

BS 5837:2012

Arboricultural Impact Assessment

Extra Baldock Service Station, A1(M)

Produced for:

GRIDSERVE Sustainable Energy Ltd

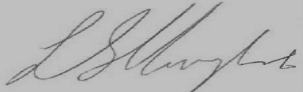


September 2024

Document Amendment History

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1	Issue	28.08.2024	
2	Issue	04.09.2024	PAIA updated to a full BS 5837 AIA.
2.1	Issue	11.09.2024	Amended to include final site layout plan.

Document Approval

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1. Introduction

1.1 Terms of Reference

Maydencroft Limited was commissioned by GRIDSERVE Sustainable Energy Ltd. to produce a **BS 5837 Arboricultural Report** in support of the proposed installation of six new eHGV drive through charging bays and associated electrical infrastructure at Extra Baldock Service Station, Baldock, Hertfordshire.

The report has been produced in accordance with British Standard 5837:2012 *Trees in relation to Design, Demolition and Construction – Recommendations* and is intended to inform the planning stages of the proposed works. The report provides information on the location, quality and condition of trees on site in order to ensure that the proposed scheme complies with the requirements of BS 5837:2012 with regard to minimising or, where possible, avoiding impact on the above and below ground parts of any retained trees, in particular any with existing statutory protection. It is also the aim of the report to give pragmatic advice about the removal of trees or particular remedial works deemed necessary to the successful delivery of the scheme.

The content of this report extends to the baseline *Tree Survey*, *Tree Constraints Plan*, *Arboricultural Impact Assessment* (AIA), *Arboricultural Method Statement* (AMS) and *Tree Protection Plan* (TPP). The combination of these documents constitutes a **full BS 5837 Arboricultural Report**.

1.2 Scope of Works

A survey of all trees within the designated area for the proposed installation of eHGV charging bays and associated electrical infrastructure at Extra Baldock Service Station was undertaken on Wednesday 7th August 2024. The extent of the survey was established from plans provided by GRIDSERVE Sustainable Energy Ltd. (**SK1 – Option 2 Site Layout - A1032-BOW-A0-ZZ-DR-A-P003**) since updated to (**8914-BOW-A0-00-DR-A-0105**) which shows the same design layout, and was completed using industry best practice to the standards laid out in BS 5837:2012.

The survey was undertaken by the following consultant who is a permanent employee of Maydencroft Limited.

Name	Position	Qualifications
James Jeffery	Arboricultural Consultant	Lantra Professional Tree Inspection Level 3 Extended Diploma in Forestry & Arboriculture Level 4 Diploma in Arboriculture Technician Member of the Arboricultural Association

All trees on and adjacent to the proposed development site were inspected using the Visual Tree Assessment (VTA) methodology, detailed in “The Body Language of Trees” (Mattheck & Breloer, HMSO, 1994). This level of inspection is ground based only and does not involve any climbing. Each individual tree was inspected separately and an assessment made of its condition. Where appropriate trees were assessed and recorded as groups. Any problems with individual trees were noted and remedial work is recommended here only where it is deemed necessary.

All trees and groups were plotted using a Samsung Galaxy Tab Active2 GPS device with an accuracy of between 1-3 m.

Details of all trees are listed in the attached Tree Schedule with quantitative and qualitative information included as required by BS 5837:2012 sections 4.4 to 4.6. The information has been used to create a *Tree Survey Plan* (Appendix C) showing the location of the trees, their crown spread and their BS 5837 categorisation, and a *Tree Constraints Plan* (Appendix D) indicating the Root Protection Areas (RPAs) for each of the trees and other constraints which may impact the works.

1.3 Site Description

Moto Baldock Service Station is located off junction 10 of the A1(M), 3 km north of Baldock town. The HGV parking area is located at the northeast corner of the service station, as outlined in red (*Figure 1* below), and is bordered by a mature tree belt to the northwest which is set back from the proposed working area, and a planted tree belt consisting of young broadleaved trees to the northeast which continues to wrap around the east boundary dividing the services from arable land to the east. Landscaped areas throughout the service station feature shrub beds with young to semi-mature trees, with individual young to semi-mature trees planted in tree pits across the site. The wider rural landscape adjoins a patchwork of agricultural fields and scattered villages, with Letchworth Garden City 3.5 km south.



Figure 1: Tree survey area outlined in red (Source: Google Earth ©)

1.4 Soils

The Soilsmap of the United Kingdom (developed and hosted by Cranfield University) shows that the site is located within **Soilscape 9** which is described as being lime-rich loamy and clayey soils with impeded drainage. It should be noted that a site-based soil assessment was not carried out as a part of this survey.

2. Tree Survey

2.1 Designations

Confirmation via email from North Herts Council has confirmed that the site is currently not affected by any Tree Preservation Order, nor is it currently situated in or adjoining to any existing designated Conservation Area.

2.2 Tree Categories

All trees on and in close proximity to the site have been assessed and categorised in accordance with the guidelines in BS 5837:2012. The following table includes a brief summary of the categories:

Trees to be considered for retention	
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.
Trees unsuitable for retention	
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.

2.3 Root Protection Areas (RPAs)

The RPAs for the trees recorded by the tree survey have been calculated in accordance with the guidance in chapter 4.6 of BS 5837:2012. For single stem trees, the RPA is equivalent to a circle with radius 12 times the stem diameter capped at a maximum of 15 m.

For trees with between two to five stems, the combined stem diameter is calculated by finding the square root of the sum of the stem diameters². For trees with more than five stems, the combined stem diameter is calculated by finding the square root of the sum of the mean stem diameter² multiplied by the number of stems.

2.4 Measurements

Heights and radial spread measurements were wherever possible taken using a TruPulse Laser Measurement tool. Stem diameters were measured at 1.5 m height with a diameter tape. Wound sizes and cavity depths were measured in millimetres (mm) with a ruler, tape measure or probe to allow for future monitoring.

2.5 Limitations

2.5.1 Timing of surveys

The survey was undertaken during summer which can mean that visual inspection into the crown was often obstructed by fully flushed foliage, this can impede the assessment of its structural condition, with trees potentially being allocated a higher category than is appropriate. Summer does permit the best time of year to assess the vitality of trees however, although many fungal fruiting bodies are not visible at this time of year.

