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Arboricultural Assessment & Method Statement

for proposed fish passage improvements at

Emm Brook
Woosehill, Wokingham



On Behalf of: **South East Rivers Trust**

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Executive Summary

Trees are a consideration in this planning application. Therefore, this report has been drafted to provide the information required to enable the local planning authority to meet the duty placed upon them by section 197 of the Town and Country Planning Act (1990).

Included, to accompany the proposals for work to improve fish passage and overall biodiversity at Emm Brook in Woosehill, Wokingham, are:

- A BS5837:2012 compliant tree survey
- An arboricultural impact assessment
- A tree protection strategy, including a method statement and protection plan

The tree protection strategy has been drafted to offer a realistic level of protection throughout this extensive project.

A separate arboricultural method statement is appended to provide details on the replacement of the Greenways Bridge.

In terms of tree removals, the work to replace the existing bridge will require the removal of three alder trees and a small hawthorn. For the waterway reconnection, a group of willows will be coppiced. One alder will be removed to improve flow as it is blocking the existing channel. Further removal of small seedlings and understorey will be required throughout the project area to allow access for the plant required to clear silt from the brook and in areas where they are especially dense, restricting light to the brook.

Hazel or chestnut faggots or proprietary track matting will be used to provide ground protection where excavator passage or access is required close to trees to clear silt from the brook and to spread bank-side and in the surrounding wooded areas.

Use of tree protection barriers is limited to specific locations based on the proposed level of activity.

Provided the protection strategy is implemented as outlined in the following method statement, it is my opinion that this application is of low arboricultural impact, and thus acceptable.

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1. Instructions and Terms of Reference

- 1.1. In January 2021, I was instructed by Mr Nick Hale on behalf of the South East Rivers Trust to undertake a tree survey and subsequently to produce this report to accompany a planning application for the installation of two footbridges and associated works to reconnect the historic route of the Emm Brook through Riverside Park, Wokingham. Further work is proposed by Wokingham Borough Council under the Greenways program. **This does not fall within the remit of this report and associated application.**
- 1.2. **This revision (F) has been drafted to include up-to-date tree data (March 2020⁵) and an appended AMS for Greenways Bridge.**
- 1.3. Following the recommendations of the British Standard¹, this report includes the necessary information to enable the local planning authority to meet the duty placed upon them by section 197 of the Town and Country Planning Act (1990).
- 1.4. It demonstrates that the impact, both direct and indirect, of the proposal, has been assessed and where appropriate, mitigation, compensation and tree protection proposed.
- 1.5. Correct implementation of the tree protection specified within this report is critical for ensuring the retained trees are successfully protected throughout the construction process.
- 1.6. Documents supplied to assist this assessment included:
 - Overview plan: Emm Brook - Design - 01 - OVERVIEW.pdf
 - AutoCAD design: Emm Brook - DESIGN Conditions - Dec2020 - cbec.dwg
- 1.7. The assessment considers the impact of the proposal on the constraint presented by trees retained within the site, and those on adjacent land. Such impact can be caused directly through construction damage and indirectly from post-development resentment and pressure to detrimentally prune or remove the trees. The latter is often due to a poor juxtaposition between the proposal and the trees.
- 1.8. The root protection area (RPA) for each tree represents a minimum area in m² that should be left undisturbed around each retained tree. This is initially represented by a circle but is fundamentally an area of rooting volume. This is often adjusted to account for constraints to root growth within the site (primarily highways and buildings). Recommendations are provided in the British Standard as to the protection of existing trees during the construction process. This is achieved by ensuring a tree protection strategy is implemented before any demolition or construction on site.

¹BS5837:2012 Trees in relation to design, demolition and construction

2. Site Description

- 2.1. The project focuses on the section of Emm Brook that flows through Riverside Park.
- 2.2. The Emm Brook is a tributary of the River Loddon, a chalk-fed river which rises at Basingstoke and flows northeasterly over chalk and clay, joining the River Thames just west of Wargrave.
- 2.3. It is predominantly flat in nature.
- 2.4. The site is centred at Ordnance Survey Grid Reference: SU 79908 69041.



Approximate project area ©Google

3. Statutory Legislation

- 3.1. According to Wokingham Borough Council's on-line service², there are no tree preservation orders on the site (checked at the date of writing), nor is the site within a conservation area.
- 3.2. Any large scale tree removals, that occur outside of a full planning consent, could potentially require a felling licence from the Forestry Commission.
- 3.3. Certain habitats and species are protected, many of which can be impacted by tree work. Advice from an ecologist on the impact of such work should be sought, with reference to the relevant statutory protection^{3 4}.

² <https://wokingham.maps.arcgis.com>

³ *Wildlife and Countryside Act. (1981)* London: HMSO.

⁴ *Countryside and Rights of Way Act. (2000)* London: HMSO.

4. Tree Survey-Scope and Methodology

- 4.1. Tree survey data can be found on the appended plan.
- 4.2. The tree survey has been carried out following the recommendations of The British Standard and the trees are assessed objectively and without reference to any site layout proposals. Categories are based on each tree's health and condition, together with an assessment of its life expectancy if its surroundings were to be unchanged.
- 4.3. The reference numbers of surveyed trees and groups of trees are shown on the tree reference plan, which is appended to this report and based on the supplied survey drawing. Stem locations on this project are often estimated.
- 4.4. The tree survey was carried out from ground level only, with the aid of binoculars as necessary, following the Visual Tree Assessment⁵ (VTA) method.
- 4.5. Where trees are located on neighbouring land an estimated appraisal has been made of their quality and dimensions.
- 4.6. Where stems or branches are obscured by ivy or other materials a full assessment of those parts will not be possible.
- 4.7. Tree heights were measured with a clinometer or estimated in relation to those measured.
- 4.8. Trunk diameters are measured at 1.5m above ground level, where this is not possible, then Figure C.1 of the British Standard is followed.
- 4.9. Tree canopies, where markedly asymmetrical, were measured (or estimated by pacing) in four directions using a laser measure. Symmetrical canopies are measured in one direction only, with dimensions in the remaining directions assumed to be similar. For the canopies of groups of trees, the maximum radius for each compass point is measured (more complicated groups will have further notes taken and an accurate representation will be shown on the plan).
- 4.10. All estimated dimensions are noted in the data.

