



THE
ENVIRONMENT
PARTNERSHIP



AOPMHU REDEVELOPMENT PROJECT - SITES 1 AND 2

GLAN CLWYD HOSPITAL, BODELWYDDAN

ARBORICULTURAL IMPACT ASSESSMENT

FEBRUARY 2023

TEP
Genesis Centre
Birchwood Science Park
Warrington
WA3 7BH

Tel: 01925 844004
Email: tep@tep.uk.com
www.tep.uk.com

Offices in Warrington, Market Harborough, Gateshead, London and Cornwall

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Author	Heather Eilbeck
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Checked	Robin Grimes
Approved	Jonathan Smith

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Executive Summary

1. TEP has been commissioned by BAM Construction Ltd to conduct a survey of 2 parcels of land ("Site 1" and "Site 2") at Glan Clwyd Hospital in Bodelwyddan as part of the AOPMHU Redevelopment Project and a review of designations, policies and other instruments of relevance to arboriculture. This report presents the results and effects of proposed development.
2. 34 individual trees; 6 groups of trees; and 1 hedge were recorded within influencing distance of the application sites.
3. The tree population of Site 1 comprises larger individual trees to the north and west and dense scrubby groups along the boundaries to the east and west. The most significant trees based on this size and quality, are located on just beyond the northern boundary on third party land.
4. Trees on Site 2 comprises almost entirely planted individuals, many of which are ornamental varieties. They are largely middle aged and in fair or good condition.
5. The desktop review and site survey identified no Tree Preservation Orders; no trees within a Conservation Area; no ancient woodland; no veteran trees; and 1 Hedgerow Habitat of Principal Importance. No other features appear to best fit the description of an arboreal Habitat of Principle Importance.
6. The proposed development comprises the construction of an Adult and Older Persons Mental Health Unit on Site 1 and a 3-storey car park on Site 2.
7. No trees or hedges would require removal or works to accommodate the proposed development at either Site. 1 group at Site 2 is recommended for removal on the grounds of safety but not as a result of the proposed development.
8. The proposed construction of a disabled parking bay and associated fencing on Site 1 will necessitate the use of above ground 'no-dig' construction and controlled fencing installation, to safely retain 2 third party trees due to being located within their root protection areas.
9. Tree protection measures to be observed during construction are proposed, in the form of a Tree Protection Plan for each Site. This includes protection fencing and areas of special construction, the methodology for which is detailed in Section 4.0 of this report.
10. This report constitutes a valid basis for the evaluation of impacts on trees resulting from the proposed development for a period not exceeding 2 years from the survey date. After this, it would be necessary to review baseline data and conclusions to ensure reliability.
11. All trees that would be retained can be protected in accordance with BS5837:2012. Where the recommendations of this report have been followed, any future deterioration in tree condition shall not be attributable to the development.

1.0 Scope

- 1.1 TEP has been commissioned by BAM Construction Ltd to conduct an arboricultural survey of 2 parcels of land at Glan Clwyd Hospital in Bodelwyddan as part of the Adult and Older Person's Mental Health Unit Redevelopment Project and to make an assessment in accordance with BS 5837:2012 Trees in relation to design, demolition and construction - Recommendations.
- 1.2 This report has been produced to support a planning application. It describes the findings of field and desktop surveys; the effects that granting planning permission would have on arboriculture; and measures that are and/or should be incorporated in the proposed development.
- 1.3 The 2 land parcels are referred throughout this report as:
- Site 1 - Adult and Older Person's Mental Health Unit Site
 - Site 2 - Multi-Storey Car Park Site

Survey

- 1.4 The survey was undertaken in January 2023 in accordance with BS 5837 by a qualified arboriculturist. The survey method is included at Appendix B.
- 1.5 Topographical surveys were used to record the position of trees and vegetation (drawing references: 10690/002/1 to 9 & LS000772 01). Where trees were not shown on the topographical survey, their locations were estimated¹.
- 1.6 Trees on private land outside the application boundary, and at inaccessible locations² were surveyed insofar as was practicable. Whilst reasonable effort has been made to ensure the accuracy and comprehensiveness of such records, it cannot be guaranteed.

Limitation

- 1.7 This report relates to a specific development proposal and should not be interpreted as advice in any other circumstance, including but not limited to the promotion or assessment of alternative schemes; the design of foundations; management of tree risk; and tree-related subsidence.
- 1.8 This report constitutes a valid basis for the evaluation of impacts on trees resulting from the proposed development for a period not exceeding 2 years from the survey date. After this, it would be necessary to review baseline data and conclusions to ensure reliability.
- 1.9 Where the recommendations of this report have been followed, any future deterioration in tree condition shall not be attributable to the development.

¹ Estimated feature locations are marked on Drawing 1

² Limitations to the survey are described at Appendix A

2.0 Baseline

The Sites

- 2.1 Located within the grounds of the existing Glan Clwyd Hospital, the Sites comprise 2 areas of land, both of which are currently operational car parks. The larger of the 2 sites is located to the west (Site 1) and the smaller located to the east of hospital and immediate west of Rhuddlan Road (Site 2).
- 2.2 Site 1 is approximately 1.3ha in size and centred on grid reference SJ 00106 76150.
- 2.3 Site 2 is approximately 0.4ha in size and centred on grid reference SJ 00472 76112.

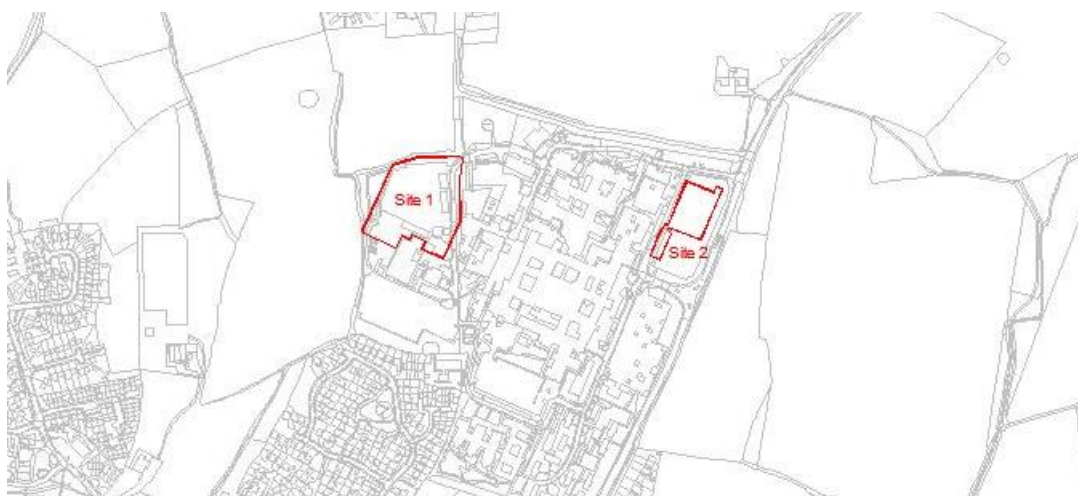


Figure 1 Approximate boundaries of Site 1 (west) and Site 2 (east) (1:6,000)

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Tree Survey

- 2.4 34 individual trees (T1-T34); 6 groups of trees (G1-G6); and 1 hedge (H1) were recorded within influencing distance of the application sites. All arboricultural information recorded during the survey for trees on both sites is presented at Appendix A.
- 2.5 Feature locations, their quality categories, canopy spreads and root protection areas are shown on Drawing 2. The following table provides the total canopy area for mapped trees and the total length of mapped hedgerow on Drawing 2. In some cases this may be more than the absolute area of cover due to canopy overlap between adjacent features.

Table 1 Existing canopy coverage

	Trees	Groups	Woodland	Hedgerow
Site 1	0.0959ha	0.2218ha	0ha	0m
Site 2	0.0446ha	0.0146ha	0ha	121m

Site 1 Tree Population Overview

- 2.6 The survey recorded 14 individual trees and 3 tree groups at Site 1. They are confined to the northern, eastern and western fringes of the existing car park and attenuation pond, with those on the northern side located on adjacent land. Trees are largely middle aged or mature and in fair or good condition.
- 2.7 The most significant trees are 6 mature pedunculate oaks; 5 of which are found in adjacent land to the north (T23 to T27) and 1 to the south-west of the Site (T29). The most significant of these oaks are T25 and T27. Both of these trees display numerous characteristics and niche habitats typically associated with mature trees nearing veteran status, although they are not classified as veterans at present. Given time, it is likely that both of these trees will become veterans.



Figure 2 Mature pedunculate oak (T27) to north-west of Site 1 and existing attenuation pond



Figure 3 Mature pedunculate oaks T26 (left) and T25 (right) to north of Site 1

- 2.8 The remaining trees around Site 1 are largely dense groups of low level understorey species such as hawthorn, blackthorn and elm, with occasional larger trees such as oak and ash. These form dense screens and provide habitat for wildlife.

Site 2 Tree Population Overview

- 2.9 The survey recorded 20 individual trees; 3 tree groups; and 1 hedge at Site 2. They are confined to the eastern and southern car park verges and comprise trees planted for amenity around hospital infrastructure. The largest and best quality individual is a mature cherry (T15), one of several surrounding the main hospital entrance junction. There is a small cluster of dead elm trees (G2) mid-way along the eastern boundary that have also succumbed to Dutch Elm Disease.



Figure 4 Mature cherry tree (T15) to south of Site 2

Tree Quality

- 2.10 Under BS 5837 trees are objectively assigned one of four categories to describe their quality. The table below includes a description of each category and the amount of trees within it. This information is presented by canopy area to allow comparison between features of varying size and maturity. Hedgerows have not been categorised.

Table 2 Summary of BS 5837 quality categorisation³

Category	Description	Total existing	
		Site 1	Site 2
A	Trees of high quality, typically with a long remaining life expectancy; and with clear and identified merit as specimens, visually, culturally or for conservation.	0.0485ha	0ha
B	Trees of moderate quality, typically with at least a medium remaining life expectancy; with remediable defects only; or low quality but with collective merit.	0.0357ha	0.0088ha
C	Trees of low quality, typically with at least a short remaining life expectancy; unremarkable trees; young or small trees that could be replaced.	0.2335ha	0.0456ha
U	Trees that cannot realistically be retained in the current land use for 10 years; with serious and irreparable defects, pathogens or decline.	0ha	0.0047ha

- 2.11 On Site 1, the majority of trees are of low quality (Category C), comprising almost entirely of tree groups, and are categorised as such due to their dense and more scrubby nature. There are also a number of moderate quality (Category B) individual trees, comprising trees that are of individual merit but are categorised as moderate quality due to defects and/or due to them lacking the exceptional quality needed to attain higher quality. 2 trees (T25 and T27) are of high quality (Category A) due to their maturity and development of features of greater interest to biodiversity.
- 2.12 Within Site 2, the majority of trees are of low quality due to their relatively young age or scrubby nature. Only 1 tree (T15) is of moderate quality due to its increased size, maturity, and condition in comparison to other trees in the vicinity and due to the inherently greater wildlife and landscape benefits that this tree provides.

