

Arboricultural Method Statement

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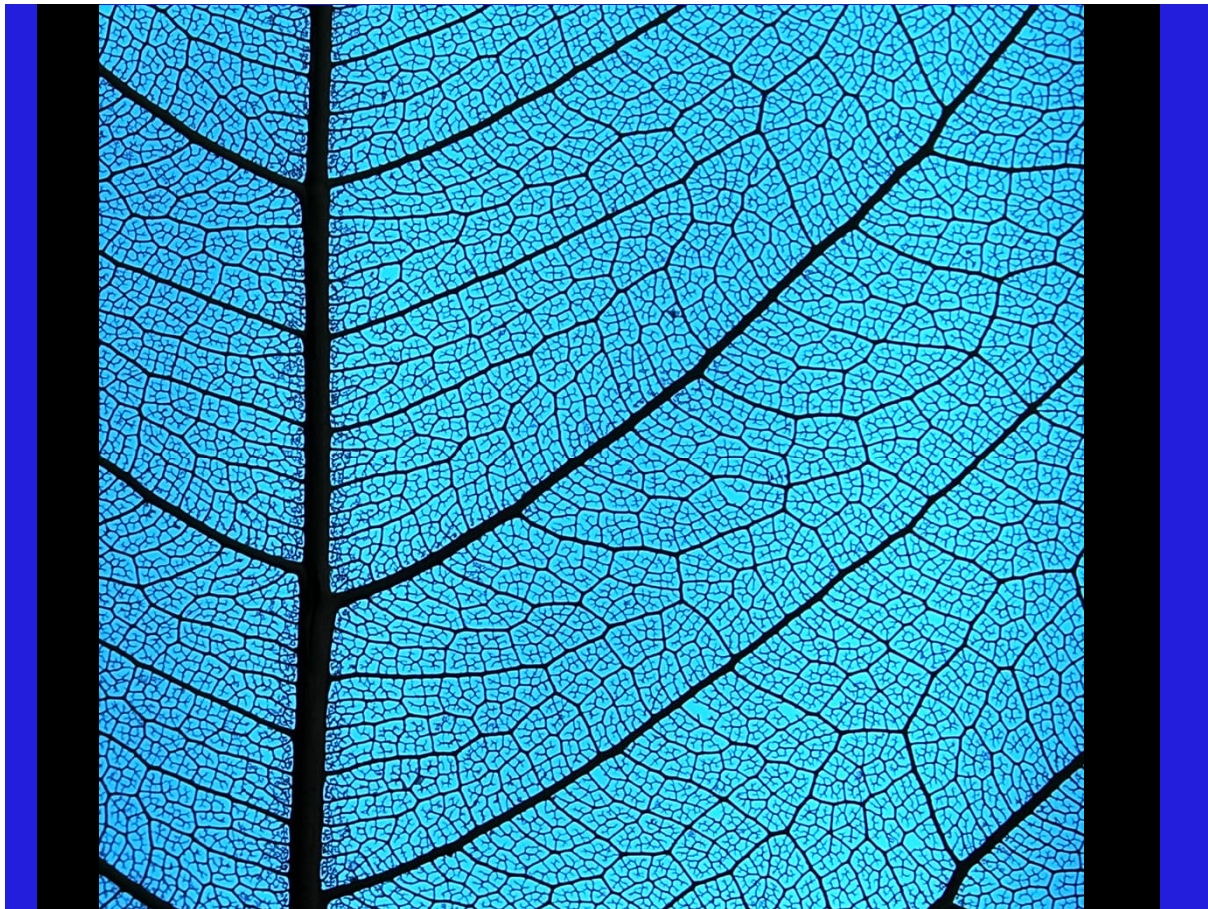
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The Environment Agency

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Littleborough Phase 1B

9 June 2023



Arboricultural Method Statement

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Executive summary

Jacobs UK Ltd. (Jacobs) were commissioned by the Environment Agency (EA) to produce an Arboricultural Method Statement (AMS) report for the Rochdale and Littleborough Flood Risk Management Scheme (FRMS) - Littleborough Phase 1B. This document has been produced with reference to 'BS5837:2012 – Trees in relation to design, demolition and construction – Recommendations' (BSI, 2012).

The below summarises the findings and conclusions of this Document:

- This report contains an Arboricultural Method Statement and appended Tree Protection Plan which details measures to protect retained trees during construction. This may require further amendments if the proposed design evolves.
- A competent arboriculturist should be present on site at suitable times to monitor the adoption of the AMS and ensure the appropriate protection of trees.
- Additional visits are recommended post construction to identify any physiological and/or structural defect that may have been caused by the works. This should occur on a yearly basis for four years, with each visit being conducted during a different season.

