

KINGMOOR PARK, WREXHAM INDUSTRIAL ESTATE

ARBORICULTURAL IMPLICATION ASSESSMENT

Report Ref: TEP.1697.001

for

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1.0 INTRODUCTION

- 1.1 TEP has been commissioned by Kingmoor Park to conduct an arboricultural survey of land at Kingsmoor Park, Wrexham Industrial Estate. This report details the arboricultural implications of developing the aforementioned site, subsequent mitigation recommendations and protective measures.
- 1.2 The survey was carried out in August 2008 by means of inspection from ground level by a qualified arboriculturalist with several years experience. The inspection was restricted in cases where trees were ivy clad or surrounded by vegetation. Weather conditions during the survey were heavy rain.
- 1.3 Under *BS 5837:2005 Trees in Relation to Construction - Recommendations* the assessment of trees is made objectively. The categorisation method identifies the quality and value of the existing tree stock.
- 1.4 This report provides the results of the survey and includes the following:
 - i) a schedule of all trees located within, or in close proximity to, the proposed development site (Appendix One);
 - ii) an assessment, based on *BS 5837:2005 Trees in Relation to Construction - Recommendations*, 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 R (Appendices One & Two);
 - iii) advice on removal, retention and management of trees (Sections 4, 5 & 6);
 - iv) an assessment, based on *BS 5837:2005*, of the requirement for protection of trees during the construction phase (Appendix One);
 - v) a Tree Constraints Plan detailing tree retention categories, canopy spreads and root protection areas for all trees surveyed (Drawing One);
 - vi) a Tree Protection Plan detailing Construction Exclusion Zones, protective fencing alignment and areas of special mitigation for all trees to be retained (Drawing Two).
- 1.5 The client supplied a topographical survey drawing detailing tree stem locations and tree canopy outlines. The drawing was used to record the position of existing trees and vegetation. Where the age distribution and species mix of tree cover was relatively uniform, trees were plotted as groups. For the purposes of this report, we have assumed that detail on the drawings is accurate.
- 1.6 A total of sixty-seven individual trees (T1-T67) and forty tree groups (G1-G40) were surveyed and mapped (refer to Drawing One). All arboricultural information recorded during the survey is presented at Appendix One.
- 1.7 Trees with a diameter of less than 50mm at breast height (1.5m) were not included in the survey as their value can be considered negligible.
- 1.8 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. The advice of a structural engineer should be sought in regard to appropriate foundation depths, with reference made to *NHBC Guidelines Chapter 4.2* where appropriate.

2.0 THE SITE AND SURROUNDINGS

- 2.1 The survey area is located in the north east part of Kingmoor Park, Wrexham Industrial Estate. The northern half of the site comprises several large areas of rough grassland dissected by overgrown remnant hedgerows.
- 2.2 The southern half of the site is currently occupied by the existing light industrial units, car parks and a small network of roads that allow access around the units.
- 2.3 The roughly rectangular shaped site is bordered to the west by Bryn Lane and to the north by Ridley Wood Road. The B5130 is located to the eastern side of the site. The southern boundary of the site is met by further light industrial units.
- 2.4 Site topography is generally flat with undulating ground among the area of rough grassland.

Development Proposals

- 2.5 It is proposed that a total of two industrial units be constructed on site with associated access and internal roads, footpaths, parking facilities and landscaping.
- 2.6 A 400,000sqft (37,161m²) unit will be constructed within the northern area of the site. A second unit made up of two adjoining 250,000sqft (23,225m²) units will be constructed within the central area of the site. The existing units will remain in-situ.
- 2.7 The existing site access from Bryn Lane will be retained but the internal roads will be modified to allow access to the new development. A further site access will be created also from Bryn Lane to allow access to the northern area of the site.
- 2.8 The details of the proposals are shown on Drawing Two, Tree Protection Plan and are based on the proposed site layout (Ref: 26405-SK31/C) supplied by the architect.

3.0 TREE PRESERVATION ORDERS AND OTHER STATUTORY PROTECTION

Tree Preservation Orders & Conservation Area Designations

- 3.1 Consultation with Wrexham County Borough Council confirmed that there are a number of Tree Preservation Orders protecting trees within the site boundary (Appendix Three). Currently, the proposed layout does not impinge on any of these protected trees. This must be confirmed prior to the commencement of any works.
- 3.2 The proposed development site does not lie within a Conservation Area.

Protected Species

- 3.3 Mature trees often contain cavities, crevices and hollows that offer potential habitat for species such as bats and barn owls. Both are afforded protection

under Schedule 1 and 5 of the *Wildlife and Countryside Act 1981* (as amended), as well as under Schedule 2 of the *Conservation (Natural Habitats) Regulations 1994* (as amended).

- 3.4 A preliminary ground level appraisal of the wildlife habitat value of each tree was undertaken as part of the arboricultural survey. A total number of twelve tree features were found to have characteristics of a size and condition desirable to bats and/or owls.

Table 1: Tree features desirable to bats and/or owls

	Tree Quality Assessment Category/Retention Value			
	A	B	C	R
Tree features desirable to bats and/or owls	T1, T14, T15, G19, G22	T4, T8, T21, T22, T37, G18,	G10	

- 3.5 Should the presence of a bat roost be suspected whilst undertaking any works on trees and groups on site, operations must be halted until a licensed bat handler or ecologist can advise on said works.

4.0 TREE POPULATION & DEVELOPMENT IMPLICATIONS

- 4.1 A schedule of all trees and tree groups in terms of species, condition, age, recommendations, and retention values is provided at Appendix One.
- 4.2 Tree and group locations, their retention categories and canopy spreads are shown on Drawing One.
- 4.3 The trees on site can be divided into two very distinct populations. The first includes a large number of mature oak trees that are confined to the periphery of the northern half of the site. A block of mature trees dissects the site, comprising mainly oak of various age and condition. These mature trees are dominant landscape features in keeping with the character of adjacent rural farmlands that lie to the north and east of the site. As such the majority of these trees are afforded a high to moderate value in accordance with *BS 5837:2005*.
- 4.4 The second population is concentrated in the southern area of the site and comprises a collection of younger trees, mainly regenerative growth and self-sown trees. All these trees and groups are of low value under *BS 5837:2005*.
- 4.5 The current road access into the site from Bryn Lane incorporates linear enhancement planting. These middle-aged trees provide effective screening into the site and are afforded moderate value under *BS 5837:2005*.
- 4.6 Young natural regeneration is profuse across the site with species including sycamore, grey willow, goat willow, hawthorn, blackthorn, elder and rose. Much of this forms dense areas of vegetation that restricted the inspection of larger tree features.

Implications of the Proposed Development

- 4.7 Table 2 lists trees and tree groups that require removal to facilitate development and those likely to be affected by the proposal. This assessment is based on the proposed site layout (Ref: 26405-SK31/C) supplied by the architect.
- 4.8 The categories are the result of an assessment based on *BS 5837:2005 Trees in Relation to Construction – Recommendations*.

Table 2: Arboricultural implications of the proposed development

	Tree Quality Assessment Category/Retention Value			
	A	B	C	R
Trees and groups that are to be retained	T1, T6, T7, T9, T10, T12, T13, T14, T15, T16, T17, T19, T24, T25, T26, T28, T29, T30, T32, T33, T34, T35, T39, T41, T42, T43, T44, T45, T46, G14, G15, G19, G22	T2, T3, T4, T5, T8, T20, T21, T22, T23, T27, T31, T36, T37, T38, T40, T53, G2, G3, G5, G7, G9, G12, G13, G16, G17, G18, G21, G24	T18, T61, T62, G1, G4, G6, G8, G10, G11, G32, G37, G38, G39, G40	
Trees that are to be retained through special mitigation				
Trees and groups that require removal to facilitate development	T52, T64, T65	T48, T50, T51, T54, T59, T66, G20	T47, T49, T55, T56, T57, T58, T60, T63, T67, G23, G25, G26, G27, G28, G29, G30, G31, G33, G34, G35, G36	
Trees on third party land (retain and protect)		T11		

See Appendix One, Arboricultural Data Sheets for subcategories

- 4.9 The majority of tree features to be retained are of high to moderate value. The proposed development layout has been modified as far as possible in order to retain these valuable, dominant tree features.

