



Axis

Priory Farm Solar Array Grid Connection
Arboricultural Assessment

July 2024

FPCR Environment and 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 Axis to present the findings of an Arboricultural Assessment and survey of trees located along a proposed solar array cable route across land within Little Wymondley, Stevenage, Hertfordshire (hereafter referred to as the site), OS Grid Ref TL215274.

Site Description

- 1.2 The site comprises a proposed subterranean cable route from land to the northeast of Little Wymondley (Priory Farm), along Stevenage Road, and terminating at the National Grid Wymondley Substation. Tree cover consists of roadside domestic garden planting, roadside verge lines of trees, and 3rd party owned trees and woodlands associated with boundary features.

Planning History

- 1.3 An outline planning application (Application Ref 21/03380/FP) for a proposed solar farm (c.88ha), associated battery storage, transformers, and associated infrastructure was submitted and subsequently **called in. The scheme** (Ref APP/X1925/V/23/3323321) was reviewed on behalf of the Secretary of State, with planning permission granted on 11th March 2024.
- 1.4 The approved scheme included for a grid connection cable to National Grid's Wymondley Substation off Blakemore End Road, St Ippolyts. The approved cable runs from Priory Farm Solar Array, west along Gravely Lane, before heading south along Priory Lane. The approved cable route then runs west along Stevenage Road, before heading south down Blakemore End Road, and then north into Wymondley Substation.
- 1.5 During the public inquiry, concerns were raised with regards to road closures, the potential traffic management arrangements and temporary diversions that would result from the construction of the approved cable route. Ultimately, whilst the potential impacts associated with the construction of the approved cable route were deemed to be acceptable by the Inspector and Secretary of State, and therefore did not form a reason to resist the grant of planning permission, the Applicant is still cognisant of local concerns.
- 1.6 This planning application is therefore being brought forward for an amended grid connection cable route, to avoid the use of Priory Lane. This approach would prevent the need for any full road closures. The amended route, whilst still utilising part of the highway network (Stevenage Road), would result in considerably less disruption. The affected section of Stevenage Road could be kept open during the works, with one-way signalised traffic controls employed to safely manage the flow of vehicles. This would greatly reduce the impact and further minimise disruption to local residents and businesses

Scope of Assessment

- 1.7 A tree survey and assessment of existing trees was carried out by FPCR Environment and Design on 15th & 16th February 2024 in accordance with guidance contained within British Standard 5837:2012 'Trees in Relation to Design, Demolition and Construction - Recommendations' (hereafter referred to as BS5837).

- 1.8 The purpose of this report is therefore to firstly, present the results of this assessment of the existing trees' arboricultural value, based on their current condition and quality and to secondly, provide an assessment of impact arising from the proposed re-routing of the grid connection.

2.0 SURVEY 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 has 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 the proposed development in a transparent, understandable, and systematic way.
- 2.2 Trees have been assessed as groups, hedgerow, or woodland 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.
 - For the purposes of this assessment, a hedgerow is described as any boundary line of trees or shrubs less than 5m wide at the base and are managed under a regular pruning regime.
 - For the purposes of this assessment woodland is described as a habitat where 'trees are the dominant plant form. The individual tree canopies generally overlap and interlink, often forming a more or less continuous canopy'¹. Woodlands, however, are not just formed of trees and generally include a great variety of other plants. These will include 'mosses, ferns, and lichens, as well as small flowering herbs, grasses, and shrubs'².
- 2.3 An assessment of individual trees within groups, hedgerow, and woodland has been made where a clear need to differentiate between them, for example, to highlight significant variation between attributes including physiological or structural condition or where a potential conflict may arise.

BS5837 Categories

- 2.4 Trees, groups, hedgerow, and woodland 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).
- 2.5 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.
- 2.6 Categories A, B and C are applied to trees that should be of material consideration 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.

¹ http://www.countrysideinfo.co.uk/woodland_manage/whatis.htm

² http://www.countrysideinfo.co.uk/woodland_manage/whatis.htm

- 2.7 **Category (U) – (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 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.
- 2.8 **Category (A) – (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.
- 2.9 **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.
- 2.10 **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.

Considerations and Limitations of the Tree Survey

- 2.11 The survey was completed from ground level only and from within the boundary of the site. Aerial tree inspections or an assessment of the internal condition of the stem/s or branches were not undertaken at this stage as this level of survey is beyond the scope of the initial assessment.
- 2.12 The statements made in this report regarding the assessed applies to the date of survey and cannot be assumed to remain unchanged. It will be necessary to review all comments and observations made within this report, in accordance with sound arboricultural practice, within two years of the date of survey (unless explicitly stated elsewhere within this report). Further review may also be necessary where site conditions change or works to trees are carried out which have not been specified in detail within this report.
- 2.13 Hedgerows are identified as a Habitat of Principal Importance (HPI) as listed within Section 41 of the Natural Environment and Rural Communities (NERC) Act 2006. The tree survey conducted, in accordance with BS5837, does not assess hedgerows against the Hedgerow Regulations 1997 or specifically from an ecological perspective, and is outside the scope of this assessment.

3.0 RESULTS

- 3.1 A total of thirteen individual trees, sixteen groups of trees, three woodlands and one hedgerow were surveyed as part of the Arboricultural Assessment. Trees were surveyed as individual trees, groups, hedgerow, and woodland as per the survey methodology.
- 3.2 Appendix A presents details of all individual trees, groups, hedgerow, and woodlands recorded during the assessment including heights, diameters at 1.5m from ground level, 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 (RPA), calculated in accordance with Annex C, D and Section 4.6 of BS5837:2012.
- 3.3 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.
- 3.4 The individual positions of trees, groups, hedgerow, and woodlands have been shown on the Tree Survey Plans. A topographical survey was unavailable at the time of the survey. Tree positions have been plotted using OS mapping and aerial imagery. The crown spread, root protection area and shade pattern (where appropriate) are also indicated on this plan.

Results Summary

- 3.5 The proposed route passed a diverse collection of deciduous and coniferous species, with over half of the surveyed material being graded as high and moderate quality. Much of the material was mature roadside planting, or groups of trees and woodland forming riparian planting and screening features.
- There were no Category U trees considered unsuitable for retention.
 - There were no Veteran or Ancient trees or woodland associated with the proposed route.
 - All woodland, all trees associated with Wymondley Nursing Home, and G15 are shown recorded on the National Forest Inventory.
- 3.6 Table 1 below summarises the trees assessed, and several of the trees/features have been discussed in more detail following the table, owing to their physical condition or arboricultural significance. The survey was conducted from east to west, and comments have been listed after the table accordingly.

Table 1: Summary of Trees by Retention Category

	Individual Trees	Total	Groups of Trees	Total
Category U - Unsuitable		0		0
Category A (High Quality / Value)	T1, T2, T3, T9	4	G2, W1	2
Category B (Moderate Quality / Value)	T7, T10, T13	1	G4, G10, G13, G15, W2, W3	6
Category C (Low Quality / Value)	T4, T5, T6, T8, T11, T12	6	G1, G3, G5, G6, G7, G8, G9, G11, G12, G14, G16, H1	12

- 3.7 G2. Category A field maple *Acer campestre*. Two mature trees had intertwined forming a prominent feature at field entrance to the western end of H1.
- 3.8 W1. Category A mixed deciduous and coniferous woodland. This high-quality off-site woodland was observed from the woodland edge. A variety of ages and condition was observed, with several large sections of standing and fallen deadwood habitat. The initial planting scheme had dissolved, providing an irregular woodland edge.
- 3.9 T2 and T3. High quality Category A horse chestnut *Aesculus hippocastanum* and hornbeam *Carpinus betulus*, respectively. Both off-site trees were on the eastern edge of the formal planting scheme of Wymondley Nursing Home. Both trees were particularly good examples of their species, attaining great height and girth, contributing positively toward the landscape character of their setting; both had several habitat features. Both trees were situated in close proximity to a shallow ditch.
- 3.10 G4. An off-site Category B group of moderate quality English oak *Quercus robur* and horse chestnut. All were particularly tall specimens forming a linear roadside feature on the front boundary of Wymondley Nursing Home. Although characteristic for their species, pruning works had been completed to provide road clearance.