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1. Introduction

1.1 Purpose of Report

Jacobs UK Ltd. (Jacobs) were commissioned by the Environment Agency (EA) to produce an Arboricultural Method Statement (AMS) for the Rochdale and Littleborough Flood Risk Management Scheme (FRMS) - Littleborough Phase 1B (hereafter known as the scheme). The AMS has been produced with reference to 'BS5837:2012 – Trees in relation to design, demolition and construction – Recommendations' (BSI, 2012).

With reference to the above, this report will set out detailed methodology to protect retained trees within the site and within close proximity of the boundary.

This document should be read in conjunction with the following seven Tree Removals, Retentions and Protection Plans (TRRPP) which are an integral part of the AMS, they can be found in Appendix B.

▪ Sheet 1 of 7	Grove Lodge	IMNW000100-JAC-ZZ-4B0-DR-PL-0150
▪ Sheet 2 of 7	Gale East	IMNW000100-JAC-ZZ-4B0-DR-PL-0151
▪ Sheet 3 of 7	Gale West (North)	IMNW000100-JAC-ZZ-4B0-DR-PL-0153
▪ Sheet 4 of 7	Gale West (South)	IMNW000100-JAC-ZZ-4B0-DR-PL-0154
▪ Sheet 5 of 7	Centre Vale and Greenvale Business Park	IMNW000100-JAC-ZZ-4B0-DR-PL-0155
▪ Sheet 6 of 7	Ealees Brook	IMNW000100-JAC-ZZ-4B0-DR-PL-0156
▪ Sheet 7 of 7	Cross Sections	IMNW000100-JAC-ZZ-4B0-DR-PL-2007

Sheet 7 of 7 shows a number of representative cross sections taken across the scheme and demonstrates how tree protection measures and level change and topography relate to retained trees and their effective retention.

1.2 The Scheme

The scheme, in brief comprises of the creation of a number of a flood storage area at Gale with associated realignment of watercourses and the construction of flood walls and associated structures.

The arboricultural constraints of the site have influenced the final layout through an iterative design process. Thus, the proposals incorporate a degree of 'inherent' mitigation to avoid or reduce the severity of potential arboricultural impacts.

1.3 Baseline Data

Jacobs has been asked to prepare this report based on a tree survey and arboricultural impact assessment ¹carried out by a third party (The Environment Partnership [TEP]), which was completed in February 2022. Jacobs was not commissioned to verify the validity of this data on site, nor check the reliance of the client on the detail contained within the report. Jacobs has attended site to check required tree clearance and pruning but did not check or verify the underlying TEP tree data and any questions regarding inaccuracies or omissions of the baseline dataset should be directed to the client who provided the report, or the originator of the report (Will Fitzpatrick, TEP). The report is found in Appendix A.

¹ Arboricultural Impact Assessment, The Environment Partnership, February 2022, IMNW000100-JAC-ZZ-4B0-RP-EN-0021

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The tree survey was conducted in line with the methodology detailed within BS 5837:2012 (BSI, 2012) and involved the surveying of trees as individuals or groups of trees within an agreed study area (forming the survey area) supplied by the Jacobs design team.

Trees are reported as individuals or groups. Tree locations were determined on site using digital survey software and hardware which use a combination of georeferenced topographical survey (topographical drawing reference here), aerial imagery and the devices inbuilt Global Position System (GPS). Trees plotted with the internal GPS can be assumed to have an accuracy of +/- 5 m.

1.4 Trees Covered by Statutory Protections

The 2022 TEP report contained the following information;

Tree Preservation Orders

A check with the local authority was undertaken on 17th January 2022. The Planning and Development Department confirmed that two trees and six groups within to Reddysore Brow and Gale West are protected by Tree Preservation Order TPO 097.

Table 16 Tree Preservation Orders

Order name	Order feature reference	Survey feature reference
TPO 097	Not provided	T8, T35, T37, G18, G97, G99 G103, G104, G106

Works to TPO trees must only be undertaken with the written consent of the Local Authority, given in the form of a planning permission (other than an outline planning permission), discharge of reserved matters, or via a TPO application.

Conservation Areas

A check with the local authority was undertaken on 17th January 2022. The Planning and Development department confirmed that all trees within the Grove Lodge area, all trees within the Gale East area and three trees and 13 tree groups within the Gale West area are within or adjacent to the Rock Nook Conservation Area.

