no. 3126-A-03.1 & 03.2B) has been prepared to identify tree retentions of existing trees for the proposed site layout.

Tree Constraints and Indicative Root Protection Area

- 2.13 Below ground constraints to future development are represented by the area surrounding the tree that contains sufficient rooting volume for the specimen to have the best chance of survival in the long term this is known as the root protection area (RPA). The RPA has been calculated in accordance with section 4.6 of BS5837 and requires suitable protection in order for the tree to be incorporated into any future scheme. Where applicable the shape of the RPA has been altered to take into account the presence of surrounding obstacles which may have restricted root growth.
- 2.14 Where groups of trees have been assessed, the RPA has been shown based on the maximum sized tree in any one group and so may exceed the RPA required for some of the individual specimens within the group.

3.0 RESULTS

- 3.1 A total of sixty four individual trees and twenty five groups of trees were surveyed as part of the arboricultural assessment. Refer to Figure 2 – Tree Survey Plan (drawing no. 3126-A-02.1 & 02.2) and Appendix A – Tree Schedule for full details of the trees included in the assessment. The analysis page within Appendix A also provides a summary which identifies the overall quality and maturity of the tree cover. Table 1, below, summarises the trees in each category. Several of the trees have been discussed in more detail owing to their physical condition or arboricultural significance.

Results Summary

- 3.2 The tree stock contained predominantly mature specimens, with the most frequently occurring species being common ash *Fraxinus excelsior* and English oak *Quercus robur*. Trees were largely distributed across the area within dense managed, hawthorn *Crataegus monogyna*, hedgerows and isolated individuals were occasional within arable field compartments. The results of the assessment have shown that there were a high number of category U specimens present on the site, than would normally be experienced on other sites of a similar scale. The following paragraphs provide details of those trees considered worthy of particular note.

Table 1: Summary of trees by Category

	Individual Trees	Total	Groups of Trees	Total
Category U - Unsuitable	T8, T10, T12, T32, T33, T34, T35, T36, T45, T46, T50, T52, T54	13	TG7, TG8, TG13	3
Category A (High Quality / Value)	T5, T43, T44, T47, T51, T53	6	TG3, TG9, TG20	3
Category B (Moderate Quality / Value)	T1, T2, T3, T15, T17, T19, T20, T21, T22, T23, T28, T29, T30, T31, T37, T38, T39, T40, T42, T48, T49, T60, T61, T62, T63, T64	26	TG2, TG6, TG10, TG11, TG15, TG18, TG19, TG24	8
Category C (Low Quality / Value)	T4, T6, T7, T9, T11, T13, T14, T16, T18, T24, T25, T26, T27, T41, T55, T56, T57, T58, T59	19	TG1, TG4, TG5, TG12, TG14, TG16, TG17, TG21, TG22, TG23, TG25	11
	Total Trees	64	Total Groups	25

- 3.3 On the northern boundary of the site was situated a small woodland block. The woodland was dominated by common ash and bounded on all sides by an outgrown hawthorn hedge. The centre of the block was sparsely populated with canopy trees and as a consequence the understorey of elder had begun to dominate. Mature trees of note within the woodland were limited to one English oak on the eastern boundary and a number of hybrid black poplar on the western boundary.
- 3.4 The following trees were found to be mature specimens worthy of category A recognition: T5, T44, T51, TG3 and TG9. These trees and groups presented high arboricultural quality and / or high amenity value due to their general good condition, size and position.

- 3.5 These were generally concentrated around the central and western portion of the site or in the case of TG9 formed a large belt of trees which joined the northern boundary with Weasel Lane.
- 3.6 There were a number of other specimens assessed to be category A. These specimens (T43, T47, T53, T61, T64 and TG20) were found to be semi or early mature examples and were concentrated along Weasel Lane. Their inclusion within the A category would be based on the fact that they are generally considered to provide high arboricultural quality and despite not yet being fully established would have considerable potential to provide future amenity value.
- 3.7 Within the site a high proportion of trees were found to meet the criteria for category U specimens. These specimens by definition were considered to be unsuitable within their current context or were considered to have a life expectancy of less than ten years. The majority of specimens in this category were common ash that had either begun to deteriorate or were in a state of advanced decline showing active decay due to the fungal pathogen *Inonotus hispidus* or 'Shaggy Bracket'. This fungus causes localized brown rot at first but will progress to form extensive cavities within main stems and branches until the tree or limb fails as a result of the weakened structure. It would be recommended therefore that the trees considered category U positioned adjacent to public roads or footpaths be removed in the interests of public safety. The remaining category U trees should be retained, where practical, following the application of appropriate remedial tree surgery or other suitable management such as retaining large sections of the tree in areas designated for habitat creation.
- 3.8 Weasel Lane bisected the site from east to west and this feature of the site was densely stocked with trees for the majority of its length. It should be noted however that many of the trees along the lane were young or semi mature specimens situated within established hedgerows. TG5 represents these younger trees along Weasel Lane and was regarded as category C for their immaturity rather than quality.
- 3.9 The eastern boundary of the site presented numerous trees; some of which were mature specimens though none were considered to pre-date the adjacent residential area. All of the trees on this boundary were positioned outside the site boundary. As a result the trees presented defects typically observed on garden specimens, such as unsympathetic pruning wounds, branch stubs and pollarding.
- 3.10 An extensive area of screening planting had established on the northern boundary of the site however only two areas were considered to be close enough to the site as to present any constraint, these being TG2 and TG24. The remainder of the screening planting was positioned to the north of the abandoned access road which runs the length of this boundary. The material was generally early mature and had been densely planted as to form a continuous screen with interlocking crowns.
- 3.11 The southern boundary was formed by a disused railway embankment. The trees and shrubs which had naturally colonized the embankment have not been included as part of this assessment due to their distance from the site boundary and small size which infers that they will present little constraint to any proposals for the site.

4.0 ARBORICULTURAL IMPACT ASSESSMENT

- 4.1 The following paragraphs presents a summary of the tree survey and offers discussion of particular trees and groups recorded in the context of the proposed development in the form of an Arboricultural Impact Assessment in accordance with section 5.4 of BS5837. Any final tree retentions will need to be reconciled with the advice contained within this report. An overlay of the above layout has been incorporated in the Draft Tree Retention and Removal Plan (Figure 3) to assist in identifying potential conflicts with the existing trees.
- 4.2 The AIA has been based upon the Parameter Plan (dwg.SWMK03/074/REV G) and seeks to outline the potential impact that the proposals would have on the existing trees. The above drawing illustrates proposals for a mixed-use sustainable urban extension on 144.77 Ha of land to the south west of Milton Keynes which includes, but is not limited to, provision for an employment area, neighbourhood centre, schools, allotments, multi-functional green open space and highway improvements.
- 4.3 To facilitate the layout as shown will require the removal of the following trees: T6, T7, T13, T14, T47, T55, T56, T57, T58, T59, T60, TG1; a small section of TG5; one tree from TG12 and five poplar from the woodland. All trees to be removed, with the exception of two trees (T47 and T60), were considered to be of low arboricultural quality or low amenity value. The trees assigned category C are those which whilst still relatively young should not present a significant constraint to the potential to develop the site. Loss of category C material can suitably be mitigated for through new tree planting forming part of the overall landscaping proposals which would support the development. Any current amenity value can be regained within a relatively short time frame and therefore such losses should not raise objection from an arboricultural perspective.
- 4.4 Access to the site is to be from an existing junction between Standing Way and Buckingham Road and a new slip road junction westbound on Standing Way itself; both of which will have only a minimal impact on the existing tree cover. It is considered that the creation of the new access and roundabout will be in-keeping with the design of the surrounding area. Once the intended replacement planting has begun to establish around the new junction it will not be noticeably different to that of the existing adjacent junctions.
- 4.5 The internal road infrastructure and drainage requirements have been designed in such a way as to avoid the majority of the existing mature tree cover. A small number of tree removals will be required as would be expected with such broad landscape features such as Weasel Lane however the losses will be minimal and replacement planting should successfully mitigate for these losses. The landscape feature of Weasel Lane and TG9 will be preserved and enhanced by the proposals.
- 4.6 The central feature of the development will be the broad areas of open space throughout the site. This open space provides the opportunity to retain many of the higher quality trees present within the central section of the site and throughout within the linking green corridors as well as providing scope for consideration to plant new trees. The open space will form an important part of the overall landscaping strategy and green infrastructure for the site.

- 4.7 Certain trees considered to be category U, would have the potential to contribute to the future of the site as these trees can still provide an important habitat either as standing dead wood or in the cavities which form in the decaying wood. The trees itemised in Table 2 are considered as being those which could be successfully retained principally for their ecological value within the proposals however in order to do so in a safe manner these particular specimens would need to be carefully managed as to reduce their risk to public safety to an acceptable level by the undertaking of a variety of measures including remedial tree surgery and dead wood habitat management. Further details have been given in the management section of this report.