- 4.10 Three mature oak trees (T52, T64 and T65) of high category value, require removal as they are in direct conflict with the footprint of the proposed development.
- 4.11 One tree group, G23, categorised as low retention value, is not located within the development foot print, but requires removal due to extensive construction activities within its Root Protection Area (RPA – see below).
- 4.12 The majority of tree features that require removal are of low retention category, comprising mainly regenerative growth and self sown trees of poor form with many multi-stemmed unions. Their current age is young to middle aged and therefore their loss should be easily mitigated against with replacement planting.

5.0 TREE PROTECTION REQUIREMENTS (GENERAL)

Root Protection Areas (RPAs) and Construction Exclusion Zones (CEZ)

- 5.1 As per *BS 5837:2005*, the RPA is calculated using the trees diameter at 1.5 metres (refer to Appendix One: Arboricultural Data Sheets) and represents the minimum area around each tree that must be left undisturbed during development to prevent direct and indirect damage to tree roots and the soil structure.
- 5.2 Tree roots spread two to five times the width of the crown. The majority of tree roots are found in the top 600 mm of soil, with most of the roots that absorb water and nutrients being found in the top 100 mm.
- 5.3 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 be eccentric and the RPA may not be a circular area centred on the tree stem.
- 5.4 The RPA can be adjusted to include the canopy to prevent it being damaged by construction machinery. This area forms a **Construction Exclusion Zone (CEZ)**

Protective Fencing and Ground Protection

- 5.5 Protective barrier fencing must be installed to demarcate the CEZs prior to the commencement of any development works, including bringing machinery or materials onto site and the erection of site huts.
- 5.6 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 the recommended Heras protective fencing are shown in Drawing Three.
- 5.7 Once erected, the fencing should be inspected and approved by an arboriculturist prior to the commencement of any site activity, including preparatory and demolition work. 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 appointed arboriculturist.
- 5.8 In areas of special procedure (see below) the fencing must not be moved without

the prior consent of the appointed arboriculturalist.

- 5.9 The details and siting of all construction activities (such as service runs, soakaways, contractor car parking, ground level changes, site huts, temporary and long-term storage and temporary latrines including their drainage) must be set out in detail prior to the commencement of works to avoid damage to the surrounding tree population.
- 5.10 Storage areas for liquids such as diesel, oil or paint should be located away from any trees on site due to the risk of soil contamination caused by accidental spillage. If contamination occurs, then remediation advice should be sought from an experienced arboriculturist.

Underground Utility Issues

- 5.11 Guidelines set out in the National Joint Utilities Group publication *NJUG Volume 4, Guidelines for the Planning, Installation and Maintenance of Utility apparatus in Proximity to Trees* will be adhered to during excavation works close to or partially within RPAs.
- 5.12 NJUG Volume 4 can be downloaded free of charge from – <http://www.njug.org.uk>
- 5.13 If utilities must enter the RPAs of retained trees, works should be detailed in an Arboricultural Method Statement (AMS).

Ground Level Changes

- 5.14 A rise or reduction in soil level can have major implications to the longevity and health of the trees on site.
- 5.15 Existing ground levels within the CEZ of all trees identified for retention are to be maintained and all fenced-out areas shall be regarded as sacrosanct.

6.0 ARBORICULTURAL RECOMMENDATIONS

- 6.1 Table 3 lists all recommended arboricultural works other than those required to facilitate development.

Table 3. Recommended arboricultural works

Tree or Group Reference Number	Works Required
G14, G15, G22	Removed failed stems from groups
T44, G9, G19	Monitor decay cavities

- 6.2 Tree groups G14, G15 and G22 are middle aged to mature groups of mixed specimen trees. The groups have suffered stem failures of crack willow and grey willow which is typical of these species as the trees mature. Currently such failures do not cause a health and safety risk, however within a development some hazard abatement works should be carried out.
- 6.3 Oak tree T44 and one oak tree within G19 are exhibiting moderate cavities with associated fungal decay. However, due to the resilience of this tree species against such fungal attack the likelihood of tree failure is minimal. It is recommended that these trees are inspected by an qualified arboriculturalist on a

annual basis.

- 6.4 Group G9 consists of middle aged white willow trees. This linear group of structure planting provides screening into the site. The group is of fair condition with some minor deadwood and decay. Due to the location of the group, along the site access, these trees should be inspected annually by a qualified arboriculturalist.

Mitigation Planting

- 6.5 Mitigation for the loss of trees and associated habitats will be provided in the form of replacement tree planting. The extent of mitigation planting required will be determined in agreement with Wrexham County Borough Council.
- 6.6 Native trees (in accordance with National Vegetation Classifications) are recommended to be consistent with the vegetation of the area for the local ecology.

Post Development Management

- 6.7 Hazard recommendations are based on observations at the time of visit. 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 biannual – inspections of all retained trees should be undertaken by a qualified Arboricultural Consultant.

7.0 SUMMARY

- 7.1 Based on an objective assessment made in accordance with *BS 5837 (2005) Trees in Relation to Construction – Recommendations*, there are thirty-six Category A trees, thirty-six Category B trees, thirty-five Category C trees/groups and one Category R tree on or within proximity to the site.
- 7.2 A total of eighteen trees and thirteen tree groups require felling to facilitate the development detailed on the proposed site plan (Ref: 26405-SK31/C). Of these, three are Category A, seven are Category B and twenty-one are Category C.
- 7.3 A total number of twelve tree features were found to have features of a size and condition desirable to bats and/or owls. However, none of these features require removal to facilitate the proposed development.
- 7.4 Correspondence with Wrexham County Borough Council has revealed that a number of trees within the site boundary are protected by a Tree Preservation Order. Currently none of these trees will be effected by the proposed development and all can be retained. However, this must be confirmed before the commencement of any works.
- 7.5 The site does not lie within a Conservation Area.
- 7.6 The extent of mitigation planting for the loss of trees will be determined in agreement with Wrexham County Borough Council.
- 7.7 Following site development, regular (annual or biannual) inspections of all retained trees should be undertaken by a qualified Arboricultural Consultant.

