Vyrnwy Land – Area B – BS 5837: 2012 Arboricultural Report and Impact Assessment

Canal & River Trust

Date: 14/01/2025

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Ref: 24539

Cura Terrae Land and Nature Limited

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Contents

EXECUTIVE SUMMARY **1**

1. INTRODUCTION **2**

1.1 CONTEXT OF THIS REPORT IN THE PLANNING SYSTEM 2
1.2 LOCATION 3
1.3 TREE DESIGNATIONS 3
1.4 PROTECTED SPECIES 3

2. TREE SURVEY METHODOLOGY **5**

2.1 SITE SURVEY 5
2.2 CALCULATION OF ROOT PROTECTION AREA (RPA) 6

3. TREE SURVEY RESULTS **7**

3.1 GENERAL SITE DESCRIPTION 7
3.2 RESULTS OF TREE SURVEY 7
3.3 ASH DIE BACK (*HYMENOSCYPHUS FRAXINEUS*) 7

4. ARBORICULTURAL IMPACT ASSESSMENT (AIA) **9**

4.1 INTRODUCTION 9
4.2 DEVELOPMENT PROPOSALS 9
4.3 TREE RETENTION AND REMOVAL 9
4.4 IMPACTS FROM CONSTRUCTION OPERATIONS 10
4.5 MITIGATION AND PROTECTION 10

5. REFERENCES **11**

APPENDIX 1: TREE SURVEY SCHEDULE **12**

APPENDIX 2: SITE PHOTOGRAPHS **17**

APPENDIX 3: FIGURES **19**

APPENDIX 4: SUFFOLK COUNTY COUNCIL ASH DIE BACK CANOPY DESCRIPTION **23**

Table 1: Summary of Tree Survey Findings 7
Table 2: Tree Survey Schedule ..... Appendix 1

Figure 1: The Design and Construction Process and Tree Care 2
Figure 2: Location Map 3
Figure 3: Tree Constraints Plan (24539-ARB-01) ..... Appendix 3
Figure 4: Tree Impacts Plan (24539-ARB-02) ..... Appendix 3
Figure 5: Arboricultural Method Statement (24539-ARB-03) ..... Appendix 3

Executive Summary

On behalf of Canal & River Trust (the Client), Cura Terrae Land and Nature Limited (CTLN) has carried out a tree survey to BS 5837:2012 *Trees in relation to design, demolition and construction – Recommendations* in December 2024 at Vyrnwy (Vyrnwy site – Area B). This survey has formed the basis for an assessment of the impacts that development proposals may have on the existing tree cover and recommends methodologies that will need to be adopted to protect retained trees during development.

The survey recorded all significant trees within the site and those which may be affected by any development proposed within the site boundary, recording a number of parameters including species, crown spread and Root Protection Area (RPA).

The RPA of any given tree is calculated in accordance with BS 5837:2012 and is generally a circular plot centred on its stem. This area around each tree should not be disturbed by excavation, compaction, contamination or other related demolition and construction activities. Minor encroachment into the RPA may be possible if specific methodologies are put in place that reduce the likelihood of the tree being negatively impacted.

The survey recorded three individual trees and four tree groups. The surveyed trees were mostly native, lapsed field boundary hedgerows of a mixed quality but also included some young planting along the eastern boundary and offsite, mixed species planting to the south, bordering the Montgomery Canal.

Access to Powys Council Planning Authority interactive spatial map has informed us that no trees within the site boundary are protected by a Tree Preservation Order (TPO) and the site is not located within a Conservation Area.

An online search using the Multi Agency Geographical Information for the Countryside (MAGIC) website for statutory conservation sites was undertaken (where appropriate) to determine the presence of Ancient Woodland within 15.0 m of the site boundary.

The Client proposes construction of landscaping bunds on land between the Montgomery Canal and the River Vyrnwy as part of the wider canal restoration scheme. This will require the removal of two trees and one group., but may have an impact on the roots, stems and canopies of retained trees unless suitable protection measures are put in place.

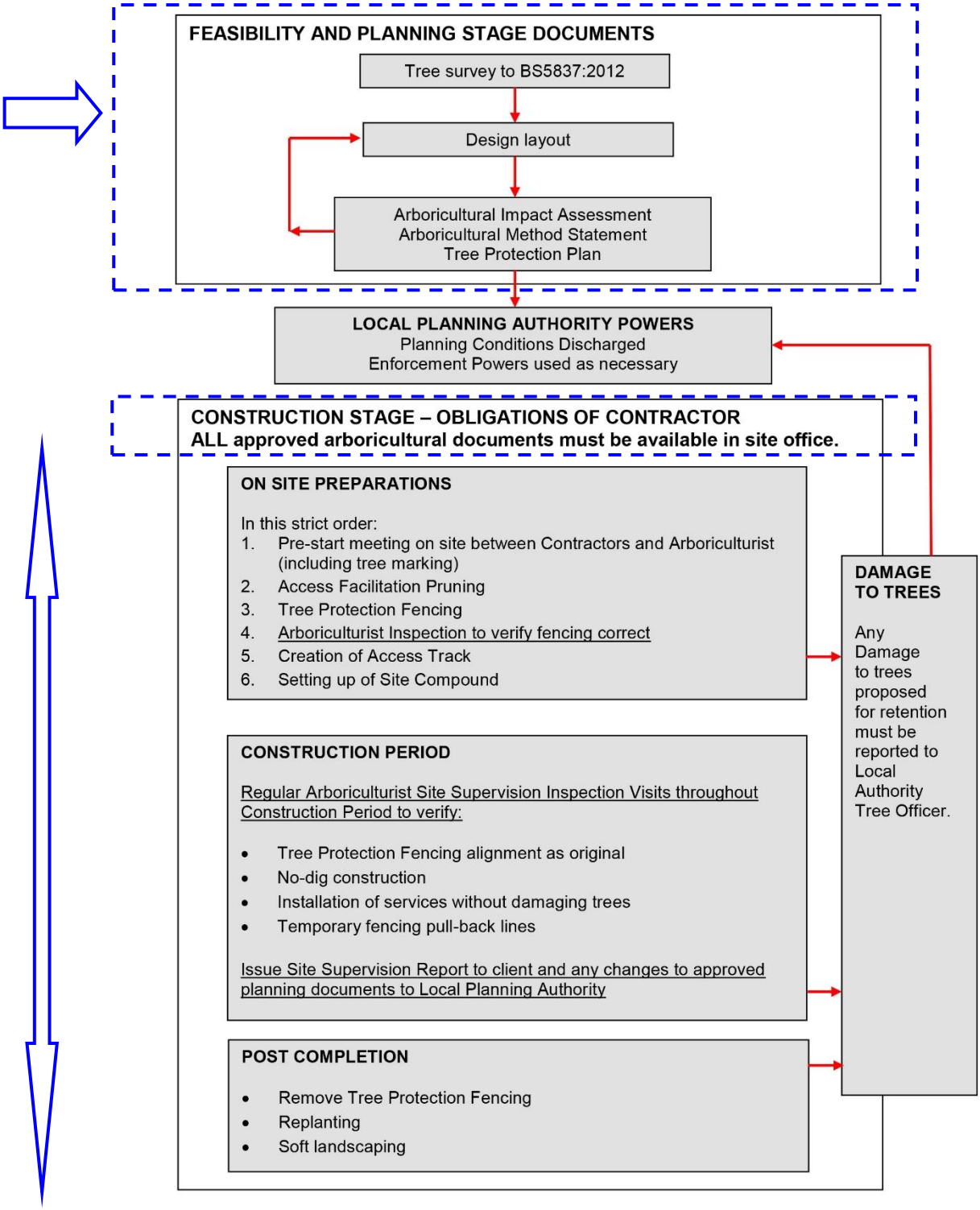
This report details the potential arboricultural impacts of development at the site and offers a range of protection measures and construction methodologies which should be adopted. These measures aim to prevent accidental damage and other adverse effects on the health of retained trees.