3. Proposed Development

3.1 Outline Development Proposal

The proposed development at Extra Baldock Services will involve the installation of six eHGV parking at the location of existing HGV parking bays. The associated electrical infrastructure will be installed adjacent to the parking bays at the location of the recorded existing group of trees G1, as shown in *Figure 2* below.

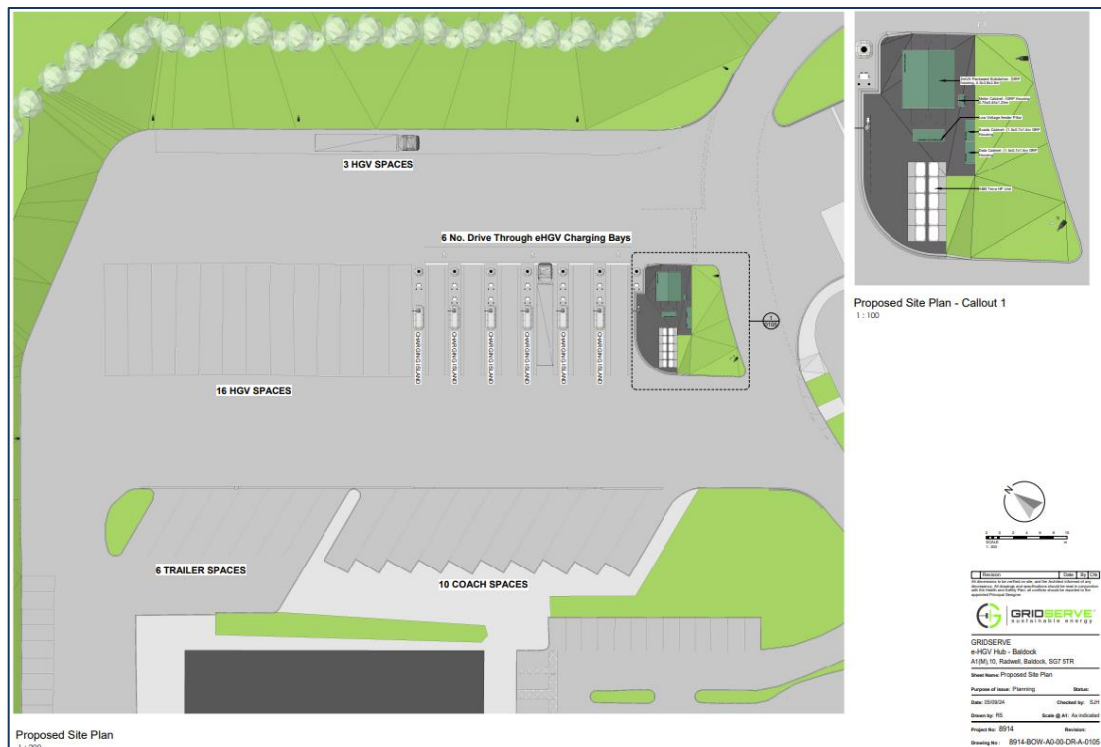


Figure 2: Proposed Site Plan (Source: GRIDSERVE, 8914-BOW-A0-00-DR-A-0105)

3.2 Site Access

Access to the site is gained from the roundabout off of the A507 at the south of the service station, which divides into either car access or HGV access both directly to the proposed working area.



Figure 3: Vehicular access to Extra Baldock Service Station (source; Google Earth ©)

4. Arboricultural Impact Assessment

4.1 Introduction

The following *Arboricultural Impact Assessment* (AIA) reviews the existing condition, quality and location of trees in context with the proposal for the installation of eHGV charging bays and associated electrical infrastructure. It identifies locations where it is felt highly likely that trees and tree groups will need to be removed to facilitate construction and installation of new infrastructure, and where retained trees have the potential to be affected by the development proposal and how these are to be either avoided or protected.

This chapter should be read alongside the *Tree Schedule* and *Tree Constraints Plan* in Appendices C and D.

4.2 BS 5837 categorisation

The following table highlights the BS 5837 categorisation assigned to existing trees on site that have the potential to be impacted by the proposed works.

BS Category	Tree	Total
Category B	T2, T3, T6, G1, G3 & G4	18
Category C	T1, T4 & G2	138
Category U	T5	1

4.3 Trees to be removed

The current plan (**8914-BOW-A0-00-DR-A-0105**) shows that **G1** a **category B** group, which comprises of **four semi-mature beech**, **one semi-mature goat willow**, **one semi-mature grey willow**, and **one standing dead grey willow**, and also includes an ornamental shrub group consisting of Portuguese laurel (*Prunus lusitanica*), box honeysuckle (*Lonicera nitida*) and cherry laurel (*Prunus lauroceracus*), will all require removal to facilitate this project.

Trees to be removed	
Category B	G1 – Located on planted island between proposed eHGV parking bays and petrol station access road. Group includes; four semi-mature beech, one semi-mature goat willow one semi-mature grey willow one standing dead grey willow group also includes semi-mature shrubs; three Portuguese laurel, three box honeysuckle and ten cherry laurels.

4.4 Trees to be retained

In accordance with the current plans (**8914-BOW-A0-00-DR-A-0105**), with the exception of **G1**, all trees recorded by the tree survey are to be retained, with no trees identified as requiring preparatory pruning or remedial work to facilitate the proposed project. The following table identifies the retained trees and how they are to be protected from construction activity.

No.	Species	Location	Demolition, Construction and/or Operation	Potential impact	Protection of Retained Trees	Preparatory Tree Works
T2, T3, T4, T5	Common beech, Common ash, Silver birch, Common ash.	Located in tree pits upon hardstanding between HGV parking area and main service station building.	None	Very low potential for trees to be impacted by the development due to their location away from the proposed working area.	Trees are set back away from the proposed development area such that they will unlikely be impacted by the proposed works.	None
T1	Silver birch	Located upon grassed landscaped area to the southwest of the access road into the HGV parking area.	None	Below ground parts of the tree are protected by being within a raised landscaped area. Above ground parts of the tree will unlikely be impacted by passing construction traffic.	Tree is set back away from the proposed development area such that it will unlikely be impacted by the proposed works.	None
T6	Common alder	Located within shrub bed, adjacent to main services building.	None	Very low potential for tree to be impacted by the development due to its location away from the proposed working area.	Tree is set back from the proposed development area such that it will unlikely be impacted by the proposed works.	None
G3	Mixed broadleaf/conifer	Located upon landscaped area between HGV parking area and car parking area.	None	Very low potential for trees to be impacted by the development due to their location away from the proposed working area.	Tree is set back away from the proposed development area such that it will unlikely be impacted by the proposed works.	None
G2	Mixed broadleaf.	Located at top of bank northeast of HGV parking area.	None	Very low potential for trees to be impacted by the development due to their location away from the proposed working area	Group is set back away from the proposed development area such that it will unlikely be impacted by the proposed works.	None

4.5 Conclusions

The proposed installation of six new eHGV drive-through charging bays and associated electrical infrastructure, will have a moderate arboricultural impact due to the removal of six semi-mature category B trees.