Root Protection Areas

- 2.13 Using the results of the field survey a Root Protection Area (RPA) has been calculated in accordance with BS 5837 using each tree's stem diameter at 1.5 metres⁴. The RPA represents the minimum area around each tree that must be left undisturbed to ensure its survival.

³ Refer to Appendix B for the full table

⁴ Refer to Appendix A for RPA area calculations

- 2.14 Where a trees rooting pattern is considered to have been influenced by site conditions the RPA has been adjusted or offset to most accurately represent the likely spread of roots⁵. On these Sites, influences on root morphology are considered to be existing hardstanding, installed utilities, retaining walls and kerbs.

Policy, designations and protection

Planning Policy

- 2.15 All trees are a material consideration in the planning process. Effects on trees will therefore be considered by the consenting authority. Adverse effects that cannot be mitigated and which are not acceptable on balance against other benefits may weigh against the granting of planning permission.
- 2.16 There should be a common sense ambition to limit tree loss to that which is strictly required to facilitate the proposal, and to achieve a good design. Trees which are retained should not be harmed and the proposal should present a reasonable account of the prospects for tree retention in accordance with BS 5837.

2.17 Planning Policy Wales

- 2.18 Planning Policy Wales states that planning authorities should protect trees, hedgerows, groups of trees and areas of woodland where they have ecological value, contribute to the character or amenity of a particular locality, or perform a beneficial and identified green infrastructure function⁶.
- 2.19 There is a strong policy presumption against loss or deterioration of irreplaceable natural resources such as semi-natural woodlands, ancient woodland and individual ancient, veteran or heritage trees. These trees should be afforded protection from development which would result in their loss or deterioration unless there are significant and clearly defined public benefits⁷.

Local Planning Policy

- 2.20 Denbighshire County Council has a Local Development Plan (adopted June 2013); however this does not contain any specific policies of relevance to trees. It contains a policy relating to Nature Conservation, policy VOE 5, which is of relevance to the MSCP site and is recreated below.

Policy VOE 5 – Conservation of natural resources

Development proposals that may have an impact on protected species or designated sites of nature conservation will be required to be supported by a biodiversity statement which must have regard to the County biodiversity aspiration for conservation, enhancement and restoration of habitats and species.

Where the overall benefits of a development outweigh the conservation interest of a locally protected nature site, mitigation and enhancement measures in or adjacent to these sites should be an integral part of the scheme.

⁵ See Drawing 1 for RPA shapes

⁶ Planning Policy Wales paragraph 6.4.25

⁷ Planning Policy Wales paragraph 6.4.26

If necessary, measures required to mitigate likely adverse effects on the qualifying features of statutory designated sites should be put in place prior to the commencement of development. Measures required to offset any likely adverse effects will be secured by planning conditions and/ or planning obligations.

Planning permission will not be granted for development proposals that are likely to cause significant harm to the qualifying features of internationally and nationally designated sites of nature conservation, priority habitats, priority species, regionally important geodiversity sites, or to species that are under threat.

- 2.21 In addition, the council has published supplementary information that gives guidance on the interpretation and application of local planning policy. In particular, the Tree and Landscaping SPG (July 2016) is of relevance.

Tree Preservation Orders

- 2.22 A check with the local authority was undertaken on 2nd February 2023. The online mapping system confirmed that no trees within influencing distance of the sites are protected by Tree Preservation Order (TPO).
- 2.23 The online mapping software did identify that 2 TPOs are in reasonably close proximity to the Sites within the wider landscape, but neither are within influencing distance. These TPOs are as follows:
- Group G1 of TPO No.3 1993 (Land West of Lowther Court Bodelwyddan)
 - Group G1 of TPO RHU/15/1952 (St Asaph [Bodelwyddan])

Conservation Areas

- 2.24 A check with the local authority was undertaken on 2nd February 2023. The online mapping system confirmed that no trees within influencing distance of the sites are within a Conservation Area.

Ancient Woodland

- 2.25 Ancient Woodland is defined in Wales as sites that have been continuously wooded since before 1600AD⁸ and is regarded as 'irreplaceable'⁹. The distribution of Ancient Woodland has been assessed on the basis of Natural Resources Wales Ancient Woodland Inventory 2021 via DataMapWales (gov.wales)¹⁰.
- 2.26 There is no ancient woodland within or adjacent to the sites.

Veteran Trees

- 2.27 Veteran trees are defined as those which, because of great age, size or condition, are of exceptional value culturally, within the landscape, or for wildlife¹¹. All ancient trees are veteran trees. Not all veteran trees are ancient, though they tend to be relatively old for the species. Ancient and veteran trees are regarded as 'irreplaceable'¹².

⁸ Woodlands for Wales: Glossary (p.52)

⁹ Planning Policy Wales: paragraph 6.4.26

¹⁰ [New map | DataMapWales \(gov.wales\)](#)

¹¹ Woodlands for Wales: Glossary (p.55)

¹² Planning Policy Wales paragraph 6.4.26

- 2.28 There is no comprehensive national register of veteran trees. The Woodland Trust maintains an inventory of significant trees which includes some ancient and veteran individuals¹³. At the time of writing it contained no records of relevance to the sites.
- 2.29 An assessment of each tree was made by a qualified arboriculturist as part of the tree survey. There are no veteran trees within or adjacent to the sites.
- 2.30 Not all mature trees or those of high habitat interest are veterans. Trees with individual or simple assemblages of features typically associated with veteran trees were also noted¹⁴. Such trees may become veterans but should not be treated as such for the purposes of impact assessment. This is the case for trees T25 and T27, both large pedunculate oaks, that have the potential to become veteran trees given time.

Habitats of Principal Importance

- 2.31 A list¹⁵ of habitats which are of principal importance for the purpose of maintaining and enhancing biodiversity is published by Welsh Ministers¹⁶, the definitions of which appear to be based on the UK Biodiversity Action Plan (UK BAP)¹⁷. The list includes habitat types that are defined by woody vegetation, which are listed below. All features surveyed have been assessed against these definitions and those that meet the definition of a Habitat of Principle Importance have been listed in accordance with their habitat type below.
- 2.32 Habitats of Principal Importance provide a means of evaluating effects on biodiversity, and thereby a metric to demonstrate the discharge of this duty. In the context of planning, adverse effects on Habitats of Principal Importance that cannot be mitigated are material to decision making.
- 2.33 There is no mapping available of Habitats of Principle Importance for Wales. Habitat surveys were not completed as part of the tree survey. The tree survey was limited to include only trees within influencing distance of the site boundary. It is therefore not possible to be definitive with regards to the locations and extents of each of the arboreal Habitats of Principle Importance. The features listed below are the result of a reasonable interpretation using professional judgement, experience, and the information available.

Broadleaved, Mixed and Yew Woodland

- 2.34 Five distinct types of woodland¹⁸ are amalgamated in the Section 7 list of Habitats of Principle Importance¹⁹ under the habitat type 'Broadleaved, Mixed and Yew Woodland'.
- 2.35 The survey identified no features that appear to best fit the description of a Broadleaved, Mixed and Yew Woodland Habitat of Principle Importance (HoPI).

¹³ <https://ati.woodlandtrust.org.uk/>

¹⁴ See Appendix A

¹⁵ <https://www.biodiversitywales.org.uk/File/57/en-GB>

¹⁶ Environment (Wales) Act 2016, 7 (1)

¹⁷ <http://jncc.defra.gov.uk/page-5706>

¹⁸ Upland oak woodland; Lowland beech and yew woodland; Upland mixed ash woodland; Wet woodland; Lowland mixed deciduous woodland

¹⁹ <https://www.biodiversitywales.org.uk/File/57/en-GB>

Wood Pasture and Parkland²⁰

- 2.36 Wood-pasture and parkland are mosaic habitats valued for their trees, especially veteran and ancient trees, and the plants and animals that they support. They are exclusively associated with some species of insects, lichens and fungi which depend on dead and decaying wood. Grazing animals and continuity of management are fundamental to the existence of the habitat and it can be a type of ancient woodland.
- 2.37 The survey identified no features that appear to best fit the description of a Wood Pasture and Parkland HoPI.

Traditional Orchards²¹

- 2.38 Traditional orchards are defined, for priority habitat purposes, as groups of fruit and nut trees planted on vigorous rootstocks at low densities in permanent grassland; and managed in a low intensity way. Habitat structure rather than vegetation type, topography or soils, is the defining feature of the habitat.
- 2.39 The survey identified no features that appear to best fit the description of a Traditional Orchard HoPI.

Hedgerow²²

- 2.40 Hedgerow is any boundary line of trees or shrubs over 20m long and less than 5m wide, and where any gaps are less than 20m wide. It may include banks, walls, ditches, herbaceous vegetation, climbing plants or trees within 2m of the centre line. All hedgerows which comprise at least 80% woody native species are included.
- 2.41 The survey identified 1 hedgerow that could be interpreted as meeting the description of a Hedgerow HoPI.

Protected Species

- 2.42 No assessment of the presence of protected species has been made during the production of this report. Features of possible interest that were observed incidentally during the tree survey are recorded in Appendix A.
- 2.43 Works to and around trees have the capacity to affect protected species where present, particularly including birds, bats, great crested newts, badgers, dormice, otters and water voles. Contractors should be familiar with the locations and sensitivities of any protected species that are present and take reasonable avoidance measures or comply with the requirements of any licence agreement in accordance with the advice of an ecologist.

²⁰ http://jncc.defra.gov.uk/docs/UKBAP_BAPHabitats-65-WoodPastureParkland2011.doc

²¹ http://jncc.defra.gov.uk/docs/UKBAP_BAPHabitats-56-TraditionalOrchards.doc

²² http://jncc.defra.gov.uk/docs/UKBAP_BAPHabitats-17-Hedgerows.doc

Birds

- 2.44 Intentional harm to a wild bird, egg, or a nest that is in use or being built is an offence²³. Disturbance of certain wild birds that are building a nest, or are in, on or near a nest containing eggs or young, or disturbance of dependent young is also an offence²⁴.
- 2.45 All trees are a potential habitat for nesting birds so tree work should ideally, but not essentially, be undertaken outside the bird nesting season. Between March and August, a detailed inspection of each tree should be undertaken by a qualified ecologist to confirm the absence of nesting birds immediately prior to works.
- 2.46 Some birds nest outside the core nesting season. If an active nest is found at any time of year, work likely to affect the nest must be halted until the nest becomes inactive. This will vary depending on the species of bird but is typically up to six weeks. The advice of an ecologist regarding the duration and size of a protection buffer around the nest should be sought.