The report also makes recommendations for any measures to mitigate or compensate for the loss of trees within the site and the likely impact on the site and the wider local landscape.

1. Introduction

1.1 Context of this Report in the Planning System

Figure 1: The Design and Construction Process and Tree Care



1.2 Location

1.2.1 Cura Terrae Land and Nature Limited has been commissioned by the Client to undertake a tree survey of the site at Vyrnwy Reserve, on land between the Montgomery Canal and the River Vyrnwy, SY22 6PG, Ordnance Survey UK Grid Reference SJ 25835 19272, and prepare the findings in a report. The site location is shown in Figure 2.

Figure 2: Location Map

© OpenStreetMap contributors

1.3 Tree Designations

1.3.1 The information available on the Powys Council website has confirmed that the site is not located within a conservation area and no trees included in the survey are protected by a TPO - (https://en.powys.gov.uk/treepreservationorders).

1.3.2 The permission of the local planning authority must be sought before any works are carried out to protected trees. Potentially unlimited fines can be imposed for illegally carrying out any works to protected trees.

1.3.3 Reference to the Multi Agency Geographical Information for the Countryside (MAGIC) website indicates that no ancient woodland is present within a 15.0 m buffer of the site.

1.4 Protected Species

Bats

1.4.1 Mature trees can often contain cavities or hollows which provide potential roosting locations for bats. Bats and the places they use for shelter or protection (i.e. roosts) are protected under *The Conservation of Habitats and Species Regulations* 2017 (Habitats Regulations 2017). They also receive legal protection under the *Wildlife and Countryside Act* (WCA) 1981. Consequently, causing damage to a bat roost constitutes an offence.

1.4.2 Generally, should the presence of a bat roost be suspected whilst completing works on any trees on site then an appropriately licensed bat worker should be consulted for advice.

Birds

1.4.3 Trees and hedgerows can provide habitat for nesting birds which are protected under the *Wildlife and Countryside Act* (WCA) 1981. Some species are further protected by special penalties. This legislation makes it an offence to intentionally or recklessly damage or destroy an active bird nest or part thereof.

1.4.4 As the trees at the site provide potential habitat for nesting birds all tree work should ideally be completed outside the peak nesting bird season (Generally March to August inclusive).

1.4.5 If this is not possible then the vegetation should be subject to a nesting bird inspection by a suitably experienced ecologist prior to commencement of works. If active nests are identified then the vegetation, and a defined buffer zone, will need to remain in place until the young have fully fledged.

2. Tree Survey Methodology

2.1 Site survey

2.1.1 Cura Terrae have undertaken the tree survey in accordance with BS 5837:2012 *Trees in relation to design, demolition and construction – Recommendations*, to provide detailed and independent arboricultural advice in the context of potential development. The survey was a ground based visual inspection carried out by a suitably qualified arboriculturist. No trees were tagged as part of the survey.

2.1.2 The tree inspection was carried out in December 2024 by Andrew Bagshaw, Principal Arboricultural Consultant, when the deciduous trees were generally not in leaf.

2.1.3 The weather on the day of the survey was wet and overcast. This allowed for a thorough inspection of all trees included in the survey.

2.1.4 The survey recorded all trees with a stem diameter of 75 mm or more at a height of 1.5 m above ground level within the site boundary. Any significant trees outside the boundary which could be significantly affected by the future development of the site were also recorded.

2.1.2 The following characteristics were recorded:

- Species
- Stem diameter at 1.5 m above ground level (mm)
- Estimated height (m)
- Approximate crown spread (m) in North, East, South and West directions
- Estimate of the number of years that the tree is likely to remain suitable for retention
- Age class
- Condition category in accordance with BS 5837:2012. The categories are defined as:
    - Category U = Those in such a condition that they cannot realistically be retained as living trees in the context of the current land use for longer than 10 years
    - Category A = Trees of high quality with an estimated remaining life expectancy of at least 40 years
    - Category B = Trees of moderate quality with an estimated remaining life expectancy of at least 20 years
    - Category C = Trees of low quality with an estimated remaining life expectancy of at least 10 years, or young trees with a stem diameter below 150 mm
- Value subcategories where appropriate in accordance with BS 5837:2012. These are defined as:
    - 1 = Mainly arboricultural qualities
    - 2 = Mainly landscape qualities
    - 3 = Mainly cultural values, including conservation
- General notes about physiological and structural condition and any management recommendations

2.1.5 All survey data has been based on a topographical survey where possible, supplied by the client. Where topographical information has not identified tree positions or Ordnance Survey mapping has been utilised, trees and hedgerows have been positioned using GPS and aerial photography to provide approximate locations in relation to existing surrounding features. Further confirmation of

tree locations through a topographical survey of the site is recommended to ensure future design accuracy.

2.1.6 Some measurements for trees with limited accessibility may have been estimated. This is highlighted with a hash (#) symbol in the Tree Survey Schedule at Appendix 1.

2.1.7 Where trees formed a contiguous canopy they may have been grouped, in line with the guidance of BS 5837:2012. If densely wooded areas are not expected to be directly affected by development proposals only the significant trees at the woodland perimeter will have been surveyed.

2.1.8 Trees are living organisms that change over time. A re-survey of all trees should be carried out if there have been any significant storm events or more than 12 months have passed since the survey was carried out.

2.2 Calculation of Root Protection Area (RPA)

2.2.1 The Root Protection Area (RPA) is calculated according to the formulae set out in BS 5837:2012. This is a layout design tool indicating the minimum area around a tree deemed to contain sufficient roots and rooting volume to maintain the tree's viability, and where the protection of the roots and soil structure should be treated as a priority.

2.2.2 Due to the specific topography of the site and the presence of surrounding structures the RPA is likely to be a simplified representation of the actual morphology and disposition of tree roots. Any deviation in the shape of the RPA from the calculated circular shape will largely be based on conjecture and so should generally be avoided. However, where significant site features are present that could clearly influence the disposition of tree root growth (e.g. water courses, building foundations and retaining walls), the RPA may be amended to take these features into account.

3. Tree Survey Results

3.1 General Site Description

3.1.1 The site was an agricultural field, located approximately 1 km to the northwest of the town Four Crosses, and 2 km to the south of Llanymynech, to the southwest of the England/Wales border.