⁵ Mattheck, C. & Breloer, H., 1998. The Body Language of Trees: A Handbook for Failure Analysis.

5. Arboricultural Impact Assessment

- 5.1. Emm Brook through Riverside Park has issues which impact its health and prevents it from being able to support a rich community of wildlife.
- 5.2. It is proposed to carry out work to improve the flow of water along the length of the original brook and to reconnect it with the newer channel. Downstream of new channel reconnection, the existing river will be a flood relief channel.
- 5.3. One of the footpaths (currently culverted) over the brook will be replaced with a wooden footbridge (SERT Northern Bridge NGR: SU 79936 69101). A second bridge (SERT Southern Bridge NGR: SU 79891 69012) will span the new channel cut to reconnect the existing main channel with its former route.
- 5.4. The entire length of the former brook will be cleared of silt, with the arisings spread on the bank and in the adjacent wooded areas.
- 5.5. Although the proposals are included on the appended plan, the focus is on tree protection.

Existing Tree Stock

- 5.6. The park is well treed, with several large mature oak trees (*Quercus robur*), many riverside alder (*Alnus glutinosa*) and a mixture of smaller understorey and scrub of varying quality, including elm regeneration.



Oak tree #09 to right. Aspect north

- 5.7. The more densely wooded patch to the north is becoming heavily ivy clad and has numerous small trees and seedlings. The mature trees within the group are of mixed quality with few of high individual arboricultural value.



Example of the poorer quality trees in the northern area



An example of the scrub next to the brook that will be removed to allow plant access for silt removal

- 5.8. Overall, the tree stock has undergone little management over the years. With the alder becoming somewhat over-mature resulting in decline of some groups and trees.
- 5.9. There are patches of elm and poplar seedlings that are becoming established. The poplar will likely be successful and may out-compete more preferable species, whilst the elm is already showing decline from the ubiquitous Dutch Elm Disease (*Ophiostoma spp.*).

Tree Removals

- 5.10. The work to replace the existing footpath will require the removal of 3No. Alder (#10, 11 & 13) and a small hawthorn (#12).
- 5.11. Alder #44 will require removal to reconnect the channel, including grinding the root out.
- 5.12. None of the above trees are of exceptional quality and value. The two alder are of typical multi-stemmed form, which are likely to fail in due course. This is typical when such trees become mature/over-mature. The hawthorn is small, suppressed and ivy-clad.
- 5.13. It is also proposed to carry out strategic removal of some understorey and more scrubby trees in areas where they are especially dense and restrict light to the brook. These removals are not shown in detail, as decisions will be made regarding which plants are removed as work progresses. If deemed necessary by the local planning authority, more detail on these removals could be supplied under an appropriately worded planning condition.
- 5.14. Further removal of light and small understorey, including the somewhat dense brambles, will be required throughout the project area to allow access for the plant required to clear silt from the brook.

Tree Surgery

- 5.15. There is a group of willow trees (#02, 03, 04 & 05) growing to the south of the project area that are becoming over-mature and thus prone to structural failure. As they overhang the existing informal path and are at the point where the brooks will be joined and the second footbridge constructed, it is proposed to coppice them at ground level. Allowing for natural regrowth to occur.
- 5.16. At this time no further tree surgery is detailed. However, in conjunction with the scrub and small tree removals for improvement of light to the brook and the silt removal operation, some low branches may be pruned to facilitate access.

Footbridge Replacement

- 5.17. Currently, there are asphalt paths with a culvert allowing water underneath in two locations. To improve the flow of water these are to be replaced with wooden bridges. One as part of this application, and one (Greenways Bridge) will covered by a separate application. Included as an appendix to this document is a separate Arboricultural Method Statement to cover the Greenways Bridge replacement.
- 5.18. The removal of trees is required (see above) along with a sensitive working approach to minimise impact on surrounding trees and vegetation. This is detailed in the method statement section of

this document. Provided this is adhered to, the works will have very limited impact and, in my opinion, are entirely acceptable.

Removal of Concrete Under Drain

5.19. In the centre of the site and old drain spans the brook (by tree #27). The supporting concrete restricts the flow and is to be removed. This will be carried out by hand or with a small excavator. As with the access for silt removal, ground protection matting will be used to access the area.

Excavation To Reconnect the Brooks

5.20. Work to reconnect the former brook with the main flow is proposed at the southern end of the project area. This is labelled 'Protection Area 3' on the tree protection plan.

5.21. Once the willow group is coppiced and barriers erected as shown, the works can occur from outside the RPAs of retained trees (the willows' RPAs would be reduced from those shown due to the coppice work and associated reduction in required root mass).

5.22. To southern bridge will require excavation within the circular RPAs of the willows. However, once copied, the required rootmass will be significantly reduced and considering this species' inherently robust nature, will not result in any long-term impact on their regeneration.

Southern Pond

5.23. To the south of the main work area a new pond is proposed. It can be seen on the appended tree protection plan (top left inset) and occurs outside the RPAs of the retained trees.