Anyone proposing to remove, uproot or destroy any tree within a Conservation Area is required by Section 211 of The Town and Country Planning Act 1990 to give the local planning authority six weeks' notice. During this period the Council may make a Tree Preservation Order.

Exceptions from the requirement to give notice are set out in The Town and Country Planning (Tree Preservation) (England) Regulations 2012 including, amongst other reasons, work that is necessary to implement a planning permission (other than an outline planning permission).

This information is repeated here for information and has not been verified by Jacobs.

1.5 Limitations and Assumptions

Limitations to the AMS include the following key points:

- This report is based on the removals and retentions identified by the TEP report. While final areas and number of trees may differ in this document and associated plans due to the refinement of the scheme and finalisation of the construction methodology, the findings and revision of the AIA have not been revisited or updated.
- No data for individual trees within surveyed groups appears to have been recorded by TEP. Jacobs has used National Tree Map data to plot individuals within groups to allow for more informed decisions to be made upon final tree clearance requirements.
- The health and condition of trees can change rapidly and all trees, even healthy ones, are at risk from unpredictable climatic and man-made events. This report is based on the observed health and structural condition of the trees at the time of survey by suitably qualified inspectors. The health, condition and safety of trees should be checked on a basis commensurate with the level of risk and preferably on an annual basis, as recommended in Common Sense Risk Management of Trees (National Tree Safety Group, 2011). The tree survey conducted for this report is not a tree health and safety survey and should not be used as such.

1.6 Key Considerations from TEP Report

The 2022 TEP AIA report made the following two important observations;

The final refinement of retained canopy edges can only be achieved on site, between a topographical surveyor and arboricultural consultant. Where access is agreed with the relevant owner(s) of third-party land, the identification of individual trees within influencing distance of the site and capture of respective RPA should be completed, with trees for removal being clearly marked. The topographical surveyor should then set out the alignment of tree protection measures as per an approved Arboricultural Method Statement. The process of the identification of trees, tree removal and setting out of tree protection measures should be carried out before any construction works commence, including the delivery of materials, plant or installation of construction compounds.

Large areas of tree removals within groups outlined in this document, ...represent a reasonable worst-case scenario and do not necessarily indicate an unavoidable need to remove all trees within those groups. As the topographical data detailing the exact locations of stems within large groups is not always available, identifying retainable trees within such groups can only be achieved on site under the guidance of an arboricultural consultant. On the identification of retainable trees within groups, the arboricultural consultant can then instruct contractors on appropriate tree protection measures as per an approved Arboricultural Method Statement (AMS).

Jacobs arboriculturalists attended site to review the constructability of the scheme and removals required. As a result the TRRPP indicate, to the best of our ability, the required tree removals and pruning. However, the points raised by TEP above remain true. The final marking of trees to be removed will need to be decided upon by the Project Arboriculturalist/Arboricultural Clerk of Works (ACoW) with the assistance of a topographical surveyor to set out the tree protection fencing alignment and footprint of any construction activity (see Section 2 for more detail).

1.7 Tree Loss

This document and supporting plans have been created through an iterative process involving the design team, construction team and arboricultural specialists. As such, the current proposals have been designed in such a way as to minimise tree loss, though due to the nature of the site, exact tree loss figures cannot be accurately calculated until clearance works commence on site, guided by a qualified arboriculturist. The appointment of a qualified arboriculturalist to inform tree removals from groups and certain individuals should help minimise removals and the supporting plans show a reasonable assessment of the trees that require removal for construction of the development. During site clearance works the trees removals will be monitored by the arboriculturalist and records maintained to quantify tree loss.

1.8 Arboricultural Action Required - Next Steps

Table 1-1 lists the standard elements, as referenced in BS 5837:2012 (BSI, 2012), recommended to satisfy planning concerns for this scheme and to ensure appropriate tree protection is considered and applied throughout the duration of the works.

Table 1-1 Follow up Arboricultural input relating to this scheme

Recommended arboricultural input	Purpose	Timing
AMS and TPP revisions	Whenever a design change/addition is finalised or proposed.	Following any change in the design. The process could be either desktop based or require further site visits, depending on the scope of the original survey.
On site monitoring	To ensure protection measures and the method statement are being implemented correctly.	At agreed intervals before and during the construction phase of the project.

It is recommended to maintain contact with the project arboriculturist throughout the planning and design stage for the relevant additional input to be addressed at the appropriate point.

2. Arboricultural Method Statement

2.1 Introduction

The most important and effective process, in terms of preventing damage to trees on a construction site, is the timely erection of tree protection fencing. This must be erected as the first operation on site, for example, before access track construction, before Contractor's site cabins, and before trenching for service runs.