APPENDIX ONE

ARBORICULTURAL DATA SHEETS

APPENDIX ONE: Kingmoor Park, Wrexham : Arboricultural Survey Data Sheets



Surveyor JS/HS
 Date 05.08.2008
 Town Wrexham
 Site Kingmoor Industrial Estate
 Dwg Ref D1697.001

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	Maturity	Condition	Comments on form, condition, health and significant defects	BS5837 Tree Quality Assess.	Radius of RPA guide circle	BS5837 RPA	Management Recommendations	Estimated Remaining Contribution
		(m)	(mm)	arising below 1.5m	(m)	(m)	(m)	(m)	(m)	Young, Middle Age, Mature, Veteran	Good, Fair, Poor		A,B,C,R (1,2,3)	(m)	(m2)		Long, Medium, Short
Trees																	
T1	English Oak	9.0	1400.0	1.0	5.0	5.0	5.0	5.0	3.0	Mature	Fair	Good form. Balanced crown displaying several veteran features. Multi-stem union at 2m with severe cavity extending up scaffold branches. Minor deadwood. Potential bat habitat.	A,1,2,3	16.8	886.7		Long
T2	English Oak	8.0	560.0	1.0	5.0	5.0	4.0	5.0	2.0	Middle Age	Fair	Reasonable crown form, previously raised. Reduced crown density due to small leaves. Slightly chlorotic foliage indicative of possible leaf mining insect.	B,1,2	6.7	141.9		Long
T3	English Oak	6.0	480.0	1.0	5.0	7.0	4.0	5.0	2.0	Middle Age	Fair	Reasonable form. Several broken/hanging branches. Ivy clad stem. Slightly reduced crown density.	B,1,2	5.8	104.2		Long
T4	English Oak	6.0	1140.0	1.0	5.0	5.0	5.0	6.0	2.0	Mature	Fair	Squat form due to previous crown reduction. Several large, open wounds visible. Potential bat habitat.	B,1,2	13.7	587.9		Long
T5	English Oak	6.0	1700.0	1.0	5.0	3.0	5.0	3.0	3.0	Mature	Fair	Asymmetric crown due to large failure. Large concrete filled stem cavity at 2m. Major bark loss associated with cavity. Minor dieback of eastern crown.	B,1,3	20.4	1307.4		Long
T6	English Oak	8.0	610.0	1.0	6.0	7.0	6.0	6.0	2.0	Middle Age	Good	Excellent form. Previous mechanical damage on underside of lower limbs. Ivy clad lower bole. Slightly chlorotic foliage indicative of possible leaf mining insect.	A,1,2	7.3	168.3		Long
T7	English Oak	9.0	750.0	1.0	5.0	6.0	4.0	4.0	2.0	Middle Age	Good	Bifurcate stem union at 2m but with good overall form. Ivy clad stem. Minor cavity at 2m just below stem union.	A,1,2	9.0	254.5		Long
T8	English Oak	8.0	720.0	1.0	5.0	5.0	7.0	5.0	3.0	Mature	Fair	Major stem wound with associated fire damage on south side of stem. Concrete filled cavity at 2.5m at multi-stemmed union. Potential bat habitat.	B,1,2	8.6	234.5		Long
T9	English Oak	7.0	660.0	1.0	4.0	5.0	3.0	3.0	2.0	Middle Age	Fair	Reasonable form. Minor deadwood.	A,1,2	7.9	197.1		Long
T10	English Oak	8.0	660.0	1.0	4.0	5.0	4.0	4.0	2.0	Middle Age	Good	Excellent form, balanced crown. Slightly chlorotic foliage indicative of possible leaf mining insect. Minor stem wound at 0.25m.	A,1,2	7.9	197.1		Long
T11	English Oak	7.0	980.0	1.0	3.0	4.0	4.0	3.0	2.0	Mature	Fair	TREE ON THIRD PARTY LAND. Slightly chlorotic foliage indicative of possible leaf mining insect. Rooted on edge of pond. Cavity at 2m, extent unknown. Inspection restricted by boundary hedge.	B,1,2	11.8	434.5		Long

APPENDIX ONE: Kingmoor Park, Wrexham : 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	Maturity	Condition	Comments on form, condition, health and significant defects	BS5837 Tree Quality Assess.	Radius of RPA guide circle	BS5837 RPA	Management Recommendations	Estimated Remaining Contribution
		(m)	(mm)	arising below 1.5m	(m)	(m)	(m)	(m)	(m)	Young, Middle Age, Mature, Veteran	Good, Fair, Poor		A,B,C,R (1,2,3)	(m)	(m2)		Long, Medium, Short
T12	English Oak	9.0	880.0	1.0	6.0	6.0	6.0	5.0	2.0	Mature	Good	Good form, balanced crown. Vigorous tree. Previous large branch failure. Minor stem and buttress wounding.	A,1,2	10.6	350.3		Long
T13	English Oak	9.0	780.0	1.0	6.0	7.0	6.0	6.0	2.0	Mature	Good	Excellent form, balanced crown. Minor deadwood. Light compaction by livestock adjacent to stem.	A,1,2	9.4	275.2		Long
T14	English Oak	8.0	720.0	1.0	4.0	3.0	5.0	5.0	2.0	Mature	Good	Slight asymmetric crown due to neighbouring tree. Previously crown reduced on western side. Minor cavities in scaffold branches. Potential bat habitat.	A,1,2,3	8.6	234.5		Long
T15	English Oak	8.0	1020.0	1.0	3.0	7.0	6.0	6.0	2.0	Mature	Fair	Slight asymmetric crown due to large branch failure. Narrow column of decay extending 2m on northern quadrant of stem. Light soil compaction by livestock adjacent to stem. Cavity at 3m on southern side. Potential bat habitat.	A,1,2,3	12.2	470.7		Long
T16	English Oak	8.0	670.0	1.0	5.0	6.0	5.0	5.0	2.0	Middle Age	Good	Excellent form, balanced crown. Minor deadwood. Ivy clad stem. No visible defects.	A,1,2	8.0	203.1		Long
T17	English Oak	7.0	590.0	1.0	5.0	7.0	6.0	6.0	3.0	Middle Age	Good	Squat, balanced crown. Ivy clad stem. Minor deadwood. Base obscured by vegetation.	A,1,2	7.1	157.5		Long
T18	Ash	6.0	130.0	1.0	1.0	1.0	1.0	1.0	2.0	Young	Fair	Balanced crown but with slight reduction in density. Compaction in rooting area by livestock.	C,1	1.6	7.6		Long
T19	English Oak	9.0	620.0	1.0	4.0	4.0	4.0	4.0	2.0	Middle Age	Good	Good form, balanced crown. Compaction of rooting area by livestock to east of stem.	A,1,2	7.4	173.9		Long
T20	English Oak	7.0	860.0	1.0	4.0	5.0	4.0	5.0	2.0	Mature	Fair	Previously crown reduced and allowed to regrow. Decay at regrowth points. Minor cavity at 2.5m on north side.	B,1,2	10.3	334.6		Medium
T21	English Oak	12.0	960.0	1.0	6.0	6.0	5.0	6.0	2.0	Mature	Fair	Bifurcate stem union at 2m. Decay at union extending up southern scaffold branch. Thinning of upper crown. Minor deadwood. Potential bat habitat.	B,1,2,3	11.5	416.9		Long
T22	English Oak	9.0	1080.0	1.0	4.0	7.0	4.0	7.0	2.0	Mature	Fair	Slight asymmetric crown. Minor deadwood throughout. Ivy clad stem. Potential bat habitat.	B,1,2	13.0	527.7		Long
T23	English Oak	10.0	550.0	1.0	3.0	3.0	4.0	5.0	2.0	Middle Age	Fair	Poor form. Natural lion's tailing of upper branches, indicative of the beginning of natural entrenchment. Vigorous lower crown.	B,1,2	6.6	136.8		Long
T24	English Oak	13.0	690.0	1.0	5.0	6.0	4.0	7.0	5.0	Mature	Good	Good form. Previously crown raised to 5m. Minor shade deadwood. Light compaction and buttress damage by livestock to east of stem.	A,1,2	8.3	215.4		Long
T25	English Oak	12.0	770.0	1.0	3.0	5.0	5.0	7.0	3.0	Mature	Good	Slight asymmetric crown bias stem lean to south. Crown raised to 4m, several wounds fully occluded. Light compaction in rooting area to east of stem.	A,1,2	9.2	268.2		Long
T26	English Oak	10.0	500.0	1.0	5.0	5.0	5.0	4.0	2.0	Middle Age	Good	Reasonable form. Previously crown reduced and allowed to regrow. Base obscured by vegetation.	A,1,2	6.0	113.1		Long