Southern pond area

Silt Removal

- 5.24. The entire length of the former brook is very congested with silt accumulation. This must be removed for the project to be viable.
- 5.25. The work to complete this will require an excavator which will track into the bank remove the silt. In a few areas, it will be necessary to carry out the work by hand due to access restrictions from trees and the existing topography.
- 5.26. Use of excavator plant near trees can result in root damage and topsoil disruption. This usually results from the turning and manoeuvring of the excavator, not straight-line tracking. In fact, the approximate ground pressure of a small (3 tonne) excavator is less than that of an average human (30kPa and 110kPa respectively).
- 5.27. Given the dynamic nature of this work (the exact routes and working areas will only become clear once work starts), a somewhat generic approach to tree protection is proposed.
- 5.28. The arising silt will be temporally stored in the floodplain. Once 'dried' it will then be removed from site.
- 5.29. Where work is within wooded areas, or in the RPAs of noted trees, ground protection will be used. But, the tracking back and forwards to the work zone will occur without any ground protection. This will suffice in providing an appropriate level of protection in the areas where it is most required. The specification of the ground protection will be suited to the size of the excavator used (still to be confirmed).
- 5.30. As outlined above, strategic removal of scrub, small trees and low branches will be required. This will be minimised where possible.

Physical Tree Protection

- 5.31. To minis cost, and provide a realistic level of protection whilst keeping the park open and accessible to the public tree protection barriers are restricted to areas of intensive work and areas where impact has potential to occur. At this stage, this is proposed in the southern area where the reconnection is to occur, around the ash (#14) by the proposed compound and storage area and the southern footbridge area.
- 5.32. If deemed necessary by the local planning authority, more extensive barriers could be provided under an appropriately worded planning condition.

Summary

- 5.33. In summary, the trees (and scrub) required for removal are of general low arboricultural quality and value with the most notable being the two alder for the footbridge work.

- 5.34. Any loss that may be felt as a result tree removal will be more than compensated for by the overall biodiversity net gain that the whole project will deliver.
- 5.35. Provided the tree protection strategy is implemented as outlined in the following method statement, it is my opinion that this application is of **low** arboricultural impact, and thus acceptable.
- 5.36. Should the council wish to see more onerous tree protection methods, this can be ensured via an appropriately worded planning condition and should not be the basis for a reason for refusal.

6. Arboricultural Method Statement

The tree protection on this site is subject to implementation as detailed in the following sections.

The recommendations of the British Standard have been applied where viable. Where deviations from the preferred approach are required, impact on any retained trees is minimised through a combination of supervision from an Arboricultural Clerk of Works and adherence to the associated method statement.

It is imperative that this strategy is followed to avoid not only impact upon the trees but to adhere to any planning conditions, should consent be granted.

The information within this section must be passed to the site foreman and cascaded to all relevant personnel involved in the project.

Any questions about the content or its implementation should be directed to **Mark Welby on 01730 239 492**, before action is taken.

A plan showing the types of tree protection and their locations is appended. It includes the tree survey data, existing site features along with the proposed construction, drainage, changes in level and other factors that could impact trees.

The plan must be read in conjunction with this method statement.

Timing of Operations

It is essential that the following phasing is followed if trees are to be effectively protected throughout construction.

1	Tree removals/surgery (potentially ongoing as work necessitates)
2	Installation of protection barriers
3	Silt clearance and spreading (using ground protection where necessary)
4	Excavation to reconnect the former brook with main channel & southern bridge construction
5	Removal of concrete under existing drain by tree #27
6	Footbridge replacement
7	Removal of barriers after all external construction work has been completed

Table 1: Proposed Timing of Operations (subject to change as dictated by operational requirements)

The above has been drafted at the planning stage. Should any of the protection measures prove incompatible with elements of the program, please call 01730 239492 to discuss options.

Arboricultural Clerk of Works (ACoW)

Where works have the potential to impact retained trees, supervision may be specified within the method statement.

This is typically the project arboriculturist, who will document the process and provide an auditable record of the operation.

See subsections for requirements.

Construction Exclusion Zone (CEZ)

The CEZ is a root sensitive area where construction activities are to be excluded. The default method of doing so is through the installation of tree protection barriers. If construction access is required in the CEZ then ground protection can be used to facilitate this.

It is the responsibility of everyone engaged in the construction process to respect the tree protection measures and observe the necessary precautions within and adjacent to them.

Inside the exclusion zone, the following shall apply:

- No mechanical excavation whatsoever;
- No excavation by any other means without arboricultural site supervision;
- No hand digging without a written method statement having first been approved by the project arboriculturist;
- No lowering of levels for any purpose (except removal of grass sward using hand tools);
- No storage of plant or materials;
- No storage or handling of any chemical including cement washings;
- No vehicular access (unless ground protection is installed);
- No fire lighting.

In addition to the above, further precautions are necessary adjacent to trees:

- No substances injurious to tree health, including fuels, oil, bitumen, cement (including cement washings), builder's sand, concrete mixing and other chemicals shall be stored or used within or directly adjacent to the protection area of retained trees;
- No fire shall be lit such that flames come within 5m of tree foliage.

Variations from the above may be specified in the following sections of this method statement.