3.1.2 The trees at the site were located predominantly along the field boundaries except for T1 which is located more central within the site.

3.1.3 Offa's Dyke Path is located immediately to the south of the site and follows the course of the Montgomery Canal. The River Vyrnwy runs approximately west to east, approximately 100 metres to the north of the site.

3.2 Results of Tree Survey

3.2.1 The Tree Survey Schedule at Appendix 1 details the results of the tree survey and includes any management recommendations. The schedule should be read in conjunction with the tree plans at Appendix 3 which show the location of each tree and group surveyed and the extent of their canopies and RPA.

3.2.2 Three individual trees and four tree groups have been recorded during the survey. A summary of the tree survey findings is shown in Table 1.

Table 1: Summary of Tree Survey Findings

Category A	Category B	Category C	Category U
Trees: 2 Groups: 0	Trees: 0 Groups: 4	Trees: 1 Groups: 1	Trees: 0 Groups: 0

3.2.3 The most significant tree was the mature Horse chestnut, T001. This tree is visually prominent and is exhibiting veteran characteristics.

3.2.4 Significant vegetation was also present to the north, south and west and consisted mainly of mature hawthorn with occasional oak trees within a network of field boundary hedgerows.

3.2.5 There was evidence of some compacted ground and soil erosion around the field boundaries. This is likely to be the result of cattle grazing in this area and may have had a detrimental long-term impact on tree roots.

3.3 Ash Die Back (*Hymenoscyphus fraxineus*)

3.3.1 Ash Die Back (ADB) also known as Chalara or Chalara Dieback of Ash, is a disease of ash trees caused by a fungus called *Hymenoscyphus fraxineus*. ADB causes leaf loss, crown dieback and bark lesions in affected trees. Once a tree is infected the disease is usually fatal, either directly or indirectly by weakening the tree to the point where it succumbs more readily to attacks by other pests or pathogens.

3.3.2 It is difficult to assign ash trees a retention category using the BS5837:2012 standards because of ADB. The general advice from public bodies is to retain ash trees and see how the disease develops within the local population. However, if clear signs of ADB are found on sites, it is highly

likely that all the ash trees on that site will succumb in time. It could therefore be unreasonable to consider an ash tree a significant constraint to development.

3.3.3 The Tree Council has produced a document giving guidance to tree owners and managers on how to deal with ADB. *Ash dieback: an Action Plan Toolkit* (Summer 2019)[1]. This gives guidance on assessing the danger posed by trees infected with ADB. Cura Terrae have adopted the Suffolk County Council Ash Health Assessment System (Appendix 4). The system categorises ash trees with ADB symptoms into 4 classes:

- Ash Health Class (AHC) 1 – 100% - 75% Live Canopy (Vitality Class 0)
- Ash Health Class (AHC) 2 – 75% - 50% Live Canopy (Vitality Class 1)
- Ash Health Class (AHC) 3 – 50% - 25% Live Canopy (Vitality Class 2)
- Ash Health Class (AHC) 4 – 25% - 0% Live Canopy (Vitality Class 3)

3.3.4 Many local authorities have concluded that any trees which fall within AHC 3 and 4 require management and it seems reasonable to follow a similar system. The priority of that management depends on the severity of the tree's condition, with trees declining from AHC 2 into AHC 3 requiring work as part of a program of regular works. As the trees decline towards AHC 4, action becomes more urgent to abate any hazard, assuming the tree is in a high risk area.

[1] https://treecouncil.org.uk/wp-content/uploads/2019/11/Tree-Council-Ash-Dieback-Toolkit-2.0.pdf

4. Arboricultural Impact Assessment (AIA)

4.1 Introduction

4.1.1 A BS 5837:2012 Arboricultural Impact Assessment (AIA) has been carried out for all trees included in the survey. The AIA methodology evaluates the potential direct and indirect impacts the proposed development could have on the trees at the site. Where necessary mitigation measures are recommended.

4.1.2 BS 5837:2012 paragraph 5.4.2 states:

> *"The assessment should take account of the effects of any tree loss required to implement the design, and any potentially damaging activities proposed in the vicinity of retained trees. Such activities might include the removal of existing structures and hard surfacing, the installation of new hard surfacing, the installation of services, and the location and dimensions of all proposed excavations or changes in ground level, including any that might arise from the implementation of the recommended mitigation measures. In addition to the impact of the permanent works, account should be taken of the buildability of the scheme in terms of access, adequate working space and provision for the storage of materials, including topsoil."*

4.2 Development Proposals

4.2.1 The Client proposes the construction of landscaping bunds in two fields to the south of the proposed Vyrnwy reserve, between the Montgomery Canal and the River Vyrnwy, as part of a wider canal restoration scheme. The fields are referred to as areas A and B, this report deals with Area B, owned by Powys County Council. The project will not require the removal of any trees, but may have an impact on the roots, stems and canopies of retained trees unless suitable protection measures are put in place.

4.2.2 This AIA is based on the development layout provided by the Client (ref: Arcadis Vyrnwy Reserve Soil Reuse 10048826 dated October 2024).

4.3 Tree Retention and Removal

4.3.1 The development proposals indicate that two trees and one group will need to be removed and the retention and protection of all trees within the site boundary is likely to be suitable throughout the development.

4.3.2 The trees that need to be removed are detailed in the Tree Survey Schedule at Appendix 1 and located on the Tree Impacts Plan at Appendix 3. A summary of the required tree removals is shown in Table 2.

Table 2: Summary of Required Tree Removals

Trees to be Removed			Trees to be Retained		
Category A	**Category B**	**Category C**	**Category A**	**Category B**	**Category C**
Trees: 1	Trees: 0	Trees: 1	Trees: 1	Trees: 0	Trees: 0
Groups: 0	Groups: 1	Groups: 0	Groups: 0	Groups: 3	Groups: 1
Total: 1	**Total: 1**	**Total: 1**	**Total: 1**	**Total: 3**	**Total: 1**

4.3.3 T003 has been given a Category A due to its species, age and features. The removal of a Category A should be avoided due to their high amenity value, long life expectancy and contribution to the eco system.

4.4 Impacts from Construction Operations

4.4.1 Where proposed operations encroach beneath the canopy or into the RPA of retained trees there is the potential for damage to occur.

4.4.2 Construction of the landscaping bund within Area B is proposed within the RPA of the retained tree T001 as detailed on the Tree Impacts Plan at Appendix 3.

4.4.3 In this instance the encroachment is particularly minor, and the tree is unlikely to be significantly affected due to the proposed works being at the edge of the RPA with only approximately 5% of the theoretical Root Protection Area (RPA) being affected.

4.4.4 All works within the RPA of retained trees have been detailed as part of the Arboricultural Method Statement at Appendix 3, to ensure that these works are carried out in a manner that eliminates the likelihood of any damage occurring.

4.5 Mitigation and Protection

4.5.1 The retained trees will need protecting from development operations to ensure that they are not negatively impacted during the development. This has been detailed as part of the Arboricultural Method Statement (AMS) at Appendix 3.

