

Arboricultural Impact Assessment

2 Woodside Place, Danesbury Park Road, Welwyn, AL6 9SN

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Statutory Controls		Mitigation	
TPO	No	Owner	Private
Trees worthy of Preservation	No	Domestic 3 rd Party	Highway Authority Trees
Cons. Area	No	Local Authority	LPA: T&C Planning Act
SSSI	No	Other	No
Local Authority: Welwyn Hatfield			

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1.0 Executive summary and report limitations

- 1.1** This Arboricultural Impact Assessment (AIA) has been prepared to assess the potential effects of the proposed development at **2 Woodside Place, Danesbury Park Road, Welwyn, AL6 9SN** on existing trees both within and adjacent to the site. The assessment has been undertaken in accordance with **British Standard BS 5837:2012** and current arboricultural best practice.

The site itself contains very limited arboricultural features, with the majority of trees located outside the red line boundary on neighbouring land, including land under the ownership of the Highway Authority and adjacent private land. No trees within the site are subject to Tree Preservation Orders, and the site does not fall within a Conservation Area.

The tree stock surrounding the site consists predominantly of Category B and Category C trees, many of which display signs of physiological stress associated with made ground and the unstable embankment that rises toward the site from the adjacent highway. One Category C Oak (T7), identified as being in poor physiological and biomechanical condition, is proposed for removal to facilitate necessary embankment stabilisation works. No Category A or Category B trees are proposed for removal.

The proposed development requires excavation within the Root Protection Areas (RPAs) of a number of retained trees, primarily to enable embankment shoring and the installation of a site carriageway. These incursions have been quantified within this assessment and are considered unavoidable due to existing site constraints. However, appropriate mitigation measures have been identified to minimise potential impacts on retained trees, including controlled hand excavation, ground protection, and arboricultural supervision.

An **Arboricultural Method Statement (AMS)** and **Tree Protection Plan (TPP)** accompany this report and set out the measures required to safeguard retained trees throughout the construction process. These measures include pre-commencement tree works, installation of protective fencing, restrictions on storage and access within RPAs, and monitoring at key stages of development.

No evidence of nesting birds or roosting bats was identified at the time of inspection, although all works should continue to comply with relevant wildlife legislation.

Overall, the proposed development is considered **acceptable from an arboricultural perspective**, provided that all recommendations, mitigation measures, and protective methodologies set out within this report are implemented in full. Compliance with these measures will ensure that arboricultural impacts are appropriately managed and that retained trees are protected during and after construction.

2.0 Introduction

- 2.1** This report has been prepared by Paul Zepler, a qualified professional within the arboricultural industry, with expertise spanning multiple disciplines in the sector. Paul Zepler holds the following qualifications: FdSc Arb, NC Arb, LANTRA PTI, and VALID Arb. With eighteen years of experience as an Arboriculture Officer, nine years as a consultant, and an additional four years in practical roles within the industry, Paul Zepler brings a comprehensive and practical understanding of arboriculture to this assessment

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3.0 Professional standards & references

- 3.1** The following standards and acts will be referred to as a framework to ensure good practice and tree evaluation in relation to trees throughout this project:
- 3.2** British Standard 5837:2012 (Trees in relation to design, demolition, and construction: recommendations) as a good practice guide for trees in relation to structure
- 3.3** National Joint Utility Group (NJUG) Volume 4 for the implementation of utilities within the RPA of existing trees.
- 3.4** The Wildlife and Countryside Act 1981 for wildlife protection law and good practice.
- 3.5** The Management of Health and Safety at Work Regulation 1999 to ensure that a site-specific risk assessment is undertaken before tree works begin (MHSWR 1999).

- 3.6 The Environmental Protection Act 1990 as a point of reference for noise pollution constraints.
- 3.7 Countryside and Rights of Way Act 2000 as point of reference for the protection of bats due to the documented presence of cavities within the tree survey.
- 3.8 Natural Environment and Rural Community's act 2006 as point of reference for the protection of bats due to the documented presence of cavities within the tree survey.
- 3.9 Reporting of Injury, Diseases and Dangerous Occurrences (RIDDOR) through the Health and Safety Executive (HSE).

4.0 Site description and local authority constraints

- 4.1 “ Woodside Place is situated within the leafy ‘Village Ward’ of Welwyn Parish Council. The area is flush with green, Danesbury Road bisects rural private dwelling in equal measures. The site of consideration has a tree line on the southeast and northeast peripheral. The southeast wooded area acts as a screen to the A1/M1 from which the majority of trees that function as the screen are on Highway Authority land. It is notable that land is desiccated and crumbling top down from the site onto the motorway adjacent embankment. Shoring of this embankment is required regardless of any construction, the current proposal for shoring is the installation of [caged granite](#) though it would be equally viable to use [soil bags that had been hydroseeded](#).. It is notable that only one tree lies fully within the red line application boundary. The remaining trees assessed within this report are located on adjoining land, including land under Highway Authority ownership and adjacent private land; however, their Root Protection Areas and canopies interact with the proposed development.



Fig1) Boxed granite sets

Hydroseeding

Hydroseeding is our preferred method by which the soil filled bagwork is established with vegetation and can add a covering of grasses and/or wildflowers to bagwork. Hydroseeding is a spray applied pulp containing seed, fertilisers and other additives which sticks to the fabric, and provides a medium into which the seeds initially grow.