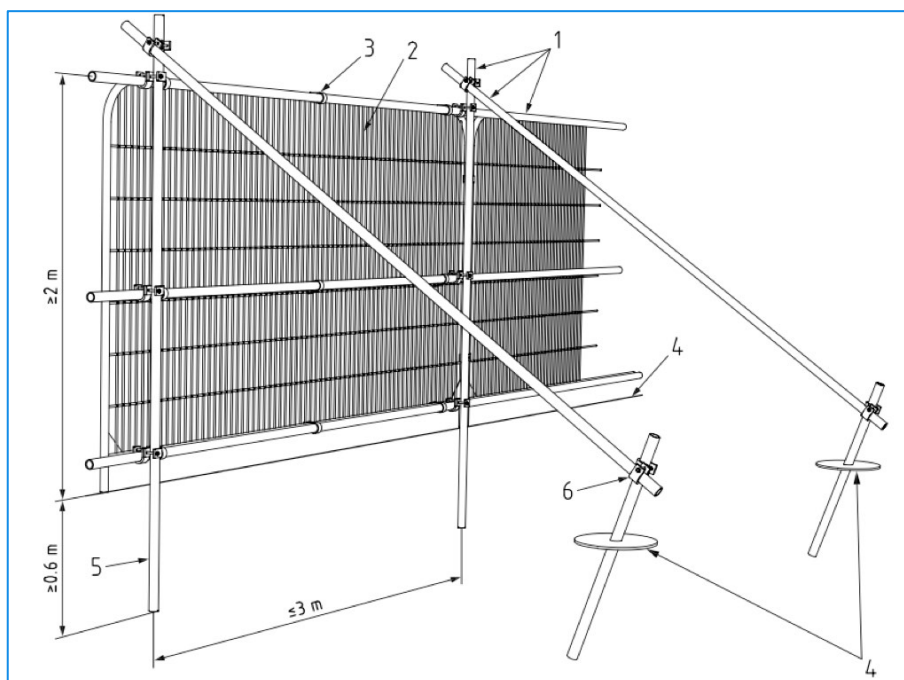
This is only acceptable where detailed and will typically be subject to supervision by the ACoW.

Protection Barriers

Barriers must be fit for the purpose of excluding construction activity and appropriate to the degree and proximity of work taking place around the retained tree(s). Barriers should be maintained to ensure that they remain rigid and complete.

The default specification comprises a vertical and horizontal scaffold framework, well-braced to resist impacts. The vertical tubes should be spaced at a maximum interval of 3 m and driven securely into the ground. Onto this framework, welded mesh panels should be securely fixed. Care should be exercised when locating the vertical poles to avoid underground services and, in the case of the bracing poles, also to avoid contact with structural roots. If the presence of underground services precludes the use of driven poles, an alternative specification should be prepared in conjunction with the project arboriculturist that provides an equal level of protection. Such alternatives could include the attachment of the panels to a free-standing scaffold support framework.

Alternative specifications may be viable, subject to approval from the project arboriculturist.



Default specification for protective barrier (Fig 2 from BS5837:2012)

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

Silt Removal & Stream-Side Plant Access

The clearance of silt within the former brook will be carried out with an excavator. To minimise the impact on underlying roots and soil, ground protection will be used when working in wooded areas or within RPAs of retained trees. Once the silt has been dried on the floodplane, away from trees, it will be removed from site.

Typically a trackmat type protection is used, over wood chip to provide root protection and avoid compaction. However, when used in wet areas and on potentially unstable river banks, this can become slippery and unstable, resulting in injury and accidents. To minimise risk, an alternative method is required.

Hazel or chestnut faggots will be laid down under the excavator plant where intense activity is to occur (for silt excavation and spreading). This not only provides a stable work platform, but can be left in situ for biodiversity gains, as it decays post-project. It must be ensured that any faggots used are tied with natural fibres.

In some areas proprietary track-mat style ground protection may be used.

It is not necessary to use protection where the plant is tracking in a straight line and movements are limited.

The locations where ground protection is to be used will be determined by the project manager in conjunction with the project arboriculturist as work progresses.

Tree Surgery

Tree surgery work is listed in the schedule on the appended plan, along with all trees to be removed.

All work will be carried out in accordance with BS3998⁶ industry best practice and in line with any works already agreed with the council.

The statutory protection^{7 8} will be adhered to. If further advice is required, particularly if bats are discovered during tree work, it will be obtained from Natural England or other competent persons and recommendations adhered to.

The stumps of any trees removed from within the Construction Exclusion Zone or the RPAs of retained trees will be either cut flush to ground level and left in situ or ground out using a stump grinder. They will not be winched out.

⁶ BS3998:2010- *Recommendations for Tree Work*. London: British Standards Institute

⁷ *Wildlife and Countryside Act*. (1981) London: HMSO.

⁸ *Countryside and Rights of Way Act*. (2000) London: HMSO.



All operations shall be carefully carried out to avoid damage to the trees being treated or neighbouring trees. No trees to be retained shall be used for anchorage or winching purposes.

Footbridge Replacement

All barriers to be installed as per tree protection plan prior to commencement.

As the bridge footing designs are still at the concept stage, a detailed design and method statement must be approved before commencement on this element. This can be secured by an appropriately worded planning condition.

Excavation To Rejoin Brooks

Willows to be coppiced before work starts.

Ensure protection barriers and ground protection is installed, blocking off the informal path during works and protecting the oaks, alder and willows.

Excavation is now outside the RPAs of retained trees and may proceed as required.

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Appendices

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I.