Bats

- 2.47 It is an offence to damage, destroy or obstruct access to any structure or place which is used for shelter or protection²⁵, or breeding or resting²⁶ by a bat. Mature trees often contain cavities, splits and ivy, which may be attractive to bats.
- 2.48 The Ecological Assessment reports (references: Site 1 - 8166.007, Version 2 and Site 2 - 8166.003, Version 4) identify trees with bat roosting potential. No trees located within the site boundaries of either site have been identified as having bat roosting potential. However, 6 pedunculate oak trees located to the north and west of the Site 1 within adjacent land have been identified as having potential as per Table 3 below.

Table 3 Trees with bat roosting potential

Site and report reference	Ecological assessment feature reference	Tree survey feature reference	Bat roosting potential
Site 1 8166.007	T5	T23	Moderate
	T4	T24	Moderate
	T3	T25	High
	T2	T26	Moderate
	T1	T27	High
	T6	T29	Low

²³ Wildlife and Countryside Act 1981, 1 (1)

²⁴ Wildlife and Countryside Act 1981, 1 (5)

²⁵ Wildlife and Countryside Act 1981, 9 (4)

²⁶ The Conservation of Habitats and Species Regulations 2017, 43 (1)

- 2.49 If the presence of a bat, or a roost or resting site is suspected whilst undertaking works on any trees, operations must be halted and the advice of appropriately licensed ecologist should be sought.

3.0 Effects

- 3.1 In simple terms, the effects on arboriculture comprises an account of which existing trees, groups of trees, hedgerow and woodland would not be retained within the proposed development; what significance they have; and whether adverse effects would or can be mitigated or offset.

Proposed development

- 3.2 The proposed development is formed from 2 parts; Site 1 consists of the construction of a new Adult and Older Persons Mental Health Unit; and Site 2 comprises the construction of a new 3-storey car park.
- 3.3 The proposed layouts are shown on Drawing 3 and Drawing 4 and are based on the following plans:
- Site 1: AOPMHU-PDA-ZX-00-DR-A-20100, Rev P017
 - Site 2: E-4201-0001, Rev P01
- 3.4 An external works plan showing the detail and arrangement of drainage, levels, retaining structures and utilities was not available to inform the production of this assessment.

Tree Removal

- 3.5 No trees or hedges would require removal or pruning works to accommodate or facilitate the proposed development of either Site.
- 3.6 1 tree group (G2) is recommended for removal, irrespective of any proposals for development, due to its poor condition and proximity to Rhuddlan Road. It should not be counted as an adverse development effect.

Other Effects

- 3.7 Within Site 1, a proposed disabled parking space is proposed within the root protection areas (RPA) of third party trees T24 and T25, as shown on Drawing 4 as a solid brown hatch. It will be possible to retain both of these trees without causing long term detriment to their health, condition, longevity and quality, however this will necessitate sensitive construction and the use of an above ground 'no-dig' surfacing system. This must be installed under an Arboricultural Watching Brief and in accordance with the methodology detailed in Section 4.0 of this report.
- 3.8 A fence is also proposed around the disabled parking space detailed above and is located within the RPAs of third party trees T23, T24 and T25, as shown on Drawing 4 as a thick magenta line. It is possible to retain these trees whilst installing the fence in this location, however the fence must be installed in a controlled manner in accordance with the methodology detailed in Section 4.0.

Effects on designated or protected features

Habitats of Principal Importance

- 3.9 Loss of or harm to a Habitat of Principal Importance, without mitigation, constitutes an adverse effect that is likely to be regarded by the consenting authority as contrary to its duty to conserve biodiversity.

Hedgerow

- 3.10 The proposed development would not result in loss or harm of Hedgerow.

Protected Species

- 3.11 The effects of the proposed development on protected species and significance thereof is considered by the Ecological Assessment reports for each Site (references: Site 1 - 8166.007, Version 2 and Site 2 - 8166.003, Version 4).

4.0 Mitigation

4.1 This section describes opportunities to mitigate or offset adverse effects described by the previous section. It summarises measures that are part of the proposed development and which are relied upon by this report, and measures that are not proposed but could be secured by planning condition or agreement. Conclusions are drawn regarding overall effects, and the requirements that should be imposed in order to secure the outcomes described.

4.2 The table below provides an overview of effects on the receptors described in the preceding sections. Within it, Column (1) describes the outcome for each receptor without mitigation; Column (2) reflects whether any mitigation would be secured by the current application; Column (3) represents whether predicted effects are (or could be rendered) neutral or positive; and Column (4) defines the outcome in simple terms.

Table 4 Summary of effects and mitigation

Receptor	(1) Adverse effect*	(2) Mitigation proposed	(3) Mitigation possible	(4) Residual effect
Tree cover	No	N/A	N/A	Neutral
Tree condition ²⁷	Yes	Yes	Yes	Neutral
Ancient Woodland	No	N/A	N/A	Neutral
Veteran Trees	No	N/A	N/A	Neutral
Broadleaved, Mixed and Yew Woodland	No	N/A	N/A	Neutral
Wood Pasture and Parkland	No	N/A	N/A	Neutral
Traditional Orchard	No	N/A	N/A	Neutral
Hedgerow	No	N/A	N/A	Neutral

**Without mitigation*

4.3 **Positive** residual effects represent benefits that would be delivered by the proposed development.

4.4 **Neutral**²⁸ residual effects are those that should have no weight in decision making.

²⁷ In this context, whether there would be a risk of harm to existing trees during development (without protection)

²⁸ Including negligible and non-material effects

4.5 **Negative** residual effects cannot be mitigated or offset and represent adverse effects of the proposed development. They may be acceptable in the planning balance on consideration of other benefits delivered by the proposed development.

4.6 **Pending** residual effects are those for which mitigation or offsetting can be secured after consent has been granted, typically by planning condition. It is assumed by this report that they would be.

Proposed measures

4.7 The following measures are proposed and would be secured by a planning permission referencing and requiring compliance with this report:

Layout

4.8 The retention of trees that has been assessed as possible within the proposed layout would be observed by the developer and all appointed contractors; tree removal would be limited to that illustrated on Drawing 3.

Tree Protection

4.9 A Tree Protection Plan is provided at Drawing 4. It shows the arrangement of temporary protection measures that would be installed prior to the commencement of any works, including ground investigation, setting out, compound establishment or delivery of any plant or materials. It also shows areas of proposed parking and installation of fencing that must be undertaken sensitively and with arboricultural supervision for specific construction activities. The methodology for special construction is detailed below in the 'Above Ground Construction' and 'Fencing Installation' sections below.

4.10 Tree protection measures will follow the specification provided at Drawing 5.

4.11 Temporary protection measures would be maintained as shown during the entire construction process and would not be removed or realigned until all buildings, structures, hard surfaces, utilities, drainage, demolition and the removal of scaffolding, plant, compounds and surplus material has been completed.

Above Ground Construction

4.12 In order to undertake construction of the proposed disabled parking bay within Site 1, the works must be completed sensitively, under arboricultural supervision, and using above ground 'no-dig' construction in order to avoid causing detrimental harm. The methodology that must be followed is detailed below.

(i) When the construction programme dictates that the disabled parking bay on Site 1 will be installed, the Site Manager will arrange a date with the Arboricultural Consultant to undertake the watching brief.

(ii) Above ground 'no-dig' construction and arboricultural supervision will be undertaken in the location shown as a solid brown hatch on Drawing 4 (D8166.03.006).

- (iii) Where required, a vegetation scrape, to a maximum of 50mm depth, will take place. No other penetration or disturbance of the existing ground will be permitted.
- (iv) The use of plant may be permitted at the direction of the Arboricultural Consultant.
- (v) A geotextile membrane will be laid and a blinding or levelling layer of washed sharp sand (no fines) up to a maximum depth of 50mm may be laid on top of the membrane.
- (vi) An above ground 'no-dig' construction system will be installed (e.g. a cellular confinement system such as Cellweb or a grid system such as GreenGrid). The selected system will be installed in accordance with the manufacturers instructions.
- (vii) The above ground system will be constructed on top of the blinding layer with no sub-base permitted.
- (viii) The final wearing course will be applied and will be fully permeable. All surfacing specifications will be verified by an engineer prior to installation.
- (ix) Surrounding levels and surfaces will be designed to tie in with the finished surface of the above ground system.
- (x) Vehicle movement will not be permitted on top of the above ground system until the final wearing course is applied and set.
- (xi) The completion of above ground construction installation will be verified and signed off by the Arboricultural Consultant.

Fencing Installation

- 4.13 In order to install boundary fencing around the proposed disabled parking space at Site 1, the fencing must be installed sensitively and in accordance with the following parameters to avoid causing harm to adjacent third party trees.
- (i) Proposed fencing highlighted with a thick magenta line on Drawing 4 (D8166.03.006) must be installed in accordance with the following restrictions and observations
 - (ii) Boundary fencing will only be installed once all other construction works have been completed, with all construction traffic removed from site, and tree protection fencing removed.
 - (iii) Post holes will be dug by hand and any roots found will be severed neatly at the hole face using a sharp spade, bypass secateurs or pruning saw as appropriate.
 - (iv) Post holes will be lined with a non-permeable membrane to prevent contact between soil and cementitious products.
 - (v) Temporary ground protection will be used whilst installing fencing to prevent damage to soil and compaction.

Tree works

- 4.14 The works recommended in Appendix A²⁹ would be undertaken by a qualified contractor in accordance with British Standard 3998:2010 Tree work – Recommendations.
- 4.15 Group G2, located to the east of Site 2, should be removed on health and safety grounds due to their poor condition and proximity to Rhuddlan Road.

