PLANNING DESIGN ENVIRONMENT

GREEN PLAN ENERGY LTD
KINGMOOR PARK, WREXHAM INDUSTRIAL ESTATE
ARBORICULTURAL IMPLICATIONS ASSESSMENT

(Report Ref: TEP.2264.002 Revision C)

for

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Written:	Checked:	Approved:
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1.0 INTRODUCTION

1.1 TEP has been commissioned by Green Plan Energy to conduct an arboricultural survey of land off Bryn Lane, Wrexham Industrial Estate. This report details the arboricultural implications of developing the site, subsequent mitigation recommendations and protective measures.

1.2 An initial survey was carried out in January 2010 by means of inspection from ground level by a qualified Arboricultural Consultant (BSc in Arboriculture). A further visit to collect additional information was conducted in November 2010. Weather conditions during both surveys were fine.

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 16 trees (T1-T16) and 12 groups of trees (G1–G12) were surveyed and mapped (Drawing 1). All arboricultural information recorded during the survey is presented at Appendix 1.

1.5 A topographical survey drawing detailing tree stem locations and canopy outline (Ref: 5756/01, Powers & Tiltman) was used to record the position of existing trees and vegetation. A number of trees were omitted from the topographical drawing and as such their position on Drawing 1 was recorded using GPS equipment with sub-metre accuracy (trees T1-T16).

1.6 The nature of the soils on site was not assessed during the survey. The possibility of minor soil movement due to tree root activity cannot be discounted. The advice of a structural engineer should be sought in regard to appropriate foundation depths.

1.7 This report provides the results of the survey and includes the following:

- A schedule of all trees located within, or in close proximity to the proposed development site (Appendix 1);
- An assessment based on *BS 5837:2005*, 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 1 & 2);
- An assessment, based on *BS 5837:2005*, of the requirement for protection of trees during the construction phase (Section 5);
- Advice on removal, retention and management of trees (Sections 4 and 6); and
- A Tree Implications and Protection Plan detailing the development proposals, trees to be retained and protection fencing alignment (Drawing 1).

2.0 THE SITE AND SURROUNDINGS

2.1 The site is located to the north-east of Wrexham Industrial Estate. The survey area is bordered to the west by Bryn Lane and to the south and east by existing industrial units. An area of farmland allocated for development by a single-user in the Wrexham County Borough Council Local Development Plan is located to the north.

2.2 The development area currently comprises a grassed plateau that sits approximately 2.5m higher than the surrounding estate. Small clusters of trees have been plated at its fringe and along the sloped embankments rising to the plateau.

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 at the time of the survey no trees within the development boundary were subject to a Tree Preservation Order (TPO). The proposed development site does not lie within a Conservation Area.

Protected Species

3.2 Mature trees often contain cavities, crevices and hollows that offer potential habitat for species such as bats and birds. Both are afforded protection under the 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).

3.3 A preliminary ground level appraisal of the wildlife habitat value of each tree was undertaken as part of the arboricultural survey. Trees and groups listed in Table 1 were found to have features of a size and condition desirable to bats.

Table 1: Trees on site with bat potential

Tree number	Feature of bat potential
Groups	G3, G4

3.4 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 provide advice.

3.5 Nesting birds, their nests and eggs are protected under the *Wildlife and Countryside Act 1981* (as amended). It is an offence to intentionally or recklessly, damage or destroy nests and all tree work should ideally be undertaken outside the bird nesting season (March to September inclusive).

3.6 If this is not possible then a detailed inspection of each tree should be undertaken by a qualified ecologist immediately prior to the arboricultural works. Should an active nest be found (being built, containing eggs or chicks) then any work likely to affect the nest must be halted until the nest becomes inactive.

4.0 TREE POPULATION & DEVELOPMENT IMPLICATIONS

Population

4.1 16 trees (T1-T16) and 12 groups of trees (G1–G12) were surveyed on or within influencing distance of the development site. A schedule of their species, condition, age, BS 5837:2005 quality value and management recommendations is provided at Appendix 1.