Tree Categories Explained

BS5837:2012 Table 1 -Cascade chart for tree quality assessment			
Category and definition	Criteria (including subcategories where appropriate)		
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 a serious, irremediable, structural defect, such that their early loss is expected due to collapse, including those that will become unviable after removal of other category U trees (e.g. where, for whatever reason, the loss of companion shelter cannot be mitigated by pruning) *Trees that are dead or are showing signs of significant, immediate, and irreversible overall 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 NOTE Category U trees can have existing or potential conservation value which it might be desirable to preserve; see 4.5.7.		
	1 Mainly arboricultural qualities	2 Mainly landscape qualities	3 Mainly cultural values, including conservation
Trees to be considered for retention			
Category A Trees of high quality with an estimated remaining life expectancy of at least 40 years	Trees that are particularly good examples of their species, especially if rare or unusual; or those that are essential components of groups or formal or semi-formal arboricultural features (e.g. the dominant and/or principal trees within an avenue)	Trees, groups or woodlands of particular visual importance as arboricultural and/or landscape features	Trees, groups or woodlands of significant conservation, historical, commemorative or other value (e.g. veteran trees or wood-pasture)
Category B Trees of moderate quality with an estimated remaining life expectancy of at least 20 years	Trees that might be included in category A, but are downgraded because of impaired condition (e.g. presence of significant though remediable defects, including unsympathetic past management and storm damage), such that they are unlikely to be suitable for retention for beyond 40 years; or trees lacking the special quality necessary to merit the category A designation	Trees present in numbers, usually growing as groups or woodlands, such that they attract a higher collective rating than they might as individuals; or trees occurring as collectives but situated so as to make little visual contribution to the wider locality	Trees with material conservation or other cultural value
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 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 benefits	Trees with no material conservation or other cultural value

II.