- 3.11 Stevenage Road. A majority of the tree cover surveyed ran along either side of the main road through Little Wymondley. Stevenage Road is narrowed in several places by speed reduction stick outs, and has public footpaths intermittently along either side. Roadside verges were typically narrow, but contained many mature trees. These were complimented by additional garden planting to form an almost continuous line of trees along its entire length from the railway bridge at the eastern end of the village to the roundabout at the western end. Tree cover along the northern road edge was typically Category C low quality material, although there were several large specimens. Ash Brook was situated in a deep ditch running adjacent to the northern side of the road. The southern edge of the road had more moderate quality Category B material, which in most cases was retained in higher soil levels either behind retaining walls or on the banks of verges.
- 3.12 G15. A Category B group of moderate quality mature/over mature common ash *Fraxinus excelsior* and sycamore *Acer pseudoplatanus*. A line of c. 30 trees occupied the northern bank top of a ditch containing Ash Brook. The southern side of the Brook contained a larger area of tree planting. A public right of way followed the north edge of the group, leading through and beyond the A602 underpass.
- 3.13 T9. This high-quality Category A sycamore was situated within G15, and notable for its many large stems that made the tree an unusual and dominant component of the tree cover along Ash Brook.
- 3.14 G16. A linear group of low-quality Category C material running along the western edge of Ash Brook. Trees here followed the general line of overhead power cables, and had been managed to reduce height.
- 3.15 W3. A substantial Category B moderate quality wooded area occupying a horseshoe shaped ridge of high ground surrounding Wymondley Substation. The tree planting effort was extensive and well established, providing a diverse range of mixed deciduous and coniferous species. A variety of tree age and condition was evident, and mature and over mature individuals had been retained and interplanted. The area was well served by bridleways and public footpaths offering pleasant walking routes connecting to the village of St. Ippolyts. Tree cover dissolved into mixed species scrub and grassland on the internal side of the ridge leading down to the substation. W3 extended around the substation on the east, south and west sides, but was only surveyed as shown on the plan, and limited to observations taken from the footpath network.

Statutory Considerations

- 3.16 Local authorities have a Duty under the Town and Country Planning Act to create Tree Preservation Orders (TPO) to protect and preserve specific trees and woodlands that bring significant amenity benefit to a particular site or location.
- 3.17 Under a TPO it is a criminal offence to cut down, top, lop, uproot, or wilfully destroy a tree protected by that Order, or to cause or permit such actions, if carried out without the prior written consent of the acting LPA.

- 3.18 It is understood following consultation with the Local Planning Authority, North Hertfordshire District Council, that there are no Tree Preservation Orders or Conservation Area designations that would apply to any trees in proximity to the assessment site and therefore no statutory constraints would apply to the development in respect of trees.
- 3.19 Information provided on Tree Preservation Orders and Conservation Areas is accurate to the date of this assessment and cannot be assumed to remain unchanged. The last check was carried out on the 20th March 2024 (Pers. Comm. FPCR/North Hertfordshire District Council).

4.0 ARBORICULTURAL IMPACT ASSESSMENT

- 4.1 The following paragraphs present a summary of the tree survey and discussion of particular trees and groups recorded in the context of any 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.
- 4.2 The AIA has been based upon the Axis General Arrangement drawing depicting the proposed cable route and seeks to outline the relationship between the proposals and the existing trees and hedgerows. The proposals show a combination of Horizontal Directional Drilling (HDD) and trenching techniques.
- 4.3 The impact on trees within Little Wymondley (along Stevenage Road) is outside the scope of this assessment with the route of the cable being unchanged from that identified and approved as part of the planning approval (Application Ref 21/03380/FP).
- 4.4 An overlay of the cable route has been incorporated in the Tree Retention Plans to assist in identifying the relationship and any potential conflicts between the proposals and the existing trees and hedgerows. The plans also identify which trees would be required to be removed or retained as part of the proposals.
- 4.5 Table 2 below summarises the impact on tree stock and these impacts have been discussed in more detail following the table.

Table 2: Summary of Impact on Tree Stock

	Trees to be Retained	Total	Trees to be Removed in full or part	Total
Category U - Unsuitable		0		0
Category A (High Quality / Value)	T1, T2, T3, T9, G2, W1	6		0
Category B (Moderate Quality / Value)	T7, T10, T13, G4, G10, G13, G15, W2, W3	9		
Category C (Low Quality / Value)	T4, T5, T6, T8, T11, T12, G1, G3, G5, G6, G7, G8, G9, G11, G12, G14, G16, H1	19		0

Discussion

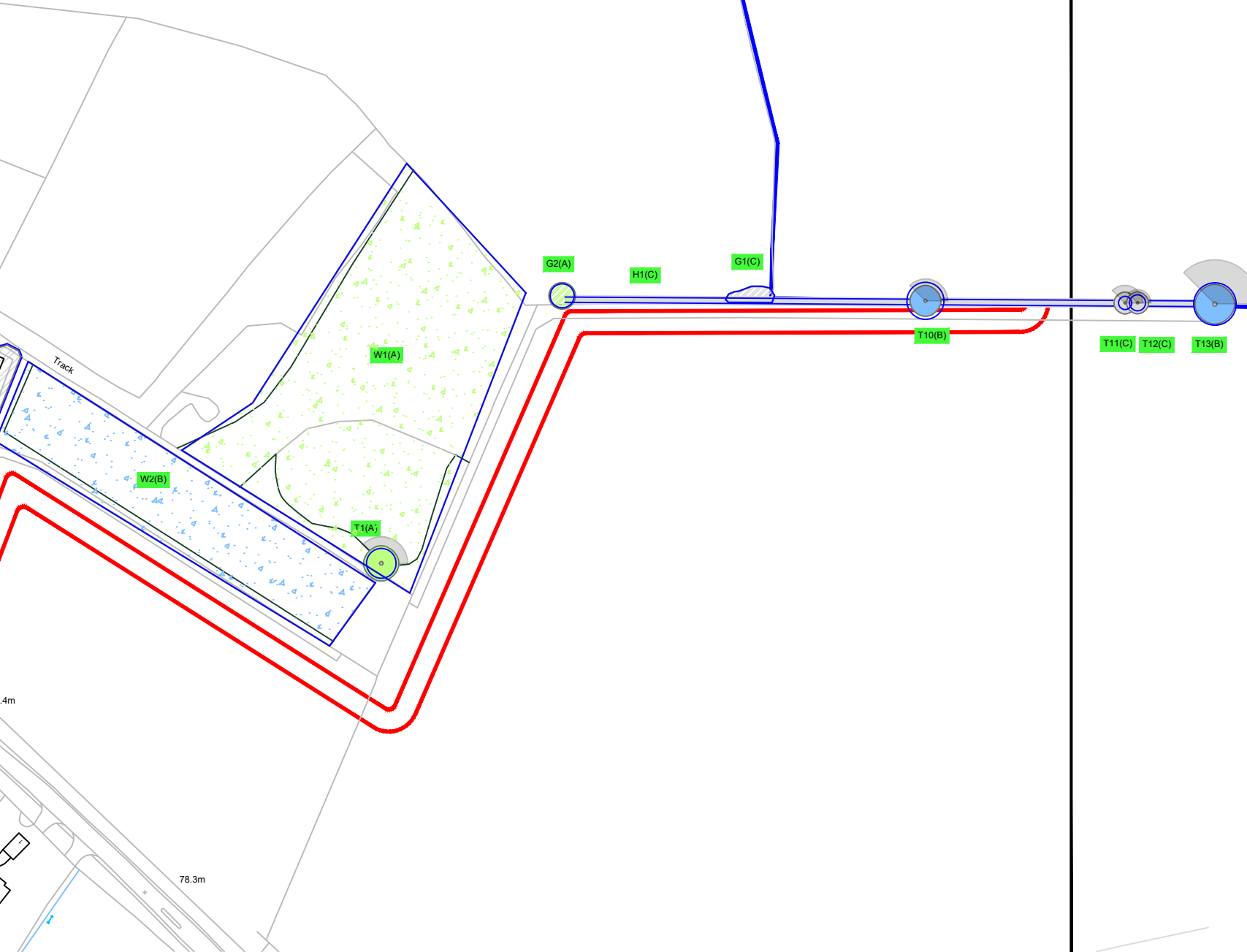
- 4.6 Trench dimensions have been prescribed for the mechanically excavated cable route, with trench dimensions between 900-1350mm deep and 900mm wide. The proposed cable route passes through the RPA of trees and tree groups within the survey. In order to minimise damage to the watercourse, footpath network, and existing tree cover, a combination of the following additional techniques is recommended:
- routing of cable trench making use of existing gaps in tree cover where possible
 - trenchless HDD technical solutions
 - broken trench – hand-dug
- 4.7 All fibrous and structural tree roots are to be retained and protected from desiccation and damage during excavation and back filling. Where root removal is necessary, this must be first agreed by the relevant statutory body, and conducted by competent arboricultural contractors under the supervision of an appointed project Arboriculturalist.
- 4.8 The proposed route for the cable is shown to run below Ash Brook and under W3 using HDD techniques.
- 4.9 The cable route is shown to run along the edge of G5 using trenching techniques, following the route of an existing footpath next to the stream. Tree removal is not considered an option given the combined arboricultural and landscape contribution provided by trees along the stream bank.
- 4.10 The cable crossing point under H1 is unsuitable for HDD techniques due to the acute angles and short distances involved. Hedge removal is not recommended on ecological grounds. The following solution is recommended:
- To employ broken trench techniques, using hand dug pits either side of the hedge, as described in the NJUG guidelines for works in proximity to trees:
- 'This technique combines hand dug trench sections with trenchless techniques if excavation is unavoidable. Excavation should be limited to where there is clear access around and below the roots. The trench is excavated by hand with precautions taken as for continuous trenching. Open sections of the trench should only be long enough to allow access for linking to the next section. The length of sections will be determined by local conditions, especially soil texture and cohesiveness, as well as the practical needs for access. In all cases the open sections should be kept as short as possible and outside of the Prohibited Zone.'*

5.0 TREE PROTECTION MEASURES

- 5.1 Retained trees should be adequately protected during works through the erection of the requisite tree protection measures. These protection measures should be detailed as part of a site-specific Arboricultural Method Statement, which can be imposed as a condition of planning.
- 5.2 Measures to protect trees should follow the guidance in BS5837 and be applied where necessary for the purpose of protecting trees within the site whilst allowing sufficient access for the implementation of the proposals.