4.5.2 Any works that are proposed within the RPA of retained trees must be carried out as specified in the AMS. It is likely that these works will need to be supervised by the project arboriculturist so that any tree related issues that occur can be suitably dealt with.

4.5.3 To compensate for potential root damage and stress caused by construction activities, retained trees onsite should be mulched. The materials that may be used include wood chip, pulverized bark, or leaf mould. The mulched area should extend throughout the open ground within the RPA. The depth of an organic mulch should not be so much as to inhibit aeration of the root system or to cause overheating (Approximately 50 mm to 100 mm).

5. References

BS 3998:2010 *Tree work – Recommendations*. ISBN 978 0 580 53777 6

BS 5837:2012 *Trees in relation to design, demolition and construction – Recommendations*. ISBN 978 0 580 69917 7

BS 8545:2014 *Trees: from nursery to independence in the landscape – Recommendations.* ISBN 978 0 580 713170

Littlefair P. (2011). *Site layout planning for daylight and sunlight: a guide to good practice (BR 209).* ISBN 978 1 84806 178 1.

Volume 4 National Joint Utilities Group (NJUG) *Guidelines for the Planning, Installation and Maintenance of Utility Apparatus in Proximity to Trees*, Volume 4: Issue 2: 16/11/2007, www.njug.org.uk

Appendix 1: Tree Survey Schedule

Table 3: Tree Survey Schedule

Key:	Symbols Used	Age Class	SLE	Comments	Management	Category
	< = less than ~ = approximately > = greater than # = estimated	Young, Semi mature, Early mature, Mature or Over mature	Estimate of Safe Life Expectancy (<10 Years, 10+ Years, 20+ Years or 40+ Years)	AGL - Above Ground Level MS - Multi-Stemmed TD - Trunk Division (height in m) DED - Dutch Elm Disease ADB - Ash Die Back AHC (1, 2, 3 or 4) - Ash Health Class	*Tree works that are recommended regardless of future development are in Italics* **Tree works that are required to facilitate the proposed development are in Bold**	**BS 5837:2012 Retention Categories:** U - Unsuitable for retention A - High B - Moderate C - Low **Sub-categories:** 1 - Mainly arboricultural qualities 2 - Mainly landscape qualities 3 - mainly cultural value

Tree No.	Species	Height (m)	No. of Stems	Stem Dia. @ 1.5m (mm)	Crown Spreads (m)				Height of Crown Clearance (m)	Age Class	SLE	Overall Condition	Comments	Management	Cate-gory	RPA Radius (m)	RPA Area (m^2)
					N	E	S	W									
T001	Horse chestnut *(Aesculus hippocastanum)*	10	2	1230	5	5	10	8	2	Mature	20+ Years	Fair	Stem/limb decay. Stem hollow, decayed, cracked. Inclusive bark/V union. Fractured limbs - storm damage. Roots at surface. Canopy biased to SW with 2x large diameter (400mm) historic scaffold branch failures. Included union of Codominant stems exhibiting partial failure, although tree located in low footfall area presents very low risk. Tree exhibiting veteran characteristics.	No action required	A1	15	707

Tree No.	Species	Height (m)	No. of Stems	Stem Dia. @ 1.5m (mm)	Crown Spreads (m)				Height of Crown Clearance (m)	Age Class	SLE	Overall Condition	Comments	Management	Cate-gory	RPA Radius (m)	RPA Area (m^2)
					N	E	S	W									
T002#	Common hawthorn *(Crataegus monogyna)*	10	5	280	5	6	5	7	3	Over Mature	10+ Years	Fair	Historic Codominant stem failure has been cut and removed. Included bark unions of Codominant stems exhibiting partial failure. Mature elder growing adjacent with inter-twined canopy. 2x Codominant stems lean NW and appear to be slowly failing. Acceptable condition at present due to low footfall and low target area.	**Remove to facilitate development**	C1	7.5	177
T003	Pedunculate oak *(Quercus robur)*	16	1	500	5	5	6	6	6	Early Mature	40+ Years	Good	Offsite tree located on canal side with northern canopy overhanging into site, currently with 7 metres ground clearance. Located within a low footfall area. Ivy clad stem and crown prevented a detailed inspection.	**Remove to facilitate development**	A1	6	113
G004#	Oak *(Quercus sp.)* Hawthorn *(Crataegus sp.)* Blackthorn *(Prunus spinosa)* Common holly *(Ilex aquifolium)* Ash *(Fraxinus sp.)*	7	1	200 AVG	See plan				0.5	Early Mature	40+ Years	Good	Offsite linear native mixed species hedgerow bordering canal. Providing habitat. Dense bramble understory. The group is outside influencing distance of site and protected by 1 metre post and wire fence.	**Remove to facilitate development**	B2	–	–

Tree No.	Species	Height (m)	No. of Stems	Stem Dia. @ 1.5m (mm)	Crown Spreads (m)				Height of Crown Clearance (m)	Age Class	SLE	Overall Condition	Comments	Management	Cate-gory	RPA Radius (m)	RPA Area (m^2)
					N	E	S	W									
G005#	Willow *(Salix sp.)* Common hawthorn *(Crataegus monogyna)* Hazel *(Corylus avellana)*	4	1	100 AVG	See plan				0.5	Young	10+ Years	Good	Recent planting along field boundary providing potential wildlife habitat. Good future potential.	–	C1,2	–	–
G006#	Common hawthorn *(Crataegus monogyna)*	8	4	250 AVG	See plan				2.5	Mature	20+ Years	Fair	Lapsed and broken field boundary hedgerow consisting of approximately 15 trees. Evidence of some grazing damage although acceptable condition at present due to current land use (low footfall). Localised dieback to occasional trees presents a low risk.	–	B2	–	–
G007	Common hawthorn *(Crataegus monogyna)*	8	1	250 AVG	See plan				3	Mature	20+ Years	Good	Lapsed field boundary hedgerow. Evidence of grasing damage although acceptable condition at present due to current land use (low footfall). Providing wildlife habitat and screening from adjacent farm building.	–	B1,2	–	–

Tree No.	Species	Height (m)	No. of Stems	Stem Dia. @ 1.5m (mm)	Crown Spreads (m)				Height of Crown Clearance (m)	Age Class	SLE	Overall Condition	Comments	Management	Cate-gory	RPA Radius (m)	RPA Area (m^2)
					N	E	S	W									
G008	Common hawthorn *(Crataegus monogyna)*	8	1	200 AVG	See plan				3	Mature	20+ Years	Good	Lapsed field boundary hedgerow. Evidence of grasing damage although acceptable condition at present due to current land use (low footfall). Providing wildlife habitat and screening from adjacent farm building.. Some ivy clad stems and crowns alongside localised deadwood although this only presents a low target risk.	–	B1,2	–	–

Appendix 2: Site Photographs

Plate 1: **T001**

Plate 2: **T002**

Plate 3: **T003**

Plate 4: **G004**

Plate 5: G005

Plate 6: G006

Plate 7: G007

Plate 8: G008

Appendix 3: Figures

GENERAL NOTES

- Drawing for Planning purposes only
- Refer to arboricultural report produced by Cura Terrae Ltd titled 'Vyrnwy Land - Area B' – BS 5837:2012 Arboricultural Report, Impact Assessment and Method Statement'.
- Based on topographic survey provided by the client.
- Check all dimensions on site.
- Do not scale from this drawing.
- Report any discrepancies and omissions to Cura Terrae Ltd.
- This drawing is Copyright.