Protection Plan

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To be retained													
Ref	Species	Common Name	Height	Stem Diameter	Crown	Age Class	Observations	Est. Remaining Contribution	Date Surveyed	BS Ref	RPA Rating	RPA Area	Nr
01	Quercus robur	Pedunculate Oak	20m	100mm	2m	Mature	Healthy, well-developed and robust.	20 Years	10/01/21	B2	1m	707m²	1
02	Salix helix	Crack Willow	15m	100mm	2m	Mature	Fair overall Physiological and Structural condition. Specimen has limited long term value.	20 Years	10/01/21	B2	7.2m	193m²	1
03	Salix helix	Crack Willow	15m	100mm	2m	Mature	Fair overall Physiological and Structural condition. Specimen has limited long term value.	20 Years	10/01/21	B2	6.6m	137m²	1
04	Salix helix	Crack Willow	15m	100mm	2m	Mature	Fair overall Physiological and Structural condition. Specimen has limited long term value.	20 Years	10/01/21	B2	10.2m	227m²	1
05	Salix helix	Crack Willow	15m	100mm	2m	Mature	Fair overall Physiological and Structural condition. Specimen has limited long term value.	20 Years	10/01/21	B2	3.6m	41m²	1
06	Alnus glutinosa	Common Alder	13m	100mm	2m	Mature	Typical multi-stemmed stream-side tree.	20 Years	10/01/21	B2	6.3m	124m²	1
07	Salix helix	Crack Willow	20m	100mm	2m	Mature	Fair overall Physiological and Structural condition. Specimen has limited long term value.	10 Years	10/01/21	C1	10.8m	268m²	1
08	Quercus robur	Pedunculate Oak	15m	100mm	2m	Mature	Fair overall Physiological and Structural condition. Specimen has limited long term value.	40 Years	10/01/21	A3	15m	707m²	1
09	Alnus glutinosa	Common Alder	16m	100mm	2m	Mature	Specimen group - most with multi stems. No evidence of decay. Younging conditions - canopy closed, low density canopy. Specimen has limited long term value.	40 Years	10/01/21	B2		1124.81m²	1
14	Fraxinus excelsior	Common Ash	12m	70mm	2m	Mature	Fair overall Physiological and Structural condition. Specimen has limited long term value.	20 Years	10/01/21	B1	8.4m	222m²	1
15	Alnus glutinosa	Common Alder	15m	100mm	2m	Mature	Group of stream-side trees. No evidence of decay.	20 Years	10/01/21	B2	3.6m	41m²	1
16	Alnus glutinosa	Common Alder	6m	100mm	2m	Mature	Group of stream-side trees. No evidence of decay.	20 Years	10/01/21	B2	6.3m	124m²	1
17	Quercus robur	Pedunculate Oak	4m	200mm	1m	Semi-Mature	Fair overall Physiological and Structural condition. Specimen has limited long term value.	10 Years	10/01/21	C1	2.4m	18m²	1
18	Alnus glutinosa	Common Alder	17m	100mm	2m	Mature	Group of stream-side trees. No evidence of decay.	0 Years	10/01/21	U	4.8m	72m²	1
19	Quercus robur	Pedunculate Oak	18m	170mm	2m	Mature	Fair overall Physiological and Structural condition. Specimen has limited long term value.	40 Years	10/01/21	A3	15m	707m²	1
20	Fraxinus excelsior	Common Ash	10m	100mm	2m	Mature	Fair overall Physiological and Structural condition. Specimen has limited long term value.	20 Years	10/01/21	B1	8.7m	238m²	1
21	Alnus glutinosa	Common Alder	17m	100mm	2m	Mature	Group of stream-side trees. No evidence of decay.	10 Years	10/01/21	C2	3.6m	40m²	2
23	Alnus glutinosa	Common Alder	15m	100mm	2m	Mature	Fair overall Physiological and Structural condition. Specimen has limited long term value.	20 Years	10/01/21	B1	6m	113m²	1
24	Quercus robur	Pedunculate Oak	10m	100mm	2m	Mature	Fair overall Physiological and Structural condition. Specimen has limited long term value.	20 Years	10/01/21	B1	3.6m	41m²	1
25	Salix helix	Crack Willow	15m	100mm	2m	Mature	Fair overall Physiological and Structural condition. Specimen has limited long term value.	20 Years	10/01/21	B2	4.8m	72m²	1
26	Salix helix	Crack Willow	11m	100mm	2m	Mature	Partially suppressed. Specimen has limited long term value.	10 Years	10/01/21	C1	4.8m	72m²	1
27	Alnus glutinosa	Common Alder	17m	100mm	2m	Mature	Typical multi-stemmed form. Partially suppressed. Specimen has limited long term value.	10 Years	10/01/21	C1	11.7m	430m²	1
28	Ulmus sp.	Elm	5m	100mm	1m	Semi-Mature	Single seedling tree. Regeneration with limited long term value. Dying in some areas.	>10 Years	10/01/21	U			1
29	Fraxinus excelsior	Common Ash	15m	70mm	2m	Mature	Some visible decay and dieback. Specimen has limited long term value.	10 Years	10/01/21	C1	9m	238m²	1
30	Ulmus sp.	Elm	10m	100mm	1m	Mature	Specimen has limited long term value. Dying in some areas.	40 Years	10/01/21	A2		240.48m²	1
31	Salix helix	Crack Willow	7m	70mm	2m	Mature	Tree has some decay. Specimen has limited long term value.	10 Years	10/01/21	A1	3.6m	222m²	1
32	Alnus glutinosa	Common Alder	18m	100mm	2m	Mature	Good overall Physiological and Structural condition. Specimen has limited long term value.	40 Years	10/01/21	A1	12m	420m²	1
33	Quercus robur	Pedunculate Oak	18m	180mm	2m	Mature	Good overall Physiological and Structural condition. Specimen has limited long term value.	40 Years	10/01/21	A1	9.6m	290m²	1
34	Quercus robur	Common Oak	15m	150mm	100mm	EM	Specimen has limited long term value. Dying in some areas.	10 Years	10/01/21	C2	2.4m	18m²	1
35	Fraxinus excelsior	Ash	17m	70mm	1m	M	Specimen has limited long term value. Dying in some areas.	10 Years	10/01/21	C2	9m	238m²	1
36	Fraxinus excelsior	Ash	17m	640mm	1m	M	Specimen has limited long term value. Dying in some areas.	10 Years	10/01/21	C2	7.8m	191m²	1
37	Fraxinus excelsior	Ash	16m	320mm	1m	EM	Specimen has limited long term value. Dying in some areas.	10 Years	10/01/21	C2	4.8m	96m²	1
38	Quercus robur	Pedunculate Oak	13m	320mm	1m	EM	Specimen has limited long term value. Dying in some areas.	10 Years	10/01/21	C2	3.6m	40m²	1
39	Quercus robur	Pedunculate Oak	13m	280mm	1m	EM	Specimen has limited long term value. Dying in some areas.	10 Years	10/01/21	C2	3.3m	36m²	1
40	Fraxinus excelsior	Ash	17m	70mm	1m	M	Specimen has limited long term value. Dying in some areas.	10 Years	10/01/21	C2	9m	238m²	1
41	Fraxinus excelsior	Ash	17m	70mm	1m	M	Specimen has limited long term value. Dying in some areas.	10 Years	10/01/21	C2	9m	238m²	1
42	Quercus robur	Common Oak	6m	180mm	1m	EM	Specimen has limited long term value. Dying in some areas.	10 Years	10/01/21	C2	3.1m	14m²	1
43	Quercus robur	Pedunculate Oak	4m	200mm	1m	Semi-Mature	Fair overall Physiological and Structural condition. Specimen has limited long term value.	10 Years	10/01/21	C1	2.4m	18m²	1
44	Populus alba	White Poplar	25m	300mm	2m	Mature	Fair overall Physiological and Structural condition. Specimen has limited long term value.	10 Years	10/01/21	C1	4.2m	85m²	1
45	Populus alba	White Poplar	7m	100mm	2m	Mature	Fair overall Physiological and Structural condition. Specimen has limited long term value.	10 Years	10/01/21	C1	1.9m	19m²	1
46	Populus alba	White Poplar	25m	300mm	2m	Mature	Fair overall Physiological and Structural condition. Specimen has limited long term value.	10 Years	10/01/21	C1	4.2m	85m²	1
47	Populus alba	White Poplar	25m	300mm	2m	Mature	Fair overall Physiological and Structural condition. Specimen has limited long term value.	10 Years	10/01/21	C1	4.2m	85m²	1
48	Alnus glutinosa	Common Alder	10m	100mm	2m	Early-Mature	Specimen has limited long term value. Dying in some areas.	10 Years	10/01/21	C1	3m	29m²	1
49	Crataegus monogyna	Hawthorn	5m	100mm	2m	Early-Mature	Specimen has limited long term value. Dying in some areas.	10 Years	10/01/21	C1	4.8m	72m²	1
50	Alnus glutinosa	Common Alder	10m	100mm	2m	Early-Mature	Specimen has limited long term value. Dying in some areas.	10 Years	10/01/21	C1	3m	29m²	1
51	Fraxinus excelsior	Common Ash	10m	100mm	2m	Early-Mature	Specimen has limited long term value. Dying in some areas.	10 Years	10/01/21	C1	4.8m	72m²	1
52	Alnus glutinosa	Common Alder	25m	300mm	2m	Mature	Fair overall Physiological and Structural condition. Specimen has limited long term value.	10 Years	10/01/21	C1	4.2m	85m²	1