Table 2: Trees for removal and category U specimens

	Individual trees	Groups and woodland
Trees to be removed to facilitate the development proposals	T6, T7, T13, T14, T47, T55, T56, T57, T58, T59, T60	TG1, a small section of TG5; one tree from TG12; approximately five poplar trees from the Woodland
Category U specimens required for removal	T8, T10, T12, T36, T45, T46, T50, T52,	TG13, TG7, one tree in TG19
Category U specimens to be retained and managed	T32, T33, T34, T35, T54	TG8, TG9

General Design Principles in Relation to Retained Trees

- 4.8 At the detailed design stages closer assessment of the distance of proposed development in relation to the calculated root protection area of retained trees should be made and modifications to the layout made where necessary. Should there be areas where it is not possible to modify the layout the use of no-dig construction methods will need to be considered prior to decisions being made as to the removal of each tree concerned. Such construction methods can be used particularly in the case of footways, driveways and other light use access roads.
- 4.9 When considering layouts an important element of detailed design is the consideration of the eventual positioning of any utility services. As recommended by the guidance given in section 7.7 of BS5837 services, where possible, should not encroach within the root protection areas of retained trees. If below-ground services are proposed within a root protection area modifications to the alignment of the service route may need to be made in order to minimise adverse effects on root stability and overall tree-health.
- 4.10 Consideration may also need to be given to the potential for tree roots of newly planted trees and hedgerows to affect or compromise the future services. As far as feasible, it would be preferable that proposed services near both the existing and any new planting should be ducted for ease of access and maintenance and grouped together to minimise any future disturbance.

Mitigation for Tree Losses

- 4.11 New tree planting should form an integral part of any new development and be considered at the design stages of emerging layouts. Proposals for new tree planting should be appropriate for the future use of the site and not only improve and enhance the existing tree population but be complementary to the local landscape character. The purpose and function of any new tree planting should be understood from the start of any design stages so that key landscape objectives can be achieved. It may therefore be necessary to seek advice from a landscape architect to assist with integrating green infrastructure and structural landscaping with the built elements of the development.
- 4.12 As part of the development proposals it is recommended that any supporting landscaping scheme should seek to provide an adequate quantity of tree planting to suitably mitigate for the loss of trees required to facilitate the development. The landscaping scheme should consider providing tree planting, where appropriate, in the following situations; new amenity planting as part of any proposed road infrastructure; private gardens; areas of incidental open space; new public parks and larger areas of open space and structural buffer planting.
- 4.13 The landscaping scheme should consider the use of native species, for their low maintenance requirements and nature conservation value, and ornamental species, for their contribution to urban design and amenity value. Species choices should be selected on the basis of their suitability for the final site use. Careful consideration would need to be given to the following: ultimate height, canopy spread, form, density of crown, potential shading effect, foliage colour and maintenance requirements.
- 4.14 Species choices should be selected to be suitable to the new environment for example using small to medium sized species in restricted spaces and larger trees where space permits i.e. in areas of open space and areas of structural landscape planting.
- 4.15 Tree planting should be avoided where they may obstruct overhead power lines or cables. Any underground apparatus should be ducted or otherwise protected at the time of construction to enable trees to be planted without resulting in future conflicts. Wherever possible, following discussions with the developer and utility company concerned, particularly on new development sites, common service trenches should be specified to minimise land take associated with underground service provision and to facilitate access for future maintenance.

Tree Management

- 4.16 Once a layout for the development has been finalised and a review of the relationship between the layout and the retained trees has been undertaken, a qualified arboriculturalist should prepare a schedule of tree works listing all the trees requiring work, accompanied by a plan showing the location of each tree.
- 4.17 All retained trees should be subjected to sound arboricultural management as recommended within section 8.8.3 of BS5837, where there is a potential for public access in order to satisfy the landowners' duty of care. Additionally inspections, annually and following major storms, should be carried out by an experienced arboriculturist or arborist to identify any potential public health and safety risks and to agree remedial works as required.

- 4.18 As detailed in table 2, a number of Category U specimens can be retained within the proposals to provide additional habitat resource for the site. These specimens will however require management so that they may be retained in a safe manner, in view of public safety, and to preserve their condition. This will involve a variety of tree surgery operations including crown reductions, pollarding or in extreme cases the creation of monoliths from rotten or structurally unsound specimens. Any decision as to the level and type of management or treatment required should be made once a detailed layout for the site has been approved.
- 4.19 TG4 was dominated by one tree, a hybrid black poplar *Populus x canadensis*, which had developed a large and uneven crown form. The proposals show this group in close proximity to a residential area which may result in unacceptable risk to the public from its potential for failure. It would be recommended therefore that the group be managed for its habitat value or a provision be made to include this group within a small area of planting with the aim of excluding members of the public from its immediate vicinity. Similarly any decision as to the level and type of management required should be made once a detailed layout for the site has been approved.
- 4.20 All tree works undertaken should comply with British Standard 3998:2010 and should therefore be carried out by skilled tree surgeons. It would be recommended that quotations for such work be obtained from Arboricultural Association Approved Contractors as this is the recognised authority for certification of tree work contractors.
- 4.21 All vegetation and, particularly, woody vegetation proposed for clearance should be removed outside of the bird-breeding season (March - September inclusive) as all birds are protected under the Wildlife and Countryside Act, 1981 (as amended) whilst on the nest. Where this is not possible, vegetation should be checked for the presence of nesting birds prior to removal by an experienced ecologist.

5.0 TREE PROTECTION MEASURES

- 5.1 Retained trees will be adequately protected during works ensuring that the calculated RPA for all retained trees can be appropriately protected through the erection of the requisite tree protection barriers. Measures to protect trees should follow the guidance in BS5837 and should be applied where necessary for the purpose of protecting trees within the site whilst allowing sufficient access for the implementation of the proposed layout. These have been broadly summarised below.

General Information and Recommendations

- 5.2 All trees retained on site will be protected by barriers or ground protection around the calculated RPA or other defined constraints of this assessment as detailed by section 6 and 7 of BS5837.
- 5.3 Barriers will be erected prior to commencement of any construction work and before demolition including erection of any temporary structures. Once installed, the area protected by fencing or other barriers should be regarded as a construction exclusion zone. Fencing and barriers should not be removed or altered without prior consultation with the project arboriculturalist.

- 5.4 Any trees that are not to be retained as part of the proposals should be felled prior to the erection of protective barriers. Particular attention needs to be given by site contractors to minimise damage or disturbance to retained specimens.
- 5.5 Where it has been agreed, construction access may take place within the RPA if suitable ground protection measures are in place. This may comprise single scaffold boards over a compressible layer laid onto geo-textile materials for pedestrian movements. Vehicular movements over the RPA will require the calculation of expected loading and the use of proprietary protection systems.
- 5.6 Confirmation that tree protective fencing or other barriers have been set out correctly should be gained prior to the commencement of site activity.

Tree Protection Barriers

- 5.7 Tree protection fencing should be fit for the purpose of excluding any type of construction activity and suitable for the degree and proximity of works to retained trees. Barriers must be maintained to ensure that they remain rigid and complete for the duration of construction activities on site.
- 5.8 In most situations fencing should comprise a scaffold framework comprising a vertical and horizontal framework, well braced to resist impacts. For particular areas where construction activity is anticipated to be of a more intense nature higher fencing may be necessary. Where site circumstances and the risk to retained trees do not necessitate the default level of protection an alternative will be specified. The standard fencing specification as recommended in BS5837 has been illustrated in Appendix B.
- 5.9 It may be appropriate on some sites to use temporary site offices as components of the protection barriers.

Ground Protection

- 5.10 Where it has been agreed, construction access may take place within the RPA if suitable ground protection measures are in place. Guidance on examples of appropriate ground protection for several different scenarios is provided in section 6.2.3 of BS5837. The location of and design for temporary ground protection will be shown on the tree protection plan and should be detailed as part of an Arboricultural Method Statement once planning condition is given. In all cases, the objective is to avoid compaction of the soil which can arise from a single passage of a heavy vehicle, especially in wet conditions, so that tree root functions remain unimpaired.

Protection outside the exclusion zone

- 5.11 Once the areas around trees have been protected by the barriers, any works on the remaining site area may be commenced providing activities do not impinge on protected areas.
- 5.12 All weather notices should be attached to the protective fencing to indicate that construction activities are not permitted within the fenced area the area within to be a construction exclusion zone.
- 5.13 Wide or tall loads etc should not come into contact with retained trees. Banksman should supervise transit of vehicles where they are in close proximity to retained trees.

- 5.14 Oil, bitumen, cement or other material that is potentially injurious to trees should not be stacked or discharged within 10m of a tree bole. No concrete mixing should be done within 10m of a tree. Allowance should be made for the slope of ground to prevent materials running towards the tree.
- 5.15 No fires will be lit where flames are anticipated to extend to within 5m of tree foliage, branches or trunk, taking into consideration wind direction and size of fire.
- 5.16 Notice boards, telephone cables or other services should not be attached to any part of a retained tree.
- 5.17 Any trees which need to be felled adjacent to or are present within a continuous canopy of retained trees must be removed with due care (it may be necessary to remove such trees in sections).