3RD-PARTY INFORMATION

NB This drawing includes information provided by independent surveyors and / or consultants, to whom all queries shall be made. Cura Terrae Ltd can accept no liability for its context or accuracy.

KEY

○ Stem Location # Location Estimated

Tree Categories (BS 5837:2012)

Category A Trees | Category B Trees | Category C Trees | Category U Trees

Root Protection Area (RPA)

The original version of the drawing was produced in colour. Monochrome copies should not be relied upon.

N

0m 5m 10m 20m

SCALE BAR 1:250

KEY PLAN (not to scale)

REV	DATE	DRAWN BY	CHECKED BY	REVISION COMMENT

Cura Terrae

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Wythenshawe,
Manchester, M22 5WB
Tel. (0161) 3020280
www.cura-terrae.com

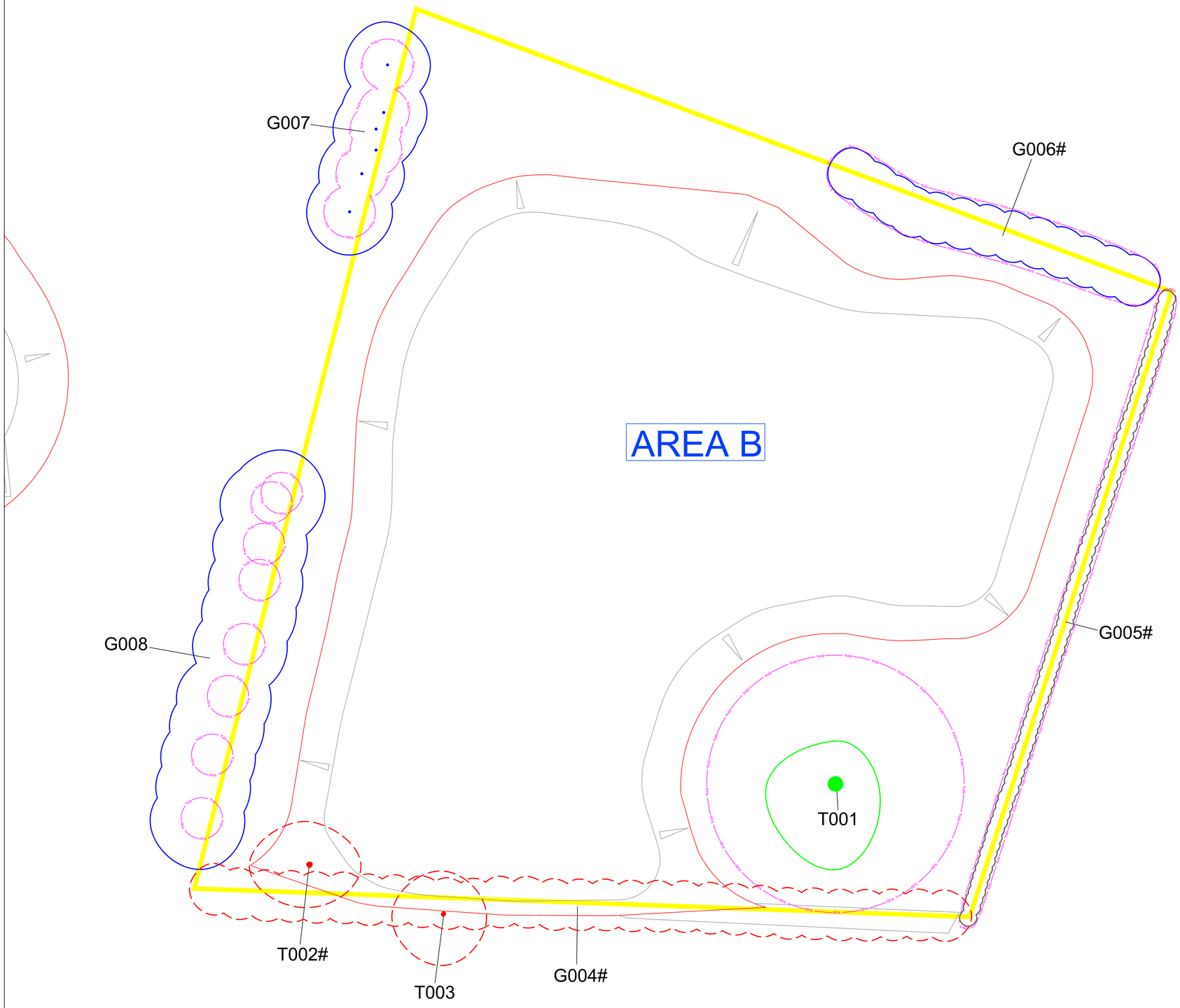
Job

24539 - Vyrnwy Land - Area B

Title

Figure 3 - Tree Constraints Plan

By	Date	Scale @ A1	Drg. no.
AB	Jan 2025	1:250	24539-ARB-01



GENERAL NOTES

- Refer to arboricultural report produced by Cura Terrae Ltd titled 'Vyrnwy Land - Area B' – BS 5837:2012 Arboricultural Report, Impact Assessment and Method Statement'.
- Based on topographic survey provided by the client.
- Building layout and masterplan provided by the client.
- Refer to Engineer's details for level and drainage information.
- Check all dimensions on site.
- Do not scale from this drawing.
- Report any discrepancies and omissions to Cura Terrae Ltd
- This drawing is Copyright.

3RD-PARTY INFORMATION
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KEY

○ Stem Location

Location Estimated

Tree Categories (BS 5837:2012)

Category A Trees | Category B Trees | Category C Trees | Tree to be Removed

Root Protection Area (RPA)

The original version of the drawing was produced in colour. Monochrome copies should not be relied upon.

N

0m 5m 10m 20m

SCALE BAR 1:250

KEY PLAN (not to scale)

REV	DATE	DRAWN BY	CHECKED BY	REVISION COMMENT
A	Apr 25	SR	AB	Updated Design

Cura Terrae

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Job
24539 - Vyrnwy Land - Area B

Title
Figure 4 - Tree Impacts Plan

By	Date	Scale @ A1	Drg. no.
AB	Jan 2025	1:250	24539-ARB-02

General

This Arboricultural Method Statement (AMS) details the specific measures to be adopted to ensure that the retained trees are suitably protected for the duration of the proposed development.

No equipment, machinery or materials shall be brought onto the site in connection with the development until this AMS has been submitted to and approved in writing by the Local Planning Authority.

Sequence of Events

For the purpose of protecting the retained trees, the development works on site should be completed in line with the following sequence of events:

- Pre-commencement site meeting
- Installation of tree protection measures
- Construction operations including *temporary access into the CEZ* within the RPA of retained trees
- Removal of tree protection measures

Pre-Commencement Site Meeting

A pre-commencement site meeting should take place prior to any works being started, to finalise plans for the layout of the tree protection measures and to ensure that all potential issues are adequately considered.