APPENDIX ONE: Kingmoor Park, Wrexham : 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	Maturity	Condition	Comments on form, condition, health and significant defects	BS5837 Tree Quality Assess.	Radius of RPA guide circle	BS5837 RPA	Management Recommendations	Estimated Remaining Contribution
		(m)	(mm)	arising below 1.5m	(m)	(m)	(m)	(m)	(m)	Young, Middle Age, Mature, Veteran	Good, Fair, Poor		A,B,C,R (1,2,3)	(m)	(m2)		Long, Medium, Short
T27	Ash	9.0	210.0	1.0	3.0	2.0	3.0	3.0	2.0	Young	Good	Good form, balanced crown. No visible defects.	B,1,2	2.5	20.0		Long
T28	English Oak	12.0	700.0	1.0	5.0	6.0	5.0	6.0	2.0	Mature	Good	Reasonable form, slight crown bias to south-east. Crown raised over western field - stubs left.	A,1,2	8.4	221.7		Long
T29	English Oak	10.0	540.0	1.0	4.0	5.0	6.0	6.0	2.0	Middle Age	Good	Basal stem bow to north. Compaction in rooting area to east of stem. Suppressed to north by T28. Minor shade deadwood.	A,1,2	6.5	131.9		Long
T30	English Oak	10.0	470.0	1.0	4.0	5.0	4.0	4.0	4.0	Middle Age	Good	Good form, balanced crown. Rooted on edge of level change (1m). Small broken branches on northern side.	A,1,2	5.6	99.9		Long
T31	English Oak	9.0	610.0	1.0	6.0	3.0	5.0	6.0	3.0	Middle Age	Fair	Reasonable form, slight asymmetry due to adjacent trees. Logitudinal cavity extending from base up main stem, moderate decay within. Minor deadwood. Rooted on edge of level change (1m).	B,1,2	7.3	168.3		Long
T32	English Oak	12.0	810.0	1.0	4.0	6.0	5.0	4.0	2.0	Mature	Good	Good form, balanced crown. Slightly chlorotic foliage indicative of possible leaf mining insect. Rooted on edge of level change (1m). Minor deadwood and mechanical damage on underside of northern branches.	A,1,2	9.7	296.8		Long
T33	English Oak	11.0	770.0	2.0	4.0	5.0	5.0	5.0	3.0	Middle Age	Good	Good overall form, basally bifurcate with strong union. Rooted on edge of level change. Slightly chlorotic foliage.	A,1	7.7	186.3		Long
T34	English Oak	14.0	1070.0	1.0	6.0	6.0	7.0	7.0	4.0	Mature	Good	Good form, balanced crown. Rooted on edge of level change. Moderate deadwood to 100mm. Slightly chlorotic foliage. Epicormic growth on South side of stem.	A,1	12.8	517.9		Long
T35	English Oak	11.0	730.0	1.0	7.0	7.0	7.0	7.0	3.0	Mature	Good	Good form, balanced crown. Previous small branch failure	A,1	8.8	241.1		Long
T36	English Oak	10.0	490.0	1.0	2.0	5.0	4.0	4.0	4.0	Middle Age	Fair	Bifurcate stem union at 0.5m Asymmetric crown. Slightly reduced crown density. Ivy clad stems. Base obscured.	B,1	5.9	108.6		Medium
T37	English Oak	11.0	740.0	1.0	5.0	5.0	5.0	5.0	3.0	Mature	Fair	Good form, balanced crown. Large branch cavity at 3m. Minor deadwood throughout. Owl habitat	B,1,2	8.9	247.7		Medium
T38	English Oak	9.0	770.0	1.0	6.0	6.0	3.0	8.0	3.0	Young	Fair	Asymmetric crown due to competition from T37. Stem lean South west 30 deg. Cracks/splits in scaffold. Minor exposure of roots on North side.	B,1,2	9.2	268.2		Long
T39	English Oak	9.0	700.0	1.0	3.0	5.0	4.0	4.0	3.0	Mature	Good	Reasonable form. Ivy clad upper stem. Stem lean 25 deg South. Rooted on edge of level change.	A,1	8.4	221.7		Long
T40	English Oak	9.0	430.0	1.0	4.0	5.0	4.0	4.0	3.0	Middle Age	Good	Good overall form. Ivy clad main stem, which also has epicormic growth.	B,1	5.2	83.6		Long
T41	English Oak	14.0	900.0	1.0	6.0	7.0	7.0	7.0	2.0	Mature	Good	More mature than rest of G12, a visible boundary feature. Ivy covered.	A,1,3	10.8	366.4		Long
T42	English Oak	9.0	510.0	1.0	6.0	6.0	6.0	6.0	1.0	Middle Age	Good	Good form, single stem with balanced crown.	A,1	6.1	117.7		Long