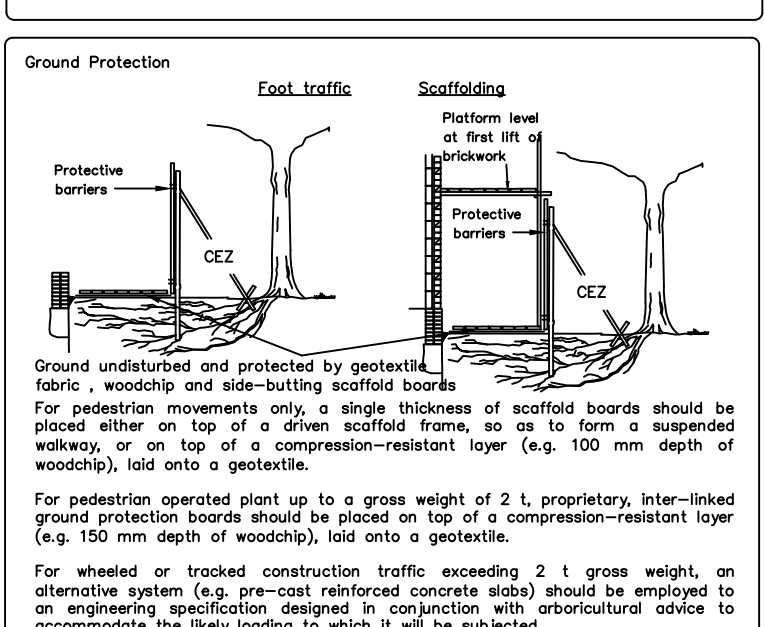
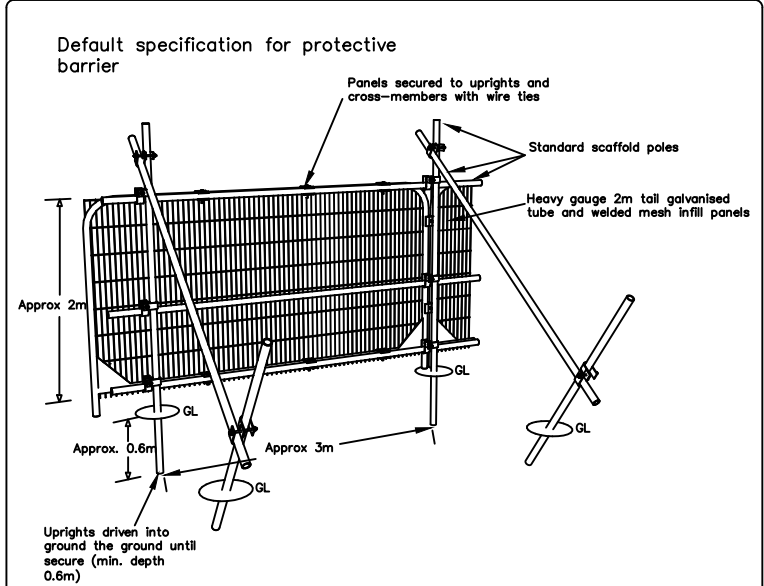
Survey by Mark Waddy (DipSWP, TreeCare/Arborist), Farnham
Arboricultural Association Registered Consultant
www.mwaddy.co.uk

It is the responsibility of everyone engaged in the construction process to respect the tree protection measures and observe the necessary precautions within and adjacent to them.

These dimensions are not to scale. Please refer to the plan for a more detailed representation (typically by group).

To be removed													
Ref	Species	Common Name	Height	Stem Diameter	Crown	Age Class	Observations	Est. Remaining Contribution	Date Surveyed	BS Ref	RPA Rating	RPA Area	Nr
09	Alnus glutinosa	Common Alder	16m	100mm	2m	Mature	Typical multi-stemmed stream-side tree.	20 Years	10/01/21	B2	1		1
10	Alnus glutinosa	Common Alder	15m	100mm	2m	Mature	Typical multi-stemmed stream-side tree.	20 Years	10/01/21	B2	1		1
11	Alnus glutinosa	Common Alder	15m	100mm	2m	Mature	Typical multi-stemmed stream-side tree.	20 Years	10/01/21	B2	1		1
12	Crataegus monogyna	Hawthorn	6m	200mm	100mm	EM	Specimen has limited long term value. Dying in some areas.	10 Years	10/01/21	C1	1		1
13	Alnus glutinosa	Common Alder	16m	100mm	2m	Mature	Specimen has limited long term value. Dying in some areas.	20 Years	10/01/21	B2	1		1
14	Salix helix	Crack Willow	6m	100mm	1m	Semi-Mature	Small multi-stemmed.	10 Years	10/01/21	C1	1		1
15	Alnus glutinosa	Common Alder	15m	100mm	2m	Mature	Stream side tree.	20 Years	10/01/21	B2	1		1

Total 47



Construction Exclusion Zone

It is the responsibility of everyone engaged in the construction process to respect the tree protection measures and observe the necessary precautions within and adjacent to them.