²⁹ Other than those relating to trees that would be removed

APPENDIX A: Arboricultural Survey Data



Surveyor Heather Eilbeck
 Survey Date 25.01.2023
 Site Glan Clwyd Hospital, Bodelwyddan - MSCP and AOPMHU Sites
 Drawing Ref D8166.03.002-003
Italicised Feature Ref: Inspection of this feature was restricted
Italicised Values: Feature value was estimated

APPENDIX A: Arboricultural Survey Data Sheets

Ref	Species	Height	Canopy Ground Clearance	Stem Diameter (or range)	No. of stems/ individuals	Crown Spread North	Crown Spread South	Crown Spread East	Crown Spread West	Lowest Branch Height	Lowest Branch Direction	Maturity	Condition	Comments on form, condition, health and significant defects	Management recommendations in current context	BS 5837 Quality Category	Estimated Remaining Contribution
		(m)	(m)	(mm)	arising below 1.5m	(m)	(m)	(m)	(m)	(m)	(N,S,E,W)	Young, Middle Age, Mature	Good, Fair, Poor, Veteran			A,B,C,U (1,2,3)	Long, Medium, Short, Very Short
Trees																	
T1	Common ash	6.0	0.5	290	1	3.0	3.0	3.0	3.0	0.5	E	Middle Age	Good	Vigorous tree. Minor pruning of lower eastern branches. Rounded canopy.	Crown lift southern canopy to provide 3.5m clearance.	C ,1	Long
T2	Common ash	6.0	1.0	270	1	4.0	3.0	4.0	4.0	1.5	NE	Middle Age	Good	Vigorous tree rooted atop a 0.5m slab retaining wall. Part of a short row of amenity eastern and trees. Minor pruning of western lower branches. Minor ivy growth on stem.		C ,1	Long
T3	Common ash	7.0	2.0	220	1	3.0	3.0	4.0	3.5	1.5	SW	Middle Age	Fair	Vigorous tree rooted atop a 0.5m slab retaining wall. Part of a short row of amenity trees. Thinning canopy.		C ,1	Medium
T4	Common ash	5.0	2.5	200	1	2.5	2.5	2.5	2.5	2.0	E	Middle Age	Fair	Vigorous tree rooted atop a 0.5m slab retaining wall. Part of a short row of amenity trees. Occluding pruning wounds. Thinning canopy and epicormic growth within internal canopy.		C ,1	Medium
T5	Crack willow	12.0	2.5	569	10	6.0	5.0	4.0	4.0	2.5	S	Middle Age	Fair	Basally multi-stemmed typical for species. Small branch failures throughout crown. Pruning stubs from poor pruning cuts.		C ,1	Long
T6	Wild cherry	5.0	1.5	150	1	2.0	1.5	1.5	1.0	1.5	NE	Middle Age	Fair	Ornamental planting on grass mound. Slightly suppressed form due to adjacent willow. Leans to north-east.	Remove stake.	C ,1	Long
T7	Wild cherry	4.0	2.5	150	1	2.0	2.0	2.0	2.0	2.0	SW	Middle Age	Good	Ornamental planting on grass mound. Good form and balanced crown.		C ,1	Long
T8	Wild cherry	6.0	0.5	127	4	2.5	2.0	2.0	2.0	1.0	NE	Middle Age	Fair	Ornamental planting on grass mound. Multi-stemmed from base. Rubbing limbs causing wounding.		C ,1	Long
T9	Wild cherry	4.0	1.0	197	3	3.0	3.0	3.0	3.0	1.0	N	Middle Age	Fair	Ornamental planting on grass mound. Slightly congested central crown. Included trifurcation unions. Pruned lower eastern branches. Northernmost stem has been cut with just 1 small twig attached.		C ,1	Long
T10	Common hawthorn	3.0	1.0	75	1	1.0	1.0	1.0	1.0	1.0	S	Middle Age	Fair	Ornamental planting on grass verge with support stake still in place. Stake tie not attached but stake still in ground.		C ,1	Medium
T11	Common hawthorn	3.0	0.5	170	8	2.0	2.5	2.5	2.5	2.5	SW	Middle Age	Good	Ornamental planting on grass verge. Good form and balanced crown. Pruning of lower branches with remnant stubs.		C ,1	Long
T12	Small-leaved lime	5.0	1.0	220	1	3.0	1.5	2.5	2.0	1.5	NW	Middle Age	Fair	Ornamental planting in grass verge. Suppressed by adjacent cherry with stem lean north-east. Leans to north. Pruning of lower branches with remnant stubs. Bifurcate at c. 1.6m with further bifurcation above and some included unions.		C ,1	Long
T13	Wild cherry	6.0	1.5	290	1	4.0	2.5	3.0	3.0	2.0	N	Mature	Fair	Ornamental planting in grass verge. Previously unsympathetically reduced to 3m but with a reasonably rounded secondary crown. Slight lean to north. Surface rooting with circle of grass removed around base. Grafting union with typical acute and included unions.		C ,1	Medium
T14	Rowan	2.0	0.2	55	4	1.0	0.5	1.0	0.5	0.2	N	Young	Fair	Basally twin-stemmed with stem lean and canopy bias to the north-east.		C ,1	Long
T15	Wild cherry	8.0	1.0	470	1	6.0	5.0	5.0	6.0	1.5	N	Mature	Good	One of several mature cherry trees surrounding the main hospital entrance and internal road junction. Multi-stemmed at 1.5m but with good overall form. Multi-stem union with typical acute and included unions. Occluding pruning wounds.		B ,1	Medium
T16	Whitebeam	5.0	1.5	250	4	2.0	2.0	2.0	2.0	1.5	W	Middle Age	Fair	Reasonable overall form. Flush cuts on main stem and minor basal strimmer damage. Multi-stemmed with tight unions.		C ,1	Long
T17	Whitebeam	5.0	2.5	240	1	2.5	2.0	2.5	2.5	2.0	E	Middle Age	Fair	Reasonable overall form. Flush cuts on main stem and minor basal strimmer damage. Pruned branches.		C ,1	Long
T18	Rowan	2.0	0.4	45	2	1.0	0.5	0.5	0.5	0.2	N	Young	Fair	Tight twin-stemmed union at ground level. Basal decay from repeated strimmer damage. Northernmost stem cut and now a remnant stub.		C ,1	Short
T19	Rowan	2.0	0.5	36	2	0.5	0.5	0.5	0.5	0.5	W	Young	Fair	Basal decay from repeated strimmer damage. Previously trifurcate but 1 stem now removed entirely.		C ,1	Short
T20	Wild cherry	6.0	1.5	316	3	2.5	3.0	3.0	3.0	1.5	E	Mature	Fair	Unsympathetically reduced to 2m in the past, now with a reasonably rounded secondary crown. Large crossing branch in central crown. Included trifurcation unions.		C ,1	Medium
T21	Common hawthorn	3.0	1.0	100	2	1.0	1.0	1.5	0.5	0.5	E	Middle Age	Fair	Basally multi-stemmed with evidence of livestock abrasion on stem and over footplate. Small exposed roots. Bramble growth throughout Eastern canopy.		C ,1	Long
T22	Common hawthorn	4.0	1.0	260	1	3.0	3.0	3.0	3.0	1.0	SE	Middle Age	Good	Good overall form and condition. Evidence of livestock abrasion on stem and over footplate. Small exposed roots.		B ,1	Long



APPENDIX A: Arboricultural Survey Data Sheets

Surveyor Heather Eilbeck
 Survey Date 25.01.2023
 Site Glan Clwyd Hospital, Bodelwyddan - MSCP and AOPMHU Sites
 Drawing Ref D8166.03.002-003
Italicised Feature Ref: Inspection of this feature was restricted
Italicised Values: Feature value was estimated

Ref	Species	Height	Canopy Ground Clearance	Stem Diameter (or range)	No. of stems/ individuals	Crown Spread North	Crown Spread South	Crown Spread East	Crown Spread West	Lowest Branch Height	Lowest Branch Direction	Maturity	Condition	Comments on form, condition, health and significant defects	Management recommendations in current context	BS 5837 Quality Category	Estimated Remaining Contribution
		(m)	(m)	(mm)	arising below 1.5m	(m)	(m)	(m)	(m)	(m)	(N,S,E,W)	Young, Middle Age, Mature	Good, Fair, Poor, Veteran			A,B,C,U (1,2,3)	Long, Medium, Short, Very Short
T23	Pedunculate oak	12.0	2.5	650	1	6.0	6.0	10.0	5.0	3.0	NW	Mature	Good	Reasonable form with crown bias to east. Shade deadwood in lower crown. Moderate deadwood. Minor and moderate previous limb failures. Inspection restricted to land to south.		B ,1	Long
T24	Pedunculate oak	8.0	2.5	650	1	2.0	5.0	5.0	3.0	3.5	SW	Mature	Fair	Previous snapping of main stem at 4m has led to cubical brown rot and substantial hollowing. Crown has partially regenerated. Pronounced 'bottle butt' buttress display. Small aerial deadwood. Inspection restricted to land to the south.		B ,3	Medium
T25	Pedunculate oak	17.0	3.0	1400	1	9.0	7.5	8.5	7.0	3.0	SE	Mature	Fair	Fully mature tree with very large bole. Large twin-stem union at 3m with south-western scaffolds previously reduced. Small decay pockets and bark necrosis in buttress arches and on south-western stem. Laetiporus sulphureus fungal fruiting bodies found on ground under southern canopy during previous survey, no evidence at present. Large branch failure in lower south-east canopy. Early veteran characteristics. Unsympathetically pruned and reduced in height. Inspection restricted to land to south.		A ,1, 2, 3	Long
T26	Pedunculate oak	7.0	3.0	600	1	6.0	3.5	3.0	5.0	3.0	W	Mature	Fair	Squat form for age and species. Moderate deadwood in upper canopy indicative of early retrenchment. Minor decay pockets at points of previous branch removal/loss. Inspection restricted due to lack of access.		C ,1	Medium
T27	Pedunculate oak	14.0	1.5	1300	1	8.0	10.0	12.0	8.5	3.0	S	Mature	Fair	Fully mature tree with large bole and pronounced buttress flair. Large multi-stemmed union at 3m. Previous loss of several large limbs from lower canopy now with associated decay at attachment points. Dieback in upper crown and vigorous lower branches indicative of crown retrenchment. Cavities in limbs. Large occluding crack/cavity in large western lower limb that protrudes up the limb into the central canopy. Early veteran characteristics. Bat potential. Shallow waterfilled ditch abutting the south stem. Inspection restricted to lack of access to land.		A ,1, 2, 3	Long
T28	Grey willow	4.0	1.0	316	3	3.5	4.5	5.0	3.0	1.0	SE	Middle Age	Fair	Growing atop a steep brook bank. Basally twin-stemmed branching again at 1m. Abrasion and browsing damage on lower northern canopy.		C ,1	Long
T29	Pedunculate oak	13.0	3.0	700	1	6.5	8.0	9.0	6.0	2.5	S	Mature	Fair	Reasonable crown shape emanating from a multi-stemmed joint at 2m. Growing on western bank of brook. Minor deadwood throughout crown. Large branch previously removed from lower north-eastern crown, now with minor decay at pruning stub. Inspection restricted to land to east and obscured by dense vegetation.		B ,1	Long
T30	Grey willow	5.0	0.5	221	10	3.5	3.0	4.5	3.5	0.5	N	Middle Age	Good	Self set tree wiring drainage attenuation basin. Typical multi-stemmed form for species.		C ,1	Long
T31	Grey willow	5.0	0.5	155	15	2.5	2.5	2.5	2.5	0.5	N	Middle Age	Good	Self set tree wiring drainage attenuation basin. Typical multi-stemmed form for species.		C ,1	Long
T32	Grey willow	3.0	0.5	79	7	1.5	2.0	1.5	1.5	0.5	E	Middle Age	Good	Small self set tree at corner of attenuation basin. Basally multi-stemmed.		C ,1	Long
T33	Elder	3.0	1.0	85	8	1.5	1.5	1.5	1.5	1.0	W	Middle Age	Good	Small self set elder adjacent to fence. Basally multi-stemmed.		C ,1	Medium
T34	Cherry species	4.0	1.5	60	1	0.5	0.5	0.5	0.5	1.5	N	Young	Fair	Ornamental planting in car park verge. Minor tip dieback in upper crown.		C ,1	Long