6.0 CONCLUSION

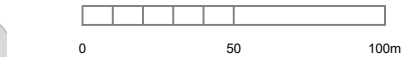
- 6.1 This report has been prepared by FPCR Environment and Design Limited on behalf of Axis to present the findings of an Arboricultural Assessment and survey of trees located along a proposed solar array grid connection cable route across land within Little Wymondley, Stevenage, Hertfordshire (hereafter referred to as the site), OS Grid Ref TL215274. The cable route runs from the approved Priory Farm Solar Array to Wymondley Substation, off Blakemore End Road.
- 6.2 Tree cover is generally mature and moderate to high quality; the proposed revised cable route between the solar array site and Wymondley substation would not result in significant arboricultural impacts but would pass through RPAs in both the built environment, and trees recorded on the National Forest Inventory.
- 6.3 Where arboricultural constraints are encountered, the appropriate guidelines should be followed to ensure construction methodologies are employed to avoid or minimise damage to tree roots and soil.



KEY

-  Category U - Trees / Groups Unsuitable for Retention (BS 5837:2012)
-  Category A - Trees / Groups of High Quality (BS 5837:2012)
-  Category B - Trees / Groups of Moderate Quality (BS 5837:2012)
-  Category C - Trees / Groups of Low Quality (BS 5837:2012)
-  Hedgerow (Colour Indicates BS5837:2012 Category)
-  Root Protection Area (The RPA has been altered where appropriate to reflect underground constraints)
-  Individual / Group Number and BS5837:2012 Category (plotted using OS mapping and aerial imagery)
-  Indicative Shade Pattern (in accordance with BS5837:2012 where appropriate)
-  Woodland (Colour Indicates BS 5837:2012 Category)

Scale 1:2500 @ A4



NOTES

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

Drawing has been produced in colour and is based on digital information in .dwg format, aerial images and/or GPS location where appropriate. A monochrome copy should not be relied upon. The exact position of individual trees or species included as part of a tree group, woodland or hedgerow should be checked and verified on site prior to any decisions for foundation design, tree operations or construction activity being undertaken. Further survey work would be required for calculating foundation depths.

Trees are living organisms that change over time, the condition of all trees illustrated herein, are to be checked by the project Arboriculturalist should works commence 12 months after the date of this survey.

SOME TREES MAY BE SUBJECT TO STATUTORY CONSTRAINTS. IT IS THEREFORE ADVISED THAT NO WORKS SHOULD BE UNDERTAKEN TO ANY TREES ILLUSTRATED HEREIN WITHOUT FIRST OBTAINING THE RELEVANT AUTHORISATION TO DO SO UNLESS AGREED AS PER THE APPROVED PLANS THROUGH PLANNING CONSENT.

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project
Priory Farm Solar Array Grid Connection

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TREE SURVEY PLAN

scale
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July 2024

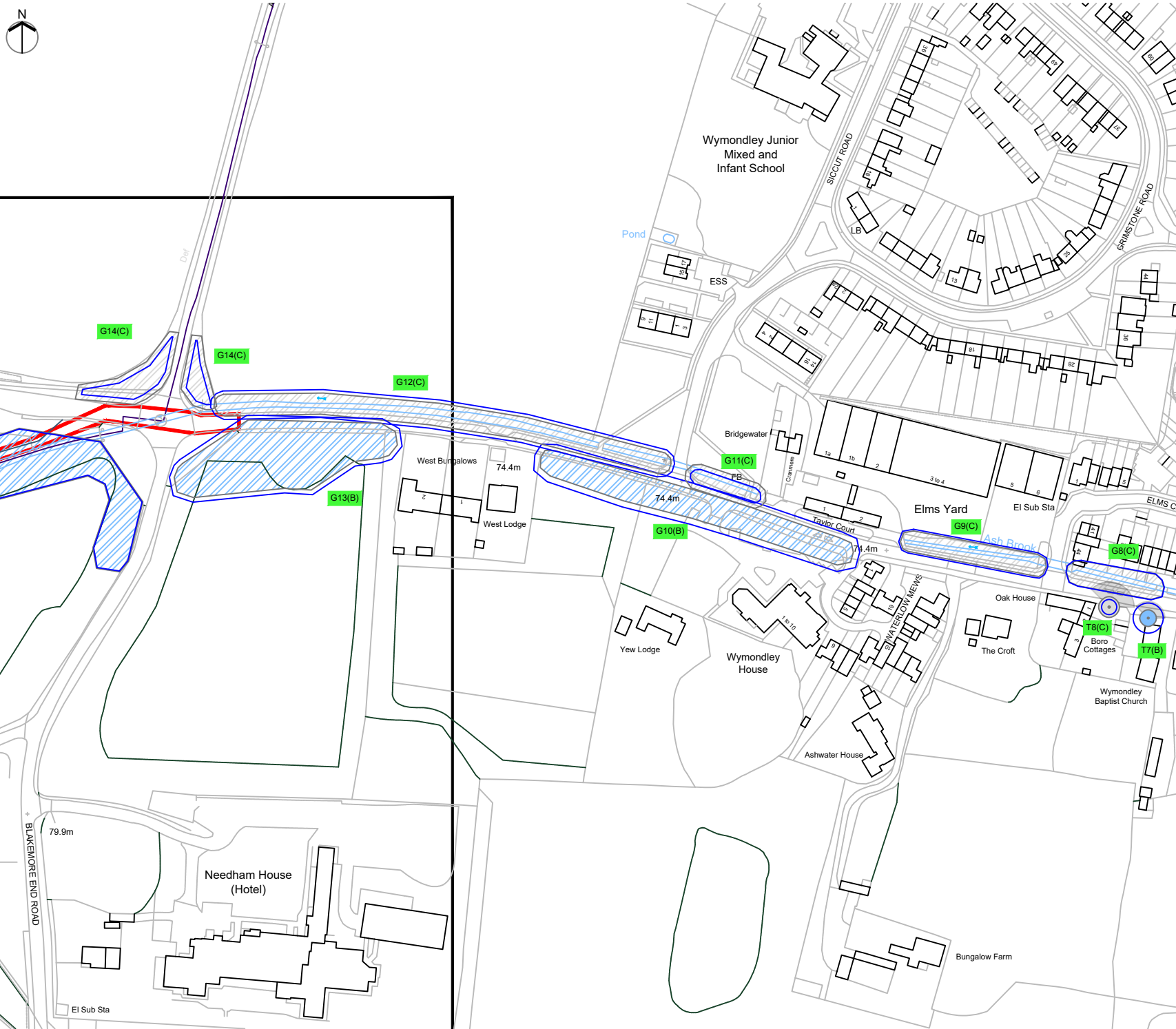
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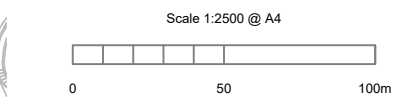
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- Category B - Trees / Groups of Moderate Quality (BS 5837:2012)
- Category C - Trees / Groups of Low Quality (BS 5837:2012)
- Hedgerow (Colour Indicates BS5837:2012 Category)
- Root Protection Area (The RPA has been altered where appropriate to reflect underground constraints)
- Individual / Group Number and BS5837:2012 Category (plotted using OS mapping and aerial imagery)
- Indicative Shade Pattern (in accordance with BS5837:2012 where appropriate)