4.2 Trees recorded as individuals are located in the south-eastern corner of the site. The collection is dominated by several vigorous, well-balanced ash trees above which rise the columnar forms of 6 Lombardy poplars to a height of 12 metres. A number of sycamore trees provide limited contribution due to their smaller size and more diffuse position on the southern edge of the grouping.

4.3 Groups G1 – G8 run along the top of a bank that defines the northern boundary of the survey area. The majority of groups are young to middle aged amenity planting and have established into specimens that display good individual form and condition.

4.4 Groups G9 and G12 are situated on a bank that runs along the northern and western boundaries respectively. Group G9 contains 31 middle aged white willow specimens with varying form and condition, collectively contributing to the visual amenity of the estate entrance. Group G12 is a line of middle aged ash specimens that have good form and vigour and have the potential to provide valuable screening to the development area form Bryn Lane.

4.5 Groups G10 and G11 comprise of shrub species such as hawthorn, blackthorn, grey willow and field maple. Although of limited arboricultural value they provide valuable foraging and habitat potential for birds and small mammals.

4.6 Tree and group locations, their quality categories and canopy spreads are shown on Drawing 1.

Tree Quality Categorisation

4.7 Under *BS 5837:2005 Trees in Relation to Construction – Recommendations* trees and groups are objectively assigned a quality category designed to quantify their value within any future development. Table 2 presents a summary of the categories presented in 'Table 1 – Cascade chart for tree quality assessment' of the British Standard. The full table has been reproduced at Appendix 2.

Table 2: BS 5837:2005 tree quality categories

Category A	Trees of high value including those that are particularly good examples of their species and/or those that are visually dominant within the landscape
Category B	Trees of moderate value including those that do not qualify as Category A due to minor remedial defects and/or those that collectively form distinct landscape features, thereby attracting a higher rating than they might as individuals
Category C	Trees of low value, the retention of which should not unreasonably constrain development
Category R	Trees unsuitable for long-term retention that should ideally be removed prior to the commencement of construction unless otherwise advised

Implications of the Proposed Development

4.8 Table 3 lists the BS 5837:2005 quality categories of trees that will require removal in order to facilitate the development proposals and those that can be retained. This is the result of an assessment based on the proposed site plan supplied by the client.

Table 3: Arboricultural implications of the proposed development

	Tree Quality Assessment Category/Retention Value			
	A	**B**	**C**	**R**
Trees and groups that can be retained	-	1 tree in G1, 3 trees in G2, G3, G5, G7, G9, 17 trees in G12	T1, T2, T3, T6, T8, G4, G6, G8, G10, G11	-
Trees and groups that require removal to facilitate development	-	5 trees in G2, 5 trees in G12	T4, T5, T7, T9, T10, T11, T12, T13, T14, T15, T16, 6 trees in G1	-

See Appendix 1, Arboricultural Data Sheets for subcategories

4.9 11 Individual trees and part of 3 tree groups will require removal to facilitate the development proposals; totalling the loss of 27 trees.

5.0 TREE PROTECTION REQUIREMENTS

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 1) and represents the minimum area around each tree that must be left undisturbed to ensure their survival.

5.2 Tree roots spread on average two times the width of the crown. The majority of tree roots are found in the top 600 mm of soil and most of the fine roots that absorb water and nutrients are found in the top 100 mm.

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 not be uniform in their extent and the **RPA** may not be a circular area centred on the tree stem.

5.4 The **RPA** for trees on site has been used to inform the **Construction Exclusion Zone (CEZ)** shown on Drawing 1. Where deemed appropriate this has included an extension of the **RPA** to include the canopy to prevent it being damaged by construction machinery.

Protective Fencing

5.5 Protective barrier fencing will be required to demarcate a **CEZ** around retained trees in close proximity to proposed construction. This must be installed prior to the commencement of any development works, including bringing machinery or materials onto site and the erection of site huts. Protective fencing alignment is shown on Drawing 1 and assumes that all trees identified for removal have been felled prior to installation.

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 2.

5.7 Where it is not practicable to install the recommended fencing specification due to site topography or other immovable object, then an alternative fencing design will need to be agreed with the Council's Arboricultural Officer prior to installation.