4.6 Mitigation of tree losses

Due to the removal of six category B semi-mature trees, mitigation is required in the form of new planting on-site. Due to the location of this group, its removal will mean a loss of amenity value and the loss of its screening effect between the HGV parking area and the petrol station. Mitigation should be achieved by on-site planting of fifteen standard native or futureproof trees of good quality nursery stock.

The required mitigation should ideally be fulfilled by on-site planting of fifteen standard native or futureproof trees of good quality nursery stock, with the aim of the chosen species to increase biodiversity, environmental benefits, conservation, aesthetic appeal, and amenity value to persons using the service station. As with replanting and establishment in any scenario, consideration should be given to species choice, location, available rooting area, aspect, crown spread, ultimate size, and any future maintenance in irrigation.

Planting stock should preferably be native to the UK and in keeping with trees within the local landscape, ideally of local provenance. However, due to the effects of climate change, consideration should also be given in regards to extreme weather events such as drought and heavy rainfall that are predicted in the future, with the chosen species suited to grow and survive in such conditions.

All trees and shrubs chosen to replant for mitigation should comply with **BS 3936-1:1992 Nursery Stock – Specification for Trees and Shrubs**.

5. Arboricultural Method Statement

This chapter is supported by drawing **MH9532-004 Tree Protection Plan** included in Appendix B of this report.

5.1 Roles and Responsibilities

It is the responsibility of the Client and all contractors and sub-contractors involved in the project to be aware of this method statement and to use it when setting out the site and carrying out any operations in the vicinity of retained trees.

Prior to the commencement of works, all site personnel should be briefed by the Site Manager or appointed Arboricultural Consultant on the importance of the retained trees and the significance, rules and restrictions around protective measures implemented. All minutes from these 'Toolbox Talks' should be retained by the Site Manager for future reference.

5.2 Timing and Order of Operations

Operations on the development site related to trees should commence in the following order to ensure that retained trees receive an appropriate level of protection from potentially harmful activities. Monitoring will take place throughout these stages in accordance with paragraph 5.10 below.

1. Undertaking tree works in accordance with paragraph 5.3 (below);

Remove G1 to ground level and remove stumps.

2. Establishment of working site including storage of plant and materials outside of Construction Exclusion Zones; -

Materials storage area must be located upon existing hardstanding.

3. Construction commences;
4. Construction completed;
5. Removal of all plant and materials from site;
6. Landscape mitigation.

5.3 Tree Works

5.3.1 Preparatory Tree Works

No trees have been identified as requiring preparatory pruning work to facilitate this project. However, **G1** will require removal to facilitate the installation of the associated electrical infrastructure.

All tree work must be carried out by qualified and competent tree surgeons to the standards set out in **BS 3998 Tree Work – Recommendations**.

5.4 Setting out Barriers and Construction Exclusion Zone

Although the need for Tree Protection Fencing has not been identified to allow for completion of the proposed project, if during the construction phase the potential for any trees to be impacted arises, the project Arboricultural Consultant must be contacted as soon as feasibly possible, and the need for fencing may be required to continue works. If this were to occur, the following explains the procedures when installing Tree Protection Fencing;

Setting out of tree protection fencing should take place following the completion of preparatory works and prior to the commencement of any demolition or construction activities, including the storage of materials on site.

Tree Protection Barriers should be supplied and erected in accordance with chapter 6.2.2 of BS 5837:2012. This states that the default specification for protective fencing should comprise a scaffold framework with vertical tubes at maximum 3 m intervals secured firmly into the ground and fixed with weldmesh panels, as set out on *Figure 4* below. An alternative specification which would likely be acceptable would be a free-standing scaffold support framework (i.e. Heras fencing) in accordance with *Figure 5* below.

The setting out should take place under the guidance and supervision of the project Arboricultural Consultant. It will be necessary for the project Arboricultural Consultant to take measurements on site and ensure that Construction Exclusions Zones are accurately defined and established. The Tree Protection Plan, **MH9532-004**, should therefore be viewed as an indicative guide with the correct interpretation on the ground being under the guidance of the project Arboricultural Consultant.

Figure 2 Default specification for protective barrier

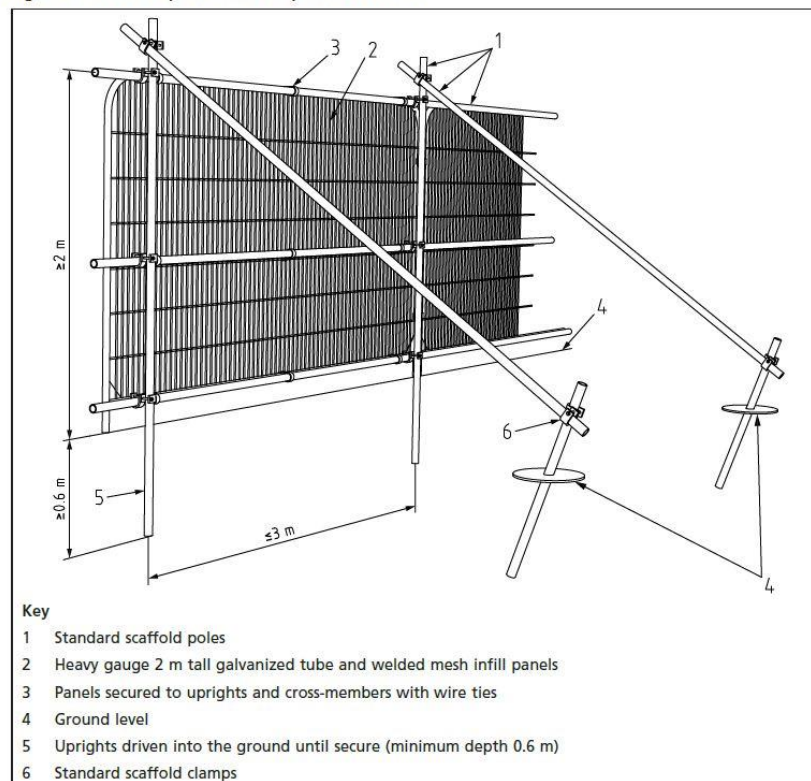


Figure 4: Excerpt from BS 5837, *Trees in relation to design, demolition and construction*.