However, it is noted that the fencing provides an unnecessary and potentially dangerous restriction to essential tree works and therefore tree works can be carried out before fencing is erected, such a decision will be made in consultation with the project arboriculturalist.

To protect retained trees and hedges correctly throughout the construction process, tree protection measures should be removed in the exact opposite order and methodology they were installed so that one of the last actions onsite is the removal of the tree protection measures.

2.2 Pre-Commencement

As noted in Section 1 of the report and within the TEP AIA, in places the final removals from a group will require marking by the Project arboriculturalist once the alignment of the tree protection fence and construction footprint has been set out on site by a topographical surveyor. Once removals are complete, tree protection fencing is to be erected on the indicated alignment.

A Pre-Commencement Site Meeting is held with contractors who are responsible for operating machinery on site. The meeting will firstly highlight the potential for damage occurring to tree crowns, but thereafter ensure that extra care is applied when manoeuvring any machinery within close proximity of retained trees to prevent any contact with the tree and consequent damage to crown, stem or roots.

2.3 Access facilitation pruning

As it is expected necessary to operate a wide or tall load, plant bearing booms, jibs and counterweights or other such equipment, as part of construction works and/or traffic on the construction access road, and such equipment would have potential to cause injurious contact with crown material i.e. low branches and limbs, of retained trees within, or without, the RPA fencing, it is best advised that appropriate, but limited tree pruning, be carried out beforehand to remove any obvious problem branches. This is classed as 'Facilitation Pruning' within BS 5837:2012.

The trees, hedgerows and groups shown in Table 1.2 require facilitation pruning to allow the successful delivery of the development proposals (ordered as presented on TRRPP sheets 1-6, reading from north to south). If carried out to *BS3998:2010 Tree Work Recommendations* Jacobs consider these trees can be retained with no long term detrimental impact on health, form or life expectancy.

As noted in the Environmental Action Plan (EAP) any felling or hard pruning should be outside bird nesting season, and ensure pre -commencement surveys will include bat survey of trees previously identified as being suitable for roosting bats that require felling or heavy pruning.

Table 2-1 Facilitation Pruning

Tree/Group Reference Number	Specification
Grove Lodge Sheet 1	

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G55	- Partial removal of group as indicated on plans. Final removals to be marked on site by project arboriculturalist once tree protection fencing is pegged out. - Any hazel stools to be coppiced to leave 0.5m high stool and protected with fencing if appropriate. - Trees overhanging watercourse in north of the site (on the west bank) to be crown lifted to give approximately 3.5m clearance from lowest branch to ground level. - Any trees overhanging new access ramp from Todmorden Road to be crown lifted to give 5.5m clearance from lowest branch to ramp running surface. - Remove tree growing out wall under bridge
G16	Any trees overhanging new access ramp from Todmorden Road to be crown lifted to give 5.5m clearance from lowest branch to ramp running surface.
G56	If required, prune branches overhanging track to give 5 m clearance from ground level to lowest branch tips
Gale East Sheet 2	
G57	If required, prune branches overhanging track to give 5 m clearance from ground level to lowest branch tips
T1	Dangerous tree fell ASAP
G58	- Assess group growing within disused channel for suitability for retention once channel infilled, fell any which will not survive - Minor pruning of groups close to watercourse in south to create suitable working room. Prune back to suitable growing union
Gale West Sheet 3	
G97	- Remove trees growing directly out of west bank to allow installation of reinforcement material, protect remaining trees - Pruning west bank trees overhanging river to create room for construction activities. Approx 3m clearance from lowest branch tips to ground level required. Pruning back to suitable growing union - Remove any tree from river channel, including stump - Remove tree growing through channel wall
G99	Once access corridor and protective fencing alignment marked out, mark up and remove trees within section of group shown as removed.
G95/G96	Prune any trees close to the boundary to avoid any construction damage, minimal pruning with cuts back to growing unions
Gale West Sheet 4	
G191, G88	Partial removal back to site RLB
G85/G86	Partial removal of group as indicated on plans. Final removals to be marked on site by project arboriculturalist once tree protection fencing is pegged out.