NOTES

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-	19.03.24	First Issue	DB
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masterplanning
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project
Priory Farm Solar Array Grid Connection

drawing title
TREE SURVEY PLAN

scale
1:2500 @ A4

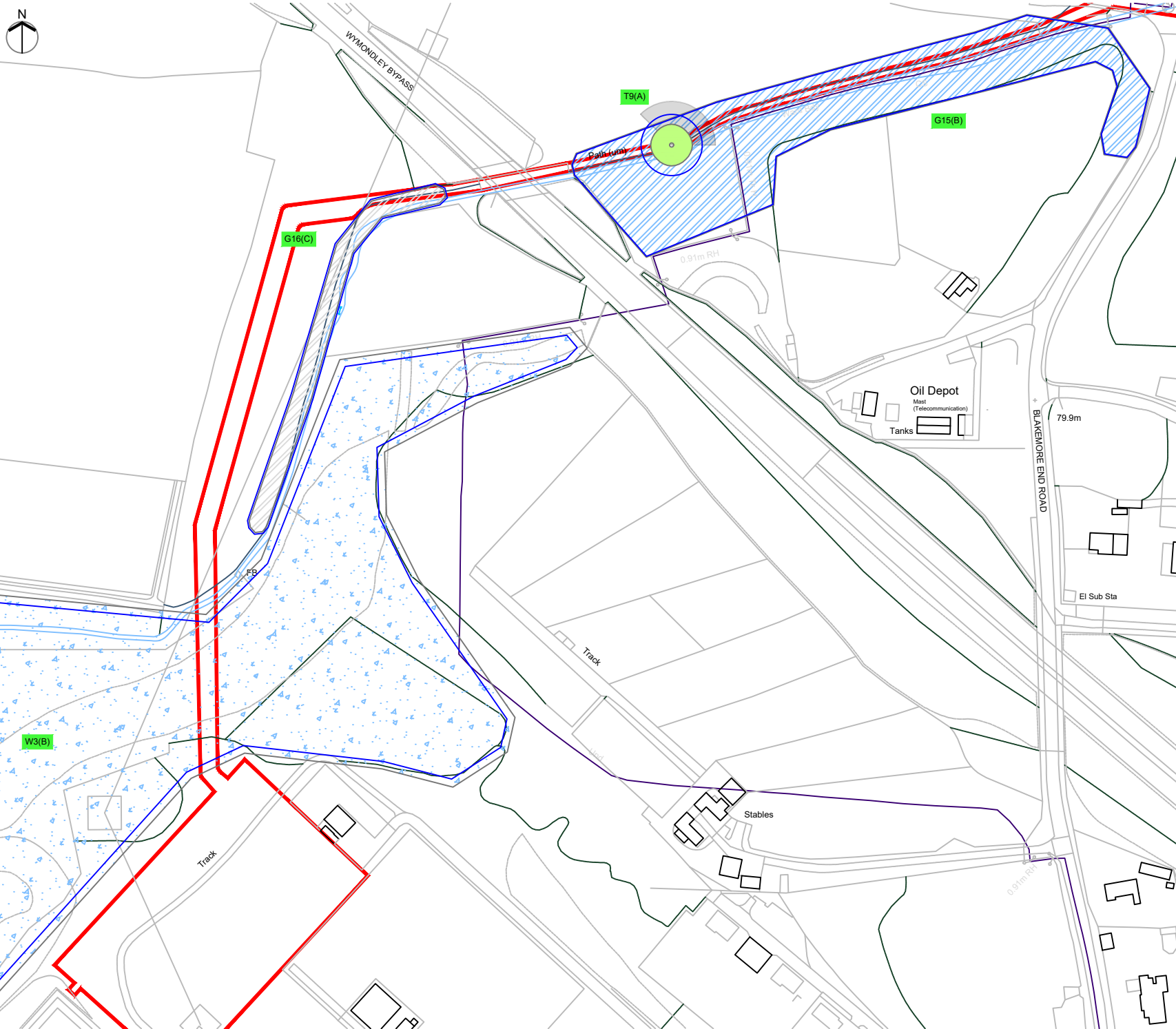
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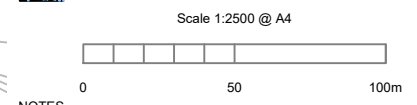
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12556-T-03

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- KEY**
- Category U - Trees / Groups Unsuitable for Retention (BS 5837:2012)
 - Category A - Trees / Groups of High Quality (BS 5837:2012)
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project
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TREE SURVEY PLAN

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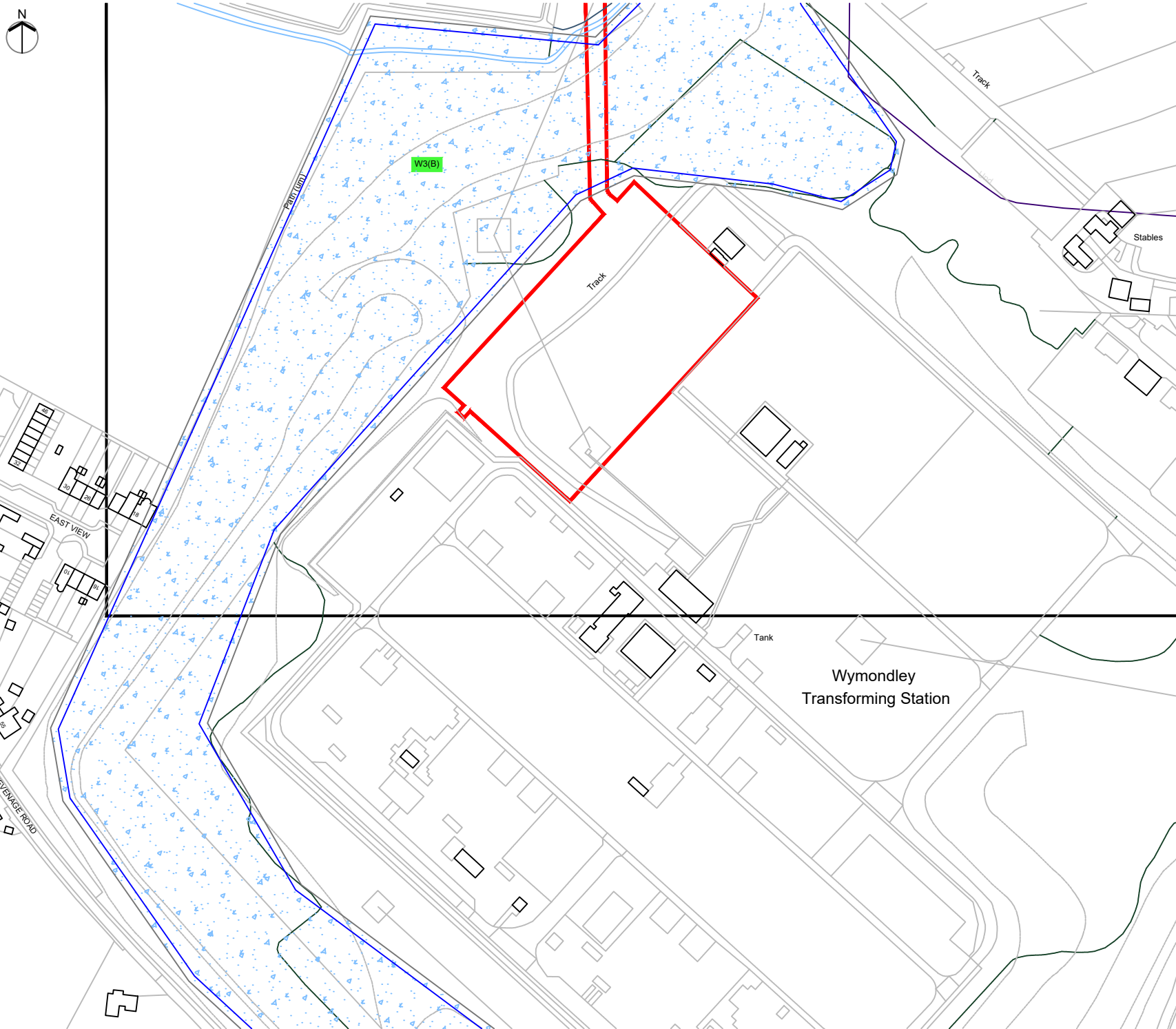
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- KEY**
-  Category U - Trees / Groups Unsuitable for Retention (BS 5837:2012)
 -  Category A - Trees / Groups of High Quality (BS 5837:2012)
 -  Category B - Trees / Groups of Moderate Quality (BS 5837:2012)
 -  Category C - Trees / Groups of Low Quality (BS 5837:2012)
 -  Hedgerow (Colour Indicates BS5837:2012 Category)
 -  Root Protection Area (The RPA has been altered where appropriate to reflect underground constraints)
 -  Individual / Group Number and BS5837:2012 Category (plotted using OS mapping and aerial imagery)
 -  Indicative Shade Pattern (in accordance with BS5837:2012 where appropriate)
 -  Woodland (Colour Indicates BS 5837:2012 Category)