Figure 3 Examples of above-ground stabilizing systems

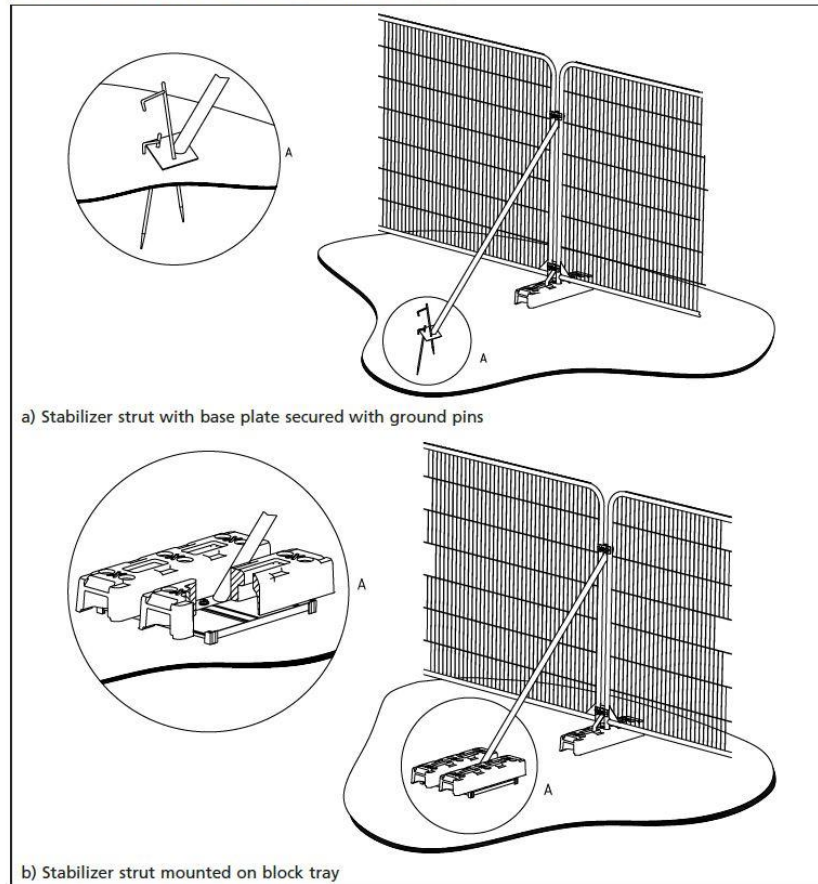


Figure 5: Excerpt from BS 5837, Trees in relation to design, demolition and construction.

The barriers should be fitted with all-weather notices containing the words “**Tree Protection Area – Keep Out**” (see Figure 6 below), and should remain intact for the entirety of the development project. It is not anticipated that there will be any need to access the Construction Exclusion Zones during demolition or construction phases. If access is required for any reason, then this should be first discussed with and approved by the project Arboricultural Consultant.



Figure 6: Example of sign to be installed on Tree Protection Fencing

5.5 Ground Protection

If additional protection is required at a later stage of the project, Ground Protection should be installed to the following specification:

- (a) For pedestrian access 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 geotextile membrane;
- (b) For <2 tonne pedestrian-operated plant, proprietary, inter-linked ground protection boards placed on top of a compression-resistant layer (e.g. 150mm depth of woodchip) laid onto a geotextile membrane;
- (c) For >2 tonne wheeled or tracked construction traffic, 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.

It should be noted that in all cases, the main objective should be to avoid compaction of the soil so that tree root functions remain unimpaired. Even a single passage of a heavy vehicle in wet conditions can cause significant levels of compaction. Any requirement for ground protection not specified in detail within this AMS will need to be discussed and approved by the Arboricultural Consultant.

5.6 Construction

It is recommended that all construction activities must take place only once tree works have been completed and tree protection is in place. This is to ensure that retained trees on site are not adversely affected due to lack of clear restrictions to movement and storage.

All plant and vehicles engaged in construction works must use existing hard surfacing for all access, storage and operations where possible. Vehicular access to grass and landscaped areas should be minimised and incorporate ground protection where compaction and rutting is likely.

Plant operators must be made fully aware of any protection that surrounds retained trees and take due care with their machinery not to cause any damage to their crowns or stems.

Where electrical infrastructure is to be located upon a concrete pad, the construction process should ensure the leaching of wet concrete into the soil is avoided by use of an impermeable liner.

If required, the line of protective fencing should be seen to extend vertically so that no plant accesses the aerial regions of the Construction Exclusion Zone.

5.7 Hand-Dig Construction

A hand digging methodology must be carried out when working within the RPA of retained trees and the project Arboricultural Consultant should be present to monitor and supervise.

If any roots are encountered, then these should be dealt with in accordance with paragraph 5.8 below.

5.8 Tree Roots

If during any excavation works on site the tree roots of a retained tree are exposed, these should be immediately wrapped or covered in hessian to prevent desiccation and to protect them from temperature changes. The arboricultural consultant should be contacted for advice. Roots smaller than 25 mm diameter may be pruned back using a clean, sharp cutting tool. Roots occurring in clumps or of 25 mm diameter and over should be severed only following consultation with the project Arboricultural Consultant.

Prior to backfilling, retained roots should be uncovered and surrounded with top soil or sharp builders' sand, free of contaminants and any foreign objects that may be injurious to tree roots.

5.9 Prohibited Activities

No plant, machinery, or materials should be stored within the Construction Exclusion Zones / Root Protection Areas as described above which should be marked out on site. This also applies to any ancillary facilities associated with the construction such as welfare units.