Protection of Trees Close to the Site

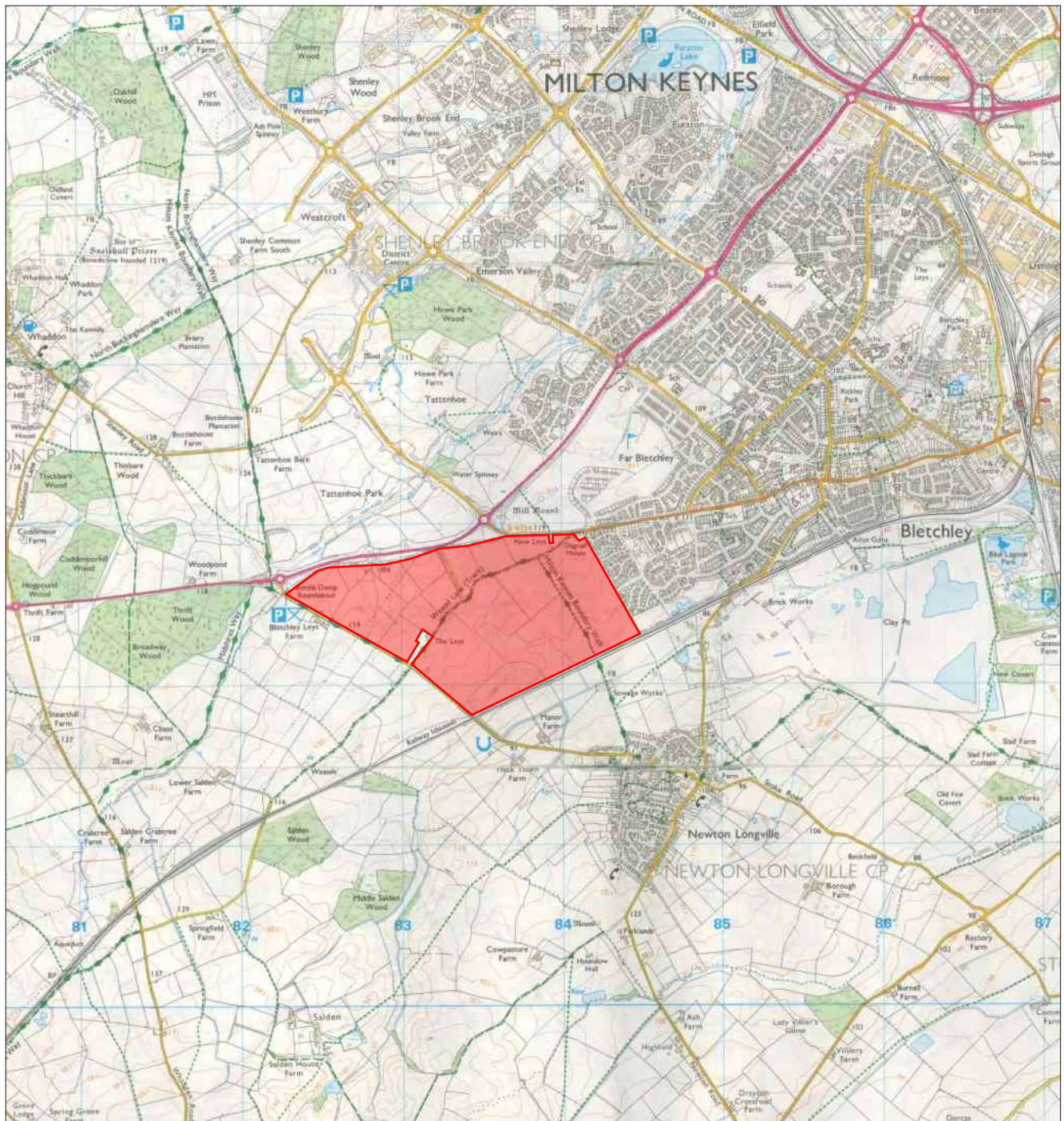
- 5.18 There were a number of trees located on the boundaries of the site. The root protection area of these trees will need to be protected in the same way as all the retained trees within the site. All trees located outside the boundaries of the assessment site yet within close proximity to works should be adequately protected during the course of the development by barriers or ground protection around the calculated RPA.
- 5.19 Any trees which are to be retained and whose RPAs may be affected by the development should be monitored to identify any alterations in quality with time and to assess and undertake any remedial works required as a result.

Protection for Aerial Parts of Retained Trees

- 5.20 Where it is deemed necessary to operate a wide or tall load, plant bearing booms, jibs and counterweights or other such equipment as part of the construction works it is best advised that appropriate, but limited tree surgery, be carried out beforehand to remove any obvious problem branches. Any such equipment would have potential to cause damage to parts of the crown material, i.e. low branches and limbs, of retained trees within the protective barriers. This is termed as 'access facilitation pruning' within BS5837. Any such pruning should be undertaken in accordance with a specification prepared by an arboriculturalist.
- 5.21 It is strongly advised that a pre-commencement site meeting is held with contractors who are responsible for operating machinery, as described above, to firstly highlight the potential for damage occurring to tree crowns and to ensure that extra care is applied when manoeuvring machinery during such operations within close proximity to retained trees to avoid any contact.
- 5.22 In the event of having caused any such branch or limb damage to retained trees it is strongly recommended that suitable tree surgery be carried out, in accordance with British Standard 3998:2010 to correct the damage, upon completion of development.

6.0 CONCLUSION

- 6.1 Trees were largely distributed across the area within dense managed hawthorn *Crataegus monogyna* hedgerows and isolated individuals were occasional within arable field compartments. The results of the assessment have shown that there was a higher than average number of category U specimens present on the site. Trees considered to be category U, do still have the potential to contribute to the future of the site as these trees can still provide an important habitat.
- 6.2 The proposed illustrative layout shows a mixed use development including residential areas, a local centre, employment, education and areas of public open space. The proposals do manage to retain the majority of tree cover and all of the important landscape features with regards to trees. All trees to be removed, with the exception of two specimens were considered to be of low arboricultural or amenity value.
- 6.3 The limited tree removals required would be suitably mitigated for by the landscape strategy and green infrastructure. Loss of category C material can suitably be mitigated for through new tree planting forming part of the overall landscaping proposals which would support the development.
- 6.4 The green infrastructure proposals enhance and retain the existing landscape features and will provide the framework within which the longevity of the site's tree stock can be managed for the long term.



Assessment Boundary



David Lock Associates

SWMK
Milton Keynes

SITE LOCATION PLAN

1:25000 @ A4

NGJ

15.10.2012

Figure 1

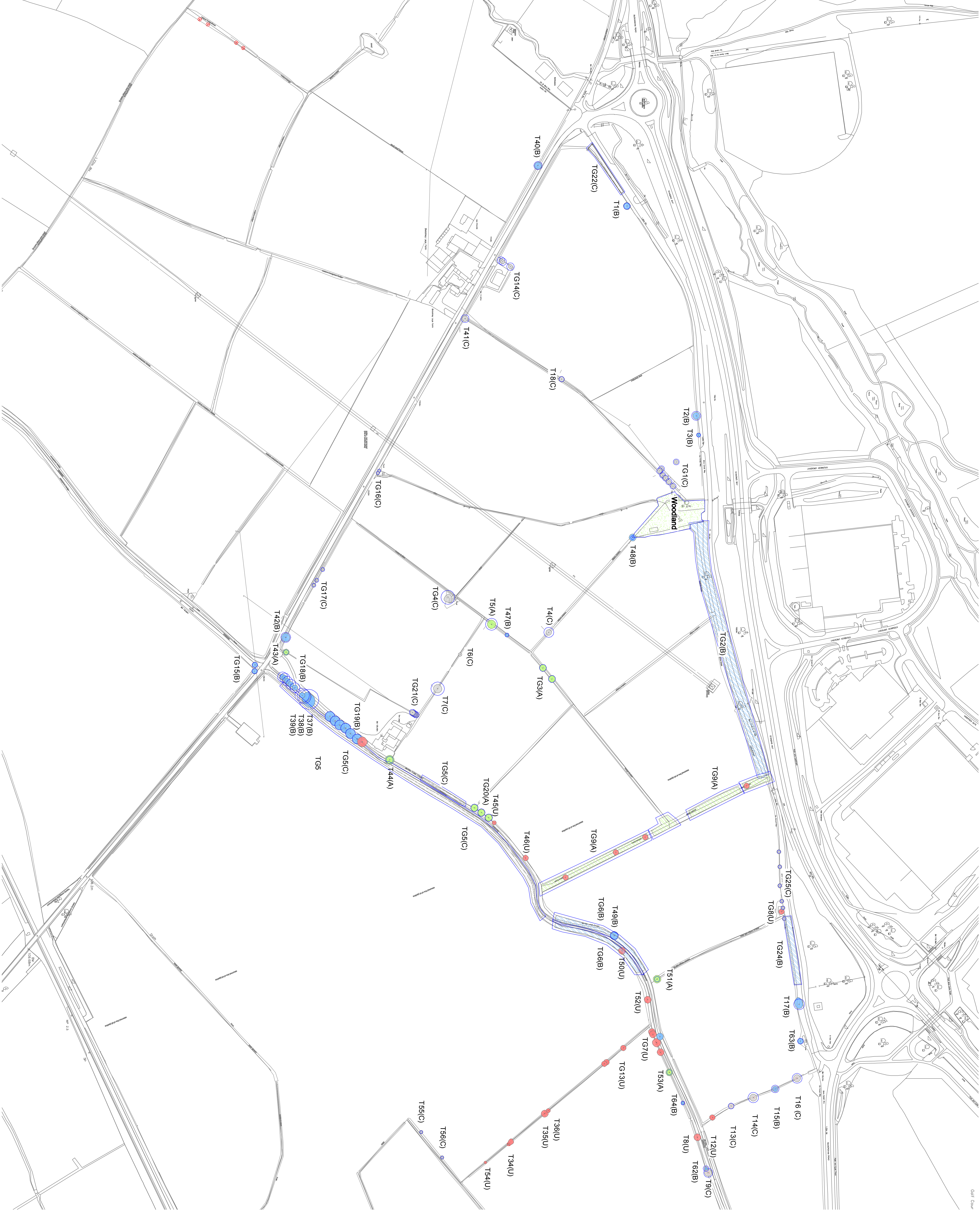
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J:\3100\3126\Arboriculture\Site Location Plan-Figure 1.cdr