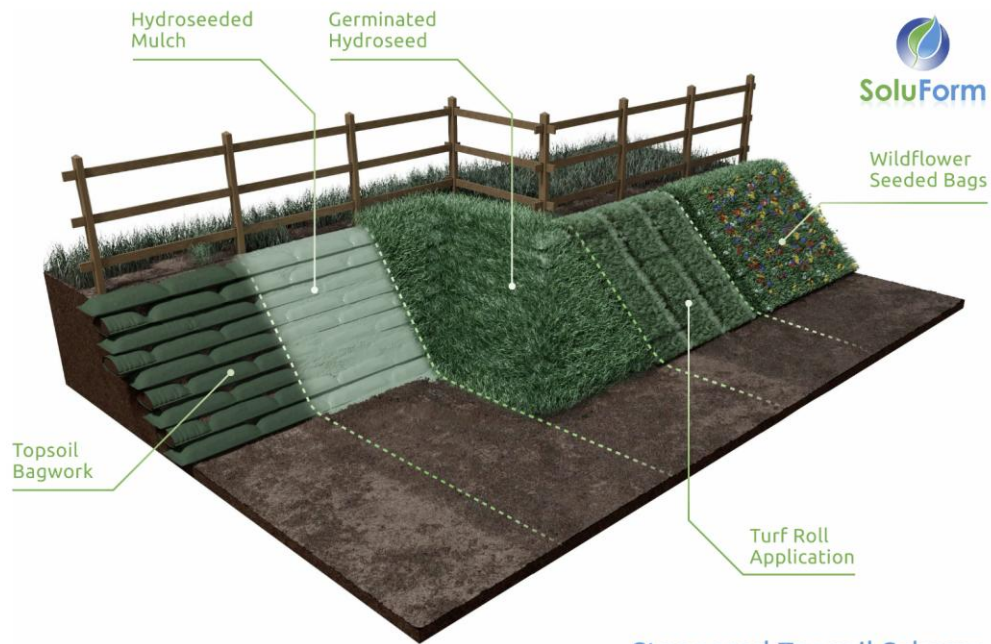


Fig2) Hydroseeding soil bags



Fig3) Soil angle profile

- 4.2 The proposed development site is not within a Conservation Area and there are no Tree Preservation Orders recorded within the grounds..

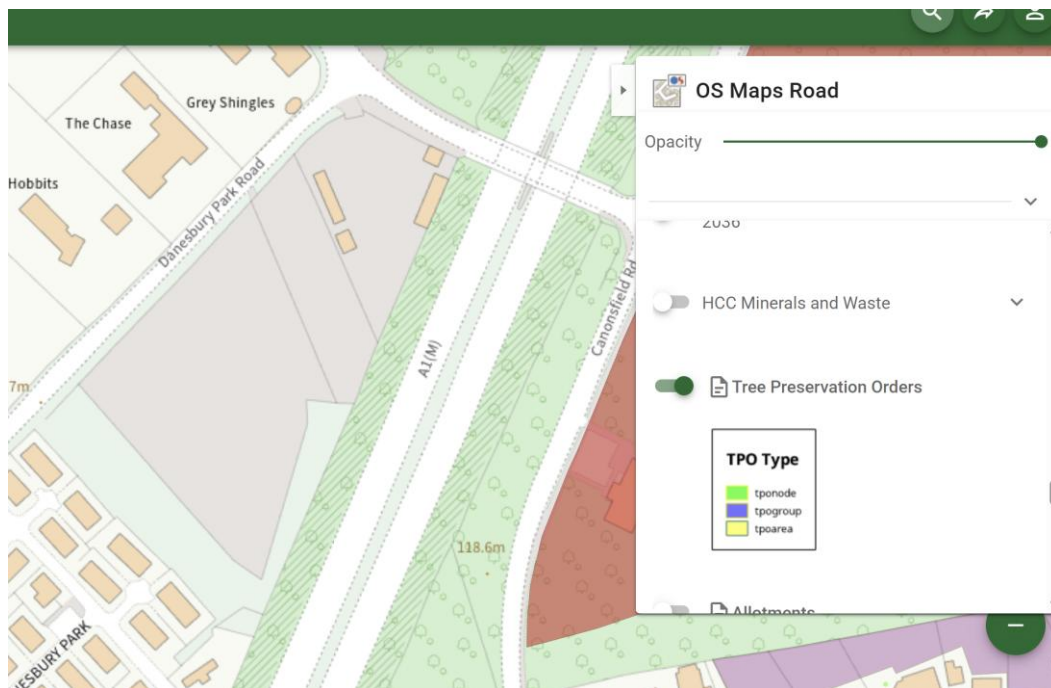
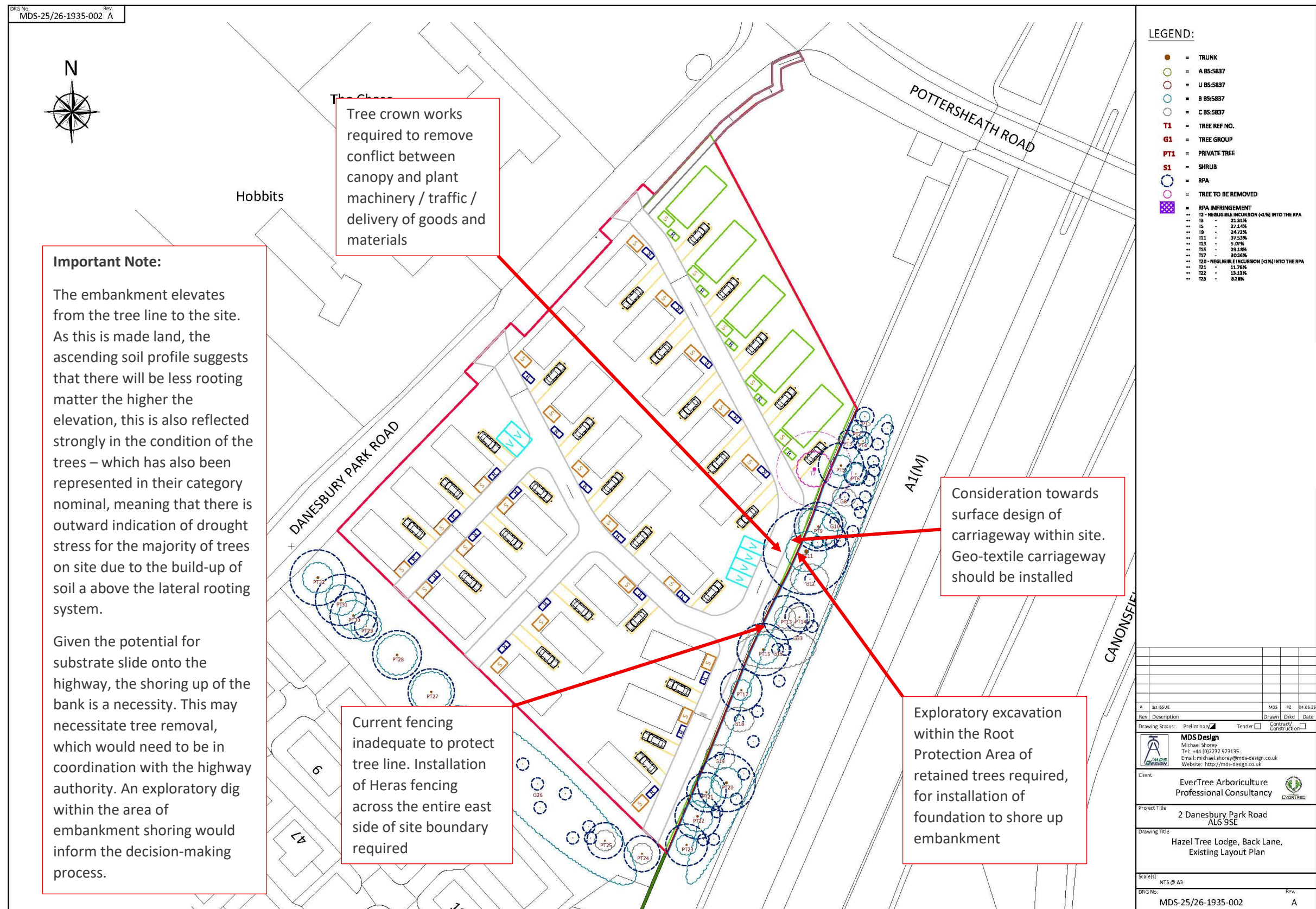


Fig4) Tree preservation order and conservation [area map](#) Welwyn Hatfield Local Authority.