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	▪ Crown lift trees on site/group interface as necessary to avoid construction damage. Approx 5m clearance from ground level to lowest branch tips required
G83	▪ Minor pruning at ne channel tie in location to avoid construction damage to trees. Approx 3m clearance from lowest tips to ground level required, to be confirmed on site.
Centre Vale Sheet 5	
G80	▪ Minor removal of individual ash trees with ash die back from the northern end of group to create working space
G79	Fell poplars and treat stumps with ecoplugs or similar to prevent root growth (stump grinding maybe more economical). If other species are present in understory and can be retained without damage do so.
G78	Fell areas sown as removed. Retain and protect area in river bend, minor pruning maybe required to allow erection of tree protection fencing.
Ealees Brook Sheet 6	
T16, G59	Crown lift to give suitable clearance for the erection of tree protection fencing as required

Areas of the site are covered by TPO's and fall within a CA. Should additional pruning be identified/required the Facilitation Pruning Works specification shall be prepared by an arboriculturalist and submitted to the local planning authority for approval before any pruning works (including potential root damage) are carried out on site.

All tree works should be carried out in accordance with BS 3998:2010 'Tree Works- Recommendations'.

The Facilitation Pruning should be carried out on site by a suitably qualified and experienced arborist before construction or demolition operations commence on site. The Facilitation Pruning can run concurrent with operations to erect tree protection fencing as long as this can be co-ordinated such that neither presents a hazard to the other.

Trees on site which are not to be retained can be removed as part of the Facilitation Pruning (or earlier if the appropriate planning consent is confirmed). To avoid mistakes, the individual trees to be removed should be identified and marked by a person with arboricultural expertise, this is particularly important where areas of groups are to be partially removed and partially retained.

It is recommended that any trees that require removal or significant canopy works, should be checked in advance of works by an ecologist to ensure there is no possibility of any disturbance to nesting birds or roosting bats.

2.4 Tree Protection Fencing and the Construction Exclusion Zone

The development design prepared for the site indicates that a number of trees within the site are being retained. In addition there are several trees off site but within 15m of the site boundary. All these trees need to be protected from all demolition/construction operations by a protective barrier (fencing to BS 5837:2012 which creates a sacrosanct Construction Exclusion Zone (CEZ).

The alignment of the protective barrier is based on the calculated extent of the RPA in accordance with BS 5837:2012. The detailed alignment of tree protection fencing is indicated on the Tree Removals, Retentions and Protection Plans (TRRPP);

- | | | |
|----------------|-------------------|----------------------------------|
| ▪ Sheet 1 of 7 | Grove Lodge | IMNW000100-JAC-ZZ-4B0-DR-PL-0150 |
| ▪ Sheet 2 of 7 | Gale East | IMNW000100-JAC-ZZ-4B0-DR-PL-0151 |
| ▪ Sheet 3 of 7 | Gale West (North) | IMNW000100-JAC-ZZ-4B0-DR-PL-0153 |

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▪ Sheet 4 of 7	Gale West (South)	IMNW000100-JAC-ZZ-4B0-DR-PL-0154
▪ Sheet 5 of 7	Centre Vale and Greenvale Business Park	IMNW000100-JAC-ZZ-4B0-DR-PL-0155
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Protective fencing will be erected before any construction operations start on each particular phase/site (for example Gale is likely to begin a reasonable time before Grove Lodge begins) and will be removed only on completion of all construction works on that phase/site. In this phased project there maybe a need to alter or remove/reposition fencing as the project progresses. The planning of these works should be carried out in consultation with the project arboriculturalist and no tree shall be left unprotected during construction works.

Site hoarding is an acceptable alternative. It may be appropriate on some sites to use temporary site offices as components of the protection barriers, on the understanding that they will remain in situ for the duration of the construction works and their removal will be planned to ensure the Contractor's co-ordinated withdrawal from site away from the trees rather than towards them.

BS 5837:2012 clause 6.2.2.3 specifies an alternative protective barrier where site circumstances and associated risk of damage incursion into the RPA do not necessitate the default level of protection. This can include 2m tall welded mesh panels (e.g. Heras fencing) on rubber or concrete feet to protect from cars, vans, pedestrians and manually operated plant. The alternative specification for the protective barrier should only be used if and where agreed with the Local Planning Authority.

Existing fencing, if suitably robust and retained throughout the construction period is also considered an appropriate tree protection barrier.

All weather notices should be placed on fencing to indicate that operations are not permitted within the fenced area, for example "CONSTRUCTION EXCLUSION ZONE – NO ACCESS" or similar.

Once set up fences should not be removed or altered without prior consultation with the project arboriculturalist.

Tree stems and buttress roots should be protected when proposed works are located within 1.5m of the main stem. Ideally the entire stem would be protected by robust solid timber boards forming a rigid structure (a 'tree box'). In the event a continuous rigid frame cannot be achieved, solid boards should be utilised to provide sufficient stem protection for the duration of the works.