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Geol. Contour

	Category U - Unsuitable for Retention (BS 5837:2012)
	Category A - Trees of High Quality (BS 5837:2012)
	Category B - Trees of Moderate Quality (BS 5837:2012)
	Category C - Trees of Low Quality (BS 5837:2012)
	Group Hatching (Colour indicates BS Category)
	Woodland
	Root Protection Area (The RPA has been altered where appropriate to reflect underground constraints)
	Individual / Group Number and BS Category



NOTES

All dimensions to be verified on site. Do not scale the drawing. All discrepancies to be checked on site and corrected. The drawing is to be read in conjunction with the Arboricultural Assessment and Appendix A - Tree Schedule.

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Trees are living organisms that change over time, the condition of all trees illustrated herein, are to be checked by a qualified arboriculturalist or tree surgeon should works be undertaken. The drawing is to be used as a guide only and does not constitute a guarantee or warranty of any kind. The drawing is to be used as a guide only and does not constitute a guarantee or warranty of any kind.

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A	07.11.12	Revision A	NJC
	01.11.12	Amended layout	DS
	19.10.12	Final issue	NJC

master planning
environmental assessment
landscape design
urban design
ecology
arboriculture

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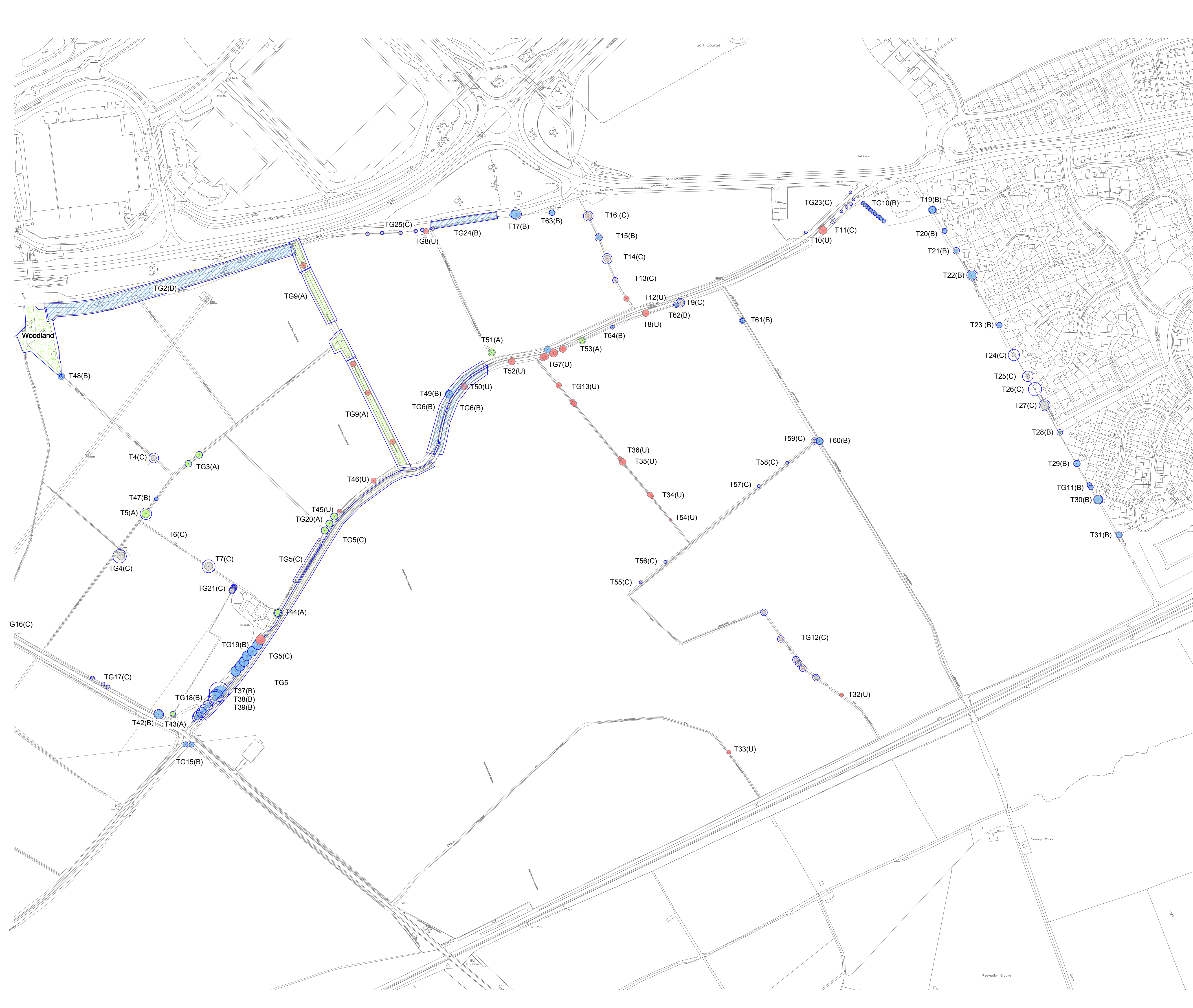
project
SWM/K
Milton Keynes

drawing title
TREE SURVEY PLAN - WEST
FIGURE 2

scale
1:2500 @ A1
drawn
NJC
November 2012

drawing number
3126-A-02.1
rev
A

CAD file: J:\31003\8\A\Boulevard\2012\Plan\Fig2 Tree Survey Plan.dwg



KEY

Category U - Unsuitable for Retention
(BS 5837:2012)

Category A - Trees of High Quality
(BS 5837:2012)

Category B - Trees of Moderate Quality
(BS 5837:2012)

Category C - Trees of Low Quality
(BS 5837:2012)

Group Hatching
(Colour Indicates BS Category)

Woodland

Root Protection Area (The RPA has been altered where
appropriate to reflect underground constraints)

T1 (A)
TG1 (A)

Individual / Group Number and BS Category

N

NOTES

All dimensions to be verified on site. Do not scale this drawing. All discrepancies to be clarified with project Arboriculturalist. Drawing to be read in conjunction with Arboricultural Assessment and Appendix A - Tree Schedule.

Drawing produced in colour. a monochrome copy should not be relied upon, and is based on digital information supplied by the client in dwg format. The exact position of trees are to be checked and verified on site prior to construction.

Trees are living organisms that change over time, the condition of all trees illustrated herein, are to be checked by a qualified arboriculturalist or tree surgeon should works commence 12 months after the time of this survey. Please note that no works should be undertaken to any trees illustrated herein without first obtaining the proper authorisation to do so.

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---	19.10.12	First Issue	NJG
---	01.11.12	Amended layout	DS
A	07.11.12	Revision A	NJG

rev	date	description	by

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drawing title
TREE SURVEY PLAN - EAST
FIGURE 2

scale
1:2500 @ A1

drawn
NJG

date
November 2012

drawing number
3126-A-02.2

rev
A

CAD file: J:\3100\3126\Arboriculture\2012\Plans\Fig 2 Tree Survey Plan.dwg

Appendix A - Tree Schedule

Measurements	Age Class	Overall Condition	Root Protection Area (RPA)
Height - estimated from ground level (m).	YNG: Young trees up to ten years of age.	G - Good: Trees with only a few minor defects and in good overall health needing little, if any attention.	<ul style="list-style-type: none">• The RPA column gives the required area (m²).• The RPA Radius column gives the radius (m) of an equivalent circle.• The RPA is calculated using the formulae described in paragraph 4.6.1 of British Standard 5837: 2012 and is indicative of the required rooting area in order for a tree to be retained.
Stem Dia. - Diameter measured (mm) in accordance with Annex C of the BS5837.	SM: Semi-mature, trees less than 1/3 life expectancy.	F - Fair: Trees with minor, but rectifiable, defects or in the early stages of stress from which it may recover.	
Crown - crown spread estimated radially from the main stem (m).	EM: Early mature, trees 1/3 – 2/3 life expectancy.	P - Poor: Trees with major structural and/or physiological defects such that it is unlikely the tree will recover in the long term.	
Abbreviations Est - Estimated stem diameter Avg - Average stem diameter Max - Maximum stem diameter	M: Mature trees, over 2/3 life expectancy.	D - Dead: Trees no longer alive. This could also apply to trees that are dying and unlikely to recover.	
	OM: Over mature, declining or moribund trees of low vigour.	In the assessment, of the BS category, particular consideration has been given to the following <ul style="list-style-type: none">• The health, vigour and condition of each tree• The presence of any structural defects in each tree and its future life expectancy• The size and form of each tree and its suitability within the context of a proposed development• The location of each tree relative to existing site features e.g. its screening value or landscape features• Age class• Life expectancy	
	V: Veteran, tree possessing certain attributes relating to veteran trees.		