6.0 Summary of impact(s):

Total CAT A trees to be removed	0
Total CAT B trees to be removed	0
Total CAT C trees to be removed	1 (T7)
Total CAT U trees to be removed	0
RPA excavation into retained trees T2	<1%
RPA excavation into retained trees T3	21.31%
RPA excavation into retained trees T5	27.14%
RPA excavation into retained trees T9	24.72%
RPA excavation into retained trees T11	37.53%
RPA excavation into retained trees T13	5.07%
RPA excavation into retained trees T15	23.18%
RPA excavation into retained trees T17	30.26%
RPA excavation into retained trees T20	<1%
RPA excavation into retained trees T21	11.76%
RPA excavation into retained trees T22	13.13%
RPA excavation into retained trees T23	8.28%

- **Tree Removal:** One tree removal is required to facilitate this project.
- **Excavation Impact:** Excavation is required within the root protection areas of 13 trees. This excavation is for the shoring of the crumbling embankment and the installation of a site carriageway.

- **Incidental Damage Risk:** Potential damage to the crown of large trees overhanging the site boundary from the A1/M1.
- **Tree Works:** Crown lifting works is required for 21 trees.
- **Protection Measures:** Stem, crown and root protection is required during this project.
- **Wildlife:** . No evidence of nesting birds or roosting bats was recorded at the time of inspection.
- **Utility Trenching:** No utility mapping has been provided for analysis. But this should be directed outside of the RPA of trees highlighted in this document and come from existing terminals. There is no apparent risk of trenching within the root protection area of retained trees.

7.0 Site considerations

- 7.1 No material storage, including materials required to make foundations, should be stored or prepared within the RPA of retained trees.
- 7.2 The site is barren of arboricultural features within the boundaries of this project, all trees apart from one partially dead Oak are outside of the site. This should be seen as an opportunity to implement a large soft landscaping scheme.

8.0 Conclusion(s)

- 8.1 This Arboricultural Impact Assessment has considered the effects of the proposed development at Carden Gardens, Danesbury Park Road, Welwyn, on existing arboricultural features both within and adjacent to the site. The assessment has been undertaken in accordance with BS 5837:2012 and industry best practice, having regard to tree quality, condition, retention potential, and site constraints.
- 8.2 The site itself contains limited arboricultural features, with the majority of trees located outside of the red line boundary on adjoining land, including land under Highway Authority ownership. The proposed development will not result in the removal of any Category A or Category B trees. One Category C Oak (T7), assessed as being in poor physiological and biomechanical condition, is proposed for removal to facilitate embankment stabilisation works. This removal is considered arboriculturally justifiable.

- 8.3 Works are proposed within the Root Protection Areas of retained trees primarily to facilitate necessary shoring of the existing embankment and the installation of a site carriageway. These incursions have been quantified and, where unavoidable, are accompanied by robust mitigation measures including hand excavation, arboricultural supervision, and the implementation of appropriate ground protection in order to minimise adverse impacts on tree health and stability.
- 8.4 With the implementation of the Arboricultural Method Statement and Tree Protection Plan, the proposed development is not anticipated to result in unacceptable harm to retained trees. The majority of trees are suitable for long-term retention, subject to the protective measures and monitoring regimes outlined within this report.
- 8.5 No statutory tree protections affect the site, and no evidence of nesting or roosting wildlife was identified at the time of inspection. Nevertheless, all works should remain compliant with relevant wildlife legislation, particularly where trees with cavities or structural features are present.
- 8.6 Overall, the proposed development is considered acceptable from an arboricultural perspective, provided that all recommendations within this report are followed in full, including pre-commencement tree works, protection measures, supervised excavation, and ongoing site monitoring. Compliance with these measures will ensure that arboricultural impacts are appropriately mitigated and that retained trees can continue to contribute positively to local amenity and landscape character.

9.0 Recommendations

- 9.1 All works associated with the proposed development shall be undertaken strictly in accordance with the Arboricultural Method Statement (AMS) and Tree Protection Plan (TPP) contained within this report, and in compliance with BS 5837:2012, BS 3998:2010, and BS 8545:2014.
- 9.2 Prior to the commencement of any site works, a pre-commencement meeting shall be held on site with the relevant parties, including the site manager and consulting

arboriculturalist, to confirm responsibilities, protection measures, and method statements.

- 9.3 Protective fencing shall be installed in accordance with the approved Tree Protection Plan before any demolition, ground works, deliveries, or plant movements take place. Fencing must remain in situ and unaltered for the duration of the construction works unless otherwise agreed in writing by the Local Planning Authority.
- 9.4 All excavation works within the Root Protection Areas (RPAs) of retained trees shall be carried out using hand-dig or other non-invasive techniques only, under arboricultural supervision, in accordance with the excavation methodology set out within the Arboricultural Method Statement. Mechanical excavation within RPAs is not permitted.
- 9.5 Where roots are encountered during excavation works, roots exceeding 25 mm in diameter shall be retained wherever reasonably practicable. Any requirement for root pruning beyond this threshold shall be referred to the supervising arboricultural consultant for assessment prior to any severance.
- 9.6 Appropriate ground protection measures shall be installed wherever pedestrian movement, plant access, or construction traffic is required within the vicinity of retained trees, including within RPAs, to prevent soil compaction and root damage. Ground protection specifications shall be appropriate to anticipated loading.
- 9.7 Crown lifting and access pruning works, where specified, shall be undertaken prior to construction to remove conflicts between retained tree canopies and construction plant, vehicles, or delivery routes. All pruning works shall be undertaken by suitably qualified contractors in accordance with BS 3998.
- 9.8 No materials, plant, chemicals, fuels, spoil, or equipment shall be stored within the Root Protection Areas of retained trees. Cement mixing, refuelling, and wash-down activities shall be undertaken only within designated areas outside RPAs.
- 9.9 The removal of Tree T7 (Category C Oak) shall be undertaken in advance of construction works and in accordance with good arboricultural practice. The timing of this work shall take account of wildlife legislation, with appropriate checks undertaken prior to removal.