The presence of long grass and other vegetation in the 'Construction Exclusion Zone' is a welcome indicator that the protected area has been left undisturbed. However, on occasion, and certainly towards the end of the project, it is acceptable to cut the vegetation by hand held strimmer or scythe taking care not to work within 300mm of the tree trunk (to avoid damaging the bark). Vegetation within 300mm of the trunk can be cut with non-mechanised shears.

2.4.1.1 Tree Protection of Coppice Stumps, Grove Lodge

Hazel is a species traditionally managed by coppicing. Where possible, hazel trees shall be coppiced and the resulting stools protected from damage. It is accepted that not all hazel coppice stools will be located sufficiently distant from construction activity to be protected, but even if unprotected, then the stumps if possible should be retained.

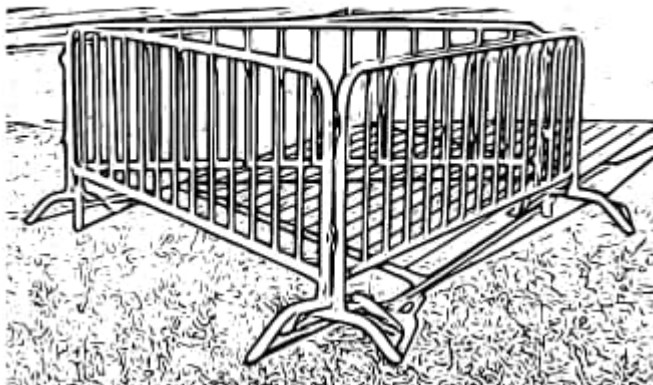
BS3998:2010: Tree Work, Recommendations contains the following guidance on coppicing;

When the regenerated stems are subsequently managed for coppice, they should generally be cut just above the height of the last cuts, leaving short stumps. The creation of new coppice stools and cutting of existing coppice shoots should

be undertaken during the dormant season (between late autumn and early spring), as this tends to give the best results with regard to the survival of new growth.

As the canopy of the stool will be removed, then the protective barrier can consist of a low rigid structure. It is proposed to use crowd control barrier (or similar) which is fixed firmly in place to prevent displacement. It is envisaged that a layout as per Figure 2-1 is used with 3 barriers forming a protective triangle.

Figure 2-1 Protective barrier arrangement for coppice protection



2.4.2 Root Pruning

The specific need for root pruning has not been identified in any areas of the scheme. Should tree roots be uncovered during excavation works then they are most likely to belong to trees removed during the site clearance. Should it be clear that an uncovered root is associated with a retained tree then the following steps should be taken.

Minor roots (less than 25mm in diameter) should be cleanly severed with a sharp pruning saw, leaving as small a final cut wound as possible. Roots larger than 25mm diameter should be carefully exposed by hand. Once exposed the Arboricultural Clerk of Works or the Project Arboriculturalist should be contacted for advice on how to proceed. If it is considered the removal of the root will not have a destabilising, or detrimental impact on the parent tree, then it can be cleanly severed with a sharp pruning saw. A photographic record of any root pruning should be taken, along with its location marked clearly on a site plan.

If it is considered an unacceptable risk to sever the root, then it should be reburied or wrapped in damp hessian to prevent desiccation, whilst the project team work through options for dealing with the situation. In certain cases, this may require the removal of the parent tree.

2.4.3 Demolition

Should demolition of a structure be required close to retained trees it shall employ a 'top down, pull back' procedure in small, controlled sections using a small arm demolition vehicle, removing all demolition debris in small amounts as soon as it has fallen to the ground. This is to ensure that the canopy, as much as is reasonably practical, is not damaged by machinery or falling masonry and building debris, and that the demolition debris is not stored over the RPA.

2.4.4 Installation of power supply and services

Any underground power supplies and services routed through the RPA should be installed in accordance with BS 5837:2012 clause 7.7.2 and NJUG Guidelines for the Planning, Installation and Maintenance of Utility Apparatus in Proximity to Trees.

Should roots between 10-25mm in diameter be encountered, these would be retained undamaged wherever possible, and protected from desiccation/frost by damp hessian sacking or a similar protective material until the excavation is back filled. Roots below 10mm in diameter may be trimmed back neatly in line with the edge of the excavation trench using secateurs.

2.4.5 Construction within RPA

The delivery, storage, mixing and discharge of concrete and all other cement-based materials shall be carried out so that there is no run-off and spillage near the RPAs of retained trees. No substances that are potentially injurious to plant tissue (including diesel, bitumen, concrete, mortar and other phyto-toxic materials) shall be stored, discharged, prepared or used, where direct contact, infiltration or run-off might reasonably be considered liable to harmfully affect existing root growth or other parts of retained trees.