Care must be taken when planning site operations to ensure that wide or tall loads, plant with booms, jibs and counterweights can operate without coming into contact with any of the retained trees. Where possible, plant and machinery with zero tail swing should be used when in close proximity to retained trees.

Any transit or transverse of plant in close proximity to the retained trees should be conducted under the supervision of a banksman to ensure that adequate clearance from the trees is maintained at all times.

The project Arboricultural Consultant should be consulted prior to any otherwise not-approved operations within the Construction Exclusion Zones.

5.10 Monitoring

It is a requirement of BS 5837:2012 that activities related to, or in the vicinity of, retained trees are monitored by the project Arboricultural Consultant. It is recommended that the following monitoring visitations take place:

1. Preparatory tree works;
2. Setting out of Construction Exclusion Zones and installation of Tree Protection Fencing if required;
3. Hand digging within RPA of retained trees if required;
4. Removal of tree protection fencing if required;
5. Post-development monitoring visit (see 5.12 below).

It is recommended that on each monitoring visit a Works Recording Form is completed by the project Arboricultural Consultant to enable an auditable trail of visits, findings and recommendations. A form template is included in Appendix A of this report.

Where electrical infrastructure is to be located upon a concrete pad, the construction process should ensure the leaching of wet concrete into the soil is avoided by use of an impermeable liner.

5.11 Incident Procedure

In the instance of any problems discovered on site or incidences affecting and/or causing harm to retained trees, the project Arboricultural Consultant should be consulted at the earliest opportunity to provide advice about rectifying issues. Any such occurrences should be recorded in an auditable incident register.

5.12 Post-Development

It is recommended that following completion of the development, a monitoring visit is carried out by the project Arboricultural Consultant in order to carry out a thorough assessment of the retained trees and any remedial works that may be required as a result of changes to the site and the potential indirect effects of construction.

6. References

British Standards (2012); *BS5837:2012 Trees in relation to design, demolition and construction*

British Standards (1992); *BS 3936-1:1992 Nursery Stock – Specification for Trees and Shrubs*

Lonsdale, D. (2000); *Hazards from trees – a general guide*

Lonsdale, D. (2013); *Principles of tree hazard assessment and management*

Mattheck, K. and Breloer, H. (1994); *The body language of trees*

Strouts, RG. and Winter TG. (2000); *Diagnosis of ill-health in trees*

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11th September 2024

Appendix A

TREE SCHEDULE TERMS

Tree Ref.	Code used to identify each tree on the Tree Survey Plan
Species	The common name for each tree.
Height	The height of the tree in metres.
Age Class	The age of the tree recorded as follows:
Young	Recently planted or establishing tree;
Semi-mature	Established tree which has yet to reach its full growing height;
Mature	A tree which has reached its likely maximum size;
Over-mature	A mature tree which has ceased to grow or is in decline;
Veteran	An over-mature tree of high value due to age, size and other factors.
Stems	Number of stems present (i.e. is the tree a multi-stemmed specimen).
Stem ø mm	Diameter of tree stem in millimetres, recorded at 1.5m above ground level; this figure is used to calculate the RPA.
RPA (m)	The radius of the tree's Root Protection Area in metres.
Crown Spread	The extent of the tree's crown to the north, south, east and west, in metres.
Crown Height	The height of the crown as measured from the ground to the north, south, east and west, in metres.
Condition	A general assessment of the tree's structural or physiological condition as either good, fair, poor or dead.
BS Cat	The BS 5837:2012 Category for the tree, in accordance with the table in paragraph 2.3 of this report and Appendix D.
AIA	Arboricultural Impact Assessment.

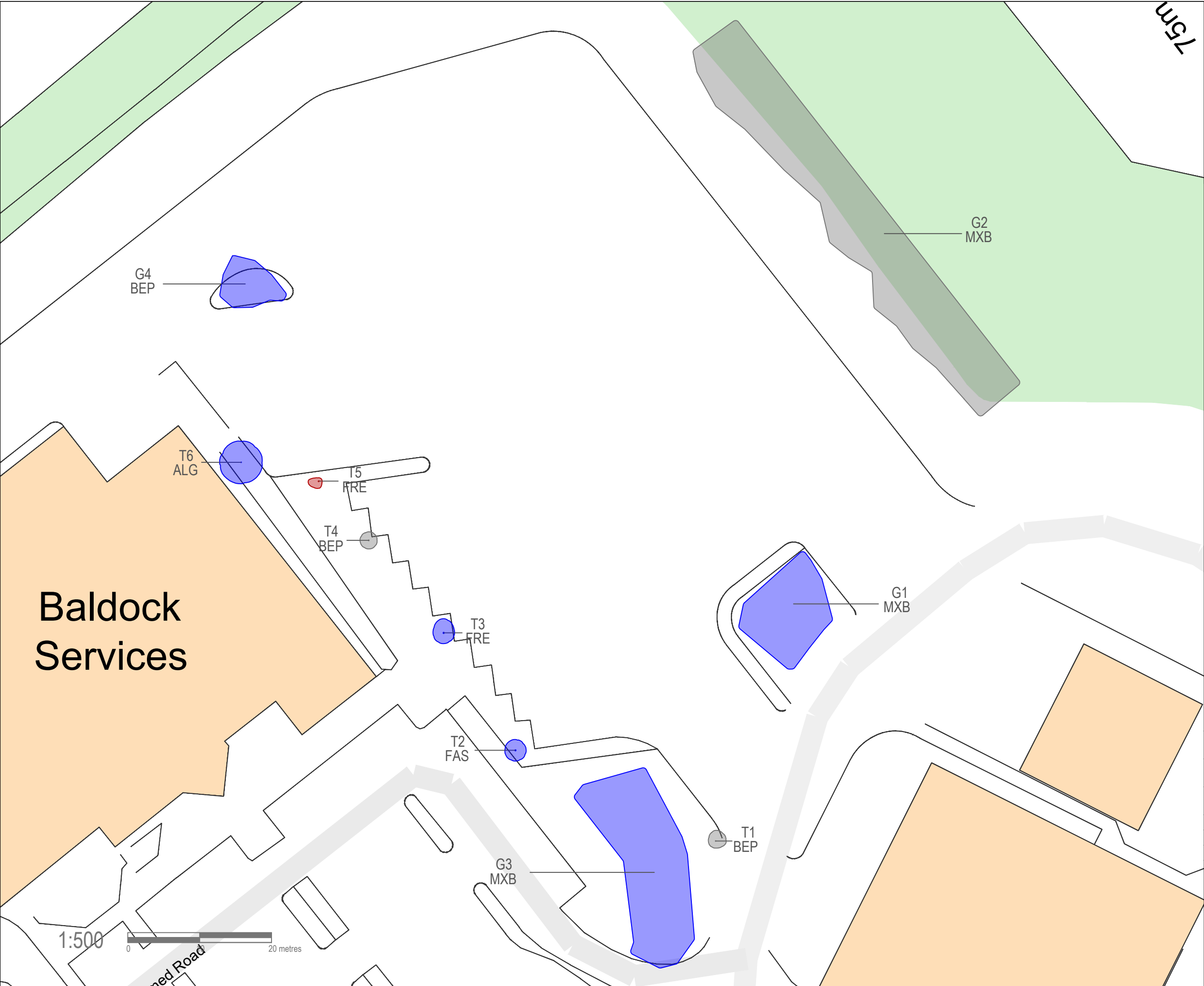
Appendix B - Tree Schedule - Extra Baldock Services