The site developer and the project arboriculturist should be in attendance for the meeting. It may also be a requirement for the LPA tree officer to attend and so prior notification of the meeting should be provided to the LPA.

Tree Protection Fencing

Prior to the commencement of any development operations and the storage of plant, machinery and materials on site the tree protective fencing should be located as shown. Where possible this fencing should exclude all site activities from the RPA of retained trees, creating a sacrosanct Construction Exclusion Zone (CEZ).

It should be confirmed by the project arboriculturist that the fencing has been correctly set out on site, prior to the commencement of any other operations.

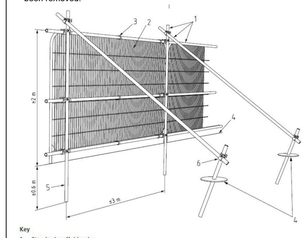
The default specification for tree protection fencing is shown here. However, where the site circumstances and associated risk of damaging incursion into the RPA do not necessitate the default level of protection, an alternative specification should be prepared by the project arboriculturist and, where relevant, agreed with the local planning authority.

An example of an alternative specification is 2 m tall welded mesh panels on rubber or concrete feet. In such cases, the fence panels should be joined together using a minimum of two anti-tamper couplers, installed so that they can only be removed from inside the fence. The distance between the fence couplers should be at least 1 m and should be uniform throughout the fence. The panels should be supported on the inner side by stabilizer struts, which should be attached to a base plate secured with ground pins or mounted on a block tray.

All-weather notices should be attached to the fencing to indicate that operations are not permitted within the CEZ, with words such as "CONSTRUCTION EXCLUSION ZONE – NO ACCESS".

Once the tree protection fencing has been installed it should not be altered or removed without prior consultation with the project arboriculturist. If the tree protection fencing needs to be re-positioned to allow for development operations to continue, this must be carried out under the supervision of the project arboriculturist and with prior consent from the LPA.

The tree protective fencing must remain in place until all construction operations on site have been completed and all plant and machinery has been removed.



Key
1 Standard scaffold poles
2 Heavy gauge 2 m tall galvanized tube and welded mesh infill panels
3 Panels secured to uprights and cross-members with wire ties
4 Ground level
5 Uprights driven into the ground until secure (minimum depth 0.6 m)
6 Standard scaffold clamps

Temporary Ground Protection

It is not possible to fully enclose the open ground within the RPA of the retained tree T001 without excessively constraining development operations. Therefore temporary ground protection will be required in the locations shown. Ground protection should be installed prior to the commencement of any development operations and the storage of plant, machinery and materials on site.

The temporary ground protection should be capable of supporting any traffic entering or using the site without being distorted or causing compaction of underlying soil. BS 5837:2012 suggests this can comprise of one of the following:

- For pedestrian movements only, a single thickness of scaffold boards placed either on top of a driven scaffold frame, so as to form a suspended walkway, or on top of a compression-resistant layer (e.g. 100 mm depth of woodchip), laid onto a geotextile membrane.
- For pedestrian-operated plant up to a gross weight of 2 t, proprietary interlinked ground protection boards placed on top of a compression-resistant layer (e.g. 150 mm depth of woodchip), laid onto a geotextile membrane.
- For wheeled or tracked construction traffic exceeding 2 t gross weight, an alternative system (e.g. proprietary systems or pre-cast reinforced concrete slabs) to an engineering specification designed in conjunction with arboricultural advice, to accommodate the likely loading to which it will be subjected.

The temporary ground protection must remain in place until all construction operations on site have been completed and all plant and machinery has been removed or until the exposed ground within the RPA is otherwise protected through temporary fencing.

Works in Close Proximity to Tree Canopy

Various operations throughout the site will require plant and machinery to operate in close proximity to retained trees, in particular the bund construction close to G005 and G008.

All operations close to retained trees must be carried out using the smallest available machinery that is appropriate for the task, located away from tree branches. Where booms, jibs, etc have the potential to come into contact with branches additional banks persons must be in place to ensure any contact is avoided.

Even minor contact with a tree can cause damage and result in branches falling or dying off. Where an operation cannot be carried out without interfering with the canopy of a retained tree, the advice of the project arboriculturist must be sought.

Additional Precautions

Consideration should be given to site operations outside of the CEZ that could indirectly impact the retained trees, including the provision of adequate space for site cabins, welfare facilities and other temporary structures.

Site operations should take sufficient account of wide or tall loads in order that they can operate without coming into contact with retained trees. The movement of plant in proximity to trees should be supervised by a banksman, to ensure adequate clearance from trees is maintained at all times.

Fires on sites should generally be avoided. Where fires are unavoidable, they should not be lit in a position where heat could affect the foliage or branches of retained trees. The potential size of a fire and the wind direction should be taken into account when determining its location, and it should be attended at all times.

Any materials that could contaminate the ground around tree roots, such as fuels, oils or cement, should be stored and handled well away from the outer edge of the RPA.