APPENDIX ONE: Kingmoor Park, Wrexham : 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	Maturity	Condition	Comments on form, condition, health and significant defects	BS5837 Tree Quality Assess.	Radius of RPA guide circle	BS5837 RPA	Management Recommendations	Estimated Remaining Contribution
		(m)	(mm)	arising below 1.5m	(m)	(m)	(m)	(m)	(m)	Young, Middle Age, Mature, Veteran	Good, Fair, Poor		A,B,C,R (1,2,3)	(m)	(m2)		Long, Medium, Short
T43	English Oak	15.0	560.0	1.0	4.0	5.0	7.0	7.0	4.0	Mature	Good	Bifurcate mid-stem. Balanced crown. Minor deadwood.	A,1,3	6.7	141.9		Long
T44	English Oak	13.0	1090.0	1.0	5.0	7.0	5.0	9.0	4.0	Mature	Good	Leaning to East. Moderate squirrel damage. Deadwood. Inonotus at base. Moderate basal cavities.	A,1,3	13.1	537.5	Monitor decay of affected tree	Long
T45	English Oak	10.0	800.0	1.0	8.0	8.0	5.0	7.0	1.0	Middle Age to Mature	Good	Good form. Balanced crown. Bifurcate at 2.5m.	A,1	9.6	289.5		Long
T46	English Oak	8.0	1140.0	1.0	4.0	5.0	4.0	5.0	1.0	Mature	Good	Balanced but squat crown. Major stem wound from base to 2.5m. Bifurcate form. Previous crown reduction. A particularly nice tree.	A,3	13.7	587.9		Long
T47	English Oak	7.0	740.0	1.0	3.0	4.0	4.0	3.0	1.0	Mature	Fair	Excessive epicormic growth throughout crown. Ivy covered. Laetiporous at 0.5m. Extensive stem and branch wounds from hedge cutting activities.	C,1	8.9	247.7		Long
T48	English Oak	11.0	830.0	1.0	6.0	5.0	5.0	6.0	1.0	Mature	Good	Bifurcate at 3m. Balanced crown. Good woundwood growth.	B,2	10.0	311.7		Long
T49	English Oak	6.0	580.0	1.0	5.0	5.0	4.0	4.0	2.0	Middle Age	Fair	Hedgerow tree. Chlorotic foliage. Previous failures.	C,1	7.0	152.2		Long
T50	English Oak	14.0	870.0	1.0	7.0	6.0	6.0	6.0	2.0	Mature	Good	Good vigour/ leaf colour. Previous failures. Ivy covered.	B,1	10.4	342.4		Long
T51	English Oak	8.0	880.0	1.0	6.0	5.0	5.0	5.0	5.0	Mature	Good	Single stem form. Bifurcate at 3m. Good vigour.	B,1	10.6	350.3		Long
T52	English Oak	14.0	850.0	1.0	7.0	8.0	7.0	7.0	2.0	Mature	Good	Open, spreading and balanced crown. Ivy covered stem.	A,1	10.2	326.9		Long
T53	English Oak	10.0	610.0	1.0	3.0	5.0	4.0	3.0	2.0	Mature	Good	Moderate stem wound from base to 1m on West side. Slight lean to North-east.	B,1	7.3	168.3		Long
T54	English Oak	9.0	740.0	1.0	4.0	5.0	5.0	7.0	3.0	Mature	Good	Asymetric crown. Leans slightly to South-east.	B,1	8.9	247.7		Long
T55	English Oak	7.0	490.0	1.0	2.0	3.0	3.0	2.0	1.0	Middle Age	Fair	Located in car park. Squat crown.	C,1	5.9	108.6		Long
T56	Sycamore	7.0	230.0	1.0	2.0	2.0	2.0	3.0		Young	Fair	Bifurcate at 2m.	C,1	2.8	23.9		Long
T57	English Oak	12.0	970.0	1.0	5.0	5.0	6.0	6.0	2.0	Mature	Fair	Major branch failure. Asymetric crown because of failure.	C,1	11.6	425.7	Remove fallen branch.	Long
T58	Sycamore	8.0	260.0	1.0	2.0	3.0	3.0	3.0		Young	Fair	Epicormic growth at base. Tar spot on foliage.	C,1	3.1	30.6		Long
T59	English Oak	10.0	630.0	1.0	5.0	6.0	4.0	3.0	1.0	Mature	Fair	Balanced crown. Epicormic growth on stem and in crown. Moderate stem wound in crown.	B,1	7.6	179.6		Long
T60	English Oak	5.0	170.0	1.0	3.0	2.0	2.0	3.0		Young	Fair	Self sown with potential to form good specimen.	C,2	2.0	13.1		Long
T61	Goat Willow	6.0	320.0	1.0	3.0	3.0	3.0	3.0	1.0	Young	Fair	Bifurcate at 2m.	C,1	3.8	46.3		Long
T62	Crack Willow	8.0	350.0	20+	4.0	4.0	3.0	3.0		Young	Fair	Regenerate growth.	C,1	3.5	38.5		Long
T63	Hawthorn	4.0	200.0	10+	2.0	2.0	2.0	2.0		Young	Fair	Regenerate growth.	C,1	2.0	12.6		Long
T64	English Oak	14.0	650.0	1.0	6.0	6.0	5.0	6.0	3.0	Mature	Good	Single stem form. Balanced crown. Good form/condition.	A,1	7.8	191.1		Long
T65	English Oak	15.0	850.0	1.0	5.0	7.0	5.0	6.0	2.0	Mature	Good	Exposed buttress roots on South side/lake embankment. Moderate deadwood. Epicormic growth in crown. Previous failures.	A,1,3	10.2	326.9		Long
T66	Silver Birch	8.0	170.0	1.0	3.0	3.0	3.0	3.0	1.0	Middle Age	Good	Excellent form	B,1	2.0	13.1		Long
T67	Downy Birch	8.0	210.0	1.0	2.0	3.0	3.0	2.0	1.0	Middle Age	Good	Good form.	C,1	2.5	20.0		Long
Groups																	
G1	London Plane	to 12	220-310							Young	Good	5 trees in group. Linear planting. No visible defects.	C,2	To canopy edge			Long
G2	Eastern Balsam Poplar	to 17	320-360							Middle Age	Good	Linear planting. Trees of fastigiate form typical to species. No visible defects.	B,2	To canopy edge			Long

APPENDIX ONE: Kingmoor Park, Wrexham : 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	Maturity	Condition	Comments on form, condition, health and significant defects	BS5837 Tree Quality Assess.	Radius of RPA guide circle	BS5837 RPA	Management Recommendations	Estimated Remaining Contribution
		(m)	(mm)	arising below 1.5m	(m)	(m)	(m)	(m)	(m)	Young, Middle Age, Mature, Veteran	Good, Fair, Poor		A,B,C,R (1,2,3)	(m)	(m2)		Long, Medium, Short
G3	Ash	to 12	260-340							Middle Age	Good	4 trees in group. Structured planting. All individually of good form.	B,1,2	To canopy edge			Long
G4	Silver Birch	to 8	190-260							Middle Age	Good	3 trees in group. Structured planting.	C,2	To canopy edge			Long
G5	White Willow	to 18	430-720							Middle Age	Good	5 trees in group, all basally multi-stemmed with tight unions.	B,1,2	To canopy edge			Long
G6	Hawthorn	to 4	200-220							Middle Age	Good	3 trees in group. Shrubby trees of reasonable form.	C,1,2	To canopy edge			Long
G7	Silver Birch	to 7	230-260							Middle Age	Good	2 trees in group, reasonable form.	B,2	To canopy edge			Long
G8	Crack Willow	to 7	230-300							Young to Middle Age	Poor	3 trees in group of poor form. Previous branch failures.	C,2	To canopy edge			Medium
G9	White Willow	to 16	390-610							Middle Age	Fair	31 trees of mixed form and condition. Structured planting along existing site entrance. Minor deadwood and decay.	B,2	To canopy edge		Monitor decay of affected trees	Long
G10	hawthorn, Blackthorn, Cherry, Field Maple	to 4	100-200							Middle Age	Good	Dense vegetation. Good bird habitat.	C,3	To canopy edge			Long
G11	Grey Willow	to 6	50-400							Mature	Fair	Group of shrubby, multi-stemmed trees around old pond area. Some broken branches and minor deadwood.	C,2	To canopy edge			Medium
G12	Ash	to 9	150-290							Middle Age	Good	Linear planting providing effective screening. Trees are of good form and are vigorous. Minor inclusions.	B,2	To canopy edge			Long
G13	Downy Birch	to 9	220-480							Middle Age to Mature	Fair	3 trees in group. 1 tree basally bifurcate. Collectively of reasonable form.	B,2	To canopy edge			Medium
G14	Oak, Ash, Hawthorn, Goat Willow, Crack Willow	to 14	50-1030							Mature	Good	Remnant hedgerow with mature Oaks staggered through group. Possible bat habitat. Visual screen from road. Dense ivy cover. Crack Willow have stem failures and fungal brackets at 6-8m.	A,1,2,3	To canopy edge		Remove Crack Willow in development	Long
G15	Oak, Ash, Hawthorn, Goat Willow, Sycamore	to 12	50-600							Middle Age	Good	Stem failures to Goat Willow. North end of group contains middle age Oak trees.	A,2,3	To canopy edge		Remove failed stems - Grey Willow.	Long
G16	Oak	to 12	600-800							Mature	Fair	Squat crowns, exhibiting shoot dieback. Moderate deadwood. Necrotic leaves. Dense understorey of bramble.	B,2	To canopy edge			Long
G17	Oak, Ash, Hawthorn, Lombardy Poplar, Grey Willow, Silver Birch	to 16	100-1000							Middle Age to Mature	Good	Dense group. Ivy covered. Group is lining a stream. Young Oaks have potential to grow into good specimens. Lombardy Poplar has co-dominant stems.	B,2	To canopy edge			Long
G18	Oak, Field Maple, Hawthorn	14.0								Middle Age to Mature	Good	Dense remnant hedgerow, possible bat habitat. Young Field Maple throughout group. Some failed stems/branches. Mature Ash towards South end.	B,2,3	To canopy edge			Long
G19	Oak	15.0	480-900							Middle Age to Mature	Good	Mature Oaks. Twisted stem forms. Some deadwood throughout. Some ivy cover. Possible bat habitat. Laetiporous on one Oak	A,2,3	To canopy edge		Monitor decay of affected tree	Long