APPENDIX A: Arboricultural Survey Data Sheets

Surveyor Heather Eilbeck
Survey Date 25.01.2023
Site Glan Clwyd Hospital, Bodelwyddan - MSCP and AOPMHU Sites
Drawing Ref D8166.03.002-003

Italicised Feature Ref: Inspection of this feature was restricted
Italicised Values: Feature value was estimated

Ref	Species	Height	Canopy Ground Clearance	Stem Diameter (or range)	No. of stems/ individuals	Crown Spread North	Crown Spread South	Crown Spread East	Crown Spread West	Lowest Branch Height	Lowest Branch Direction	Maturity	Condition	Comments on form, condition, health and significant defects	Management recommendations in current context	BS 5837 Quality Category	Estimated Remaining Contribution
		(m)	(m)	(mm)	arising below 1.5m	(m)	(m)	(m)	(m)	(m)	(N,S,E,W)	Young, Middle Age, Mature	Good, Fair, Poor, Veteran			A,B,C,U (1,2,3)	Long, Medium, Short, Very Short
Groups																	
G1	Field maple	5 to 6	1.0	70 to 160	9							Middle Age	Fair	Dense cluster of trees with upright habit. Light ivy on lower stems. Pruning stubs in lower canopies. Multi-stemmed forms.		C , 1	Long
G2	Common ash, Wych elm	3 to 6	1.0	50 to 240	2							Middle Age	Dead	Standing dead.	Remove due to proximity to road.	U	Very Short
G3	Field maple, Common hawthorn	3.5 to 6.5	1.0	70 to 150	8							Middle Age	Fair	Dense cluster of trees with upright habit. Ornamental shrub understorey. Some stems ivy clad.		C , 1	Long
G4	Common hawthorn	2 to 3.5	0.5	60 to 120	40							Middle Age	Fair	Fragments of a defunct hedgerow that have grown into clusters of leggy trees.		C , 1, 2	Long
G5	Common hawthorn, Common ash, Blackthorn, Pedunculate oak, Grey willow	2.5 to 4	0.5	40 to 108	100							Middle Age	Good	Predominantly blackthorn forming a dense thicket spanning the banks of a brook. Likely origin from a hedgerow on the western side of the brook. The odd occurrence of ash, oak and willow at far ends of the group.		C , 2	Long
G6	Common hawthorn, Common ash, Wild cherry, Elm species	3 to 7	0.0	50 to 180	100							Middle Age	Mixed	Linear tree group along grass verge and boundary. Some standing dead stems within group. Forms reasonably dense screen.		C , 2	Short
Hedges																	
H1	Common hawthorn	1 to 1.5		n/a	n/a							Middle Age	Good	Well maintained hedge adjacent to car park and drainage ditch. Several small gaps towards the northern end.		n/a	n/a

APPENDIX B: Survey Method

APPENDIX B: Survey Method

The survey of trees is conducted from ground level only. The nature of the soils on site is not assessed.

Trees are dynamic living organisms with a constantly changing structure; even trees in good condition can suffer from damage or stress. The information recorded is presented as being correct at the time of survey.

The following features of each tree, group of trees or wood may have been recorded in the Arboricultural Survey Data Sheets at Appendix 1.

Species	The common name is given. The Latin name may also be given if further clarification is required.	
Height	Top height of tree recorded in metres.	
Stem Diameter	For single-stemmed trees the measurement is taken at 1.5 metres above ground level and recorded in millimetres. For multi-stemmed trees an average all stems measured at 1.5m above ground level is used. For tree groups a range from minimum to maximum diameters is provided based on measurements taken using one of the aforementioned methods.	
No. of Stems	A count of stems arising below a height of 1.5 metres.	
Crown Spread	The N, S, E and W branch spreads are recorded in metres to provide a representative crown shape.	
Height of Lowest Branch	Crown clearance above ground level recorded in metres.	
Direction of Lowest Branch	The direction of growth of the first significant branch from the point of attachment.	
Maturity	Young	Trees that can reasonably be relocated or replaced like for like, without undue cost;
	Middle Age	Trees in the established growth stage of their life with the potential to continue increasing in size;
	Mature	Trees that have reached their ultimate size, given their location and surroundings;
Condition	Good, Fair, Poor. An overall assessment of a tree's physiological and structural state in which factors that may increase its susceptibility to the effects of development are taken into account. Veteran. Trees that are in such a condition as to significantly increase their biological, cultural or aesthetic value. This is characteristic of, but not exclusive to, individuals surviving beyond the typical age range for the species concerned.	
Comments	A brief evaluation and description of the tree with comments on form, vitality, health and any significant defects or symptoms of ill-health.	

BS 5837 Tree Quality Assessment

The tree quality assessment is based on Table 1 of BS 5837:2012 (See below). Four categories (A, B, C and U) are used to denote tree quality (A= High, B = Moderate, C = Low, U= Unsuitable for retention). Subcategories (1-3) denote the specific function value of the trees and the reasoning behind the allocation of a specific category (the subcategories may be used in combination but do not accumulate collective weight).

Root Protection Area (RPA)

The RPA is allocated to ensure that a sufficient area is left undisturbed during development. It is provided as an area (m²) and as the radius of a circle (m) typically plotted from the centre of the stem.

The RPA is calculated using a mathematical equation included in BS 5837:2012 (Section 4.6 and Table D.1) and is based on a tree's stem diameter. In some cases the RPA may need to be adapted to best reflect the likely area and position of roots required to ensure survival; this may be based on criteria such as the tree's condition, species, crown spread and any barriers to growth. Any alteration must be justifiable but is made at the Arboricultural Consultants discretion.

Recommendations

Recommendations for arboricultural works, etc. are based on the **current** land use, and take into account the tree or group attributes without bias to the proposed development.

Estimated Remaining Contribution

An estimation of the life expectancy as healthy functioning tree. This will be influenced by species and the condition of the tree at the time of survey.

Long	> 40 years
Medium	20 – 40 years
Short	less than 20 years

APPENDIX B: Survey Method

Table 1 Cascade chart for tree quality assessment

Category and definition	Criteria (including subcategories where appropriate)			Identification on plan
Trees unsuitable for retention (see Note)				
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	<ul style="list-style-type: none">Trees that have a serious, irremediable, structural defect, such that their early loss is expected due to collapse, including those that will become unviable after removal of other category U trees (e.g. where, for whatever reason, the loss of companion shelter cannot be mitigated by pruning)Trees that are dead or are showing signs of significant, immediate, and irreversible overall declineTrees infected with pathogens of significance to the health and/or safety of other trees nearby, or very low quality trees suppressing adjacent trees of better quality <p><i>NOTE Category U trees can have existing or potential conservation value which it might be desirable to preserve; see 4.5.7.</i></p>			See Table 2
	1 Mainly arboricultural qualities	2 Mainly landscape qualities	3 Mainly cultural values, including conservation	
Trees to be considered for retention				
Category A Trees of high quality with an estimated remaining life expectancy of at least 40 years	Trees that are particularly good examples of their species, especially if rare or unusual; or those that are essential components of groups or formal or semi-formal arboricultural features (e.g. the dominant and/or principal trees within an avenue)	Trees, groups or woodlands of particular visual importance as arboricultural and/or landscape features	Trees, groups or woodlands of significant conservation, historical, commemorative or other value (e.g. veteran trees or wood-pasture)	See Table 2
Category B Trees of moderate quality with an estimated remaining life expectancy of at least 20 years	Trees that might be included in category A, but are downgraded because of impaired condition (e.g. presence of significant though remediable defects, including unsympathetic past management and storm damage), such that they are unlikely to be suitable for retention for beyond 40 years; or trees lacking the special quality necessary to merit the category A designation	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	Trees with material conservation or other cultural value	See Table 2
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	Unremarkable trees of very limited merit or such impaired condition that they do not qualify in higher categories	Trees present in groups or woodlands, but without this conferring on them significantly greater collective landscape value; and/or trees offering low or only temporary/transient landscape benefits	Trees with no material conservation or other cultural value	See Table 2

British Standards Institute (2012) BS5837:2012 Trees in relation to design, demolition and construction – Recommendations.
p.9

NOTES:

All young trees are assessed as quality category 'C' but this does not preclude their retention within a development.

For hedges the height, canopy spread and number of stems is recorded but they are not assigned a quality category.

DRAWINGS

- Drawing 1 - Site Location Plan**
- Drawing 2 - Tree Constraints Plans**
- Drawing 3 - Tree Works Plans**
- Drawing 4 - Tree Protection Plans**
- Drawing 5 - Tree Protection Fencing Specification**



KEY

[This drawing must be reproduced in colour]

— Approximate Application Boundaries



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Rev	Description	Drawn	Approved	Date
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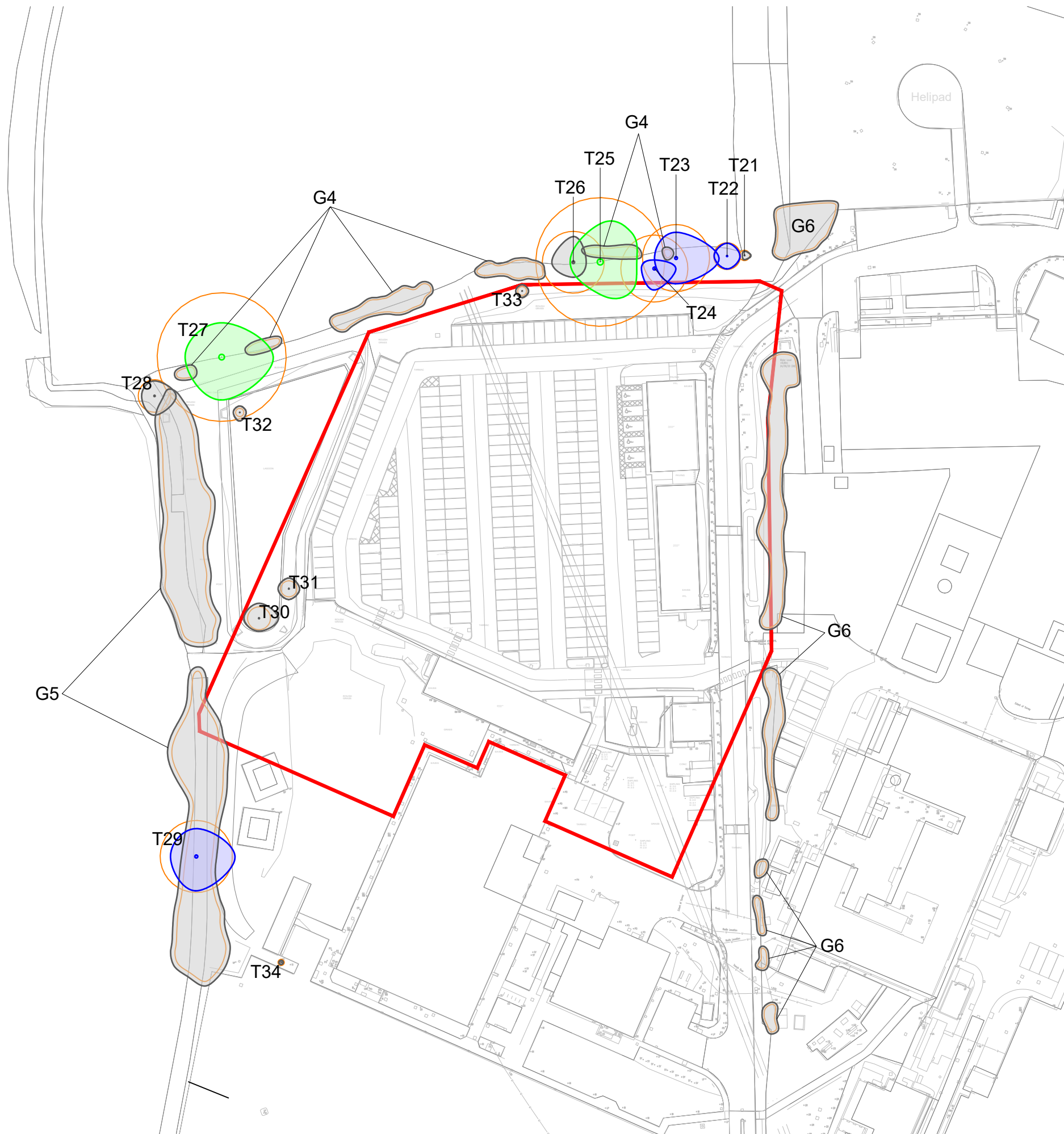