Tree Number	Common Name	Botanical Name	Maturity	Height (m)	Number of Stems	Stem ø (mm)	RPA (m)	Crown Spread				Crown Height				Condition		Category	Comments
								North (m)	East (m)	South (m)	West (m)	North (m)	East (m)	South (m)	West (m)	Structural	Physiological		
T1	Silver birch	<i>Betula pendula</i>	Young	4	2	70	0.8	1.5	1.5	1	1	1.5	1	1	1	Ivy	Good	C2	Located at edge of verge between HGV parking area access road and landscaped reservation; Crown slightly overhangs road; Visible signs of underground services 4 m south; Lamp post 6 m south; Heavily ivy clad stem restricting inspection.
T2	Common beech	<i>Fagus sylvatica</i>	Young	7	1	150	1.8	1.5	1.5	1.5	1.5	1.2	1.2	1.2	1.2	Fair	Good	B2	Located on grassed amenity area between car parking and HGV parking area; Crown is 0.5 m east of electric car charging infrastructure (GRIDSERVE) and overhangs bench to the northeast; Visible signs of underground services; Co-dominant stems present in crown.
T3	Common ash	<i>Fraxinus excelsior</i>	Young	6	1	150	1.8	2	1.5	1.5	1.5	2.5	2.5	2.5	2.5	Good	Fair	B2	Located in tree pit, between HGV parking area and services building; Crown slightly overhangs HGV parking bay 2 m northeast and bench 1 m south; Minor deadwood present in crown; Evidence of minor crown decline.
T4	Silver birch	<i>Betula pendula</i>	Young	4.5	1	110	1.3	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	Good	Good	C2	Located in tree pit, 2 m southwest of HGV parking bay; Crown slightly overhangs bench to east and south; Minor bark wound present on stem in crown; No significant defects recorded.
T5	Common ash	<i>Fraxinus excelsior</i>	Young	3.5	1	110	1.3	0.5	0.5	1	1.5	2.5	2.5	2.5	2.5	Poor	Poor	U	Located in tree pit, between HGV parking area and services building; Crown slightly overhangs bin to west; Epicormic shoots present on stem; Minor deadwood present in crown; Asymmetrical crown formation with bias to west; Moderate crown decline.
T6	Common alder	<i>Alnus glutinosa</i>	Semi-mature	6	6	90	1.1	3	3	3	3	0.5	1	2.5	2.5	Fair	Good	B2	Located in shrub bed between HGV parking area and services building, mid-north of site; Services building slightly within crown spread; Lamppost 6 m northeast; Crown overhangs staff area and fence to southwest and HGV access road to the northeast; Dense, cohesive shrub group restricting inspection of stems; No significant defects visible.

Appendix B - Tree Schedule - Extra Baldock Services

Tree Number	Common Name	Botanical Name	Maturity	Height (m)	Number of Stems	Stem ø (mm)	RPA (m)	Crown Spread				Crown Height				Condition		Category	Comments
								North (m)	East (m)	South (m)	West (m)	North (m)	East (m)	South (m)	West (m)	Structural	Physiological		
G1	Mixed broadleaf	-	Semi-mature	9	1	200	2.4	3	3	3	3	0.5	0.5	0.5	0.5	Good	Good	B2	Located on reservation between services access road and HGV parking area, at northeast area of service station; Group is bordered by a 1.5 m grass strip on all sides; A 1.2 m concrete footpath meets the grass on the west and north sides of the group before the reservation is surrounded by kerb stones before the tarmaced surface of the road to the east, south and west and HGV parking spaces to the north; Road signs, lamposts x 2 and a CCTV mast stand on the grassed area surrounding the group; Visible evidence of underground services present; Shrub layer comprises approx. 10 x Cherry Laurel, 2 x Portugal Laurel and 3 x Lonicera forming a dense cohesive group restricting inspection of trees within group; 4 x beech trees make up the upper canopy with 1 x grey willow, 1 x standing dead grey willow and 1 x goat willow growing beneath the beech trees; Beech tree crowns partially overhang vehicle access roads.
G2	Mixed broadleaf	-	Young	3.5	1	50	0.6	1	1	1	1	0.5	1	0.5	0.5	Good	Good	C2	Located at northeast corner of services, at top of grassed bank between HGV parking area and further buffer planting before the northeast site boundary; 65 x 4 m section of densely planted, cohesive tree belt, at 1 m spacings; Group comprises approximately 20 x common hawthorn; 5 x grey willow, 20 x crab apple, 15 x hazel, 50 x field maple, 10 x rowan, 10 x swedish whitebeam and 5 x goat willow with 1 x declining goat willow and 1 x dead goat willow; Stakes and tree guards still present; Stems are stood 11.5 m northeast of kerb at east side of HGV parking area; 4 x lamposts are located between the kerb and planted tree belt 1.5 m east of kerb.
G3	Mixed broadleaf	-	Semi-mature	9	1	200	2.4	2.5	2.5	2.5	2.5	2	2	2	2	Good	Good	B2	Located on landscaped reservation between car parking area and HGV parking; Lamp posts, CCTV mast and signage present on grass surrounding group; Grassed margin present surrounding group before hardstanding; Dense, cohesive shrub group comprising multiple Cherry Laurel, Lonicera, Portugal Laurel and Cotoneaster restricting inspection of trees within it; Group comprises 7 x silver birch forming a cohesive group with no significant defects visible and 2 x Scots pine at north end of group with crossing branches present in crown.