5.8 Any alteration to the fencing alignment to allow for approved activities will be made in agreement with the Council's Arboricultural Officer.

5.9 The protective fencing must not be removed until the physical construction phase has been completed and all vehicles have been removed from site, to the satisfaction of the Council's Arboricultural Officer

Ground Contamination

5.10 Storage areas for liquids such as fuels, oil or paint should not be located within 10m of any trees on or within proximity the site due to the risk of soil contamination caused by accidental spillage.

5.11 If contamination does occur, then remediation advice should be sought from a qualified arboriculturist.

Underground Utility Issues

5.12 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.

5.13 NJUG Volume 4 can be downloaded free of charge from – http://www.njug.org.uk

6.0 ARBORICULTURAL RECOMMENDATIONS

Arboricultural Method Statements

6.1 Should a requirement for construction activities be identified within the **CEZ**, then consultation will a qualified Arboricultural Consultant must be sought. This will assess the feasibility of any such requirements and identify any special measures that will need to be taken to minimise disturbance and ensure successful tree survival. Any activities proposed within the **CEZs** identified on Drawing 1 will require an Arboricultural Method Statement.

6.2 Special mitigation construction works are likely to require more time and proprietary materials, thus discussions as early as possible in the development process will help with resource allocation.

Mitigation Landscaping and Post Development Management

6.3 A total of 27 trees will be lost as a result of the development. 17 of these are of low value and the remainder are of moderate value under BS 5837:2005.

6.4 Mitigation for the loss of trees and associated habitats will be provided in the form of replacement tree planting. The extent of mitigation planting will be determined in agreement with Wrexham County Borough Council.

6.5 It is the recommendation of this report that the proposed tree loss can be adequately mitigated for through a replacement planting scheme similar to that indicated on Drawing 1, provided that trees of a suitable size, quality and species are selected. This should include species of varied ultimate size and height, incorporating where possible the larger tree species with the potential to provide benefit beyond their immediate environment and to a more diverse range of ecology (for example oak, lime, beech, ash etc.).

6.6 Aftercare is vital to the survival of newly planted trees. Provision should be made for the maintenance of newly planted trees and include watering, formative pruning and the checking of tree ties and stakes.

6.7 Hazard recommendations are based on observations at the time of survey. Trees are dynamic living organisms whose structure is constantly changing. Even those in good condition can suffer from damage or stress. Following site development, regular (annual or 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 6 Category B groups and 22 Category C trees/groups and 16 on or near to the area of development.

7.2 A total of 27 trees will require removal to facilitate the development proposals. Of these, 10 are of moderate value (Category B) and 17 are of low value (Category C).

7.3 At the time of the survey no trees within or immediately adjacent to the site were subject to Tree Preservation Orders or within a Conservation Area.

7.4 Groups G3 and G4 were found to have features of a size and condition desirable to bats.

7.5 Protective barrier fencing will be required to demarcate a **Construction Exclusion Zone** (**CEZ**) around retained trees prior to the commencement of development. Fencing alignment is shown on Drawing 1 and details of the recommended Heras fencing are shown on Drawing 2.

7.6 An **Arboricultural Method Statement** (**AMS**) will be required where construction activities cannot be avoided within the **CEZs** shown on Drawing 1. The **AMS** will detail 'special mitigation construction and procedure' that will minimise damage to tree roots and the surrounding soil.

7.7 Mitigation for the loss of trees and associated habitats will be provided in the form of replacement tree planting. The extent of mitigation planting will be determined in agreement with Wrexham County Borough Council.

APPENDIX 1

ARBORICULTURAL SURVEY DATA SHEETS

APPENDIX 1: Arboricultural Survey Data Sheets

Surveyor JS
Date 08.01.10 and 12.11.10
Town Wrexham
Site Green Plan Energy Ltd
Dwg Ref D2264.003 Rev A