Where chemicals are stored, it is now standard practice to have emergency spillage kits available to minimise the impacts of any accidental spillages to the local environment. All cement mixing, vehicle washing or any other activity where toxic chemicals are used shall have the provision to contain any accidental spillage. This can be achieved using suitable soil bunding or using a supporting timber framework sealed with heavy duty plastic sheeting.

2.4.6 Fence construction within RPAs

Where fence posts need to be installed within RPAs, excavations should be minimal and carried out using handheld tools. Fence posts should be erected at least 1 m from trees and using metal post support spikes or if using concrete mix, post holes should be lined with an impermeable membrane to prevent contact between tree roots and potentially damaging chemicals in the concrete.

The proposed fence alignment should allow for a minimum distance of 500 mm between the tree stems and the fence, providing sufficient room for the future increase of the stem diameter and minimising the risk of potential conflicts between the fence structure and the tree stem.

2.4.7 Changes of level within RPAs

Generally, the levels within the RPA or protected area should not be changed. Tree roots are considered to be, in the main, within the top 600 mm of the soil. Obviously, any excavation into this will remove part of the root system and potentially affect the vigour or stability of the tree. Conversely, any additional material built up above ground level will compact the soil beneath it, potentially compacting all the air pores in the 600 mm depth of soil that most roots are in, effectively suffocating the roots and thus affecting the vigour or stability of the tree.

On occasion, additional soil may be gently spread by hand within the RPA/protected area, for example, to marry levels in small areas between raised levels of no-dig construction and the existing levels. The maximum depth of this would be to 150 mm, reducing to nil. However, it is not generally acceptable, in large areas of the RPA/protected area to raise the level as a blanket. Any areas which will need to be raised are to in consultation with the project arboriculturalist prior to construction. Specifically there will be no mechanical equipment within the RPA/protected area to spread, compact, or level out soil levels as this would compact the soil.

2.4.8 Excavations for soft landscaping

Where soft landscaping is proposed within the RPA of retained trees, excavations should be kept to the minimum required to provide adequate conditions for the establishment of new shrubs and trees. Excavations should be carried out carefully and by hand, avoiding the severance of any roots larger than 25mm diameter.

3. Arboricultural Site Supervision

This document should be considered a live document and the design and layout of tree protection on site is considered iterative as the Proposed Scheme develops. As such, the scheme should secure and retain the services of a qualified arboricultural consultant to revise and update this document as the scheme progresses. This person may act as the ACoW. The ACoW's role could be carried out by another suitably qualified arboriculturalist whose role it is to monitor onsite tree protection measures and advise the site personnel as well as reporting back to the LPA tree officer.

The project arboriculturalist/ACoW, LPA Tree Officer and key site management personnel will hold a pre-commencement meeting before any works commence on site to agree a programme of arboricultural site supervision, tree works schedules, tree protection measures, chain of reporting and any other relevant issues.

Once the protective fencing and ground protection measures have been installed, but prior to the commencement of the development, a site inspection should be undertaken by either the scheme's ACoW or the LPA Tree Officer. This is to confirm that all protection measures have been installed in accordance with the Tree Protection Plans and AMS.

Regular monitoring visits should be carried out as necessary during the scheme, with a programme of monitoring agreed at the pre-commencement meeting. Following each monitoring visit, a brief report should be provided by the ACoW to the site manager, LPA Tree Officer (and project arboriculturalist if different) in a timely manner. Any breaches of the AMS should be reported immediately and works stopped if required until the breach has been rectified.

It is currently anticipated that once the initial tree works, site set up and tree protection measures are installed, the ACoW would visit approximately every 4-6 weeks, unless specifically required to attend site to resolve issues. As well as regular visits, key stages or events requiring supervision are anticipated to be:

- Tree marking, clearance and pruning;
- Erection of tree protection fencing;
- Adjustments and realignments of tree protection measures;
- Works occurring within an area protected by a tree protection fence (CEZ);
- Changes to the proposal or unforeseen construction/tree related conflicts;
- Identification of addition tree (or root) pruning or removal; and
- Any phased erection or removal of tree protection measures.

It should be noted that no additional tree works, realignment of tree protection fences or significant changes to the AMS should be carried out until discussed and agreed with the LPA Tree Officer.

On completion of the scheme, a general survey of the trees is recommended to identify any remedial action necessary as a result of the works. Note that permission for any additional tree works not included in the original development consent may need to be obtained through application to the LPA.

If any arboricultural issues arise during the scheme, then the site manager should immediately contact the ACoW or LPA Tree Officer for advice on how to proceed.