Structural Condition

The following has been considered when inspecting structural condition:

- The presence of fungal fruiting bodies around the base of the tree or on the stem, as they could possibly indicate the presence of possible internal decay.
- Soil cracks and any heaving of the soil around the base.
- Any abrupt bends in branches and limbs resulting from past pruning.
- Tight or weak 'V' shaped forks and co-dominant stems.
- Hazard beam formations and other such biomechanical related defects (as described by Claus Mattheck, Body Language of Trees HMSO Research for Amenity Trees No. 4 1994).
- Cavities as a result of limb losses or past pruning.
- Broken branches or storm damage.
- Canker formations.
- Loose or flaking bark.
- Damage to roots.
- Basal, stem or branch / limb cavities.
- Crown die-back or abnormal foliage size and colour.
- Any changes to the timing of normal leaf flush and leaf fall patterns.

Quality Assessment of Retention Category

Category U - Trees 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.

Category A - Trees of high quality with an estimated remaining life expectancy of at least 40 years.

Category B - Trees of moderate quality with an estimated remaining life expectancy of at least 20 years.

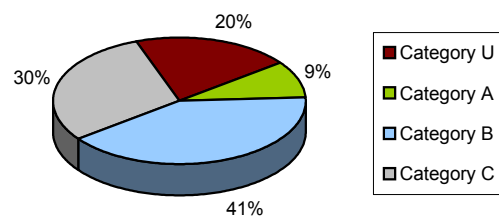
Category C - Trees of low quality with an estimated remaining life expectancy of at least 10 years, or young trees with a stem diameter below 150mm.

Sub-categories: (i) - Mainly arboricultural value
(ii) - Mainly landscape value
(iii) - Mainly cultural or conservation value

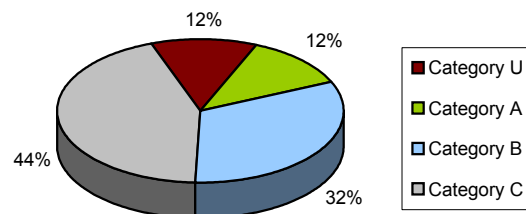
Appendix A - Summary

Trees/Groups in each Category	Individual Trees	Totals	Groups of Trees	Totals
Category U	T8, T10, T12, T32, T33, T34, T35, T36, T45, T46, T50, T52, T54	13	TG7, TG8, TG13	3
Category A	T5, T43, T44, T47, T51, T53	6	TG3, TG9, TG20	3
Category B	T1, T2, T3, T15, T17, T19, T20, T21, T22, T23, T28, T29, T30, T31, T37, T38, T39, T40, T42, T48, T49, T60, T61, T62, T63, T64	26	TG2, TG6, TG10, TG11, TG15, TG18, TG19, TG24	8
Category C	T4, T6, T7, T9, T11, T13, T14, T16, T18, T24, T25, T26, T27, T41, T55, T56, T57, T58, T59	19	TG1, TG4, TG5, TG12, TG14, TG16, TG17, TG21, TG22, TG23, TG25	11
Total		64	Total	25

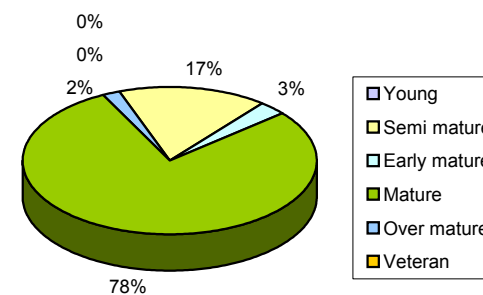
BS5837 category: Individual trees



BS5837 category: Groups of trees



Age distribution across the site



Tree No	Species	Height	Stem Dia.	Crown Radius	Age Class	Overall Condition	Structural Condition	RPA	RPA Radius	BS5837 Cat
INDIVIDUAL TREES										
T1	Aspen Populus tremula	8.0	390	5	M	F	Crossing and rubbing branches throughout Multiple leaders at 6 metres Basal suckers Lower stem damage to the west, large split 0.5 metres in length, some callusing response	69	4.7	B (i)
T2	Common Ash Fraxinus excelsior	11.0	est 550	5	M	F	Basal suckering present Epicormic growth throughout the crown Broken branches and resulting stubs Short annual growth extension- possible low vigour Several decay holes and branch socket cavities throughout the crown- 1 x possible hollowing limb Established ivy growth to 5 metres from ground level	137	6.6	B (i)
T3	Field Maple Acer campestre	5.0	est 250	3	M	F	Established ivy throughout the crown Basal suckers Typical form and habit for the species Dense crown	28	3.0	B (i)
T4	Common Ash Fraxinus excelsior	14.0	est 600	4	M	F	Twin stemmed at four metres above ground level Large longitudinal split on a main leader, 0.5 metres in length with heartwood exposed Past pruning to raise the crown over field Ivy established upto 5 metres on stem, west side Limb to the east dying back 2 x Woodpecker holes- possible hollow Broken branches throughout	163	7.2	C (i)
T5	English Oak Quercus robur	10.0	720	6	M	G	No obvious structural defects Missing bark and branch stub with heartwood exposed on the north side of the tree Crossing and rubbing branches throughout Epicormics Twin stemmed at 2 metres above ground level	235	8.6	A (i)
T6	Common Ash Fraxinus excelsior	6.0	590	2.5 S - 0	M	P	Mature common ash- crown/stem failed at 6 metres Large branch socket cavity with heartwood exposed, extensive decay and missing bark Possible hollow stem Broken branches Dead wood throughout	157	7.1	C (i)

Tree No	Species	Height	Stem Dia.	Crown Radius	Age Class	Overall Condition	Structural Condition	RPA	RPA Radius	BS5837 Cat
T7	Common Ash <i>Fraxinus excelsior</i>	12.0	est 800	6	M	F	Dense and established ivy throughout the crown and along major scaffold limbs Broken branches and dead wood throughout Short extension growth and small buds- possible due to low vigour Minor branch socket cavities and decay holes Minor dieback within the upper canopy	290	9.6	C (i)
T8	Common Ash <i>Fraxinus excelsior</i>	12.0	est 450	N = 2 5	M	P	Missing and loose bark Sparse crown with extensive dieback Epicormic growth throughout in abundance Inonotus hispidus brackets along stem at 5 metres on the north side Woodpecker hole in close vicinity to fungal bracket Branch socket cavity- possible hollow as decay visible Epicormic growth on lower stem	N/A	N/A	U
T9	Common Ash <i>Fraxinus excelsior</i>	11.0	est 550	5	M	F	Twin stemmed at ground level Branch socket cavities throughout, one large decay hole with heartwood exposed Inonotus hispidus bracket at 4 metres above ground level, west side Crossing and rubbing branches Epicormic growth	137	6.6	C (i)
T10	Common Ash <i>Fraxinus excelsior</i>	12.0	est 750	N = 3 6	M	P	Extensive dieback within the top of the crown Large diameter dead wood as a result of dieback Short extension growth- possible low vigour Dense and established epicormic growth Broken branches and minor dead wood throughout Inonotus hispidus bracket at 6 metres above ground level, west facing Twin stemmed at 4 metres Light ivy cover to 4 metres	N/A	N/A	U
T11	Common Ash <i>Fraxinus excelsior</i>	6.0	est 340	2	M	P	failed main leader at 6 metres above ground level Large longitudinal split with heart wood exposed and decay visible Crown comprised of dense and established epicormic growth Crossing and rubbing branches	52	4.1	C (i)
T12	Horse Chestnut <i>Aesculus hippocastanum</i>	8.0	est 500	4	OM	D	Major dieback and dead wood throughout Sparse canopy Branch failure- resulting split/tear Past pruning field side to raise crown height Epicormic growth along lower stem	N/A	N/A	U