APPENDIX ONE: Kingmoor Park, Wrexham : 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	Maturity	Condition	Comments on form, condition, health and significant defects	BS5837 Tree Quality Assess.	Radius of RPA guide circle	BS5837 RPA	Management Recommendations	Estimated Remaining Contribution
		(m)	(mm)	arising below 1.5m	(m)	(m)	(m)	(m)	(m)	Young, Middle Age, Mature, Veteran	Good, Fair, Poor		A,B,C,R (1,2,3)	(m)	(m2)		Long, Medium, Short
G20	Oak, Ash with Hawthorn understory	12.0	560-900							Middle Age to Mature	Good	Hedgerow trees. Squat crowns. 1 tree with bifurcate form. Deadwood in crowns. Good visual presence	B,2	To canopy edge			Long
G21	Oak	13.0								Middle Age	Good	Asymetric crowns. Ivy covered.	B,2	To canopy edge			Long
G22	Crack Willow, Hawthorn, Ash, Oak	13.0	50-890							Middle Age to Mature	Good	Stem/branch failure to Crack Willow. Strong visual feature combined with G18 & G19. Stream runs through group to East.	A,2,3	To canopy edge		Remove failures and dead fallen tree.	Long
G23	Oak, Ash	7.0	240-560							Middle Age	Fair	Hedgerow trees. Poor form. Moderate deadwood.	C,2	To canopy edge			Long
G24	Ash	9.0	150-410						1.0	Middle Age	Good	Enhancement planting, creates screening effect.	B,2	To canopy edge			Long
G25	Goat Willow	7.0	50-250							Middle Age	Fair	Regenerate growth.	C,2	To canopy edge			Long
G26	Silver Birch, Grey Willow	9.0	50-250							Young to Middle Age	Fair	Grey Willow are regenerate growth. Group contains 1 Silver Birch.	C,2	To canopy edge			Long
G27	Oak, Hawthorn, Goat Willow, Silver Birch, Downy Birch, Grey Willow	8.0	50-200							Young to Middle Age	Fair	Very dense group. Contains self sown and regenerated trees.	C,2	To canopy edge		25% thin.	
G28	Grey Willow	6.0	50-250							Young to Middle Age	Fair	Regenerate growth.	C,2	To canopy edge			Long
G29	Grey Willow	7.0	50-200							Young to Middle Age	Fair	Regenerate growth.	C,2	To canopy edge			Long
G30	Grey Willow, Hawthorn	7.0	50-200							Young to Middle Age	Fair	Regenerate growth.	C,2	To canopy edge			Long
G31	Blackthorn, Grey Willow, Goat Willow	5.0	50-200							Young to Middle Age	Fair	Regenerate growth.	C,2	To canopy edge			Long
G32	Hawthorn	5.0								Mature	Fair	Overgrown hedge.	C,2	To canopy edge			Long
G33	Grey Willow	7.0	50-200							Young to Middle Age	Fair	Regenerate growth. Located along lake embankment.	C,2	To canopy edge			Long
G34	Oak, Hawthorn, Goat Willow, Grey Willow	7.0	50-300							Young to Middle Age	Good	Regenerate growth-overgrown.	C,2	To canopy edge			Long
G35	White Willow, Goat Willow, Grey Willow	15.0	50-400							Young to Middle Age	Good	Located along lake embankment.	C,2	To canopy edge			Long
G36	Silver Birch	11.0	20-270							Middle Age	Good	Dimensions estimated due to dense vegetation.	C,2	To canopy edge			Long
G37	Hawthorn, Blackthorn	6.0	50-250							Middle Age to Mature	Good	Overgrown hedgerow.	C,2	To canopy edge			Long
G38	Silver Birch	7.0	90-320							Young	Fair	Slight lean to East. 1 tree with codominant stem.	C,2	To canopy edge			Long
G39	Silver Birch, Field Maple, Sycamore, Apple, Alder	7.0	150-320							Young to Middle Age	Fair	Located on raised ground.	C,2	To canopy edge			Long
G40	Silver Birch, Goat Willow, Grey Willow, Norway Maple	8.0	160-280							Young to Middle Age	Fair	Enhancement planting and regenerated stock.	C,2	To canopy edge			Long
Hedges																	
H1	Hawthorn	to 1.5								Mature	Good	Maintained at current height.					Long
H2	Hawthorn	3.0								Mature	Good	Overgrown.					Long

APPENDIX TWO

SURVEY METHODOLOGY

APPENDIX TWO: ARBORICULTURE SURVEY METHOD AND GLOSSARY

Arboricultural surveys are limited by being from ground level only. The nature of the soils on site is not assessed during the survey. The possibility of minor soil movement due to the root activity of the trees cannot be discounted; therefore, the advice of a structural engineer should be sought with regard to appropriate foundation depths.

Trees are dynamic living organisms with a constantly changing structure; even trees in good condition can suffer from damage or stress. Regular annual or bi-annual inspections by a qualified arboriculturalist can help to identify potential problems before they become acute.

The following features of each tree, group of trees or wood may have been recorded in the Arboricultural Data Sheets (Appendix One).

Trees are surveyed without reference to any proposed development. The implications of any development are discussed in the Arboricultural Implication Assessment.

Species	The common name is given.	
Diameter	For single-stemmed trees the measurement is taken at 1.5 metres above ground in millimetres. For multi-stemmed trees the measurement is taken directly above the root flare in millimetres.	
Crown Spread	The N, E, S and W branch spreads are recorded in metres to provide a representative crown shape.	
Tree Age	Young	Less than 1/3 life expectancy;
	Middle Age	1/3 to 2/3 life expectancy;
	Mature	Greater than 2/3 life expectancy;
	Veteran	A tree recognised by features of a biological, cultural or aesthetic value that are characteristic of, but not exclusive to, individuals surviving beyond the typical age range for the species concerned.

Condition

An assessment of tree vigour and vitality, which also can indicate likely susceptibility to the effects of development. This is not an evaluation of the tree's structural condition.

Comments

A brief evaluation and description of the tree with comments on the form, condition, health and significant defects that may be present.

Tree Quality Assessment

The tree quality assessments are based on Table 1 of BS 5837(2005): Trees in Relation to Construction - Recommendations. Four categories (A, B, C and R) are used to denote tree quality (A= High, B = Moderate, C = Low, R= Remove). Subcategories (1-3) denote the specific function value of the trees and the reasoning behind the categorisation (the subcategories may be used in combination)

A HIGH QUALITY (Green)

1 Mainly Arboricultural values

- Trees whose retention is considered most desirable (minimum 40 years life expectancy): high category.
- Vigorous healthy trees, good examples of their species, rare, unusual or essential components of groups healthy young trees of good form, potentially in harmony with proposed development.

2 Mainly Landscape values

- Trees or groups that provide definite screening or softening to the locality in relation to views.
- Trees of particular visual importance.

3 Mainly Cultural values

- Trees, groups or woodlands of particular historical, conservation, commemorative or other value (e.g., veteran trees or wood pasture).

APPENDIX TWO: ARBORICULTURE SURVEY METHOD AND GLOSSARY

B MODERATE QUALITY (Blue)

1 Mainly Arboricultural values

- Trees that might be included in the high category but that have been downgraded due to impaired condition (e.g., remediable defects including unsympathetic past management)

2 Mainly Landscape values

- Trees, groups or woodlands that form distinctive landscape features with a higher collective value than as individual trees of lesser quality.

3 Mainly Cultural values

- Trees with clearly identifiable conservation or other benefits.

C LOW QUALITY (Grey)

1 Mainly Arboricultural values

- Trees not qualifying in higher categories.

2 Mainly Landscape values

- Trees present in groups or woodlands of low quality, offering only low or temporary screening.
- Areas of pioneer, self-sown regeneration.

3 Mainly Cultural values

- Trees with very limited conservation or other cultural benefits.