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	Common ash	8.0	330.0	1.0	4.0	4.0	4.0	4.0	2.0	Middle Age	Good	Vigorous tree of good form and future potential.	C,1	4.0	49.3		Long
T2	Common ash	9.0	260.0	1.0	3.0	3.0	3.0	3.0	2.0	Middle Age	Good	Vigorous tree of good form. Good future potential. Recently crown raised.	C,1	3.1	30.6		Long
T3	Lombardy poplar	1.0	520.0	9.0	2.0	2.0	2.0	2.0	2.0	Middle Age	Good	Typical form for species. No visible defects. Minor basal epicormic shoot growth.	C,1	5.2	84.9		Long
T4	Common ash	8.0	280.0	1.0	4.0	4.0	3.0	3.0	2.0	Middle Age	Good	Vigorous tree of good form. Good future potential. Recently crown raised.	C,1	3.4	35.5		Long
T5	Common ash	8.0	320.0	1.0	4.0	3.0	4.0	4.0	2.0	Middle Age	Good	Vigorous tree with a slighly atypical conical crown form. Good future potential. Recently crown raised.	C,1	3.8	46.3		Long
T6	Common ash	9.0	300.0	1.0	3.0	3.0	4.0	4.0	1.0	Middle Age	Good	Vigorous tree of good form. Recently crown raised.	C,1	3.6	40.7		Long
T7	Sycamore	3.0	100.0	1.0	2.0	1.0	2.0	2.0	1.0	Young	Good	Established planting of reasonable form.	C,1	1.2	4.5		Long
T8	Lombardy poplar	1.0	580.0	12.0	3.0	2.0	1.0	3.0	2.0	Middle Age	Good	Typical form for species. No visible defects. Minor basal epicormic shoot growth.	C,1	5.8	105.7		Long
T9	Lombardy poplar	1.0	450.0	1.0	2.0	2.0	2.0	2.0	2.0	Middle Age	Good	Typical form for species. No visible defects. Minor basal epicormic shoot growth.	C,1	5.4	91.6		Long
T10	Lombardy poplar	1.0	470.0	5.0	2.0	1.0	1.0	1.0	2.0	Middle Age	Good	Typical form for species. No visible defects. Minor basal epicormic shoot growth.	C,1	4.7	69.4		Long
T11	Lombardy poplar	1.0	480.0	12.0	2.0	2.0	2.0	1.0	2.0	Middle Age	Good	Typical form for species. No visible defects. Minor basal epicormic shoot growth.	C,1	4.8	72.4		Long
T12	Sycamore	3.0	90.0	1.0	1.0	1.0	1.0	1.0	2.0	Young	Good	Established planting of reasonable form.	C,1	1.1	3.7		Long
T13	Lombardy poplar	1.0	430.0	1.0	2.0	2.0	2.0	1.0	2.0	Middle Age	Good	Typical form for species. No visible defects. Minor basal epicormic shoot growth.	C,1	5.2	83.6		Long
T14	Sycamore	6.0	220.0	1.0	3.0	2.0	3.0	2.0	2.0	Middle Age	Good	Established planting of good form.	C,1	2.6	21.9		Long
T15	Sycamore	5.0	130.0	1.0	2.0	2.0	2.0	2.0	2.0	Young	Good	Established planting of reasonable form. Minor basal mower damage.	C,1	1.6	7.6		Long
T16	Sycamore	5.0	150.0	1.0	2.0	2.0	2.0	2.0	2.0	Young	Good	Established planting of good form.	C,1	1.8	10.2		Long
Groups																	
G1	London Plane	to 12								Young	Good	5 trees in group. Linear planting.	C,2				Long
G2	Poplar sp.	to 17								Middle Age	Good	Linear planting. Trees of form typical to species.	B,2				Long