Genesis Centre, Birchwood Science Park, Warrington WA3 7BH
Tel 01925 844004 e-mail tep@tep.uk.com www.tep.uk.com

Project
AOPMHU Redevelopment Project Glan Clwyd Hospital, Bodelwyddan
Title
Drawing 1: Site Location Plan

Drawing Number
D8166.03.001

Drawn	Checked	Approved	Scale	Date
HEE	RMG	JGS	1:3,000 @ A3	01/02/2023



KEY

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T1/G1

Trees and Groups

H1

Hedgerow

Root Protection Area (RPA)

Approximate Application Boundaries

Tree Quality Categorisation

(Based on BS 5837:2012 Trees in relation to design, demolition and construction - Recommendations)

Category A

(High quality)

Category B

(Moderate quality)

Category C

(Low quality)

Category U

(Unsuitable for retention)

Hedgerow

(Not categorised)

NOTES:

This drawing should be read in conjunction with the respective Arboricultural Survey Data (Appendix A).

No tree stem locations are shown on the topographical surveys, with the exception of T34 and part of H1, therefore all tree locations except these are estimated based on a combination of aerial photography, OS base mapping and on-site observations.

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Rev	Description	Drawn	Approved	Date

THE ENVIRONMENT PARTNERSHIP

Genesis Centre, Birchwood Science Park, Warrington WA3 7BH
Tel 01925 844004 e-mail tep@tep.uk.com www.tep.uk.com

Project

AOPMHU Redevelopment Project
Glan Clwyd Hospital, Bodelwyddan

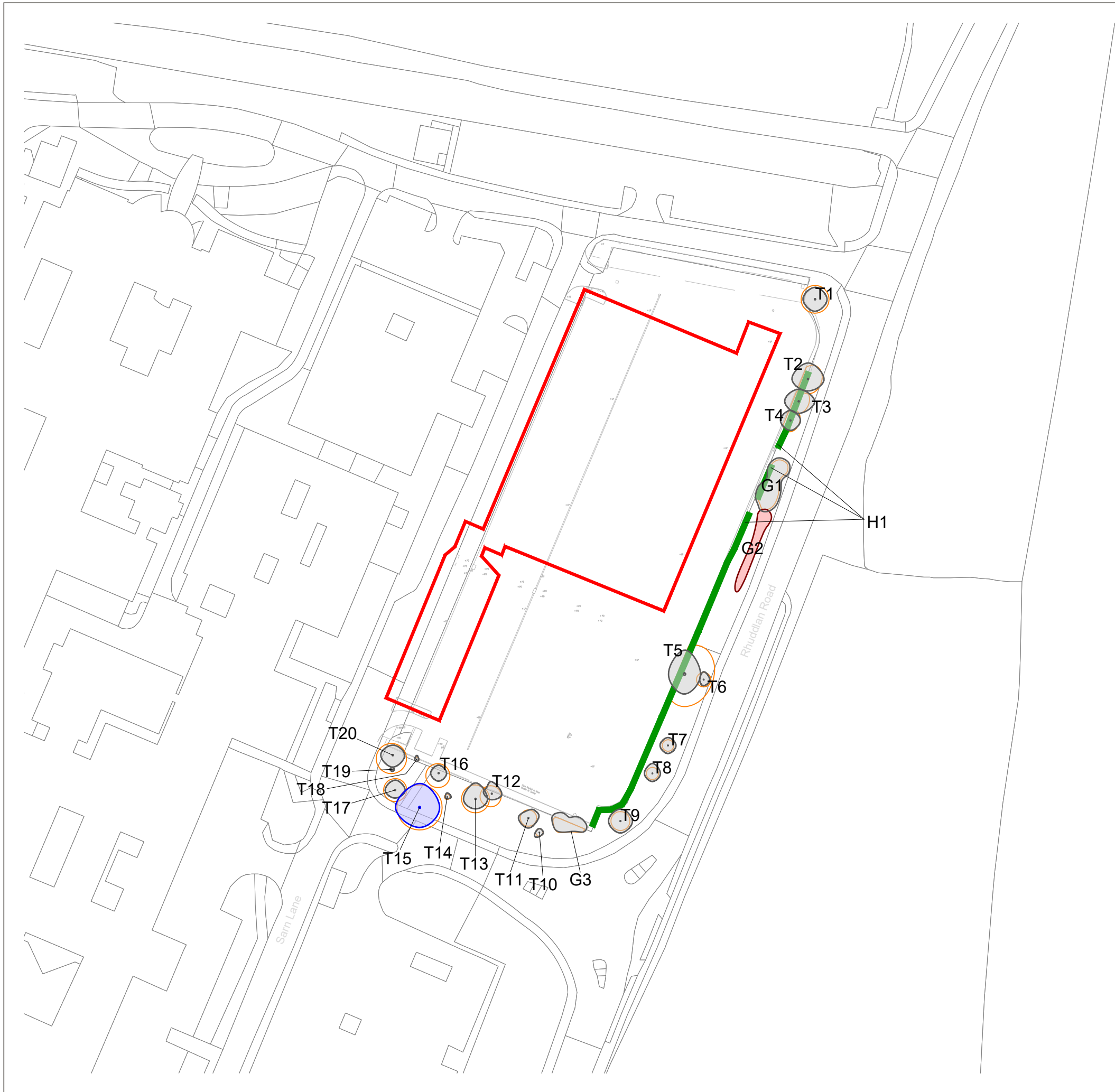
Title

Drawing 2: Tree Constraints Plan [BASELINE] - Site 1

Drawing Number

D8166.03.002

Drawn	Checked	Approved	Scale	Date
HEE	RMG	JGS	1:1,000 @ A3	01/02/2023



KEY

[This drawing must be reproduced in colour]

- T1/G1 Trees and Groups
- H1 Hedgerow
- Root Protection Area (RPA)
- Approximate Application Boundaries

Tree Quality Categorisation
(Based on BS 5837:2012 Trees in relation to design, demolition and construction - Recommendations)

- Category A (High quality)
- Category B (Moderate quality)
- Category C (Low quality)
- Category U (Unsuitable for retention)
- Hedgerow (Not categorised)

NOTES:

This drawing should be read in conjunction with the respective Arboricultural Survey Data (Appendix A).

No tree stem locations are shown on the topographical surveys, with the exception of T34 and part of H1, therefore all tree locations except these are estimated based on a combination of aerial photography, OS base mapping and on-site observations.



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Rev	Description	Drawn	Approved	Date
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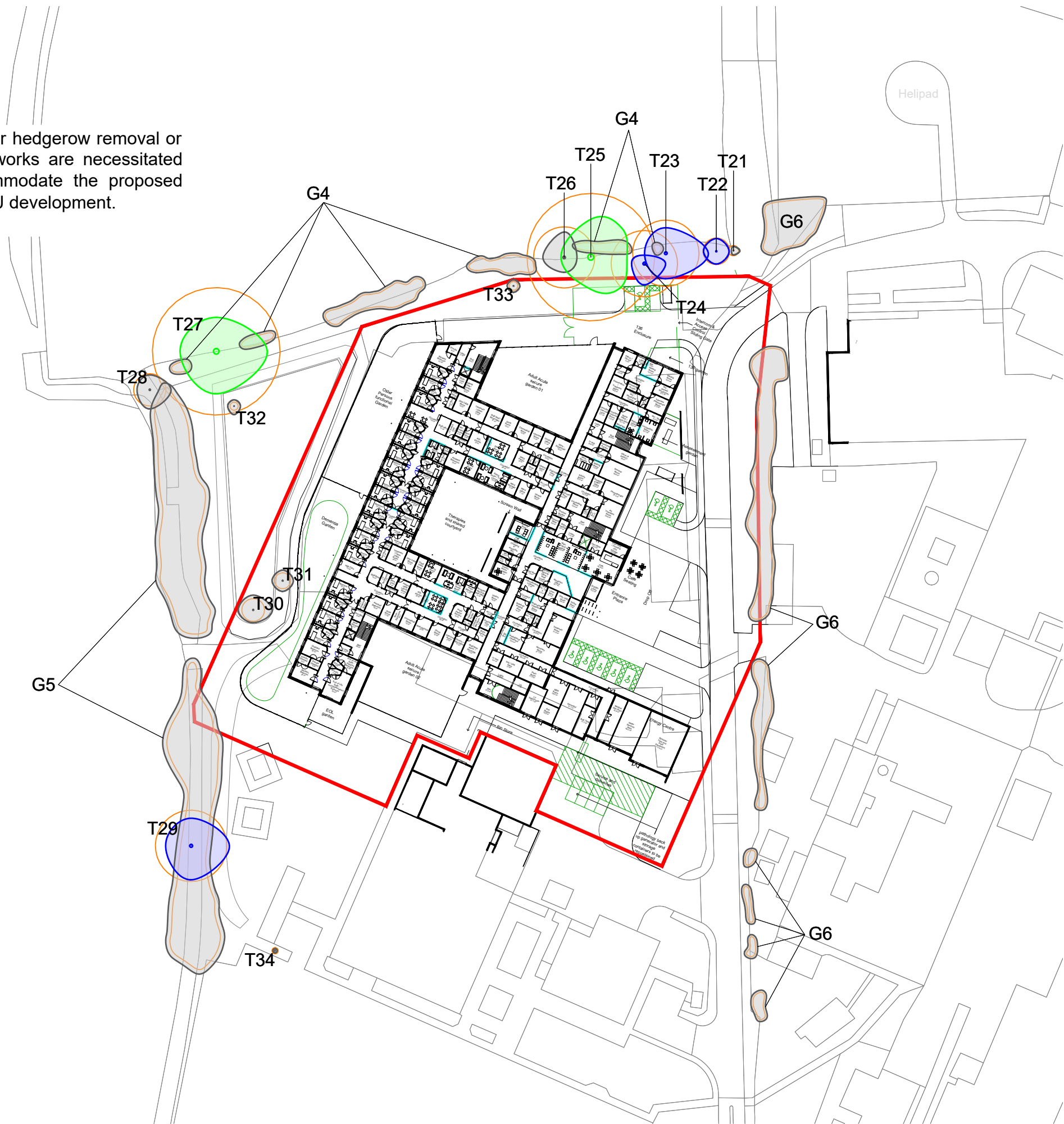
Genesis Centre, Birchwood Science Park, Warrington WA3 7BH
Tel 01925 844004 e-mail tep@tep.uk.com www.tep.uk.com