- 9.10** Arboricultural monitoring shall be carried out by the consulting arboriculturalist at key stages of the development, including prior to commencement, during excavation within RPAs, and following completion of construction works, to confirm compliance with this report and provide written records to the Local Planning Authority if required.
- 9.11** Upon completion of construction works, all protective fencing and ground protection shall be carefully removed, and any areas affected by temporary access or works shall be reinstated. Opportunities for soft landscaping should be utilised to enhance site amenity and support the long-term establishment of retained trees.

Arboricultural Method Statement

Carden Gardens, Danesbury Park Road, Welwyn, AL6 9SN

This site requires the application of some arboricultural methodology to protect trees that are remaining in situ. Included in this are specific requirements such as RPA protection. In addition to these specific requirements a protocol will be introduced to minimise the potential for incidental damages to arise. This document should be read and understood by all parties that take part in the construction process.

Below is a calendar of action that will need to be adhered to in order to prevent arboricultural decline or incident.

All recommendations are to be undertaken with reference to the method statement part of this document and in correlation with BS 3998, BS 8545 and BS 5837.

PHASE 1 – Actions to be conducted before construction commencement at time agreed upon during pre-commencement meeting (PCM) – Specific pruning recommendations have been advised to be in line with (BS 3998/6.4)	PHASE 2 - Actions to be conducted at designated stage of construction agreed upon with the planning department	PHASE 3 – Actions to be conducted after construction closure at time agreed upon during pre-commencement meeting
<i>Exploratory excavation (10.2)</i> <i>Tree protective fencing (10.3)</i> <i>Ground protection (10.4)</i> <i>Tree crown works (APPENDIX A)</i>	<i>Installation of embankment shoring</i> <i>Installation of carriageway on south peripheral</i>	<i>Landscaping scheme</i> <i>Dismantling of tree protection.</i>

10.0 Tree protection plan

Tree protection and appropriate site management are required to safeguard all retained trees within this proposal. To minimise the risk of damage, the Tree Protection Plan must be implemented in full and maintained in accordance with the specifications set out below:

- 10.1 Tree protection plan
- 10.2 Excavation methodology
- 10.3 Stem and root protection area methodology
- 10.4 Ground protection methodology

10.1 Tree protection plan



10.2 Excavation methodology

The root pruning trench shall be excavated in a controlled manner to expose roots while minimising disturbance and maintaining their integrity. Excavation shall be undertaken using hand tools or low-impact techniques such as an air-spade where appropriate. Mechanical excavation equipment must not be used, as this may place undue stress on roots and risk damage to the tree structure.

Where roots exceed 50 mm in diameter are exposed, they shall be retained in situ and referred to the consulting arboriculturalist for assessment prior to any further works. Once suitable roots have been identified for pruning, all severance shall be undertaken using sharp, clean hand tools to produce smooth, clean cuts consistent with best arboricultural practice.

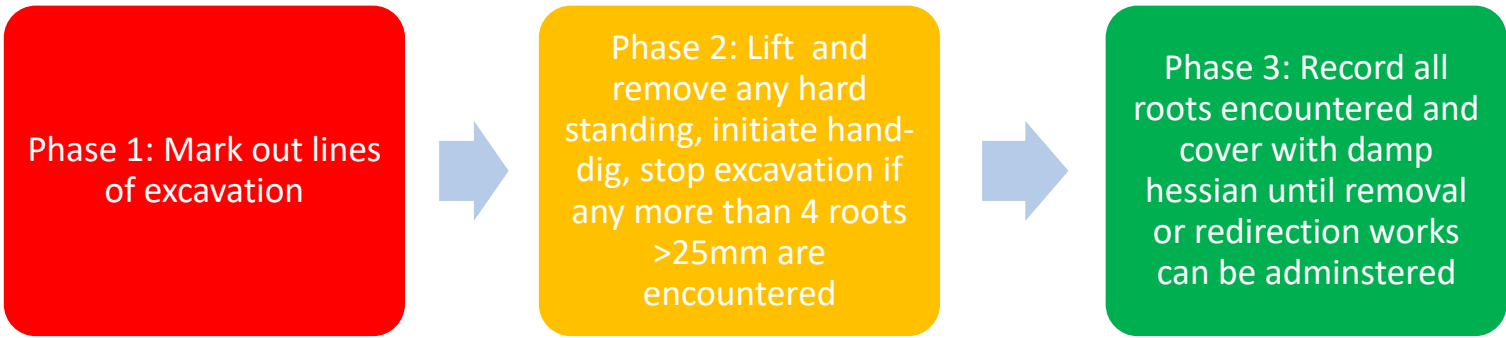
Only roots within the diameter range identified for pruning shall be cut, and pruning shall be limited to the depth and extent of the proposed excavation. Chainsaws or mechanical trenching equipment shall not be used for final root pruning operations. All pruned roots shall be left with clean ends free from tearing or crushing to promote effective wound response and recovery

The excavation methodology outlined below shall be followed at all times to minimise damage to retained trees:

- All works shall be undertaken in accordance with the recommendations of BS 5837:2012 and shall exceed the minimum standards set out in NJUG Volume 4.
- Mechanical excavation is not permitted within the RPAs of retained trees. All excavation within these areas shall be conducted by hand or using appropriate non-invasive techniques.
- All excavation shall be hand-dug using hand tools
- No roots with a diameter greater than 25 mm shall be intentionally severed without prior inspection and approval from the supervising arboricultural consultant.
- Any roots greater than 25 mm encountered during excavation shall be recorded and assessed before any pruning or removal is undertaken.
- Any significant root removal required to facilitate the proposal will be gauged and discussed with the Local Planning Authority before action is taken.
- Root activity, for the purposes of this assessment, is defined as roots exceeding 25 mm in diameter. Roots greater than 25mm will be considered significant for the purposes of this proposal.
- Where root removal is deemed unavoidable, works shall be undertaken using clean, sharp, sterilised hand tools by a competent professional, in accordance with BS 3998. Roots shall be retained or redirected wherever reasonably practicable.
- Exposed roots shall be protected from desiccation during works, using damp hessian or equivalent, until backfilling or redirection has been completed.
- Excavation shall be under arboricultural supervision who will determine if root removal is required and present the findings to the Local Planning Authority for a decision to be made.