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0 50 100m

NOTES

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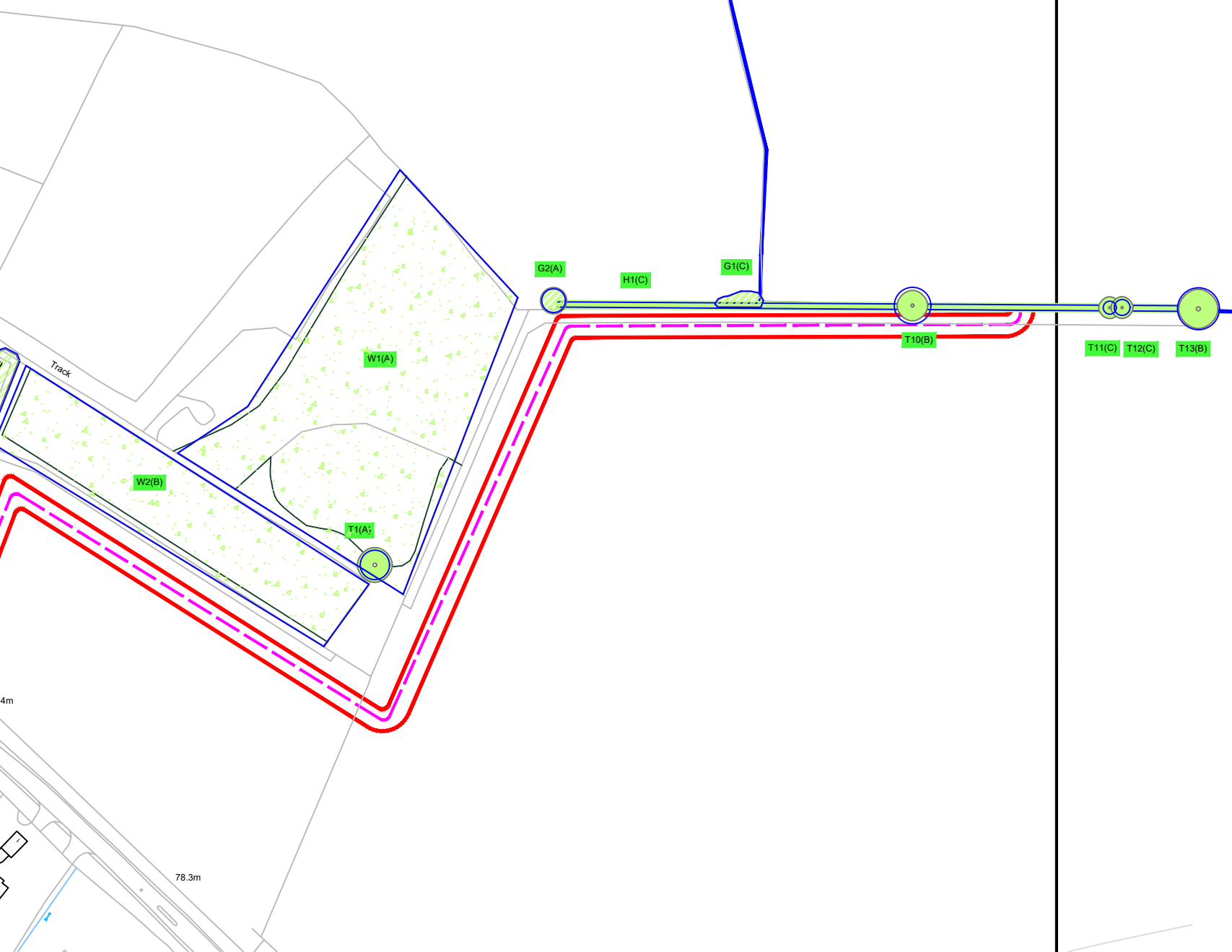
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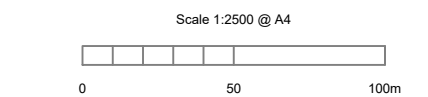
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KEY

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-  Woodland to be Retained
-  Tree/Group proposed to be removed subject to relevant permissions
-  Individual / Group Number to be removed and BS 5837:2012 Category
-  Hedgerow Proposed to be Retained and Incorporated into the New Development
-  Hedgerow proposed to be removed subject to relevant permissions
-  Root Protection Area (The RPA has been altered where appropriate to reflect underground constraints)
-  Individual / Group Number and BS5837:2012 Category (plotted using OS mapping and aerial imagery)



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project
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drawing title
TREE RETENTION PLAN

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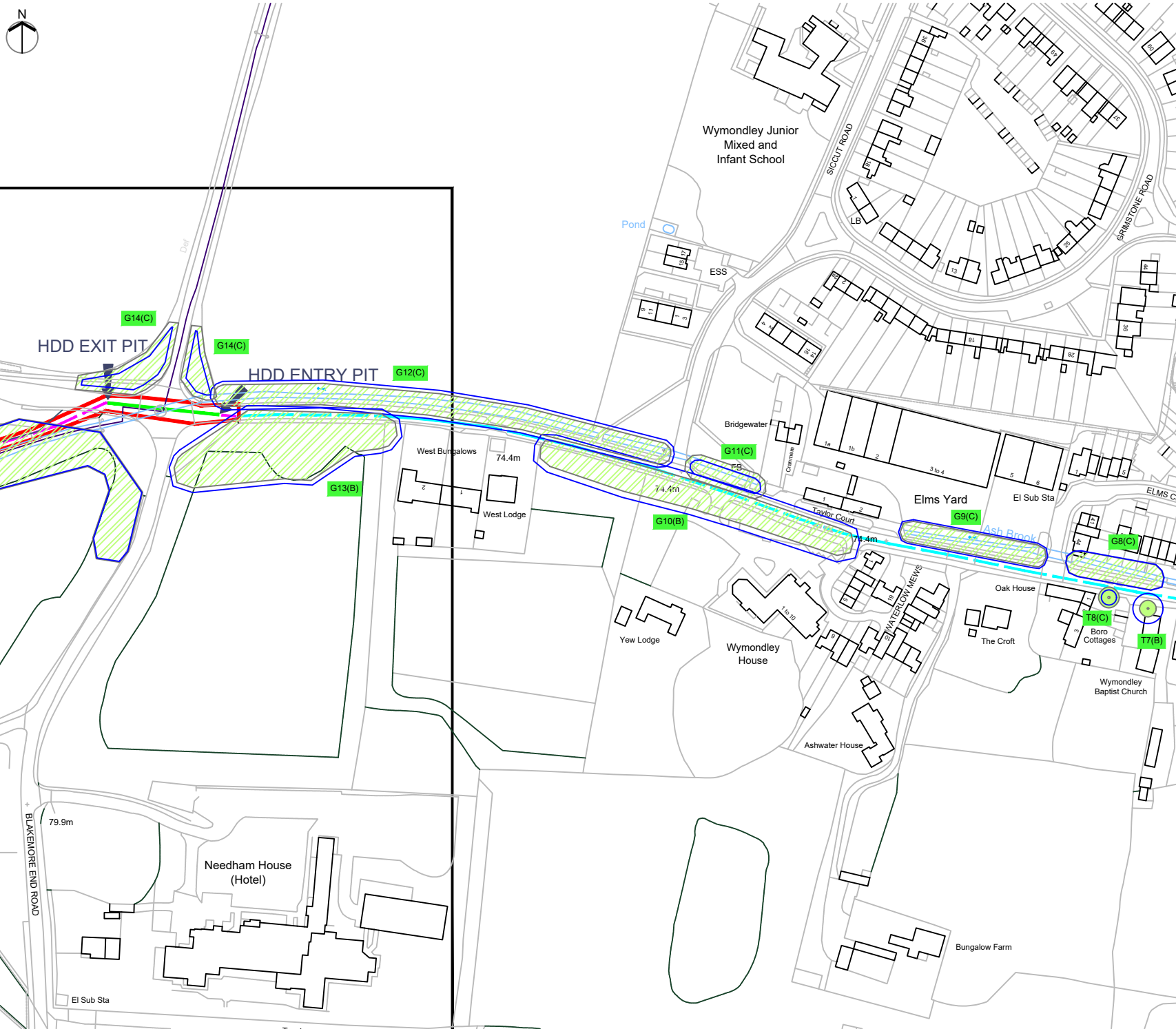
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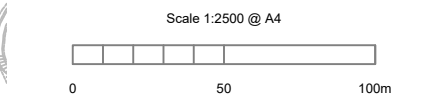
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- KEY**
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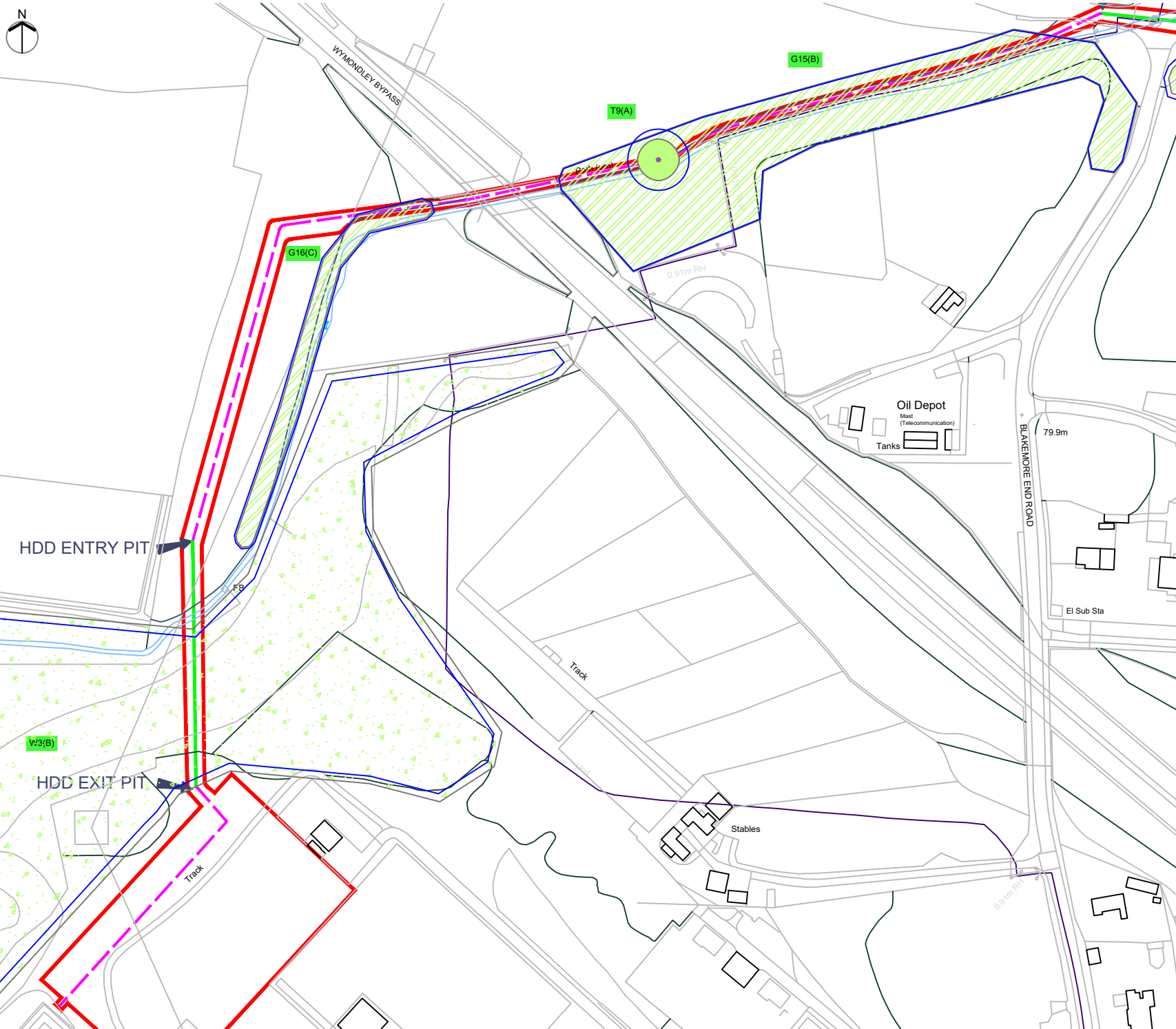
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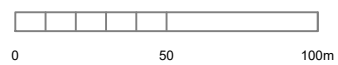
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drawing title
TREE RETENTION PLAN