Project
AOPMHU Redevelopment Project
Glan Clwyd Hospital, Bodelwyddan
Title
Drawing 2: Tree Constraints Plan [BASELINE] - Site 2

Drawing Number
D8166.03.003

Drawn	Checked	Approved	Scale	Date
HEE	RMG	JGS	1:1,000 @ A3	01/02/2023

No tree or hedgerow removal or pruning works are necessitated to accommodate the proposed AOPMHU development.



KEY

[This drawing must be reproduced in colour]

- T1/G1 Trees and Groups
- Root Protection Area (RPA)
- Approximate Application Boundary

Trees to be retained and protected

- Category A (High quality)
- Category B (Moderate quality)
- Category C (Low quality)

NOTES:

This drawing should be read in conjunction with the respective Arboricultural Survey Data (Appendix A).

No tree stem locations are shown on the topographical surveys, with the exception of T34 and part of H1, therefore all tree locations except these are estimated based on a combination of aerial photography, OS base mapping and on-site observations.

The proposed AOPMHU CAD layout (ref: AOPMHU-PDA-ZX-00-DR-A-20100, Rev P017) provided to inform this assessment was not geospatially referenced and has been aligned by hand using OS base mapping.



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Rev	Description	Drawn	Approved	Date
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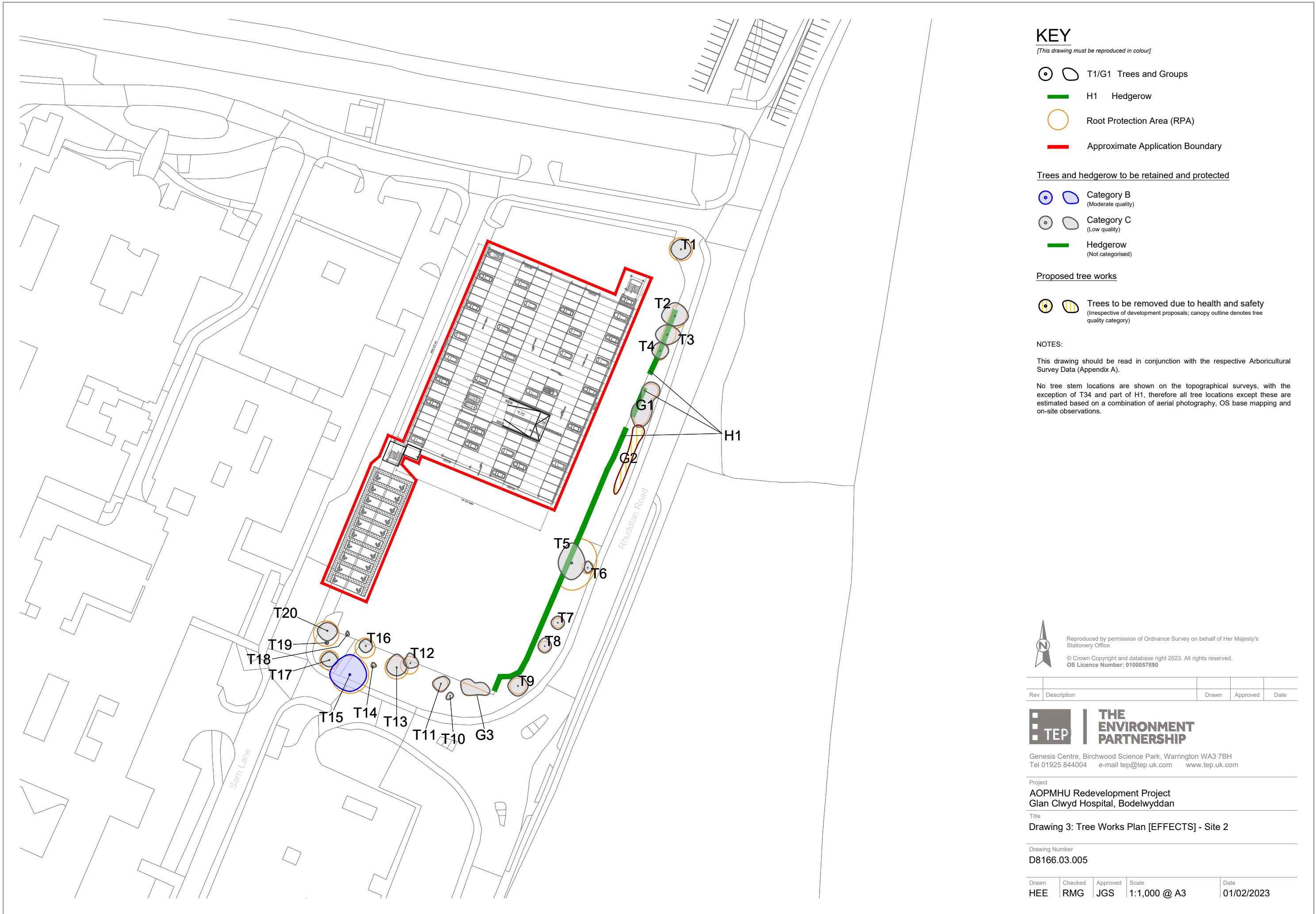
THE ENVIRONMENT PARTNERSHIP

Genesis Centre, Birchwood Science Park, Warrington WA3 7BH
Tel 01925 844004 e-mail tep@tep.uk.com www.tep.uk.com

Project
AOPMHU Redevelopment Project
Glan Clwyd Hospital, Bodelwyddan
Title
Drawing 3: Tree Works Plan [EFFECTS] - Site 1

Drawing Number
D8166.03.004

Drawn	Checked	Approved	Scale	Date
HEE	RMG	JGS	1:1,000 @ A3	01/02/2023





KEY

[This drawing must be reproduced in colour]

T1/G1 Retained Trees and Groups

Root Protection Area (RPA)

Approximate Application Boundary

Tree Protection Measures

Existing 1.1m Post and Wire/Barbed Wire Fencing

Site Hoarding Fencing or Tree Protection Fencing
(Tree protection fencing to be installed if site hoarding is not erected in this area)

Tree Protection Fencing
(c. 102m or 29 Heras Panels)
(Must be installed prior to works commencement)

Special Construction Methodology

Above Ground 'no-dig' Construction
(Must be installed under an Arboricultural Watching Brief; methodology as per AIA report 8166.03.001)

Boundary Treatment
(Methodology as per AIA report 8166.03.001)

NOTES:

No tree stem locations are shown on the topographical surveys, with the exception of T34 and part of H1, therefore all tree locations except these are estimated based on a combination of aerial photography, OS base mapping and on-site observations.

The proposed AOPMHU CAD layout (ref: AOPMHU-PDA-ZX-00-DR-A-20100, Rev P017) provided to inform this assessment was not geospatially referenced and has been aligned by hand using OS base mapping.

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Rev	Description	Drawn	Approved	Date

TEP

THE ENVIRONMENT PARTNERSHIP

Genesis Centre, Birchwood Science Park, Warrington WA3 7BH
Tel 01925 844004 e-mail tep@tep.uk.com www.tep.uk.com