This methodology is intended to ensure that excavation works are undertaken with minimal adverse impact on tree health, stability, and long-term viability.

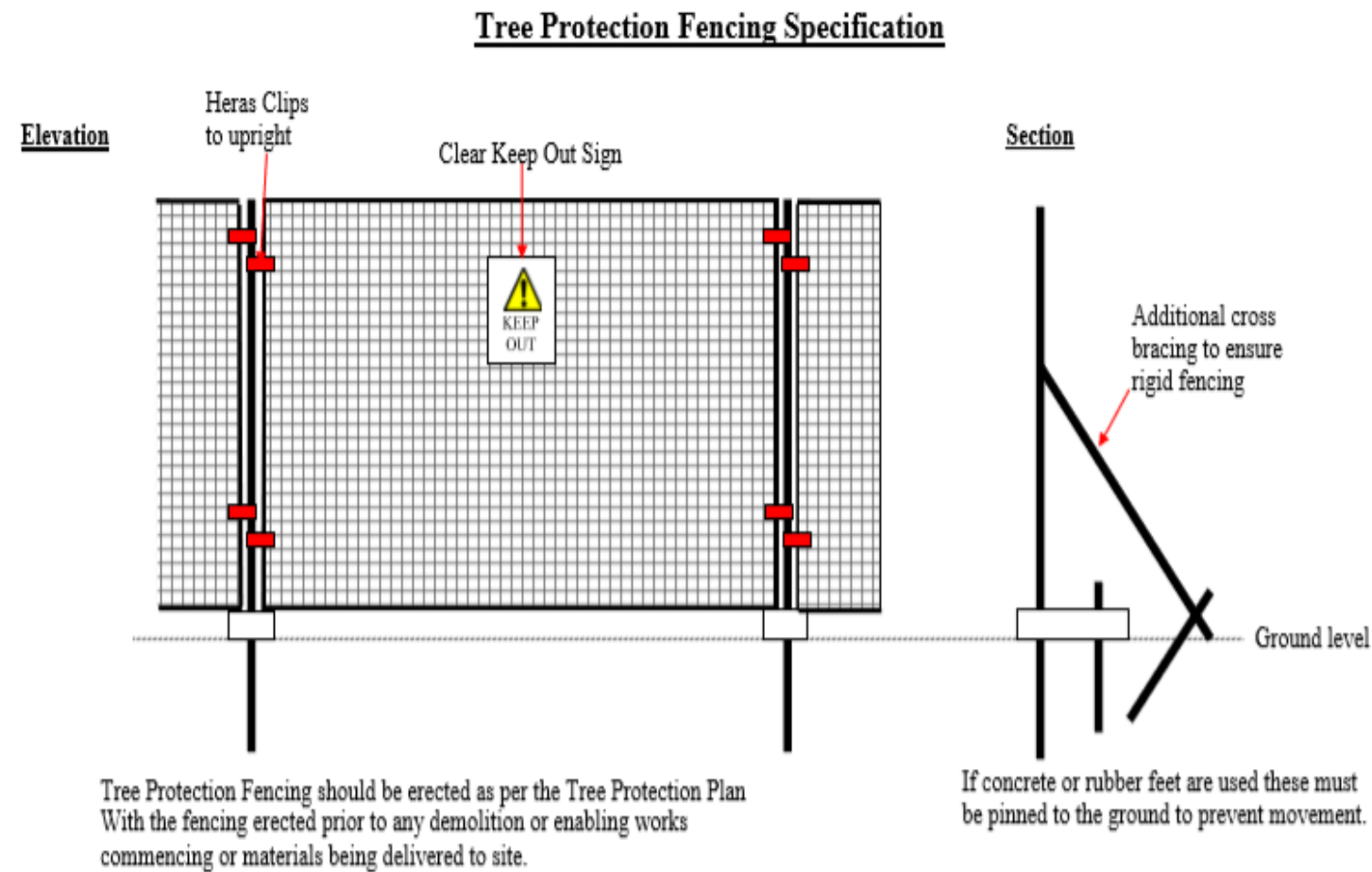
Root diameter	Number	Location within pit
<25mm		
25-55mm		
45-60mm		
>60mm		



10.3 Tree stem and root area protection methodology

Protective fencing

All fencing needs will be laid out in accordance with the tree protection map 10.1. Construction exclusion zone signage will be applied to each panel used to partition the construction zone from the tree.



TREE PROTECTION AREA



PLEASE KEEP OUT

The trees in this area are protected by Statutory Protection and / or Planning Conditions. Any works in this fenced off area may result in damage to the above ground parts or root system of these trees.

Damage to these trees is a criminal offence and breach of the planning consent and may lead to a criminal prosecution. and / or enforcement action.

Any works in this area must be undertaken as per the Arboricultural Report.

10.4 Ground protection methodology

All ground protection must be installed with enough support for predicted load and resist compaction and soil damage.

Pedestrian load) A single thickness of boarding laid on the soil surface will provide sufficient protection for pedestrian loads. However, for wheeled or tracked construction traffic movements within the RPA, ground, protection should be designed by the project engineer to accommodate the likely loading and may involve the use of proprietary systems such as three-dimensional cellular confinement systems and approved for use by the developer's arboricultural consultant and local authority before any works start.

The primary method of protecting the ground when erecting scaffolding or for pedestrian movement within RPA's is by side butting scaffolding boards on a compressible layer such as bark chippings that is approximately 150mm in depth.

(<http://www.terram.com/applications/ground-stabilisation.html>)

The scaffolding may be erected first with the uprights placed on spreader boards and the ground protection installed around the uprights.

All protection measures must stay place until the building works are finished.

Plant machinery load) For plant machinery with no greater weight than 2t a geotextile membrane should be laid on the ground, with a top load of 150mm depth worth of woodchip on top of which ground protection mats should be set:

Construction traffic load) For wheeled or tracked construction traffic exceeding 2t a proprietary brand of geotextile solution for weight distribution such as: ([TERRAM GEOCELL 25/10 | 7m x 5m Panel | Slope Erosion Control](#) ([ultimate-one.co.uk](#)) should be designed to carry the load. The specification will be based upon the load that requires distribution.