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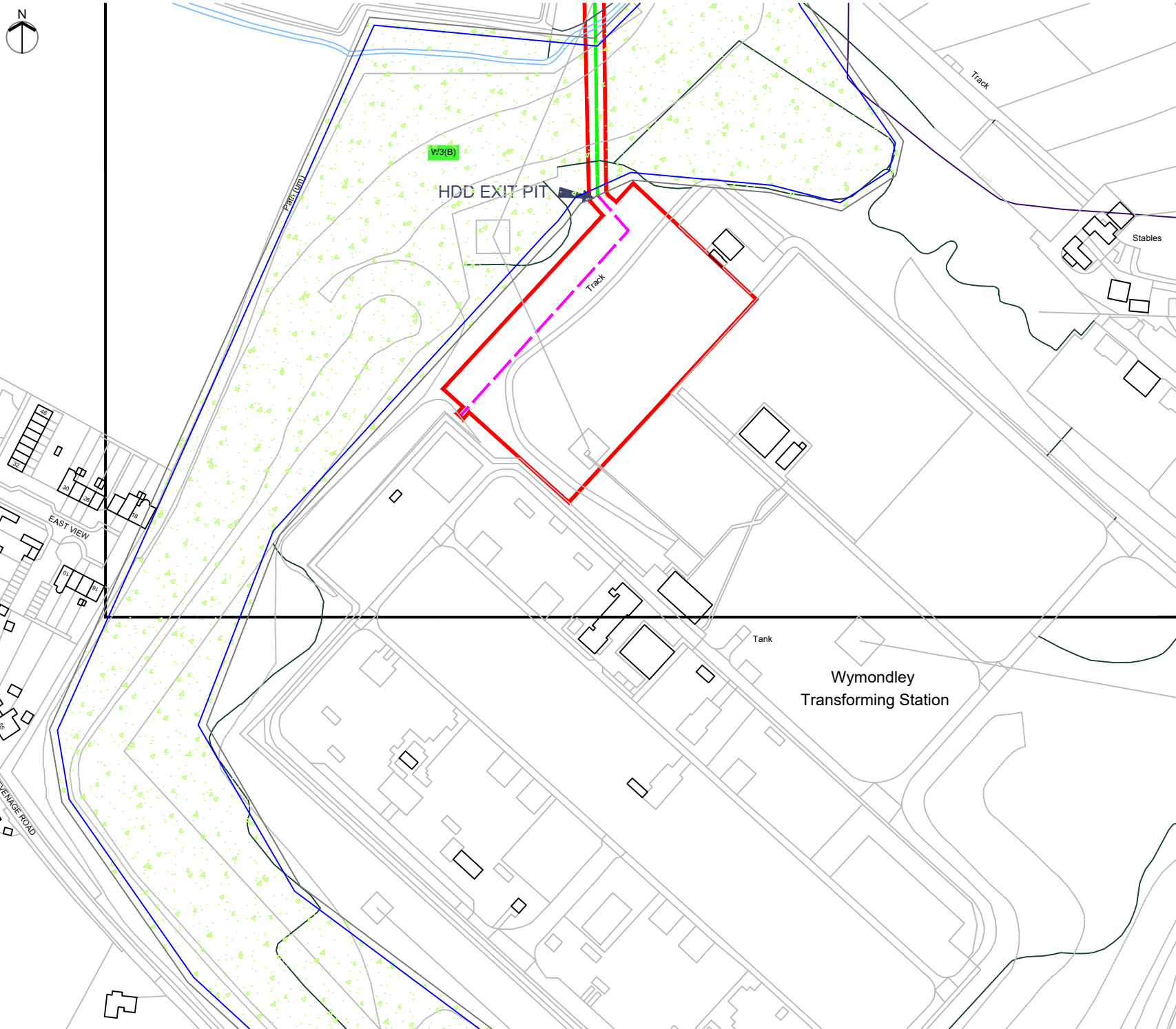
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drawing number 12556-T-10	rev -	

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Appendix A - Tree Schedule

Measurements	Age Classes	Quality Assessment of BS Category	ULE (relates to BS Category)
Height - Measured using a digital laser clinometer (m)	YNG: Establishing, typically with good vigour and fast growth rates and strong apical dominance; c. less than 1/3 life expectancy	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.	<10 years
Stem Dia. - Diameter measured (mm) in accordance with Annex C of the BS5837	SM: Semi-mature trees less than 1/3 life expectancy	Category A - Trees of high quality with an estimated remaining life expectancy of at least 40 years.	40+ years
Crown Radius - Measured using a digital laser clinometer radially from the main stem (m)	EM: Established, typically vigorous and increasing in apical height and lateral spread; 1/3 - 2/3 life expectancy. Offers landscape significance	Category B - Trees of moderate quality with an estimated remaining life expectancy of at least 20 years.	20-40 years
Abbreviations est - Estimated stem diameter avg - Average stem diameter for multiple stems upto - Maximum stem diameter of a group	M: Fully established over 2/3 life expectancy, generally good vigour and achieving full height potential with crown still spreading	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.	10-20 years
	OM: Fully mature, at the extremes of expected life expectancy, vigour decreasing, declining or moribund	Sub-categories: (i) - Mainly arboricultural value (ii) - Mainly landscape value (iii) - Mainly cultural or conservation value	
	V: biological, cultural or aesthetic value comprising niche saproxylic habitat. Individuals of large proportions (stem girth) in comparison to trees of the same species/surviving beyond the typical age range for their species.	The BS category particular consideration has been given to the following: - The presence of any structural defects in each tree/group and its future life expectancy - The size and form of each tree/group 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 and life expectancy	