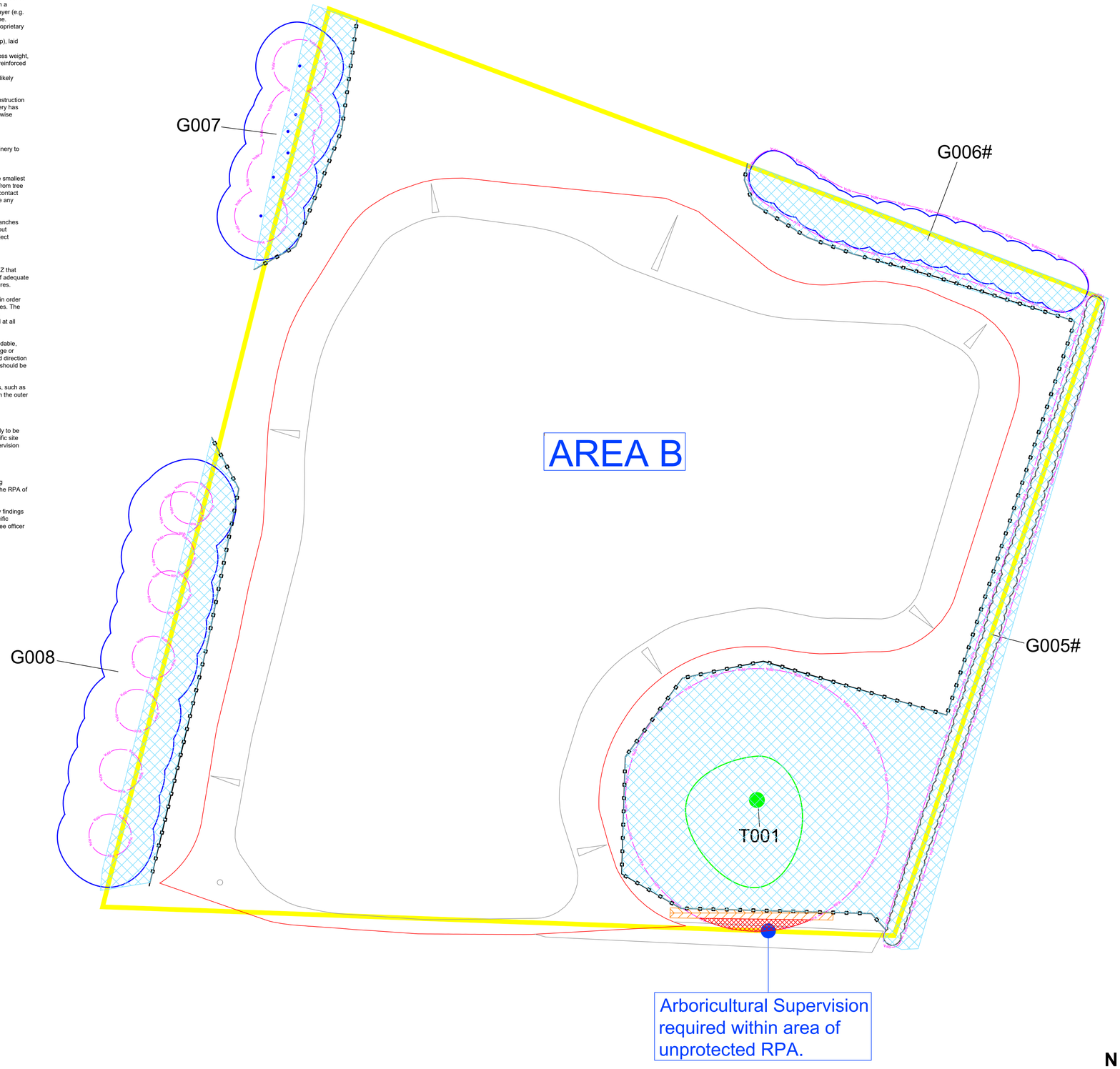
Arboricultural Site Supervision

Site monitoring and supervision by the project arboriculturist is likely to be required on a regular basis throughout the development. The specific site operations in close proximity of retained trees that will require supervision include:

- Installation of tree protection measures
- Installation of the bund in proximity to retained trees

A minimum of one week's notice should be given to the supervising arboriculturist where possible before the start of any works within the RPA of retained trees, to allow the site visit to be scheduled.

All site visits will be recorded with the date and time along with any findings or comments relating to the tree protection measures and the specific operations supervised. These can be made available to the LPA tree officer on request.



GENERAL NOTES

- Refer to arboricultural report produced by Cura Terrae Ltd titled 'Vyrnwy Land - Area B' – BS 5837:2012 Arboricultural Report, Impact Assessment and Method Statement'.
- Based on topographic survey provided by the client.
- Building layout and masterplan provided by the client.
- Refer to Engineer's details for level and drainage information.
- Check all dimensions on site.
- Do not scale from this drawing.
- Report any discrepancies and omissions to Cura Terrae Ltd
- This drawing is Copyright.

3RD-PARTY INFORMATION
NB This drawing includes information provided by independent surveyors and / or consultants, to whom all queries shall be made. Cura Terrae Ltd can accept no liability for its context or accuracy.

KEY

○ Stem Location
Location Estimated

Tree Categories (BS 5837:2012)

Category A Trees
Category B Trees
Category C Trees

Root Protection Area (RPA)
Tree Protection Fencing*
Temporary Ground Protection*
RPA Not Protected*
Construction Exclusion Zone
***See note on drawing**

KEY PLAN (not to scale)

REV	DATE	DRAWN BY	CHECKED BY	REVISION COMMENT
A	Apr 25	SR	AB	Updated Design

The original version of the drawing was produced in colour. Monochrome copies should not be relied upon.

0m 5m 10m 20m
SCALE BAR 1:250

N

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www.cura-terrae.com

Job
24539 - Vyrnwy Land - Area B

Title
Figure 5 - Arboricultural Method Statement

By	Date	Scale @ A1	Drg. no.
AB	Jan 2025	1:250	24539-ARB-03

Appendix 4: Suffolk County Council Ash Die Back Canopy Description

Ash Tree Assessment

The Issue

Identifying the symptoms of Ash Dieback in large trees can be difficult, so a sysyem was needed to enable easy description of the current state of as Ash Tree. Tree Canopy assessment has been widely used since the late 1980's across Europe based on work produced in Switzerland in 1986. In 1990 the Forestry Commission produced a book – 'Assessment of Tree Condition' to enable a standard system for describing the condition of a tree based on the percentage of existing canopy remaining.

Using this methodology Suffolk County Council undertook to describe the health of an Ash in Suffolk.

The steps undertaken

During the summer of 2013/14 Suffolk County Council assessed and photographed Ash accross the county. They determined that there were 4 useful categories to describe Ash canopies. The categories chosen were

- 100% full canopy,
- 75% canopy,
- 50% canopy
- and 25% canopy.

These are represented photographically in the pictures at the end of this Case Study.

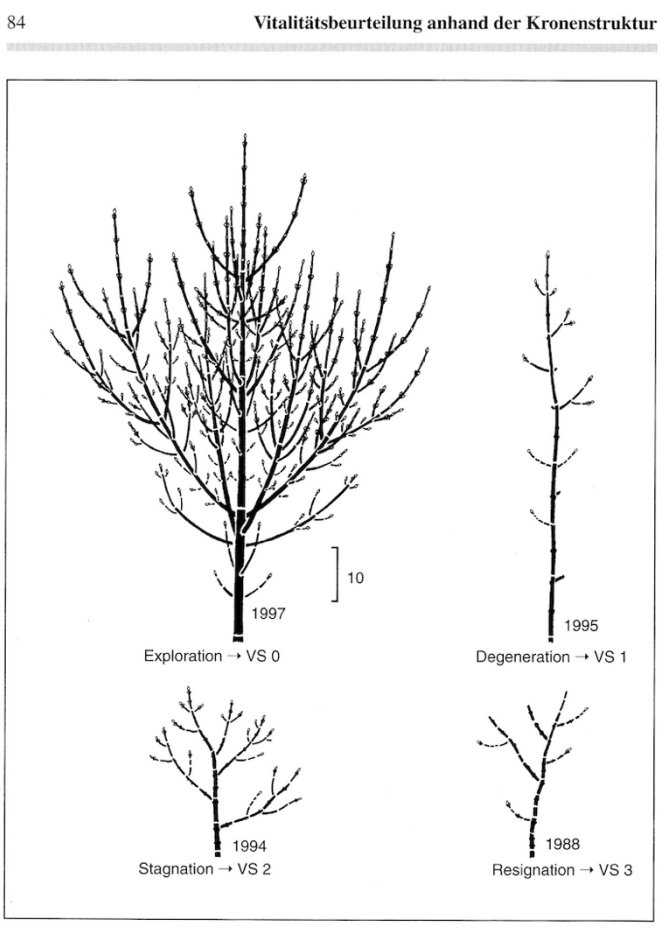
These 4 classes fit with work undertaken in Germany by Professor Andreas Roloff who has been describing the state of vitality of European Trees. He also uses 4 categories – described as