APPENDIX 1: Arboricultural Survey Data Sheets

Ref	Species	Height	Stem Dia.	No. of stems/individuals	Crown Spread North	Crown Spread South	Crown Spread East	Crown Spread West	Height of Lowest Branch	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								Middle Age	Good	4 trees in group. Sructured planting. All individually of good form.	B,1,2				Long
G4	Silver Birch	to 8								Middle Age	Good	3 trees in group. Structured planting.	C,2				Long
G5	White Willow	to 18								Middle Age	Good	5 trees in group, all basally multi-stemmed with tight unions.	B,1,2				Long
G6	Hawthorn	to 4								Middle Age	Good	3 trees in group. Shrubby trees of reasonable form.	C,1,2				Long
G7	Silver Birch	to 7								Middle Age	Good	2 trees in group, reasonable form.	B,2				Long
G8	Crack Willow	to 7								Young to Middle Age	Poor	3 trees in group of poor form. Previous branch failures.	C,2				Medium
G9	White Willow	to 16								Middle Age	Fair	31 trees of mixed form and condition. Structured planting along existing site entrance. Minor deadwood and decay.	B,2			Monitor decay of affected trees	Long
G10	hawthorn, Blackthorn, Cherry, Field Maple	to 4								Middle Age	Good	Dense vegetation. Good bird habitat.	C,3				Long
G11	Grey Willow	to 6								Mature	Fair	Group of shrubby, multi-stemmed trees around old pond area. Some broken branches and minor deadwood.	C,2				Medium
G12	Ash	to 9								Middle Age	Good	Linear planting providing screening. Trees are of good form and are vigorous. Minor inclusions.	B,2				Long

APPENDIX 2

SURVEY METHODOLOGY

APPENDIX 2: ARBORICULTURE SURVEY METHOD

Arboricultural surveys are conducted 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).

Species The common name is given. The Latin name may also be given if further clarification is required.

Height Top height of tree recorded in metres.

Stem Diameter For single-stemmed trees the measurement is taken at 1.5 metres above ground level and recorded in millimetres.
For multi-stemmed trees the measurement is taken directly above the root flare in millimetres.
For tree groups the measurement is taken in the same way as with single-stemmed trees and is recorded in millimetres as a range from minimum to maximum diameters.

No. of Stems A count of stems arising below a height of 1.5m.

Crown Spread The N, S, E and W branch spreads are recorded in metres to provide a representative crown shape.

Height of Lowest Branch Crown clearance above ground level recorded in metres.

Tree Age

Young	Trees than can reasonably be relocated or replaced like for like, without undue cost;
Middle Age	Trees in the established growth stage of their life with the potential to continue increasing in size;
Mature	Trees that have reached their ultimate size, given their location and surroundings;
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 overall assessment of a tree's physiological and structural state in which factors that may increase its susceptibility to the effects of development are taken into account.

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

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

Tree Quality Assessment
The tree quality assessment is based on Table 1 of BS 5837:2005 (See below). Four categories (A, B, C and R) are used to denote tree quality (A = High, B = Moderate, C = Low, R = Unsuitable for retention). Subcategories (1-3) denote the specific function value of the trees and the reasoning behind the assessment (the subcategories may be used in combination but do not accumulate collective weight).

BS 5837 Root Protection Area (RPA)
The Root Protection Area (RPA) is allocated to ensure that a sufficient area is left undisturbed during development to prevent direct and indirect damage to tree roots and the soil structure.

The RPA is calculated using a mathematical equation included in BS 5837:2005 (Table 2) and is based on a trees stem diameter. In some cases the RPA may need to be adapted to ensure survival based on criteria such as the tree's condition, species and crown spread. Any alteration should be justifiable but is made at the arboriculturists discretion.

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

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
An estimation of the trees useful life expectancy.