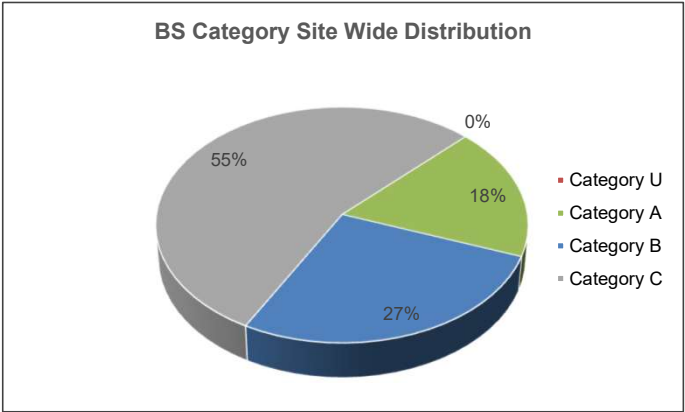
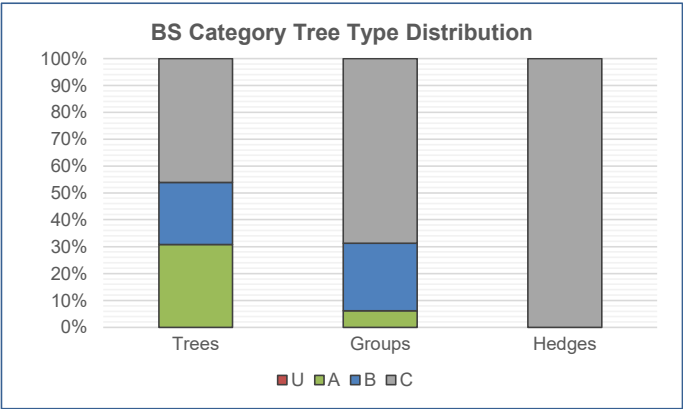
Structural Condition	Physiological Condition	Root Protection Area (RPA)
Good - No significant structural defects	Good - No significant health problems	- The RPA Radius column provides the extent of an equivalent circle from the centre of the stem (m). - The RPA is calculated using the formulae described in paragraph 4.6.1 of British Standard 5837: 2012 and is indicative of the rooting area required for a tree to be successfully retained. Tree roots extend beyond the calculated RPA in many cases and where possible a greater distance should be protected. - Where veteran trees have been identified the RPA has been calculated in accordance with Natural England guidance i.e. 15x the stem diameter, uncapped.
Fair - Structural defects that can be remediated	Fair - Symptoms of ill-health that can be remediated	
Poor - Significant defects beyond remediation, present a risk of failure in the foreseeable future	Poor - Significant ill-health. Unlikely the tree will recover in the long term	
Dead - Dead tree with structural integrity of tree severely compromised	Advanced Decline / Dead - Advanced state of decline and unlikely to recover or Dead	

Appendix Summary

	Individual Trees	Totals	Tree Groups and Hedgerows	Totals
Category U		0		0
Category A	T1, T2, T3, T9	4	G2, W1	2
Category B	T7, T10, T13	3	G4, G10, G13, G15, W2, W3	6
Category C	T4, T5, T6, T8, T11, T12	6	G1, G3, G5, G6, G7, G8, G9, G11, G12, G14, G16, H1	12
	Total	13	Total	20

BS Category Tree Type Distribution displays the proportion of trees assessed in each type to enable a better understanding of the category distribution.

BS Category Site Wide Distribution shows the proportion of trees assessed in each category across the whole site which allows an interpretation of the site's overall quality.



Tree No	Species	Height	Stem Dia.	Crown Radius	Age Class	Overall Condition	Structural Condition	RPA	RPA Radius	BS5837 Cat
INDIVIDUAL TREES										
T1	English Oak Quercus robur	12	560	8	M	G	Characteristic for species Compacted ground at the base Minor dead wood evident in the crown (<75mm) Situated offsite Typical crown form	142	6.7	A (ii)
T2	Horse Chestnut Aesculus hippocastanum	17	est 950	7	M	F	Bark wounds noted Characteristic for species Minor dead wood evident in the crown (<75mm) Potential Roost Features (PRF) Pruning wounds noted Situated offsite Unable to gain access	408	11.4	A (iii)
T3	Hornbeam Carpinus betulus	15	est 800	6	M	F	Bark wounds noted Characteristic for species Flail damage evident Heartwood exposed Minor dead wood evident in the crown (<75mm) Multi leadered form Pollarded form(s) Pruning wounds noted Situated offsite Unable to gain access	290	9.6	A (iii)
T4	Horse Chestnut Aesculus hippocastanum	12	upto 350 350 350 300	4	EM	F	Characteristic for species Overhead cables Pruning wounds noted Twin stemmed from base	207	8.1	C (ii)

Tree No	Species	Height	Stem Dia.	Crown Radius	Age Class	Overall Condition	Structural Condition	RPA	RPA Radius	BS5837 Cat
T5	Ash Fraxinus excelsior	16	Over ivy 690	8	M	F	Base obscured Broken branches evident Characteristic for species Compacted ground at the base Major dead wood evident in the crown (>75mm) Potential Roost Features (PRF) Daldinia concentrica King Alfreds Cakes Inonotus hispidus Shaggy bracket	215	8.3	C (ii)
T6	Yew Taxus baccata	9	360	3	SM	F	Characteristic for species Compacted ground at the base	59	4.3	C (ii)
T7	Yew Taxus baccata	8	600	4	EM	F	Characteristic for species Compacted ground at the base Lapsed Pollard Multi leaded form Multi stemmed from base	163	7.2	B (ii)
T8	Norway Maple Acer platanoides	12	est 300	5	EM	F	Characteristic for species Compacted ground at the base Pruning wounds noted Situated offsite Unable to gain access	41	3.6	C (ii)
T9	Sycamore Acer pseudoplatanus	21	6x 500	10	M	G	Characteristic for species Included bark union Light ivy cover Minor dead wood evident in the crown (<75mm) Multi stemmed from base Pruning wounds noted	679	14.7	A (ii)
T10	English Oak Quercus robur	10	700	7	EM	G	Base obscured Characteristic for species	222	8.4	B (ii)

Tree No	Species	Height	Stem Dia.	Crown Radius	Age Class	Overall Condition	Structural Condition	RPA	RPA Radius	BS5837 Cat
T11	Ash Fraxinus excelsior	8	250	5	SM	F	Characteristic for species	28	3.0	C (i)
T12	English Oak Quercus robur	6	300	5	SM	F	Characteristic for species	41	3.6	C (ii)
T13	English Oak Quercus robur	20	800	9	M	G	Characteristic for species	290	9.6	B (ii)

Group No	Species	Height	Stem Dia.	Crown Radius	Age Class	Overall Condition	Structural Condition	RPA	RPA Radius	BS5837 Cat
GROUPS OF TREES										
G1	Hawthorn Crataegus monogyna English Elm Ulmus procera	5	est 100	2	Yng / SM	F	Characteristic for species Dense undergrowth at the base Potential Roost Features (PRF) Situated offsite Unable to gain access Small group associated with large section of deadwood habitat	5	1.2	C (ii)
G2	Field Maple Acer campestre	11	est 450	6	OM	F	Basal cavity observed Branch stubs evident Characteristic for species Crossing and rubbing branches Interlocking crowns Minor dead wood evident in the crown (<75mm) Potential Roost Features (PRF) Pruning wounds noted Situated offsite 2 medium/large intertwined trees at field entrance/gateway	92	5.4	A (iii)
G3	Ash Fraxinus excelsior Elder Sambucus nigra Sycamore Acer pseudoplatanus Wych Elm Ulmus glabra Hazel Corylus avellana Sweet Chestnut Castanea sativa	13	est 300	3	SM / EM	F	Characteristic for species Minor dead wood evident in the crown (<75mm) Situated offsite Squirrel damage observed Unable to gain access A tangled linear group on west side of ditch, forming a boundary feature with the Nursing Home	41	3.6	C (ii)

Group No	Species	Height	Stem Dia.	Crown Radius	Age Class	Overall Condition	Structural Condition	RPA	RPA Radius	BS5837 Cat
G4	English Oak Quercus robur Horse Chestnut Aesculus hippocastanum	22	Over ivy 780	6	SM / EM / M / OM	F	Branch socket cavities observed Branch stubs evident Characteristic for species Compacted ground at the base Dense ivy cover on main stem Established ivy cover Potential Roost Features (PRF) Pruning wounds noted Single stem forms Situating offsite Roadside trees and planting in Nursing Home. This group forms a linear group of large mature roadside trees. A group of formally planted conifers occupies the landscaped area of the Nursing Home	275	9.4	B (ii)
G5	Field Maple Acer campestre Hawthorn Crataegus monogyna English Elm Ulmus procera Hazel Corylus avellana Holly Ilex aquifolium Hornbeam Carpinus betulus Laural Prunus Laurocerasus Yew Taxus baccata	8	upto 300	2	SM	F	Base obscured Characteristic for species Compacted ground at the base Dense ivy cover on main stem Interlocking crowns Multi stemmed from base A line of tree cover forming a linear roadside feature	41	3.6	C (ii)
G6	Swedish Whitebeam Sorbus intermedia Chanticleer Pear Pyrus calleryana Chanticleer Pyrus sp.	11	upto 340	3	Yng / SM	F	Bark wounds noted Basal suckers present Broken branches evident Compacted ground at the base A line of trees occupying open space/roadside verge	52	4.1	C (ii)