Appendix A. TEP Arboricultural Impact Assessment

Appendix B. Tree Retention Removal and Protection Plans

▪ Sheet 1 of 7	Grove Lodge	IMNW000100-JAC-ZZ-4B0-DR-PL-0150
▪ Sheet 2 of 7	Gale East	IMNW000100-JAC-ZZ-4B0-DR-PL-0151
▪ Sheet 3 of 7	Gale West (North)	IMNW000100-JAC-ZZ-4B0-DR-PL-0153
▪ Sheet 4 of 7	Gale West (South)	IMNW000100-JAC-ZZ-4B0-DR-PL-0154
▪ Sheet 5 of 7	Centre Vale and Greenvale Business Park	IMNW000100-JAC-ZZ-4B0-DR-PL-0155
▪ Sheet 6 of 7	Easlees Brook	IMNW000100-JAC-ZZ-4B0-DR-PL-0156
▪ Sheet 7 of 7	Cross Sections	IMNW000100-JAC-ZZ-4B0-DR-PL-2007

Appendix C. Suggested Tree Protection Specification

Default Tree Protection Specifications (taken from pages 20-21 of BS5837:2012)

Figure 2 Default specification for protective barrier

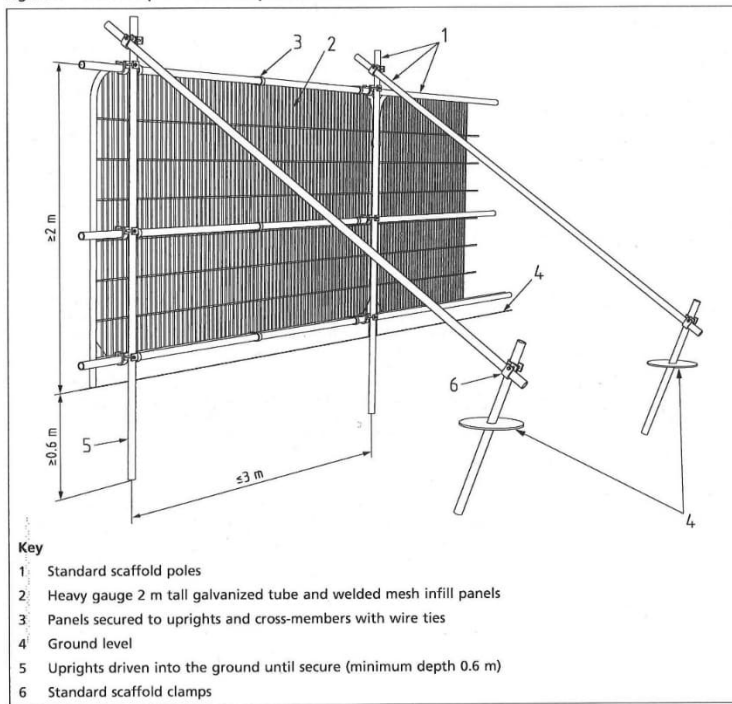
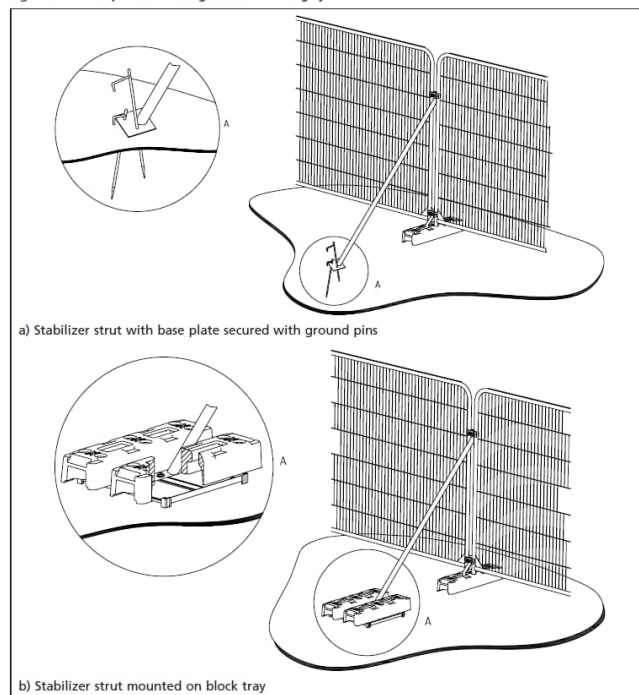


Figure 3 Examples of above-ground stabilizing systems



Appendix D. Suggested Tree Protection Signage