R TREES FOR REMOVAL (Red) (§ indicates urgent felling or hazard abatement needed)

- Trees unsuitable for long-term retention. Trees that any existing value would be lost within 10 years, and which should, in the current context, be felled for reasons of sound arboricultural management.
- Dead or structurally dangerous trees (NB standing dead trees provide valuable habitat, and thus it may be reasonable, where site layout permits, to retain standing dead trees e.g. as a bat roost).
- Trees with an insecure roothold.
- Trees that will become dangerous after the removal of other trees, or that suppress other better trees.

BS 5837 Root Protection Area (RPA)

The Root Protection Area (RPA) is a layout design tool indicating the area, in m², surrounding a tree containing sufficient rooting volume to ensure tree survival. This area is shown on the Tree Constraints Plan.

The RPA is based on a calculation from Table 2 in BS 5837 (2005). The stem diameter at 1.5m is used for single-stemmed trees, whereas for multi-stemmed trees the diameter above the root flare is used. In some cases the RPA may need to be larger than as stipulated by the calculation (e.g., as in the case for groups). In such cases, the RPA may be adapted to ensure a sufficient survival area based on criteria such as the tree's condition, species and crown spread, as assessed by a qualified arboriculturalist.

The RPA should remain undisturbed and be treated as a sacrosanct Construction Exclusion Zone (CEZ) until development completion and removal is approved by an arboriculturalist.

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.

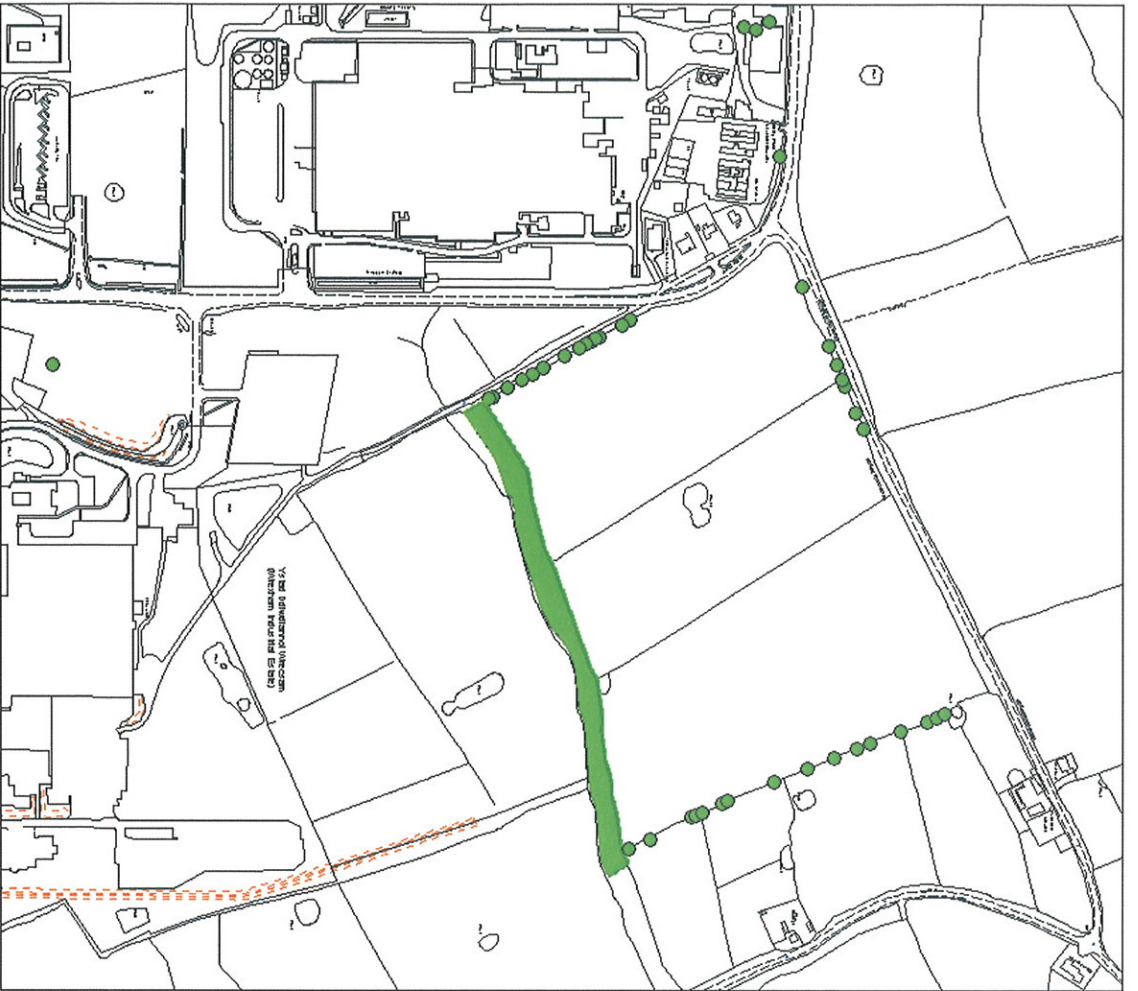
Estimated Remaining Contribution

Is an estimation of useful life expectancy.

APPENDIX THREE

TREE PRESERVATION ORDER

(Tree Location Plan and Tree List as supplied by Wrexham County Borough Council)



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Chief Planning Officer

TPOs Bryn Lane
 Ridley Wood

Lambert Street, Wrexham LL11 1AR
 Telephone 01978 292500, Fax 01978 292502

Date: 08/12/2008



TPO No	Location		Species	Tree No
WMBC No.60	Bryn Lane, WIE	Woodland	Oak, Ash, Hawthorn	W1
WMBC No.60	Bryn Lane, WIE		Oak	T1
WMBC No.60	Bryn Lane, WIE		Oak	T37
WMBC No.60	Bryn Lane, WIE		Oak	T36
WMBC No.60	Bryn Lane, WIE		Oak	T23
WMBC No.60	Bryn Lane, WIE		Oak	T22
WMBC No.60	Bryn Lane, WIE		Oak	T21
WMBC No.60	Bryn Lane, WIE		Oak	T20
WMBC No.60	Bryn Lane, WIE		Oak	T19
WMBC No.60	Bryn Lane, WIE		Oak	T18
WMBC No.60	Bryn Lane, WIE		Oak	T17
WMBC No.60	Bryn Lane, WIE		Oak	T16
WMBC No.60	Bryn Lane, WIE		Oak	T15
WMBC No.60	Bryn Lane, WIE		Oak	T14
WMBC No.60	Bryn Lane, WIE		Oak	T13
WMBC No.60	Bryn Lane, WIE		Oak	T12
WMBC No.60	Bryn Lane, WIE		Oak	T11
WMBC No.60	Bryn Lane, WIE		Oak	T10
WMBC No.60	Bryn Lane, WIE		Oak	T9
WMBC No.60	Bryn Lane, WIE		Oak	T8
WMBC No.60	Bryn Lane, WIE		Oak	T7
WMBC No.60	Bryn Lane, WIE		Oak	T6
WMBC No.60	Bryn Lane, WIE		Oak	T5
WMBC No.60	Bryn Lane, WIE		Oak	T4
WMBC No.60	Bryn Lane, WIE		Oak	T3
WMBC No.60	Bryn Lane, WIE		Oak	T2
WMBC No.60	Bryn Lane, WIE		Oak	T35
WMBC No.60	Bryn Lane, WIE		Oak	T34
WMBC No.60	Bryn Lane, WIE		Oak	T33
WMBC No.60	Bryn Lane, WIE		Ash	T32
WMBC No.60	Bryn Lane, WIE		Oak	T31
WMBC No.60	Bryn Lane, WIE		Oak	T30
WMBC No.60	Bryn Lane, WIE		Oak	T29
WMBC No.60	Bryn Lane, WIE		Oak	T28
WMBC No.60	Bryn Lane, WIE		Oak	T27
WMBC No.60	Bryn Lane, WIE		Willow	T26
WMBC No.60	Bryn Lane, WIE		Oak	T25
WMBC No.60	Bryn Lane, WIE		Oak	T24