Tree No	Species	Height	Stem Dia.	Crown Radius	Age Class	Overall Condition	Structural Condition	RPA	RPA Radius	BS5837 Cat
T13	Red Horse Chestnut Aesculus x carnea	10.0	est 350	4	M	F	Dense crown with good extension growth Crossing and rubbing branches Some branch socket cavities- possible progressive cavity development to form hazard beam, north facing Epicormic growth throughout	55	4.2	C (i)
T14	Horse Chestnut Aesculus hippocastanum	12.0	630	5	M	F	Minor root buttress damage at ground level Dense crown with good annual extension growth Minor epicormic growth throughout 4 x main leaders at crown break (3 metres) Past pruning northern side to raise crown height Poor recovery to wounding- one branch socket cavity decaying/degrading at 4 metres above ground level Basal suckers evident	180	7.6	C (i)
T15	Horse Chestnut Aesculus hippocastanum	9.0	460	4	M	F	Epicormic growth along the lower stem No obvious structural defects Minor branch socket cavities as a result of past pruning to crown lift	96	5.5	B (i)
T16	Horse Chestnut Aesculus hippocastanum	12.0	est 600	5	M	P	Dense crown Epicormic growth throughout, dense and abundant Basal suckers Unsympathetic past pruning on the west side to crown lift- decay holes developed, some 30 x 30cm and hollowing into the stem	163	7.2	C (i)
T17	Common Ash Fraxinus excelsior	10.0	650	6 W - 10	M	F	Ivy established along stem and lower crown to 10 metres Minor dead wood and branch socket cavities- not significant Basal suckers 2 x stubs as a result of limb failure to east, 3 metres above ground level One sided crown to the west Past pruning- road side	191	7.8	B (i)
T18	Common Ash Fraxinus excelsior	10.0	est 320	4	M	F	Twin stemmed at 2 metres Light ivy cover along the stem No obvious structural defects Branch socket cavities and minor dead wood	46	3.8	C
T19	English Oak Quercus robur	14.0	est 420	6	M	G	No obvious structural defects Past pruning to raise crown height Minor epicormic growth throughout	80	5.0	B (i)

Tree No	Species	Height	Stem Dia.	Crown Radius	Age Class	Overall Condition	Structural Condition	RPA	RPA Radius	BS5837 Cat
T20	Common Ash <i>Fraxinus excelsior</i>	8.0	est 320	3	M	G/F	Past pruning- Pollard Stem damaged at 2 metres above ground level Longitudinal split hollowing- evidence of saprophytic bleeding Crown comprised of rejuvenated epicormic growth	46	3.8	B (i)
T21	English Oak <i>Quercus robur</i>	8.0	410	3	M	G	No obvious structural defects Small and squat form Epicormic growth along lower stem One sided crown to the east	76	4.9	B (i)
T22	Common Ash <i>Fraxinus excelsior</i>	14.0	est 640	Upto 6	M	F	Past pruning- lower basal suckers and epicormic growth removed Multiple leaders at crown break (4 metres) Tight branch unions Dense and abundant epicormic growth throughout Minor branch socket cavities - some decaying	185	7.7	B (i)
T23	Common Ash <i>Fraxinus excelsior</i>	10.0	350	W = 3 4	M	F	Iron leeching stain on lower stem One sided to the east Minor broken branches and dead wood throughout No obvious structural defects	55	4.2	B (i)
T24	Crack Willow <i>Salix fragilis</i>	8.0	est 700	3	M	F	Multi leadered at the stool Established epicormic growth Established ivy throughout No obvious structural defects Longitudinal split Past pruning- pollard	222	8.4	C (i)
T25	Common Ash <i>Fraxinus excelsior</i>	8.0	est 650	S = 1 3	M	F	Past pruning to crown lifted and pollarded Epicormic growth confined to pruning points Ivy- established to 4 metres Old Inonotus hispidus bracket at the base Crown comprised of epicormic growth	191	7.8	C (i)
T26	English Oak <i>Quercus robur</i>	6.0	est 820	1	OM	F/P	Triple stemmed at 1.5 metres Established ivy present Past pruning to pollard Some decay stubs throughout Epicormic growth makes up only live growth	304	9.8	C (i)
T27	Common Ash <i>Fraxinus excelsior</i>	14.0	est 680	W = 1 6+F72	M	F	Past pruning- crown lifted over field Epicormic growth throughout One sided crown to the east Stubs as a result of broken branches Possible bacterial canker of ash <i>Pseudomonas syringae</i> var <i>fraxinea</i>	209	8.2	C (i)

Tree No	Species	Height	Stem Dia.	Crown Radius	Age Class	Overall Condition	Structural Condition	RPA	RPA Radius	BS5837 Cat
T28	Common Ash Fraxinus excelsior	10.0	est 360	2	M	F	Minor dead wood throughout Past pruning to lift the height of crown Minor ivy cover No obvious structural defects	59	4.3	B (i)
T29	Common Ash Fraxinus excelsior	12.0	380	W = 5 E = - 8 5	M	G	Slight lean from vertical to the east No obvious structural defects Epicormic growth throughout 1 x large diameter basal sucker	65	4.6	B (i)
T30	English Oak Quercus robur	12.0	est 570	6	M	F	Past pruning to raise the height of the crown Established and dense epicormic growth Minor dead wood and broken branches No obvious structural defects	147	6.8	B (i)
T31	English Oak Quercus robur	10.0	est 400	4	M	F	Past pruning to raise the height of the crown Established and dense epicormic growth Minor dead wood and broken branches No obvious structural defects	72	4.8	B (i)
T32	Common Ash Fraxinus excelsior	12.0	780	3	M/OM	F/P	Dense and established epicormic growth comprises the majority of the crown and along limbs Large lever arm to the south is the only limb remaining within the tree Hollow stem at ground level to 1.5 metres Extensive decay and signs of fire damage	N/A	N/A	U
T33	Common Ash Fraxinus excelsior	8.0	520	3	M	F/P	Large diameter epicormic growth throughout the crown Branch failure, decaying tear with missing bark Extensive dieback 70% crown now dead	N/A	N/A	U
T34	Hybrid Black Poplar Populus x canadensis	14.0	920	2 NW - 8	OM	P	Large stem failure Large cavity at crown break (6 metres) Heartwood exposed- decaying and degrading, Missing bark Epicormics along stem and main limbs One sided canopy to the west Major dead wood and extensive dieback	N/A	N/A	U
T35	Hybrid Black Poplar Populus x canadensis	20.0	760	5	OM	P	Possible honey fungus Armillaria mellea at base (old) Large diameter dead wood Extensive dieback Longitudinal split 1.5 metres in length, west facing, Heartwood exposed Epicormic growth Possible progressively hollowing stem	N/A	N/A	U

Tree No	Species	Height	Stem Dia.	Crown Radius	Age Class	Overall Condition	Structural Condition	RPA	RPA Radius	BS5837 Cat
T36	Common Ash Fraxinus excelsior	8.0	510	N = 3 S = 1	M	P	Slight lean from vertical to the north Included barbed wire at the base Branch socket cavities and past pruning stubs Basal suckers Epicormic growth	N/A	N/A	U
T37	English Oak Quercus robur	14.0	est 1200	8 E = 12	M	F	Broken branches and stubs as a result of 7 limb failures Longitudinal splits to the south Heartwood exposed in several place Unidentified fungal fruiting bodies on pruning wounds Woodpecker holes Large diameter dead wood throughout the crown 2 x failed limbs hanging within the crown Lost main leader at crown break limb failure, west side, 1.5 metres in length Short extension growth Minor dieback Sparse central crown	651	14.4	B (i)
T38	English Oak Quercus robur	16.0	est 850	S = 1 W = 1 6-8	M	F	Three major limb losses- one significant limb failure on the south side, longitudinal split 2-3 metres in length, heartwood exposed Leaning stem to the north Broken branches and minor dead wood	327	10.2	B (i)
T39	Common Ash Fraxinus excelsior	14.0	est 850	4	M	F	Ivy along the lower stem Broken branches Stubs and splits with heartwood exposed, possible hollows Epicormic growth abundant throughout	327	10.2	B (i)
T40	Common Ash Fraxinus excelsior	13.0	est 500	5	M	F	Minor dieback within the top of the crown Minor dead wood throughout Branch socket cavities Twin stemmed at 3 metres	113	6.0	B
T41	Common Ash Fraxinus excelsior	8.0	350 250 200	4	M	F	Four main stems at ground level Established Ivy along central leader No obvious structural defects Broken branches and branch socket cavities	102	5.7	C
T42	Common Ash Fraxinus excelsior	15.0	est 600	6 W - 3	M	G	Minor dead wood throughout Two main leaders at 4.5 metres Epicormic growth, some established within the lower crown No obvious structural defects	163	7.2	B