Tree Number	Common Name	Botanical Name	Maturity	Height (m)	Number of Stems	Stem ø (mm)	RPA (m)	Crown Spread				Crown Height				Condition		Category	Comments
								North (m)	East (m)	South (m)	West (m)	North (m)	East (m)	South (m)	West (m)	Structural	Physiological		
G4	Silver birch	Betula pendula	Semi-mature	6.5	1	180	2.2	2	2	2	2	1.5	1.5	1.5	1.5	Fair	Good	B2	Located in shrub bed, on reservation between HGV parking area and staff access road, mid-north of service station; Crowns slightly overhang HGV parking bay to the south and staff and HGV access road to the west and north; Dense Lonicera nitida at base restricting inspection of basal area; Cohesive group comprises 3 x silver birch; Minor bark wounding visible in crown; No significant defects recorded.



- KEY**
- Tree categories based on BS 5837:2012 Trees in relation to design, demolition and construction - Recommendations
- Category A Tree**
Trees of High Quality with an estimated remaining life expectancy of at least 40 years.
 - Category B Tree**
Trees of Moderate Quality with an estimated remaining life expectancy of at least 20 years.
 - Category C Tree**
Trees of Low Quality with an estimated remaining life expectancy of at least 10 years, or young trees with a stem diameter below 150mm.
 - Category U Tree**
Trees in such condition that they cannot realistically be retained as living trees in the context of the current land use for longer than 10 years.

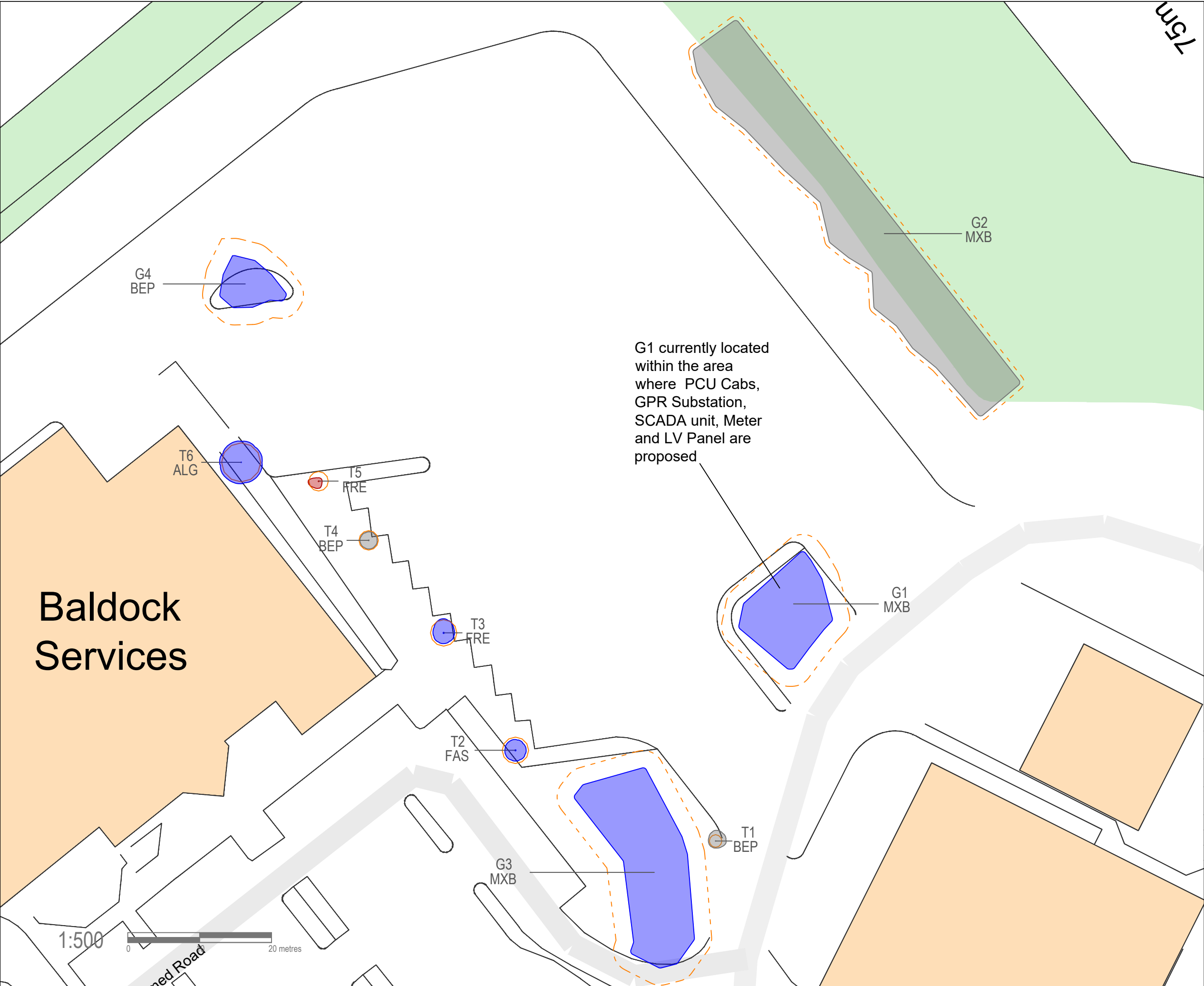
- Tree Key**
- ALG - Common alder
 - BEP - Silver birch
 - FAS - Common beech
 - FRE - Common ash
 - MXB - Mixed broadleaf

Client	GRIDSERVE		
Project	Baldock Services BS 5837		
Title	Appendix C - Tree Survey Plan		
Scale	1:500 @ A3	Drawn	KL
Date	September 2024	Checked	LA
Drawing No.	MH9532-001	Rev	-

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G1 currently located within the area where PCU Cabs, GPR Substation, SCADA unit, Meter and LV Panel are proposed



KEY
Tree categories based on BS 5837:2012 Trees in relation to design, demolition and construction - Recommendations

Category A Tree
Trees of High Quality with an estimated remaining life expectancy of at least 40 years.

Category B Tree
Trees of Moderate Quality with an estimated remaining life expectancy of at least 20 years.