11.0 Detail of site constraints

- 11.1 Details of key site personnel, including site / project manager will be sent to the Local Planning Authority (LPA) representative prior to the commencement of site works.
- 11.2 This method statement is to be approved and agreed to in writing by all key personnel prior to the commencement of site works. Signatories can be found at the end of this document.
- 11.3 No site personnel are to be present and no demolition, site clearance, building work or delivery of materials is to occur until the protective measures are following this method statement and the Tree Protection Plan (TPP). Protection fence distances can be found within the TPP and RPA plan sent as part of this proposal.
- 11.4 Protective measures should be in accordance with this method statement and the TPP and remain unaltered unless otherwise specified and agreed by an LPA representative. This should remain in situ until the end of the construction process.
- 11.5 Site access is Monday to Friday from 08:00 until 16:00 unless otherwise agreed with by the LPA.
- 11.6 In accordance with LPA policy to keep within the boundaries of The Environmental Protection Act 1990 on noise pollution no heavy machinery is to be used before 08:30 or after 16:00 during this project.

12.0 Accidents and emergencies

- 12.1 Any accidents or emergencies involving trees should be reported to the consulting arboricultural specialist who can then contact the LPA representative with a proposed solution.
- 12.2 Any accidents or emergencies involving tree works contractors should follow on site regulations as identified within the site-specific risk assessment document (MHSWR 1999) and reported through to the HSE as necessary to keep in line with RIDDOR requirements. All site workers are to familiarise themselves with the accident and severe injury information pack within the appendices of this document.

13.0 Access

- 13.1 All contact with site is to be undertaken with the greatest care to ensure that soil compaction does not arise. No equipment or vehicles or plant machinery is to interfere with the crowns of retained trees; access pruning may be needed to mitigate this. After site-access related tree works has been undertaken, protective barriers are to be erected to ensure no plant machinery or vehicle can gain access to the Construction Exclusion Zone (CEZ)

14.0 Wildlife

- 14.1 All common wild birds are protected under the Wildlife and Countryside act 1981 which makes it an offence to:
- Kill, injure, or take wild birds.
 - Take, damage, or destroy the nest of wild birds whilst it is in use or being built.
 - Take or destroy the eggs of wild birds.
- 14.2 Bat species are afforded further protection by the Countryside and Rights of Way Act 2000 and the Natural Environment and Rural Community's act 2006. This legislation makes it an offence to:
- Intentionally or deliberately kill, injure, or capture bats.
 - Deliberately disturb bats whether at roost or not
 - Damage, destroy or obstruct access to bat roosts.
 - Process or transport bats, unless bought legally.
 - Sell, barter or exchange bats.
- 14.3 A definition of a bat roost can be found in a publication by the Bat Conservation Trust 'Bat Surveys' – Good Practice Guideline'.

15.0 Phasing of protective measures

- 15.1 Tree protection measures should be phased as follows:

- a) Install protective measures following approved protection plan and this method statement.
- b) Undertake and complete construction works.
- c) Undertake external landscape works to area outside of construction exclusion zones.
- d) Remove protective measures.
- e) Undertake phase 2 works and landscaping within the construction exclusion zones.
- f) Close of project

16.0 Site management

- 16.1 The site manager will be responsible for briefing / inducting all personnel who will be working on any stage of this development with special reference being given to those working within the RPA of retained trees. This method statement and the TPP should be explained to all who enter or work on site.
- 16.2 Any incidents of damage to retained trees should be documented by the site manager and sent to the consulting arborist for inspection as soon as reasonably practicable.
- 16.3 The site manager will be responsible for consulting with the project arborist to go over any issues that arise, unforeseen tree related conflicts or to discuss any part of this method statement that is not fully understood.
- 16.4 All vehicles, plant machinery, chemicals and tools will be stored at a designated site that is outside of the Construction Exclusion Zone (CEZ) documented within section 10 of this report.
- 16.5 It is the responsibility of the site manager to ensure that all LPA requirements are met during the construction process.
- 16.6 In the absence of a site manager, a designated site supervisor will take over these responsibilities.

17.0 Demolition protocol and site prohibitions

For this project, before the commencement of the construction, ground demolition will be required. The protocol below should be read and understood by all parties involved in this process.

- 17.1 All access to site is to be undertaken with the greatest care to ensure that soil compaction does not arise as a result of the works. No equipment or vehicles such as timber lorries, tractors, excavators, or cranes are to be driven or parked beneath the crowns of retained trees.
- 17.2 Any demolition works within or immediately adjacent to the RPA of retained trees should be done so under the supervision of the consulting arborist.
- 17.3 Existing services on the site should be retained wherever possible; the utmost care should be taken to minimise disturbance, and statutory utility plans should be acquired by the construction company.
- Mechanical digging or scraping is not permitted within the defined Root Protection Area (RPA).
 - No temporary cabin is to be installed within the RPA of retained trees.
 - No materials equipment or debris will be stored on the ground protection.
 - Fires are not permitted within 0.5m of any vegetation.
 - Leaning objects or attaching objects to retained trees is not permitted.
 - Machinery, plant, and vehicles to be stored at a designated location, with ground protection outside of the construction exclusion zone fencing displayed on the Tree Protection Plan.
 - Chemicals and materials are not to be transported, stored, used, or mixed within the RPA of retained trees.
 - Cement soil mixing is to be done in a designated area no less than 10m from retained trees.
 - Refuelling of plant machinery is prohibited within 10m of the RPA of retained trees.

- Allowances should be made for the slope of the ground when washing materials to prevent leaching into the RPA of retained trees.
- When it is necessary to use machinery within 5m of retained trees banksman will be required to ensure no damage arises because of mechanical interference.

18.0 Foundations

18.1 The surface alteration to install a carriage way within this site should consider future root egress, water percolation and soil compaction. The use of a geo textile solution to combat these problems should be used. [Bodpave](#) 40 would work in this scenario, by limiting soil compaction, allowing water percolation and retaining soil volume for root egress.

Bodpave™ 40



Permanent grassed or gravel car parks, cycle paths, driveways, access roads and other trafficked areas where a structurally-sound, well drained base is present or will be installed.

BODPAVE 40 porous grass pavers are an interlocking cellular paving grid system for grass and ground reinforcement applications where there is regular pedestrian or vehicle use. BODPAVE 40 permeable paving grids allow full rainwater penetration and are manufactured from UV stabilised 100% recycled HDPE, in black or green. BODPAVE 40 pavers are strong, chemically inert & non-toxic, enabling them to provide a durable, safe & sustainable eco-friendly surface for trafficked areas.