Tree No	Species	Height	Stem Dia.	Crown Radius	Age Class	Overall Condition	Structural Condition	RPA	RPA Radius	BS5837 Cat
T43	Common Ash Fraxinus excelsior	9.0	est 300	4.5	EM	G	No major defects were noted Situating in boundary hedgerow	41	3.6	A (i)
T44	Common Ash Fraxinus excelsior	12.0	430	6.5	M	G	Light ivy cover present to a height of 6m Minor dead wood evident No major defects were noted	84	5.2	A (i)
T45	Common Ash Fraxinus excelsior	8.0	300	3	EM	P	Severe dieback was present in majority of the crown Limited life expectancy	N/A	N/A	U
T46	Common Ash Fraxinus excelsior	7.0	500	N - 0 S - 4 E - 4 W - 4	M	P	The main stem had failed at 5m above ground level The crown displayed an uneven form	N/A	N/A	U
T47	Common Ash Fraxinus excelsior	5.0	240	2.5	SM	G	No major defects were noted Occasional broken branches and branch stubs evident	26	2.9	A (i)
T48	Common Ash Fraxinus excelsior	9.0	230	5	EM	F	The specimen was multi-stemmed from two metres Occasional broken branches, branch stubs and minor dead wood evident Situating in hedgerow adjacent to woodland	24	2.8	B (i)
T49	Common Ash Fraxinus excelsior	14.0	460	6	M	F	The crown displayed an uneven form due to proximity of TG6 Noted within the crown were storm damaged limbs, branch socket cavities Minor dead wood throughout	96	5.5	B (i)
T50	Common Ash Fraxinus excelsior	11.0	est 400	5	M	P	Limited live growth present Woodpecker holes noted on the main stem	N/A	N/A	U
T51	Common Ash Fraxinus excelsior	10.0	320	5.5	M	G	Occasional broken branches and minor dead wood evident No major defects were noted	46	3.8	A (i)

Tree No	Species	Height	Stem Dia.	Crown Radius	Age Class	Overall Condition	Structural Condition	RPA	RPA Radius	BS5837 Cat
T52	Common Ash <i>Fraxinus excelsior</i>	8.0	est 350	5	M	P	Specimen was mutli stemmed from 2.5m above ground level Severe dieback and major dead wood was noted throughout Only two leaders displayed live growth	N/A	N/A	U
T53	Common Ash <i>Fraxinus excelsior</i>	10.0	320	5	EM	G	No major defects were noted	46	3.8	A (i)
T54	Common Ash <i>Fraxinus excelsior</i>	4.5	250	2	M	P	Severe dieback and major dead wood was noted throughout Extensive epicormic growth present on main stem and limbs Fungal fruiting body of <i>Inonotus hispidus</i> was present on the main stem	N/A	N/A	U
T55	Common Ash <i>Fraxinus excelsior</i>	5.0	100 100 100	2.5	EM	F	Specimen was mutli stemmed at ground level Situating in a hedgerow Low dense crown form No major defects were noted	14	2.1	C (i)
T56	Common Ash <i>Fraxinus excelsior</i>	5.0	100 100 100	2.5	EM	F	Specimen was mutli stemmed at ground level Situating in a hedgerow Low dense crown form No major defects were noted	14	2.1	C (i)
T57	Common Ash <i>Fraxinus excelsior</i>	5.0	100 100 100	2.5	EM	F	Specimen was mutli stemmed at ground level Situating in a hedgerow Low dense crown form No major defects were noted	14	2.1	C (i)
T58	Common Ash <i>Fraxinus excelsior</i>	5.0	100 100 100	2.5	EM	F	Specimen was mutli stemmed at ground level Situating in a hedgerow Low dense crown form No major defects were noted	14	2.1	C (i)
T59	Common Ash <i>Fraxinus excelsior</i>	7.0	100 100 150	4	EM	F	Specimen was mutli stemmed at ground level Situating in a hedgerow Low dense crown form Occasional broken branches and branch stubs were evident	19	2.5	C (i)
T60	Common Ash <i>Fraxinus excelsior</i>	11.0	100 220 340	5.5	M	F	Situating adjacent to a ditch course Occasional broken branches, branch stubs and minor dead wood evident	79	5.0	B (i)

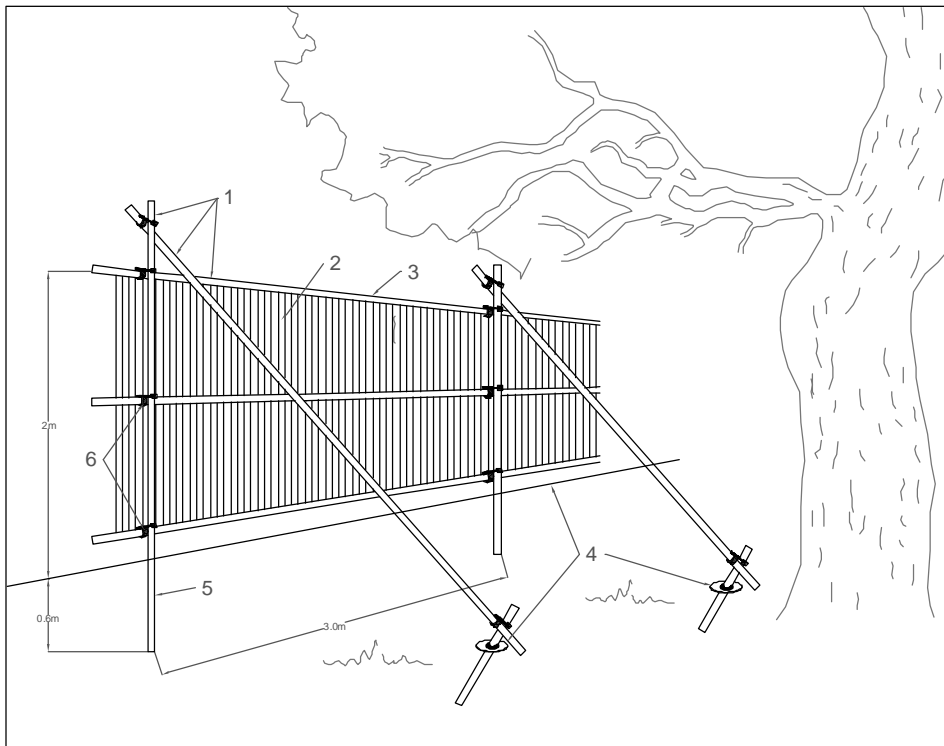
Tree No	Species	Height	Stem Dia.	Crown Radius	Age Class	Overall Condition	Structural Condition	RPA	RPA Radius	BS5837 Cat
T61	Common Ash Fraxinus excelsior	8.0	260	4.5	EM	F	No major defects were noted	31	3.1	B (i)
T62	Field Maple Acer campestre	5.0	340	2.5	M	F	Typical dense crown form	52	4.1	B (i)
T63	Common Ash Fraxinus excelsior	9.0	350	4	M	F	Occasional broken branches and minor dead wood evident No major defects were noted Situating within hedgerow	55	4.2	B (i)
T64	Common Ash Fraxinus excelsior	5.0	240	2.5	SM	G	No major defects were noted	26	2.9	B (i)

Tree No	Species	Height	Stem Dia.	Crown Radius	Age Class	Overall Condition	Structural Condition	RPA	RPA Radius	BS5837 Cat
GROUPS OF TREES										
TG1	7 x Common Ash Fraxinus excelsior	8.0	max 370	Int. 3-4	SM / M	F	Crossing and rubbing branches throughout Dead wood within the crown Some tall and drawn specimens 1 x Ash- older in age with major dead wood within the upper canopy Decay holes and broken branches Low crown growth Epicormic growth	62	4.4	C
TG2	Common Ash Fraxinus excelsior English Oak Quercus robur Field Maple Acer campestre Hawthorn Crataegus monogyna Elder Sambucus nigra Guelder Rose Viburnum opulus	Avg. 6-12	max 400	Smaller 2-3 Larger 5	SM / M	F	Self-set specimens interlocking at intervals of 3m Tall and drawn forms with high crowns Ivy dense and established on a number of specimens Some tree failures- dead or dying Broken branches and associated branch socket cavities Predominantly minor dead wood Bark inclusions- 1 x ash development of "ears" at 1m above ground level Saprophytic bleeding	72	4.8	B
TG3	2 x Common Ash Fraxinus excelsior	10.0	420	5	M	G	No obvious structural defects Twin stemmed at 2.5 metres above ground level Crossing and rubbing branches Broken branches Some minor dead wood and epicormic growth	80	5.0	A (i)
TG4	1 x Hybrid Black Poplar Populus x canadensis 3 x Crack Willow Salix fragilis	6 - 22	830	N - 5 S - 8 E - 9 W - 5	M	F	Poplar was dominant specimen of group One sided crown to west upto 6m Broken branches, stubs and hanging dead wood Branch socket cavities Leaning stem to east and dense crown Willows were small, tall and drawn with one sided crowns Epicormic growth present	312	10.0	C