Project

AOPMHU Redevelopment Project
Glan Clwyd Hospital, Bodelwyddan

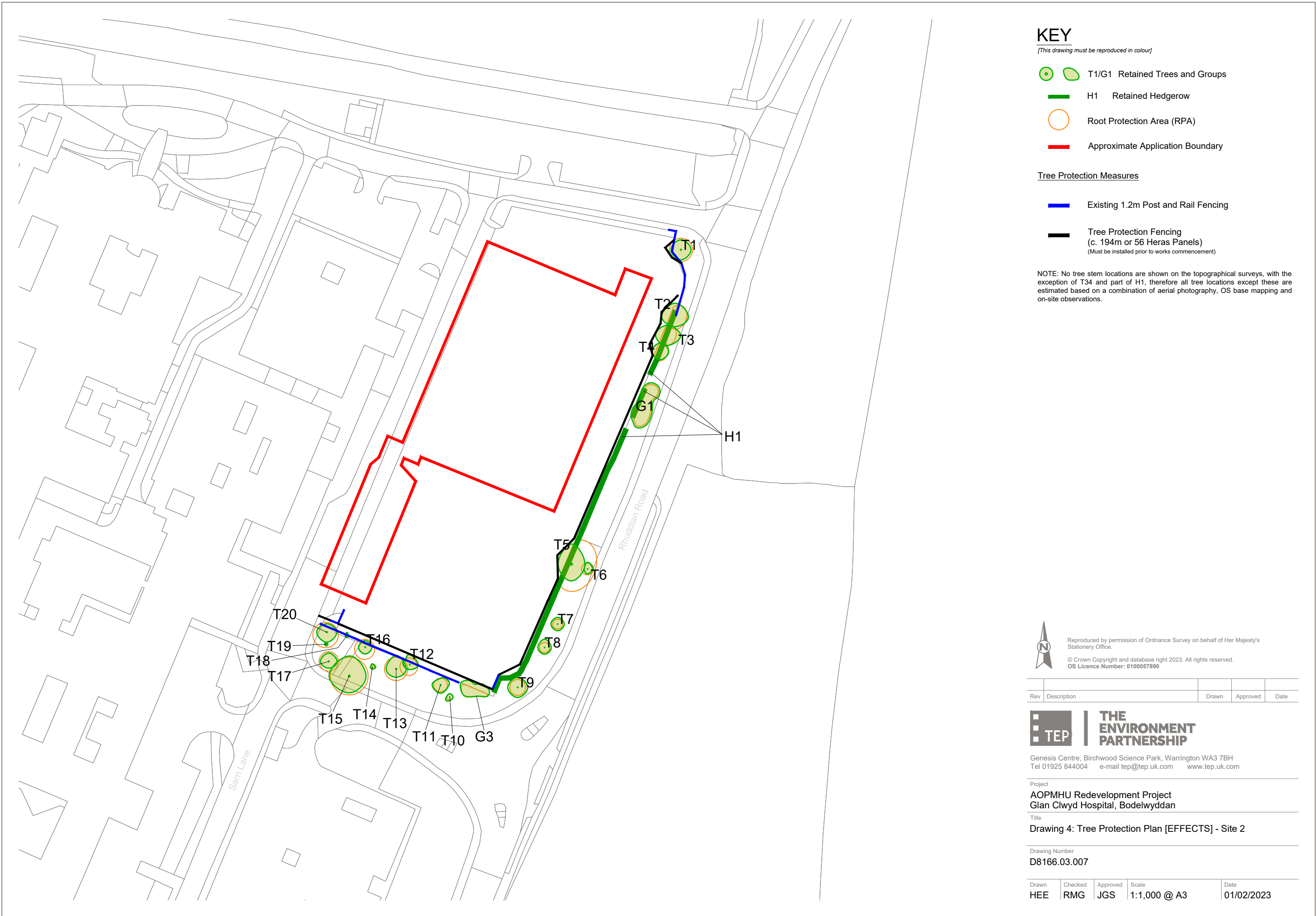
Title

Drawing 4: Tree Protection Plan [EFFECTS] - Site 1

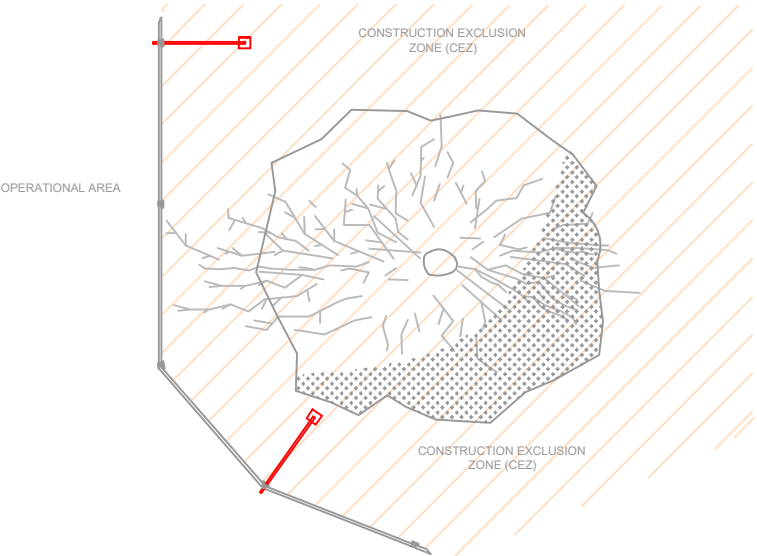
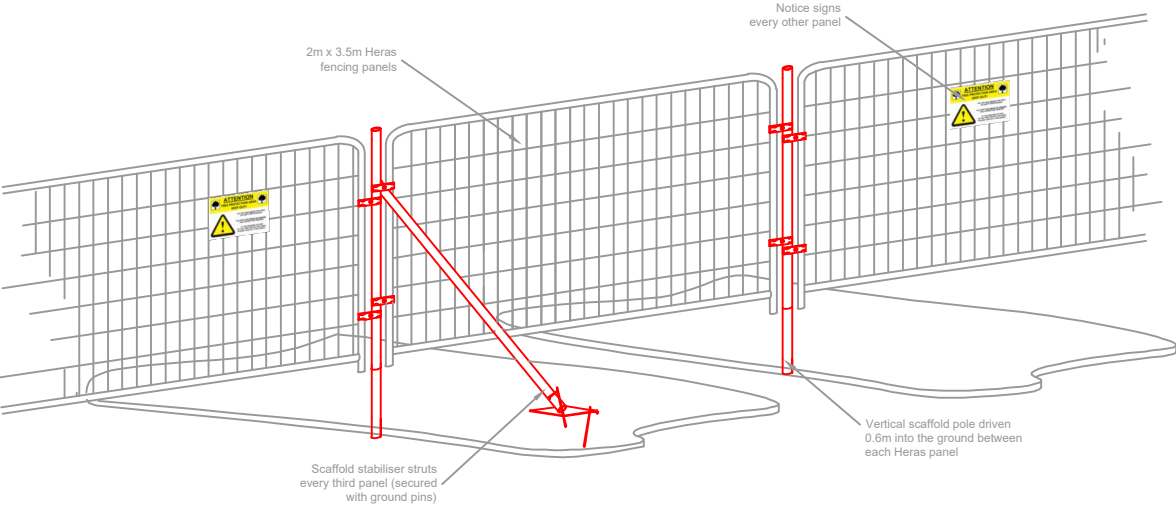
Drawing Number

D8166.03.006

Drawn	Checked	Approved	Scale	Date
HEE	RMG	JGS	1:1,000 @ A3	01/02/2023



Tree Protection Fencing for use on soft surfaces

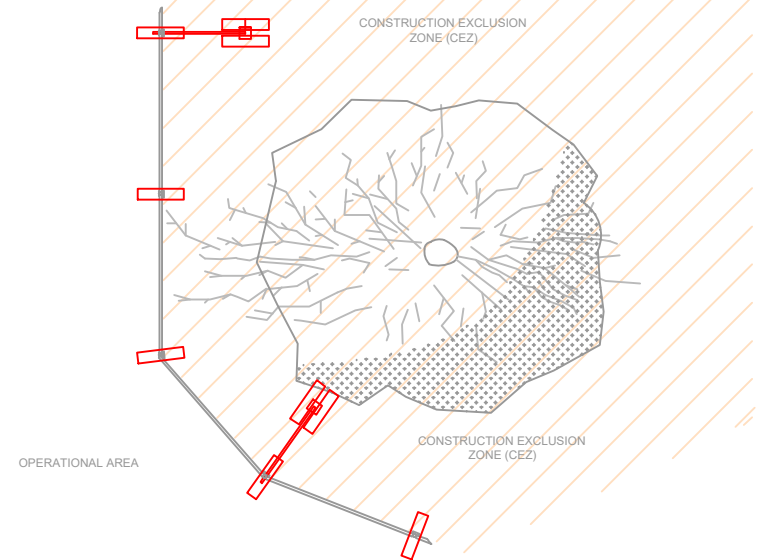
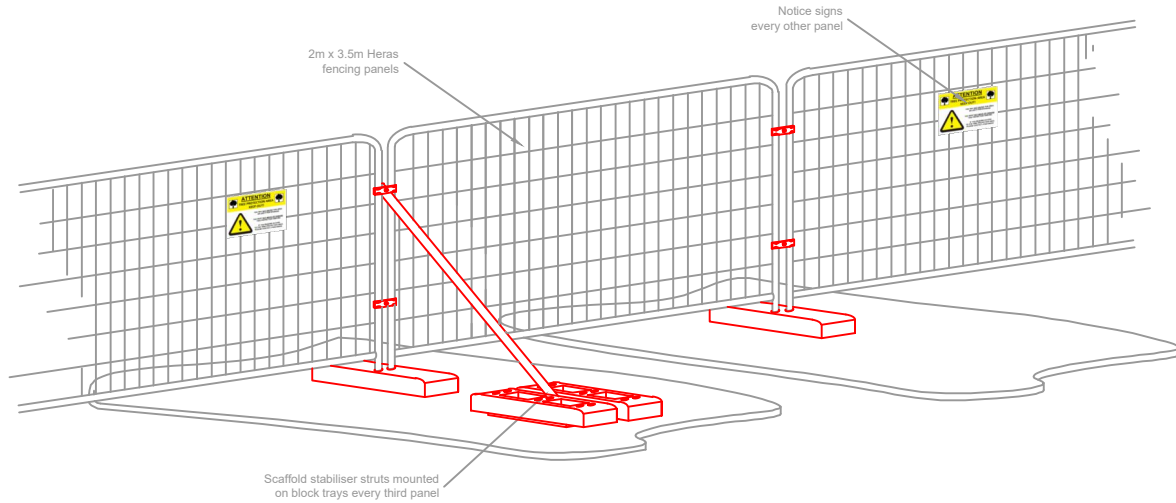


Per 3No. Heras panels (10.5m)

Component	Quantity
2m x 3.5m Standard Heras panels	3
3m Galvenised steel scaffold pole	3
Heras fecurity fence clip	12
Heras stabilising support bar	1
Stabilising pin	2
Tree protection notice	2

Notes:

Tree Protection Fencing for use on hard surfaces



Per 3No. Heras panels (10.5m)

Component	Quantity
2m x 3.5m Standard Heras panels	3
Rubber fencing block tray (footing)	5
Scaffold clamp double coupler	6
Heras stabilising strut support bar	3
Tree protection notice	2

Notes:

Rev	Description	Drawn	Approved	Date
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THE ENVIRONMENT PARTNERSHIP

Genesis Centre, Birchwood Science Park, Warrington WA3 7BH
Tel 01925 844004 e-mail tep@tep.uk.com www.tep.uk.com

Project

Title
Temporary tree protection fencing specifications

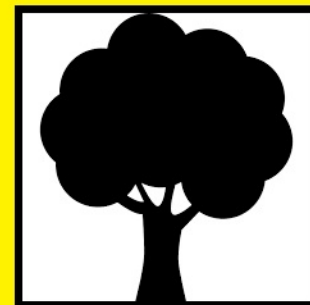
Drawing Number
TEP.ARB.FEN.003

Drawn	Checked	Approved	Scale	Date
TDP	RMG	JGS	(not to scale) @ A3	09/07/2019



ATTENTION

**TREE PROTECTION AREA
KEEP OUT!**



**YOU MAY NOT ENTER THIS AREA
OR USE IT FOR STORAGE**

**YOU MUST NOT MOVE OR DAMAGE
THIS PROTECTION FENCING**

**IF YOU REQUIRE ACCESS
TO THE TREE PROTECTION AREA
PLEASE CONTACT 01925 844004**



HEAD OFFICE

Genesis Centre,
Birchwood Science Park,
Warrington
WA3 7BH

Tel: 01925 844004
E-mail: tep@tep.uk.com

**MARKET
HARBOROUGH**

The Reynard Suite,
Bowden Business Village,
Market Harborough,
Leicestershire,
LE16 7SA

Tel: 01858 383120
E-mail: mh@tep.uk.com

GATESHEAD

Office 26, Gateshead
International Business
Centre,
Mulgrave Terrace,
Gateshead
NE8 1AN

Tel: 0191 605 3340
E-mail: gateshead@tep.uk.com

LONDON

8 Trinity Street,
London,
SE1 1DB

Tel: 020 3096 6050
E-mail: london@tep.uk.com

CORNWALL

4 Park Noweth,
Churchtown,
Cury,
Helston
Cornwall
TR12 7BW

Tel: 01326 240081
E-mail: cornwall@tep.uk.com