DRAWING ONE

TREE CONSTRAINTS PLAN



KEY

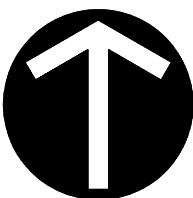
- T1 Individual trees
- G1 Groups of trees
- * Approximate tree position (not marked on original topographical survey)
- # Tree located outside the development boundary (retain and protect)
- Root Protection Area
- Area of development

Trees/Groups BS5837(2005) Retention Category

Retention values based on BS 5837 (2005): Recommendations for Trees in Relation to Construction

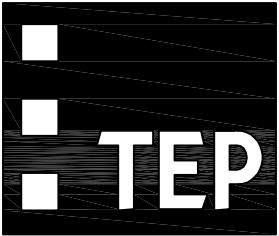
- Category A Trees/Groups
Trees of high quality and value
- Category B Trees/Groups
Trees of moderate quality and value
- Category C Trees
Trees of low quality and value
- Category R Trees
Trees unsuitable for long term retention

NOTE: see Arboricultural Data Sheets (Appendix One) for further information.



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Rev	Description	Drawn	Approved	Date



Genesis Centre
Birchwood Science Park Warrington
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Project

KINGMOOR PARK
WREXHAM INDUSTRIAL ESTATE

Title

TREE CONSTRAINTS PLAN

Drwg No
D1697.001

Scale 1:2000 @ A1	Date 08/08/08
Drawn HS	Checked JS
	Approved PM

DRAWING TWO

TREE PROTECTION PLAN



KEY

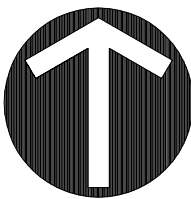
- T1 Individual trees
- G1 Groups of trees
- * Approximate tree position (not marked on original topographical survey)
- # Tree located outside the development boundary (retain and protect)
- Protective Fencing
- Area of development

Trees/Groups BS5837(2005) Retention Category

Retention values based on BS 5837 (2005): Recommendations for Trees in Relation to Construction

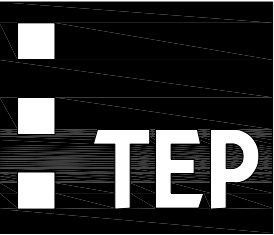
- Category A Trees/Groups
Trees of high quality and value
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Trees of moderate quality and value
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Trees of low quality and value
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Rev	Description	Drawn	Approved	Date



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Project

KINGMOOR PARK,
WREXHAM INDUSTRIAL ESTATE

Title

TREE PROTECTION PLAN

Drwg No
D1697.002

Scale
1:2000 @ A1

Date
20/08/08

Drawn
HS

Checked
JS

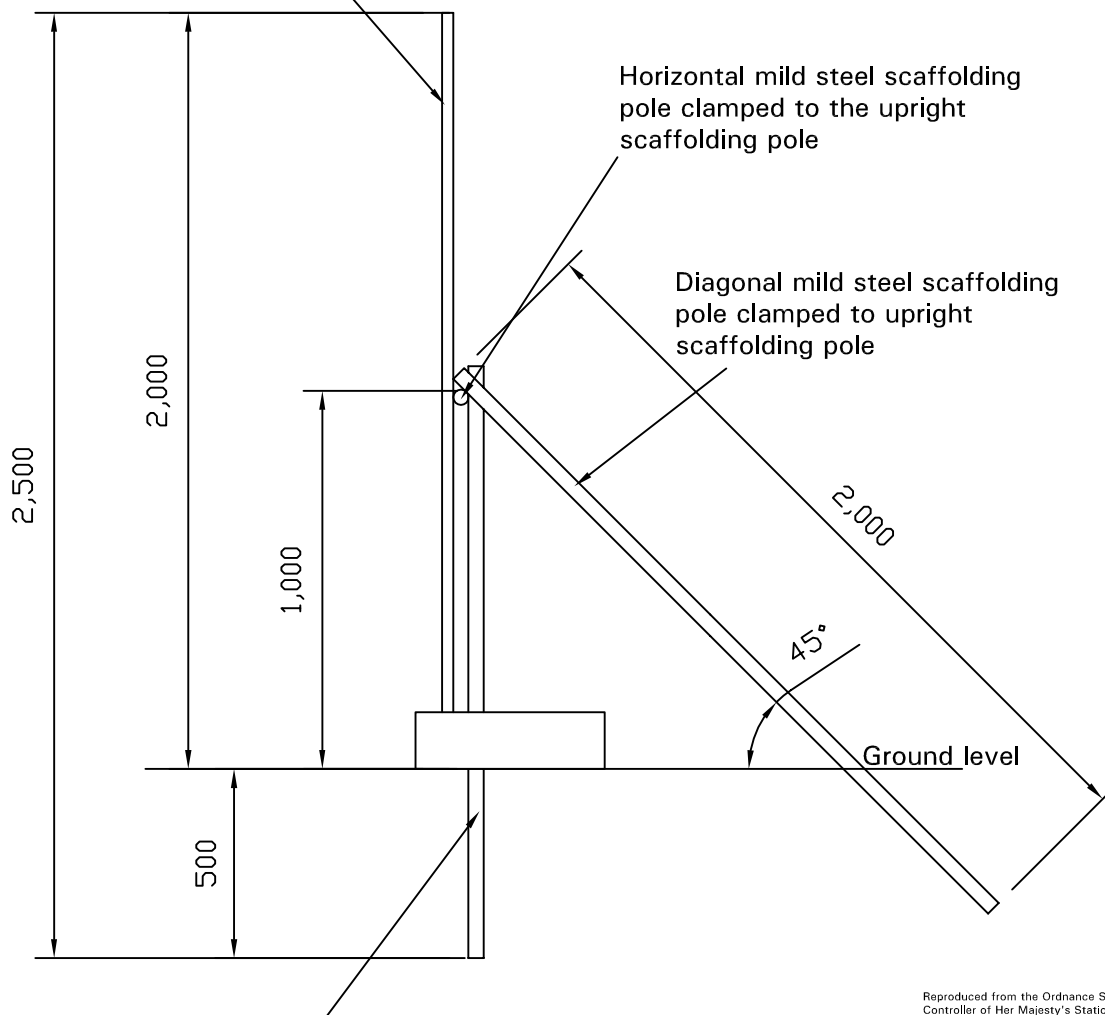
Approved
PM

DRAWING TWO

RECOMMENDED PROTECTIVE FENCING

Temporary Supported Heras Fence Detail Scale 1:20

Heras fencing is clamped to the upright scaffolding pole and positioned in support footing



Upright scaffolding pole pierces through Heras fence support footing and into ground

Note:
Fencing to be Heras anticlimb panels (3.5m wide x2m high)



Tree Protection Notice is to be attached to the fencing 1.5m from the ground, facing out of the Construction Exclusion Zone located at regular intervals along the fence line.
The notice must be at least A4 in size

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A	Scaffold support alterations, and Tree Protection Notice	TH	16/01/06
Revision	Description	Amended by	Date



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Project

TEP Standard Detail

Title

Temporary Supported Heras Fence Detail for Tree Protection around Designated Root Protection Area/Construction Exclusion Zone.

Drwg No TEP.HERAS.002A

Scale 1:20 @ A4 Date 02/10/03

Drawn by RJC Checked by ID Approved by DS