Long	> 40 years
Medium	20 – 40 years
Short	10 – 20 years
Very Short	< 10 years

Table 1 — Cascade chart for tree quality assessment

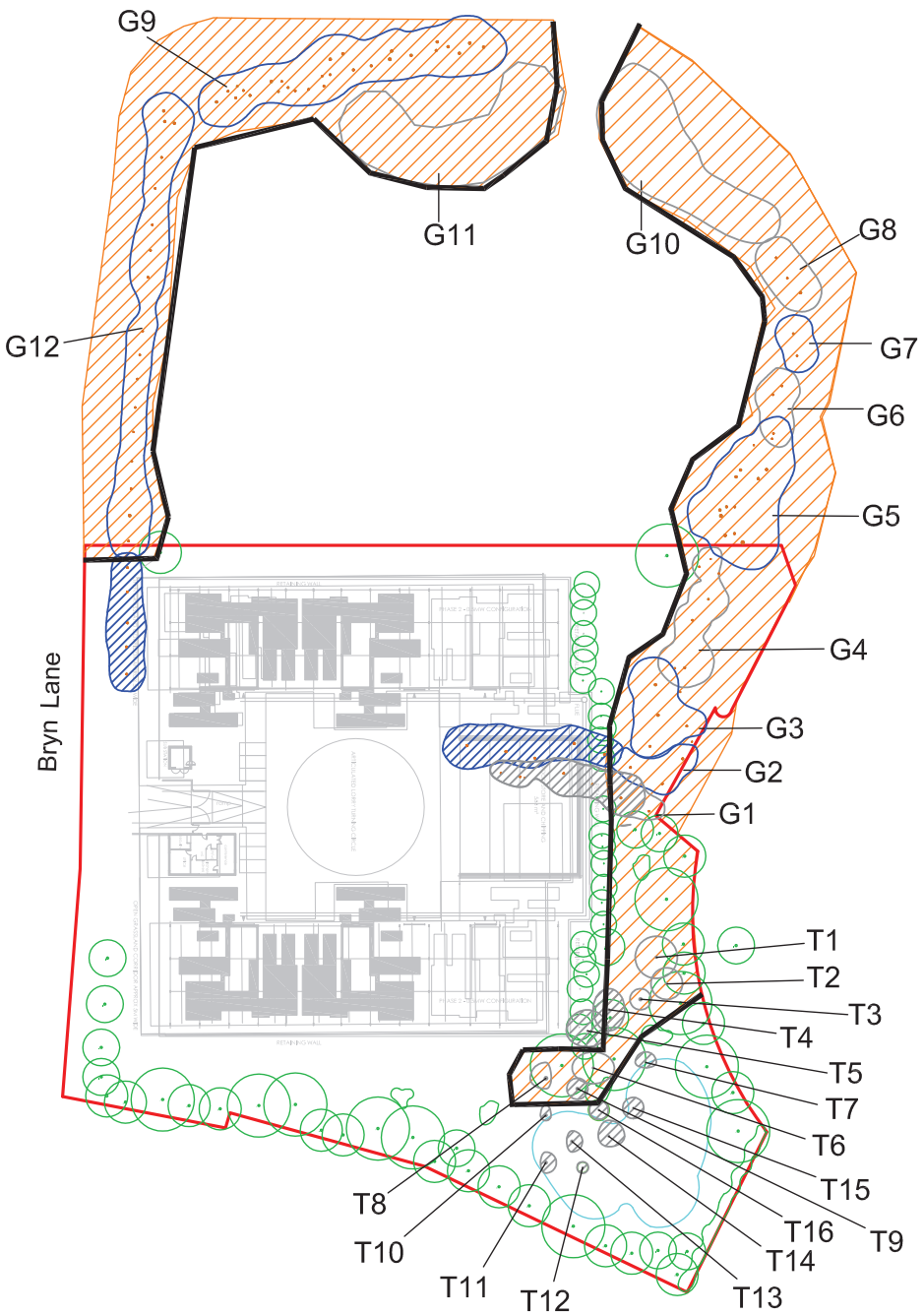
TREES FOR REMOVAL				
Category and definition	**Criteria**			**Identification on plan**
Category R Those in such a condition that any existing value would be lost within 10 years and which should, in the current context, be removed for reasons of sound arboricultural management	• Trees that have a serious, irremediable, structural defect, such that their early loss is expected due to collapse, including those that will become unviable after removal of other R category trees (i.e. where, for whatever reason, the loss of companion shelter cannot be mitigated by pruning) • Trees that are dead or are showing signs of significant, immediate, and irreversible overall decline • Trees infected with pathogens of significance to the health and/or safety of other trees nearby (e.g. Dutch elm disease), or very low quality trees suppressing adjacent trees of better quality NOTE Habitat reinstatement may be appropriate (e.g. R category tree used as a bat roost: installation of bat box in nearby tree).			DARK RED
TREES TO BE CONSIDERED FOR RETENTION				
Category and definition	**Criteria — Subcategories**			**Identification on plan**
	1 Mainly arboricultural values	**2 Mainly landscape values**	**3 Mainly cultural values, including conservation**	
Category A **Those of high quality and value:** in such a condition as to be able to make a substantial contribution (a minimum of 40 years is suggested)	Trees that are particularly good examples of their species, especially if rare or unusual, or essential components of groups, or of formal or semi-formal arboricultural features (e.g. the dominant and/or principal trees within an avenue)	Trees, groups or woodlands which provide a definite screening or softening effect to the locality in relation to views into or out of the site, or those of particular visual importance (e.g. avenues or other arboricultural features assessed as groups)	Trees, groups or woodlands of significant conservation, historical, commemorative or other value (e.g. veteran trees or wood-pasture)	LIGHT GREEN
Category B **Those of moderate quality and value:** those in such a condition as to make a significant contribution (a minimum of 20 years is suggested)	Trees that might be included in the high category, but are downgraded because of impaired condition (e.g. presence of remediable defects including unsympathetic past management and minor storm damage)	Trees present in numbers, usually as groups or woodlands, such that they form distinct landscape features, thereby attracting a higher collective rating than they might as individuals but which are not, individually, essential components of formal or semi-formal arboricultural features (e.g. trees of moderate quality within an avenue that includes better, A category specimens), or trees situated mainly internally to the site, therefore individually having little visual impact on the wider locality	Trees with clearly identifiable conservation or other cultural benefits	MID BLUE
Category C **Those of low quality and value:** currently in adequate condition to remain until new planting could be established (a minimum of 10 years is suggested), or young trees with a stem diameter below 150 mm	Trees not qualifying in higher categories	Trees present in groups or woodlands, but without this conferring on them significantly greater landscape value, and/or trees offering low or only temporary screening benefit	Trees with very limited conservation or other cultural benefits	GREY
	NOTE Whilst C category trees will usually not be retained where they would impose a significant constraint on development, young trees with a stem diameter of less than 150 mm should be considered for relocation.			