Category C Tree
Trees of Low Quality with an estimated remaining life expectancy of at least 10 years, or young trees with a stem diameter below 150mm.

Category U Tree
Trees in such condition that they cannot realistically be retained as living trees in the context of the current land use for longer than 10 years.

Root Protection Area (RPA)

- Tree Key**
- ALG

- Common alder
- BEP

- Silver birch
- FAS

- Common beech
- FRE

- Common ash
- MXB

- Mixed broadleaf

Client	GRIDSERVE		
Project	Baldock Services BS 5837		
Title	Appendix C - Tree Constraints Plan		
Scale	1:500 @ A3	Drawn	KL
Date	September 2024	Checked	LA
Drawing No.	MH9532-002	Rev	-

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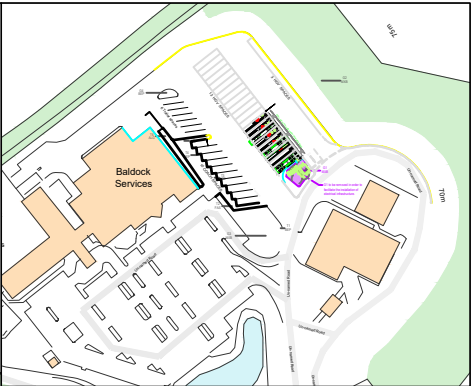
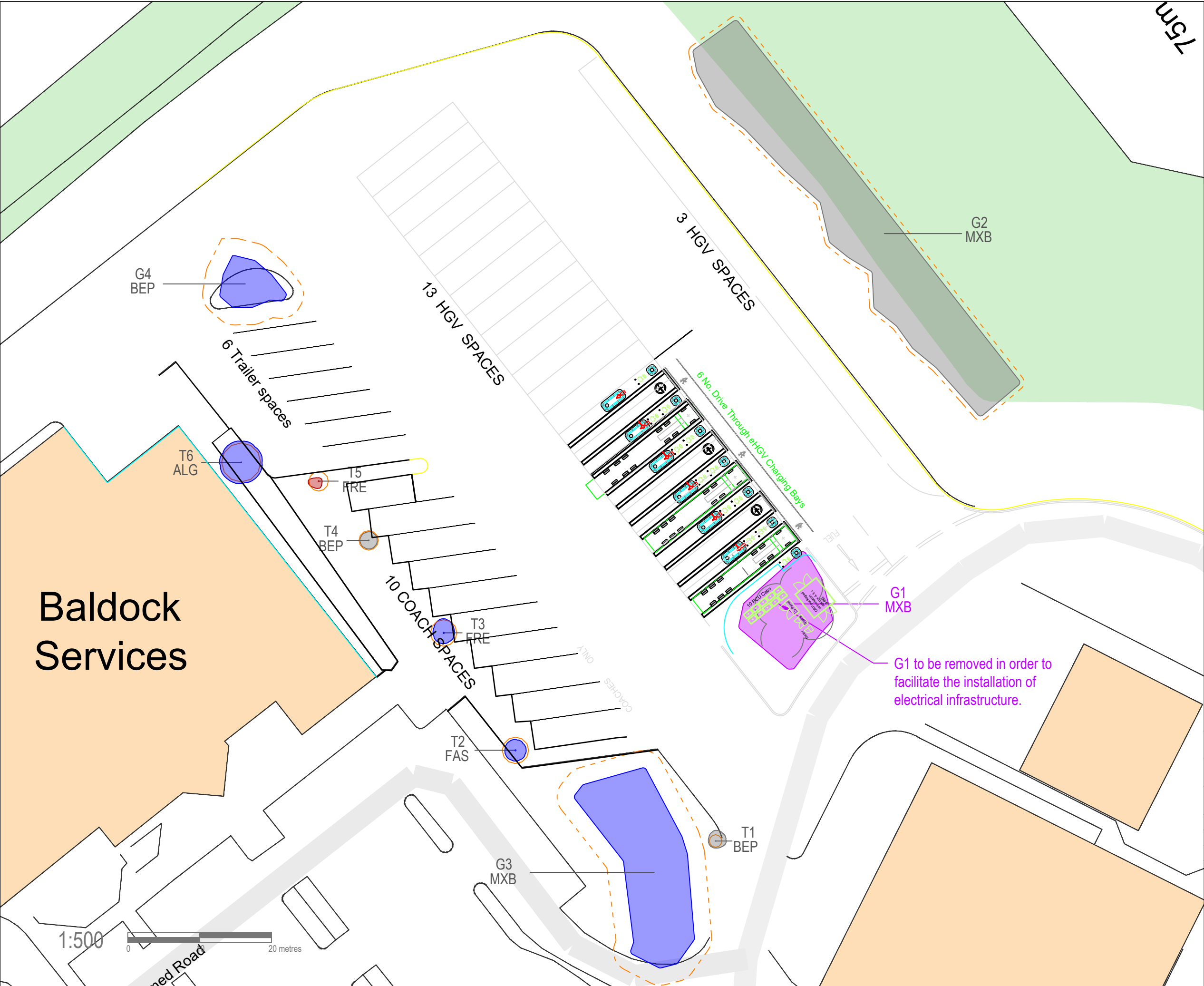
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Tree categories based on BS 5837:2012 Trees in relation to design, demolition and construction - Recommendations

Category A Tree
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Trees of Moderate Quality with an estimated remaining life expectancy of at least 20 years.

Category C Tree
Trees of Low Quality with an estimated remaining life expectancy of at least 10 years, or young trees with a stem diameter below 150mm.

Category U Tree
Trees in such condition that they cannot realistically be retained as living trees in the context of the current land use for longer than 10 years.

Root Protection Area (RPA)

Tree Removals
Trees identified as requiring removal to facilitate the project.

- Tree Key**
- ALG - Common alder
 - BEP - Silver birch
 - FAS - Common beech
 - FRE - Common ash
 - MXB - Mixed broadleaf

G1 to be removed in order to facilitate the installation of electrical infrastructure.

Client	GRIDSERVE		
Project	Baldock Services BS 5837		
Title	Appendix C - Arboricultural Impact Assessment Plan		
Scale	1:500 @ A3	Drawn	KL
Date	September 2024	Checked	LA
Drawing No.	MH9532-003	Rev	-

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