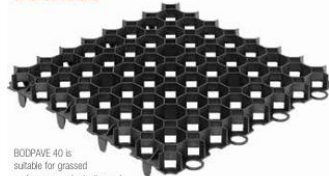
Applications

- Car parks
- Wheelchair and disabled access
- Pedestrian walkways
- Golf buggy paths
- SUDS source control

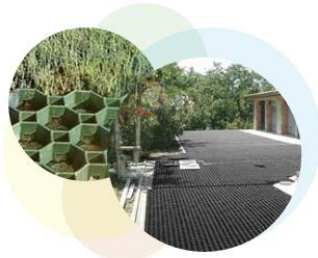
Features & Benefits

- Load bearing capacity up to 150t/m² - will cope with static axle loads up to 60kN.
- Supplied as 4 pre-connected pavers (1m x 1m) - allows rapid installation
- Interlocking connections per paver- excellent lateral transfer of traffic loads
- 95% open surface structure- SUDS source control compliant
- Grass or gravel finish-free draining and naturally pleasing appearance.
- Reduced-Dig System, reduces installation time and costs, also helps rapid establishment and usage after installation.

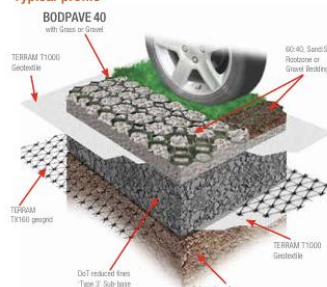
Grid Structure



BODPAVE 40 is suitable for grassed surfaces, gravel retention and SUDS source control applications.



Typical profile



Not all layers will apply to every application and drainage may be required. Please refer to design guidance documents.

Bodpave 40 product details paver

PAVER SIZE (mm)	QUANTITY (per m ²)	COLOR	WEIGHT (Nominal)	LOAD BEARING CAPACITY	MATERIAL
500 x 500 x 40	4 Grids	Green	4.8kg/m ²	150tonnes/m ²	100% Recycled Polyethylene
500 x 500 x 40	4 Grids	Black	4.8kg/m ²	150tonnes/m ²	100% Recycled Polyethylene

19.0 Monitoring and supervision

- 19.1 The development of tree protection is to be monitored by the project arborist who should be retained to record and detail the programme progress in relation to arboricultural factors (BS 5837 6.3). Records should be retained and presented to the LPA as part of a documented intervention process. All site inspections should be recorded and forwarded to the LPA representative either via email or by mail (template can be found in APPENDIX C).
- 19.2 Prior to the commencement of any works, an onsite pre-commencement meeting should be arranged to discuss the methodology of this document and swap contact details.
- 19.3 It is strongly recommended that at least the project arborist undertakes one visit to ensure that tree protection measures are in correlation with the recommendations of this report. Further site inspections may be required to ensure the continuation of recommendations and during phases such as any excavation within the RPA of retained trees. For this the project arborist requires 72 hours' notice prior to the commencement of any phase in order to attend site.

20.0 Training

- 20.1 All tree works, and planting is to be undertaken in accordance with British Standards BS 3998:2010 and BS 8545:2014. All tree related works is to be undertaken by suitably qualified professionals with all relevant insurances. Documentation should be provided qualifying professional indemnity and professional qualification to the site supervisor before any tree works begins.

21.0 Waste

- 21.1 All tree works arisings are to be removed from site and deposited at the nearest green waste collection point or facility. Any contaminated tree waste (pathogen identified) during initial tree works should be burnt on site or disposed of in accordance with DEFRA waste policy.

APPENDICES

APPENDIX A: TREE DATA

Map REF	Woodland Section	Species	BS5837	Spread N/E/S/W	Stem diameter (Thick Black Circle)	RPA Radius	Distance to structure	Comments1	Prescription	Protection
T1	1 South-East	Cherry	B1	1/1/1/1	160	1.92	No existing structure	Made ground, crumbling embankment	Retain and protect	Protective fencing
T2	1 South-East	Cherry	B1	1/1/1/1	160	1.92	No existing structure	Made ground, crumbling embankment	Retain and protect	Protective fencing - Hand excavation - Geotextile carriageway
T3	1 South-East	Cherry	B1	1/1/1/1	160	1.92	No existing structure	Made ground, crumbling embankment	Retain and protect	Protective fencing - Hand excavation - Geotextile carriageway
T4	1 South-East	Cherry	B1	1/1/1/1	160	1.92	No existing structure	Made ground, crumbling embankment	Retain and protect	Protective fencing
T5	1 South-East	Cherry	B1	2/2/2/2	390	4.68	No existing structure	Made ground, crumbling embankment	Retain and protect - Lift low growth overhanging fenceline to 5.1m	Protective fencing - Hand excavation - Geotextile carriageway
T6	1 South-East	Hawthorn	B1	2/2/2/2	200	2.4	No existing structure	Made ground, crumbling embankment	Retain and protect - Lift low growth overhanging fenceline to 5.1m	Protective fencing
T7	1 South-East	Oak	C1	7/7/7/7	650	7.8	No existing structure	Made ground, crumbling embankment. Poor physiological and biomechanical condition	Remove	Protective fencing
G8	1 South-East	Hawthorn Group	C2	Drawn	80	0.96	No existing structure	4 Stems - Made ground, crumbling embankment	Retain and protect	Protective fencing
T9	1 South-East	Ash	B1	4/4/4/4	420	5.04	No existing structure	Made ground, crumbling embankment	Retain and protect - Lift low growth overhanging fenceline to 5.1m	Protective fencing - Hand excavation - Geotextile carriageway
G10	1 South-East	Hawthorn Group	C2	Drawn	80	0.96	No existing structure	4 Stems - Made ground, crumbling embankment	Retain and protect	Protective fencing
T11	1 South-East	Sycamore	B1	4/4/4/4	740	8.88	No existing structure	Multi-Stems - Made ground, crumbling embankment	Retain and protect - Lift low growth overhanging fenceline to 5.1m	Protective fencing - Hand excavation - Geotextile carriageway
G12	1 South-East	Holly and Ash	C2	3/3/3/3	90	1.08	No existing structure	4 Stems - Made ground, crumbling embankment	Retain and protect	Protective fencing
T13	1 South-East	Ash	C1	2/2/2/2	380	4.56	No existing structure	Lateral crack, poor form	Retain and protect - Lift low growth overhanging fenceline to 5.1m	Protective fencing - Hand excavation - Geotextile carriageway