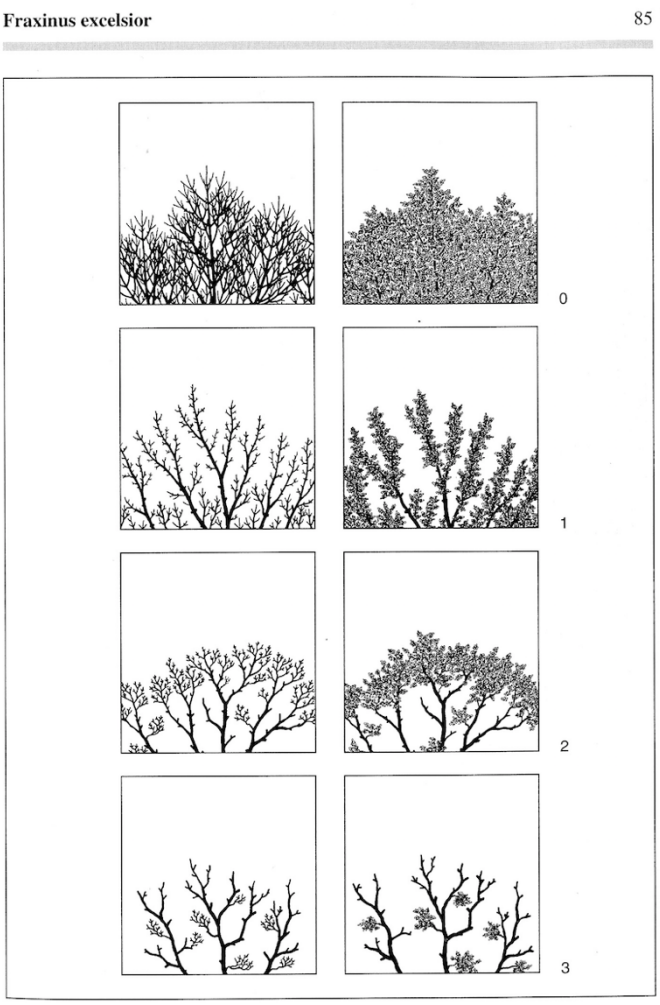
- Vitality Class 0: Healthy vigorous trees showing treetop shoots in the exploration phase: both the main axes and part of the lateral twigs consist of long-shoots. For this reason, a regular net-like branching pattern is developed, which reaches deep into the interior of the crown. The crowns are equally closed and domed, and do not show any greater gap unless a stronger intervention has occurred, such as pruning measures, because such a gap is closed quickly by the intensive ramification. In summer, a dense foliage arises without any greater gap.
- Vitality Class 1: Weakened trees show treetop shoots in the degeneration phase. Thus, spears/"fox tails" are formed, rising above the canopy. The leaves on these spears are dense and grow all around them (at the top of the lateral short-shoots or shortshoot chains). The crowns make a frazzled impression on the outside, and have a fastigiated appearance, because the airspace between the spears is not completely filled by leaves and twigs, and the crown has a spiky outline. Inside the crown, the branching pattern, and hence the foliage, is quite dense. In this vitality class, straight percurrent main axes of the treetop branches are still dominant, but the crowns no longer look as intact as in class 0 because of the spears shooting out of the canopy.
- Vitality Class 2: In obviously less vigorous trees, the treetop shoots begin to build short-shoots in the stagnation phase. The leafless state could be designated as the claw stage, because the short-shoot chains in the outside of the crowns grow longer, are predominant, and stretch claw-like to the light. These short-shoot chains, growing too long, break off in summer in thunderstorms and heavy rains, and strew the forest floor in

declining stands. Under normal circumstances, trees get rid of parts of their unimportant twigs in the inner and lower crown parts in this way. However, if the treetop shoots themselves are declining, the self-pruning of twigs progresses into the outskirts of the crown, and the crowns become thin from the inside outwards. The cause for this occurrence is not premature leaf fall, but broken short-shoot chains, a lack of shoots, and dead buds and twigs. The branching pattern shows a bushy and lumpy accumulation in the periphery of the crown. This accumulation causes summer and winter bushy crown structures and greater gaps. The crown periphery still has hardly any straight percurrent branches.

- Vitality class 3:, In considerably damaged or declining trees of the crowns finally fall apart by the breaking off of larger branches and the dieback of whole crown parts. The tree seems to consist only of more or less surplus sub-crowns, dispersed randomly in the airspace and forming whip-like structures. The treetop is often dying back or is already dead, because the treetop shoots grew in the retraction phase.

These 4 vitality classes are shown below for Ash.





The work in Germany and Suffolk complements each other and establishes the ability to be able to assisgn an ash tree to 1 of 4 categories, which describe the trees current health or vitality. This is a simple and useful method for describing the current state of an Ash's heatlh.

The Outcome

Using this 4 category framework, allows a tree to be assigned to a category, showing its current state of health, enabling data on the tree to be collected. The suggestion going forward is that these 4 classes are used as described as:

Ash Health Class 1 – 100 – 75% Canopy (Vitality Class 0)

Ash Health Class 2 – 75% -50% Canopy (Vitality Class 1)

Ash Health Class 3 – 50% - 25% Canopy (Vitality Class 2)

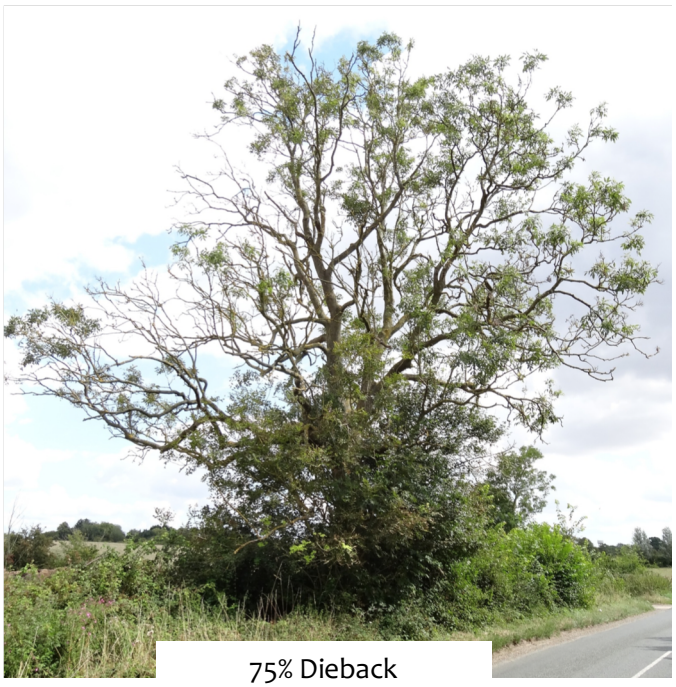
Ash Health Class 4 – 25% - 0% Canopy (Vitality Class 3)

Figure 1: Photos of Dieback of ash trees

0% Dieback - Healthy Crown

25% Dieback

50% Dieback



75% Dieback