British Standards Institute 2005, p.6

NOTE: All young trees are assessed as category 'C' quality but this does not preclude their retention within a development; all retention and removal recommendations will be detailed within the Arboricultural Implications Assessment report.

DRAWING 1

TREE IMPLICATIONS AND PROTECTION PLAN



KEY

- T1 Existing trees
- G1 Existing groups of trees
- Proposed tree planting (indicative)
- Proposed pond
- Tree protection fencing
- Construction Exclusion Zone
  Dictated by Root Protection Area and canopy spread
- Development boundary

Trees/groups that can be retained

Retention values based on BS 5837:2005: Trees In Relation to Construction - Recommendations

- Category B Trees/Groups
  Trees of moderate quality and value
- Category C Trees
  Trees of low quality and value

Trees/ groups that require removal

- Category B Trees/Groups
  Trees of moderate quality and value
- Category C Trees
  Trees of low quality and value

NOTE: see Arboricultural Survey Data Sheets (Appendix 1) for further information.

Rev	Description	Drawn	Approved	Date
B	Additional trees recorded	JS	PM	15/11/10
A	Updated Layout Plan	JS	PM	12/07/10

TEP
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Project

Green Plan Energy Ltd,
Wrexham Industrial Estate

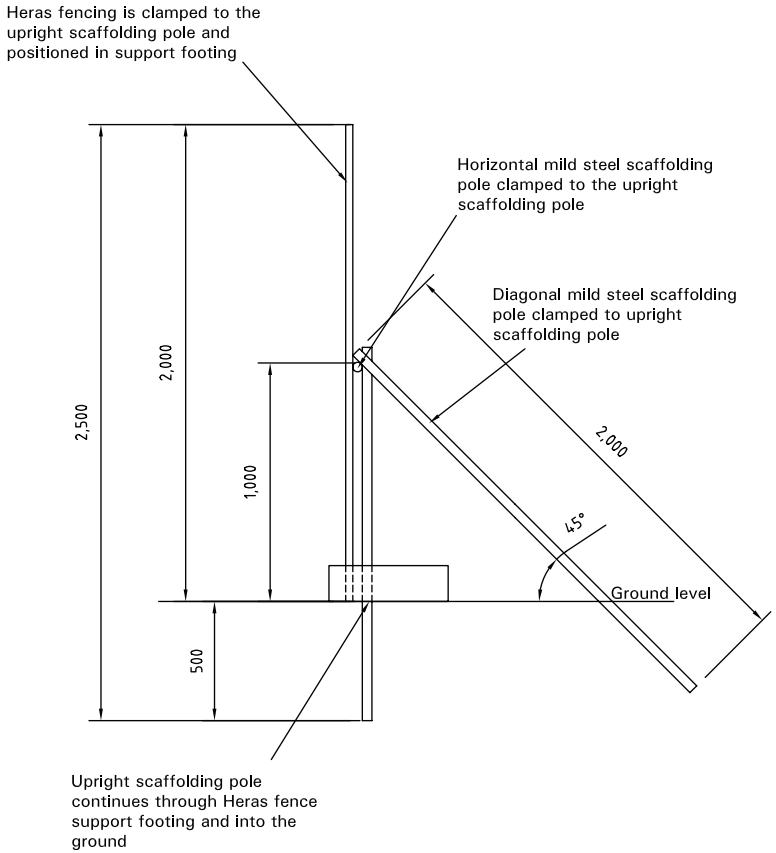
Title

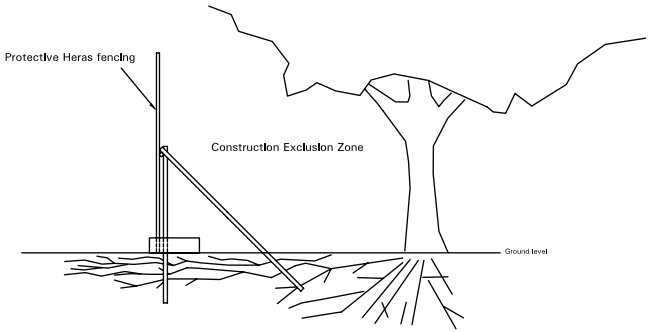
Tree Implications and Protection Plan

Drwg No		
D2264.003B		
Scale 1:1000 @ A3		Date 02/06/10
Drawn AM	Checked JS	Approved JS

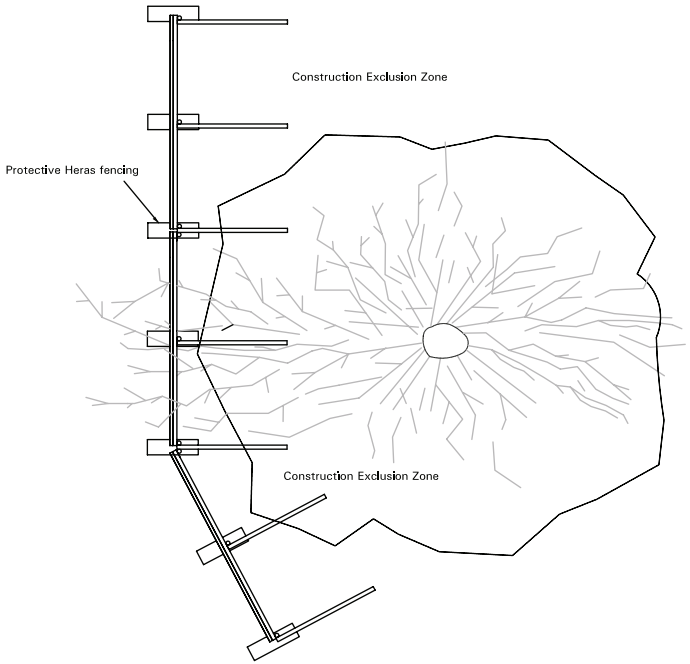
DRAWING 2

RECOMMENDED TREE PROTECTION FENCING





Indicative section of the fence detail in relation to the protection of existing trees



Indicative Plan view of the fence detail in relation to the protection of existing trees

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

Rev	Description	Drawn	Approved	Date
A	Change to annotation text	JS	RR	15/02/10

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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.003A		
Scale: NTS @ A3		Date: 26/01/10
Drawn: LG	Checked: JS	Approved: PM