T14	1 South-East	Ash	C1	2/2/2/2	250	3	No existing structure	Made ground, crumbling embankment	Retain and protect - Lift low growth overhanging fenceline to 5.1m	Protective fencing
T15	1 South-East	Ash	B1	3/3/3/3	450	5.4	No existing structure	Made ground, crumbling embankment	Retain and protect - Lift low growth overhanging fenceline to 5.1m	Protective fencing - Hand excavation - Geotextile carriageway
G16	1 South-East	Hawthorn	C1	Drawn	100	1.2	No existing structure	Made ground, crumbling embankment	Retain and protect	Protective fencing
T17	1 South-East	Ash	B1	2/2/2/2	360	4.32	No existing structure	Made ground, crumbling embankment	Retain and protect - Lift low growth overhanging fenceline to 5.1m	Protective fencing - Hand excavation - Geotextile carriageway
G18	1 South-East	Ash	C1	2/2/2/2	80	0.96	No existing structure	4 Stems - Made ground, crumbling embankment	Retain and protect	Protective fencing
G19	1 South-East	Hawthorn and Ash	B2	Drawn	80	0.96	No existing structure	5 Stems - Made ground, crumbling embankment	Retain and protect	Protective fencing
T20	1 South-East	Ash	B1	3/3/3/3	500	6	No existing structure	Made ground, crumbling embankment	Retain and protect - Lift low growth overhanging fenceline to 5.1m	Protective fencing - Hand excavation - Geotextile carriageway
T21	1 South-East	Ash	B1	3/3/3/3	340	4.08	No existing structure	Made ground, crumbling embankment	Retain and protect - Lift low growth overhanging fenceline to 5.1m	Protective fencing - Hand excavation - Geotextile carriageway
T22	1 South-East	Ash	B1	3/3/3/3	390	4.68	No existing structure	Made ground, crumbling embankment	Retain and protect - Lift low growth overhanging fenceline to 5.1m	Protective fencing - Hand excavation - Geotextile carriageway
T23	1 South-East	Sycamore	B1	2/2/2/2	360	4.32	No existing structure	Made ground, crumbling embankment	Retain and protect - Lift low growth overhanging fenceline to 5.1m	Protective fencing - Hand excavation - Geotextile carriageway
T24	2 North-East	Sycamore	C1	2/2/2/2	310	3.72	No existing structure	Made ground, crumbling embankment.	Retain and protect - Lift low growth overhanging fenceline to 5.1m	Protective fencing
T25	2 North-East	Sycamore	C1	2/2/2/3	311	3.732	No existing structure	Made ground, crumbling embankment	Retain and protect - Lift low growth overhanging fenceline to 5.1m	Protective fencing
G26	2 North-East	Mixed group Sycamore and Ash)	B1	as drawn	105	1.26	No existing structure	Made ground, crumbling embankment. 1 x dead Sycamore	Retain and protect	Protective fencing
T27	2 North-East	Ash	B1	4/4/4/4	400	4.8	No existing structure	Made ground, crumbling embankment	Retain and protect - Lift low growth overhanging fenceline to 5.1m	Protective fencing

T28	2 North-East	Ash	B1	4/4/4/4	420	5.04	No existing structure	Made ground, crumbling embankment	Retain and protect - Lift low growth overhanging fenceline to 5.1m	Protective fencing
T29	2 North-East	Ash	B1	3/3/3/3	200	2.4	No existing structure	Made ground, crumbling embankment	Retain and protect - Lift low growth overhanging fenceline to 5.1m	Protective fencing
T30	2 North-East	Sycamore	B1	3/3/3/3	400	4.8	No existing structure	Made ground, crumbling embankment	Retain and protect - Lift low growth overhanging fenceline to 5.1m	Protective fencing
T31	2 North-East	Sycamore	B1	3/3/3/3	440	5.28	No existing structure	Made ground, crumbling embankment	Retain and protect - Lift low growth overhanging fenceline to 5.1m	Protective fencing
T32	2 North-East	Ash	B1	3/3/3/3	480	5.76	No existing structure	Made ground, crumbling embankment	Retain and protect - Lift low growth overhanging fenceline to 5.1m	Protective fencing
G33	2 North-East	Mixed group Sycamore and Ash	B1	as drawn	100	1.2	No existing structure	Made ground, crumbling embankment	Retain and protect	Protective fencing

Tree reference	Tree works prescription
T5	Lift Low growth overhanging site boundary to 5.1m
T6	Lift Low growth overhanging site boundary to 5.1m
T7	Lift Low growth overhanging site boundary to 5.1m
T9	Lift Low growth overhanging site boundary to 5.1m
T11	Lift Low growth overhanging site boundary to 5.1m
T13	Lift Low growth overhanging site boundary to 5.1m
T14	Lift Low growth overhanging site boundary to 5.1m
T15	Lift Low growth overhanging site boundary to 5.1m
T17	Lift Low growth overhanging site boundary to 5.1m
T20	Lift Low growth overhanging site boundary to 5.1m
T21	Lift Low growth overhanging site boundary to 5.1m
T22	Lift Low growth overhanging site boundary to 5.1m
T23	Lift Low growth overhanging site boundary to 5.1m
T24	Lift Low growth overhanging site boundary to 5.1m
T25	Lift Low growth overhanging site boundary to 5.1m
T27	Lift Low growth overhanging site boundary to 5.1m

T28	Lift Low growth overhanging site boundary to 5.1m
T29	Lift Low growth overhanging site boundary to 5.1m
T30	Lift Low growth overhanging site boundary to 5.1m
T31	Lift Low growth overhanging site boundary to 5.1m
T32	Lift Low growth overhanging site boundary to 5.1m

BS5837:2012 Trees in relation to design, demolition and construction – Recommendations

Table 1 Cascade chart for tree quality assessment

Category and definition	Criteria (including subcategories when 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	• Trees that have 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 decline • Trees 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 <i>NOTE Category U trees can have existing or potential conservation value which might be desirable to preserve; see 4.5.7.</i>			Dark red
	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 dominate 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)	Light green
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 remedial defects, including unsympathetic management and storm damage), such that they are unlikely to be suitable for retention of 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	Mid blue
Category C Trees of low quality with an estimated remaining expectancy of at least 10 years, or young trees with a stem diameter below 150mm	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 value	Trees with no material conservation or other cultural value	Grey

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APPENDIX C: Site inspection template

Report Address:

I confirm that this report is related to a site visit undertaken ----/----/-----

Following my site visit to check the constraints advised within this arboricultural report,
please find my comments listed below:

Default action:

Signed - consulting arborist-----

Signed - site supervisor-----

T7







Section 2 woodland – Ditch
requires backfilling, outside
of RPA of retained trees