Tree No	Species	Height	Stem Dia.	Crown Radius	Age Class	Overall Condition	Structural Condition	RPA	RPA Radius	BS5837 Cat
TG5	28 x Common Ash Fraxinus excelsior 9 x Field Maple Acer campestre 15 - 20 x established Hawthorn Crataegus monogyna 1 x Common Lime Tilia x cordata	6 - 12	max 450	3 - 5	SM / M	F	Abundant epicormic growth throughout Broken branches and minor dead wood Basal suckering evident Crossing and rubbing branches Some one sided and sparse crowns Past pruning evident on field side Large 7m lever arm present on one ash specimen One ash specimen displayed failed main leader exposed and decaying heartwood Inonotus hispidus fungal brackets present on four ash specimens Daldinia concentrica and Pleurotus ostreatus fungi present in the group	92	5.4	C
TG6	4 x Field Maple Acer campestre	Upto 12	max 540	Int. 3	M	F	Broken branches and minor dead wood present Ivy cover present No obvious defects	132	6.5	B
TG7	4x Common Ash Fraxinus excelsior 1x Aspen Populus tremula	10 - 12	500	5	M	F - P	Two ash specimens at western end of group were poor. Demonstrated broken branches, major dead wood, sparse crowns and Inonotus hispidus fungal brackets and woodpecker holes. No obvious structural defects on remainder of group <u>Some minor broken branches and dead wood</u>	N/A	N/A	U
TG8	1 x Common Ash Fraxinus excelsior	10	max 570	Int. 3 - 4	M	P	Extensive dieback on both specimens Epicormic growth only live growth Branch socket cavities evident and decaying Major dead wood present <u>Missing bark and decay evident on main stems</u>	N/A	N/A	U
TG9	10 x English Oak Quercus robur 10 x Common Ash Fraxinus excelsior 10 x Hybrid Black Poplar Populus x canadensis 5 x Field Maple Acer campestre 1 x Scots Pine Pinus sylvestris	8 - 16	max 550	2 - 4	SM / M	G	Some broken branches and minor dead wood Branch socket cavities and epicormic growth present Some specimens were tall and drawn and with one sided Light ivy cover on lower stems One dead specimen	137	6.6	A (ii)
TG10	12 x Common Ash Fraxinus excelsior 3 x Common Alder Alnus glutinosa	6	max 250	2	SM	G	Some minor broken branches and dead wood Evidence of formative past pruning Some twin stemmed at 1m above ground level One specimen suffered split bark on lower stem Three dead specimens, failed to establish No obvious structural defects	28	3.0	B

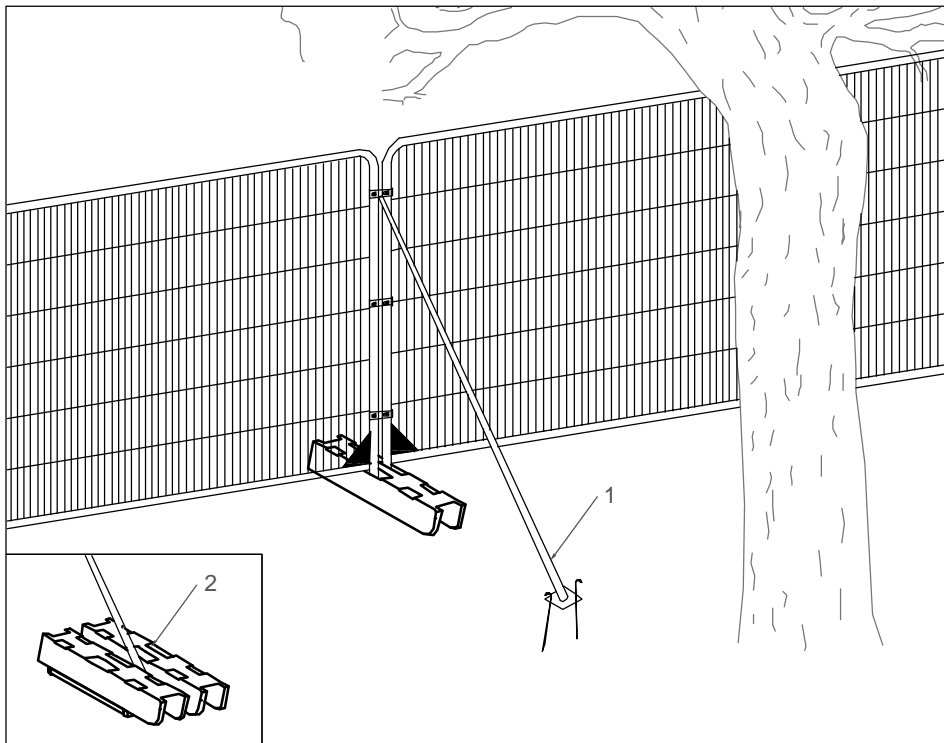
Tree No	Species	Height	Stem Dia.	Crown Radius	Age Class	Overall Condition	Structural Condition	RPA	RPA Radius	BS5837 Cat
TG11	4 x Common Ash <i>Fraxinus excelsior</i>	8	max 320	3	SM / M	F	Crossing and rubbing branches and dense crowns Some basal damage, missing bark Minor dead wood present Tight fork on one specimen	46	3.8	B
TG12	6 x Common Ash <i>Fraxinus excelsior</i>	12	max 420	3	M	F	Past pruning evident to crown lift Epicormic growth present Broken branches and branch socket cavities Missing bark and exposed heartwood Old <i>Inonotus hispidus</i> brackets were found at the base of some individuals Two specimens displayed extensive dieback	80	5.0	C
TG13	3 x Common Ash <i>Fraxinus excelsior</i>	8 - 10	max 450	4	M	F	Two larger specimens and one suppressed Suppressed specimen was small and squat with a one sided crown to south Major dead wood present Epicormics and basal suckers evident One specimen displayed a longitudinal split 1.5m in length	N/A	N/A	U
TG14	4 x Leyland Cypress <i>Cupressocyparis leylandii</i> 1 x Crack Willow <i>Salix fragilis</i>	10	max- 450	3	M	G	No obvious structural defects Leylands were typical of the species No past pruning Past pruning of willow to coppice Crown consisted of epicormic regrowth	92	-5.4	C
TG15	2 x Common Ash <i>Fraxinus excelsior</i>	6	max 320	4	M	F	Dense crowns Crossing and rubbing branches Minor dead wood and broken branches Epicormic growth present on both specimens	46	3.8	B (ii)
TG16	2x Aspen <i>Populus tremula</i>	7	180	2 - 3	SM	F	Self seeded specimens adjacent to the road No major defects were noted	15	2.2	C (i)
TG17	3x Hawthorn <i>Crataegus monogyna</i>	4	est 250	2 - 3	OM	P	Severe dieback and major dead wood was noted throughout Crowns were sparse Situating within hedgerow	28	3.0	C (i)

Tree No	Species	Height	Stem Dia.	Crown Radius	Age Class	Overall Condition	Structural Condition	RPA	RPA Radius	BS5837 Cat
TG18	5x Common Ash <i>Fraxinus excelsior</i>	14.0	600	4	M	F	Situated offsite or within boundary hedgerow Ivy along the lower stem Broken branches Stubs and splits with heartwood exposed, possible hollows Epicormic growth abundant throughout	163	7.2	B (ii)
TG19	3x Common Ash <i>Fraxinus excelsior</i>	16	600	7	M	F / P	Fungal fruiting body of <i>Inontus hispidus</i> present on eastern most specimen The main stem of which was hollowing Broken branches and branch socket cavities present	163	7.2	B (ii)
TG20	2x Common Ash <i>Fraxinus excelsior</i> 1x Field Maple <i>Acer campestre</i>	8 - 12	max 450	4 - 6	EM	G	Occasional broken branches and major dead wood evident No major defects were noted	92	5.4	A (i)
TG21	4x Western Balsam Poplar <i>Populus trichocarpa</i>	10	380	3.5	M	F	Group had been topped at 6m above ground level Regrowth from pruning points was vigorous	65	4.6	C (i)
TG22	Common Ash <i>Fraxinus excelsior</i> Field Maple <i>Acer campestre</i>	5 - 7	max 150	2 - 3	SM	F	Situated within hedgerow on northern boundary No major defects were noted	10	1.8	C (i)
TG23	7x Common Ash <i>Fraxinus excelsior</i>	5	avg 75	2	SM	F	No major defects were noted Young self seeded specimen situated in hedgerow and dense scrub Occasional broken branches	15	2.2	C (i)
TG24	7x Common Ash <i>Fraxinus excelsior</i>	10 - 14	est 400	4 - 6	M	G	Ivy cover present on main stems Typical defects were noted Bases were obscured due to dense vegetation	72	4.8	B (i)
TG25	7x Common Ash <i>Fraxinus excelsior</i>	5 - 7	200	3	SM	F	Most specimens were multi stemmed from ground level Situated within hedgerow No major defects were noted	18	2.4	C (i)



Default specification for protective barrier

1. Standard scaffold poles
2. Heavy gauge 2m tall galvanised tube and welded mesh panels
3. Panels secured to scaffold frame with wire ties
4. Ground level
5. Uprights driven into the ground until secure (min depth of 0.6m)
6. Standard scaffold clamps



Above ground stabilising systems

1. Stabiliser strut with base plate secured with ground pins
2. Stabiliser strut mounted on block tray

NOTES

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APPENDIX B

PROTECTIVE FENCING SPECIFICATIONS

CAD file: S:\Arb resources\Basic Templates\NEW ARB\Appendix B - Protective Fencing.dwg