Group No	Species	Height	Stem Dia.	Crown Radius	Age Class	Overall Condition	Structural Condition	RPA	RPA Radius	BS5837 Cat
G7	Beech Fagus sylvatica Sycamore Acer pseudoplatanus English Elm Ulmus procera Laural Prunus Laurocerasus Small leaved Lime Tilia cordata Yew Taxus baccata	15	est 500	5	Yng / M	F	Base obscured Broken branches evident Compacted ground at the base Crown had been topped Light ivy cover Minor dead wood evident in the crown (<75mm) Overhead cables Pruning wounds noted Situating offsite Unable to gain access A group of trees in a roughly linear feature of garden and roadside planting	113	6.0	C (ii)
G8	Common Lime Tilia x europaea Sycamore Acer pseudoplatanus Hawthorn Crataegus monogyna Prunus insititia English Elm Ulmus procera	16	upto 500	6	SM / EM / M	P	Basal suckers present Base obscured Branch socket cavities observed Branch stubs evident Broken branches evident Compacted ground at the base Crossing and rubbing branches Dead trees noted Dense ivy cover on main stem Dense undergrowth at the base Failed trees Interlocking crowns Light ivy cover Minor dead wood evident in the crown (<75mm) Overhead cables Pruning wounds noted A line of trees, Limes being the tallest, forming a linear roadside feature	113	6.0	C (ii)

Group No	Species	Height	Stem Dia.	Crown Radius	Age Class	Overall Condition	Structural Condition	RPA	RPA Radius	BS5837 Cat
G9	Common Lime Tilia x europaea Sycamore Acer pseudoplatanus	19	upto 480	5	Yng / M	F	Basal suckers present Branch stubs evident Broken branches evident Characteristic for species Compacted ground at the base Dense ivy cover on main stem Established ivy cover Major dead wood evident in the crown (>75mm) Minor dead wood evident in the crown (<75mm) Multi leadered form Multi stemmed from base Overhead cables Pruning wounds noted Typical crown form A line of tall roadside Limes, with one smaller Sycamore	104	5.8	C (ii)
G10	Ash Fraxinus excelsior Sycamore Acer pseudoplatanus English Elm Ulmus procera	18	upto 750	6	Yng / SM / EM / M / OM	F	Branch stubs evident Broken branches evident Characteristic for species Compacted ground at the base Light ivy cover Major dead wood evident in the crown (>75mm) Minor dead wood evident in the crown (<75mm) Potential Roost Features (PRF) Group of trees associated with Wymondley House	254	9.0	B (ii)
G11	Ash Fraxinus excelsior Sycamore Acer pseudoplatanus Prunus sp.	17	upto 300	6	EM	F	Base obscured Characteristic for species Compacted ground at the base Dense ivy cover on main stem	41	3.6	C (ii)

Group No	Species	Height	Stem Dia.	Crown Radius	Age Class	Overall Condition	Structural Condition	RPA	RPA Radius	BS5837 Cat
G12	Ash Fraxinus excelsior Hawthorn Crataegus monogyna Sycamore Acer pseudoplatanus English Elm Ulmus procera	11	upto 550	5	SM / EM	P / F	Base obscured Branch stubs evident Broken branches evident Compacted ground at the base Dense ivy cover on main stem Dense undergrowth at the base Dieback of the crown observed Interlocking crowns Major dead wood evident in the crown (>75mm) Minor dead wood evident in the crown (<75mm) A long linear roadside feature	137	6.6	C (ii)
G13	Elder Sambucus nigra Hawthorn Crataegus monogyna Sycamore Acer pseudoplatanus Wych Elm Ulmus glabra Scots Pine Pinus sylvestris	20	upto 850	8	EM / M / OM	F	Base obscured Characteristic for species Dense ivy cover on main stem Major dead wood evident in the crown (>75mm) Minor dead wood evident in the crown (<75mm) Ownership undetermined Situated offsite A group of large Sycamore, with smaller other species	327	10.2	B (ii)
G14	Ash Fraxinus excelsior English Oak Quercus robur Field Maple Acer campestre Hawthorn Crataegus monogyna Silver Birch Betula pendula Wild Cherry Prunus avium Hazel Corylus avellana Holly Ilex aquifolium	13	upto 300	6	Yng / SM / EM	P / F / G	Bark wounds noted Basal cavity observed Base obscured Branch stubs evident Broken branches evident Characteristic for species Compacted ground at the base Dead trees noted Established ivy cover Failed trees Interlocking crowns Major dead wood evident in the crown (>75mm) Minor dead wood evident in the crown (<75mm) Trees associated with the roundabout	41	3.6	C (ii)

Group No	Species	Height	Stem Dia.	Crown Radius	Age Class	Overall Condition	Structural Condition	RPA	RPA Radius	BS5837 Cat
G15	Ash Fraxinus excelsior Sycamore Acer pseudoplatanus	20	upto 550	7	M / OM	F	Characteristic for species Close cultivation of the soil Established ivy cover Major dead wood evident in the crown (>75mm) Minor dead wood evident in the crown (<75mm) Potential Roost Features (PRF) Unable to gain access Underpass flooded. Circa 30 stems on north side of bank with denser woodland cover on south side	137	6.6	B (ii)
G16	Hawthorn Crataegus monogyna Sycamore Acer pseudoplatanus	5	est 400	4	SM	F	Characteristic for species Crown had been heavily reduced Minor dead wood evident in the crown (<75mm) Pollarded form(s) Many trees heavily reduced away from powerlines	72	4.8	C (ii)

Hedge No	Species	Height	Stem Dia.	Crown Radius	Age Class	Overall Condition	Structural Condition	RPA	RPA Radius	BS5837 Cat
HEDGEROWS										
H1	Elder Sambucus nigra Hawthorn Crataegus monogyna English Elm Ulmus procera Hazel Corylus avellana	5	est 100	2	SM / EM	F	Base obscured Branch stubs evident Broken branches evident Characteristic for species Dead trees noted Flail damage evident Light ivy cover Minor dead wood evident in the crown (<75mm) Outgrown hedgerow Rabbit burrows at base Situated offsite Unable to gain access Ophiostoma novo-ulmi Dutch elm disease	5	1.2	C (ii)

Wood No	Species	Height	Stem Dia.	Crown Radius	Age Class	Overall Condition	Structural Condition	RPA	RPA Radius	BS5837 Cat
WOODLANDS										
W1	Ash <i>Fraxinus excelsior</i> Beech <i>Fagus sylvatica</i> Elder <i>Sambucus nigra</i> English Oak <i>Quercus robur</i> Silver Birch <i>Betula pendula</i> Wild Cherry <i>Prunus avium</i> Sweet Chestnut <i>Castanea sativa</i> Walnut <i>Juglans regia</i> Common Larch <i>Larix decidua</i> Scots Pine <i>Pinus sylvestris</i> Wild Service Tree <i>Sorbus torminalis</i> Wayfaring Tree <i>Viburnum lantana</i>	18	est 700	5	Yng / SM / EM / M	F / G	Branch socket cavities observed Branch stubs evident Broken branches evident Characteristic for species Dead trees noted Major dead wood evident in the crown (>75mm) Minor dead wood evident in the crown (<75mm) Potential Roost Features (PRF) Situated offsite Unable to gain access Woodpecker holes observed Mixed deciduous and coniferous plantation. Species observed from woodland edge	222	8.4	A (ii)

Wood No	Species	Height	Stem Dia.	Crown Radius	Age Class	Overall Condition	Structural Condition	RPA	RPA Radius	BS5837 Cat
W2	Ash Fraxinus excelsior Beech Fagus sylvatica Field Maple Acer campestre Goat Willow Salix caprea Hawthorn Crataegus monogyna Wild Cherry Prunus avium Wych Elm Ulmus glabra Hazel Corylus avellana Sessile Oak Quercus petraea Wayfaring Tree Viburnum lantana Walnut Juglans regia	11	est 250	4	SM / EM	G	Characteristic for species Flail damage evident Minor dead wood evident in the crown (<75mm) Pruning wounds noted Single stem forms Situated offsite Unable to gain access Mixed deciduous plantation. Species observed from woodland edge	28	3.0	B (ii)

Wood No	Species	Height	Stem Dia.	Crown Radius	Age Class	Overall Condition	Structural Condition	RPA	RPA Radius	BS5837 Cat
W3	Ash Fraxinus excelsior Crack Willow Salix fragilis Elder Sambucus nigra English Oak Quercus robur Field Maple Acer campestre Hawthorn Crataegus monogyna Hazel Corylus avellana Holly Ilex aquifolium Hornbeam Carpinus betulus London Plane Platanus x hispanica Sessile Oak Quercus petraea Japanese Larch Larix kaempferi Scots Pine Pinus sylvestris Dogwood Cornus sanguinea	20	est 300	6	Yng / SM / EM / M / OM	D / P / F	Barbed Wire attached to stem/s Basal suckers present Branch socket cavities observed Branch stubs evident Broken branches evident Characteristic for species Established ivy cover Interlocking crowns Major dead wood evident in the crown (>75mm) Minor dead wood evident in the crown (<75mm) Multi leadered form Multi stemmed from base Pollarded form(s) Potential Roost Features (PRF) Storm damage present Woodpecker holes observed Extensive planting scheme around substation. Footpath and bridleway network. Occasional large mature specimens located throughout. Survey extent limited to route of internal footpaths and bridleway	41	3.6	B (ii)