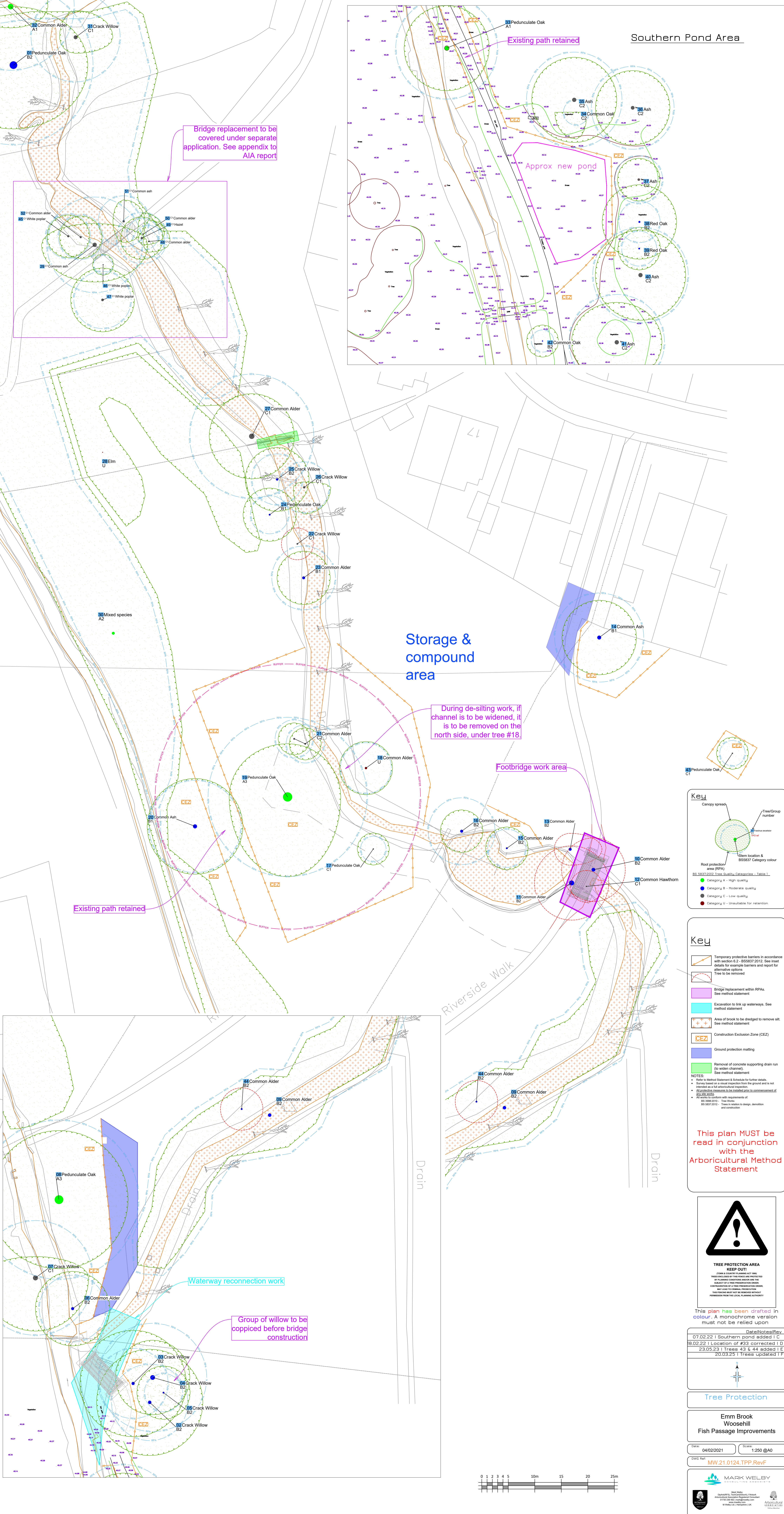
Inside the exclusion zone, the following shall apply:

- No mechanical excavation whatsoever.
- No excavation by any other means without arboricultural site supervision.
- No hand digging without a written method statement having first been approved by the project arboriculturist.
- No lowering of levels for any purpose (except removal of grass sward using hand tools).
- No storage of plant or materials.
- No storage or handling of any chemical including cement.
- No lighting.
- No vehicular access.
- No fire lighting.

In addition to the above, further precautions are necessary adjacent to trees:

- No substances injurious to tree health, including fuels, oil, bitumen, cement (including cement wastage), builder's sand, concrete mixing and other chemicals shall be stored or used within or directly adjacent to the protection area of retained trees.
- No fire shall be lit such that flames come within 5m of tree foliage.

All weather signs shall be erected at reasonable intervals on the barriers. See example inset.



Key

- Canopy spread
- Time/Group number
- Stem location & 850837 Category colour
- BS 5837:2012 Loss of Life Categories - Table 1
- Category A - High quality
- Category B - Moderate quality
- Category C - Low quality
- Category U - Unsuitable for retention

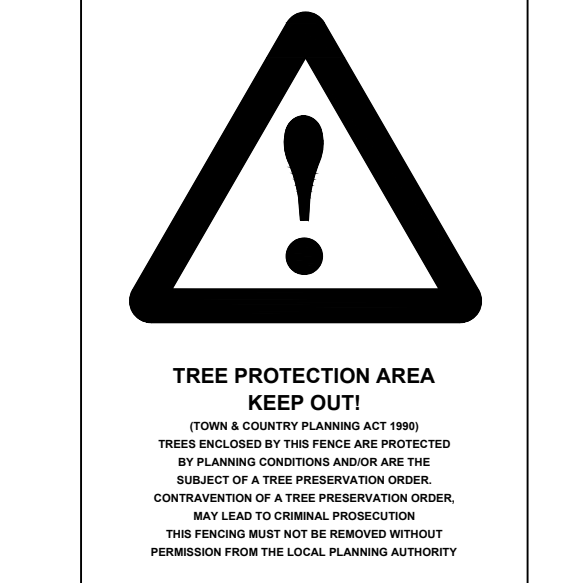
Key

- Temporary protective barriers in accordance with section 2.2. See method statement.
- Bridge replacement within RPA. See method statement.
- Excavation to link up waterways. See method statement.
- Area of brook to be designed to remove all. See method statement.
- Construction Exclusion Zone (CEZ)
- Ground protection matting
- Removal of concrete supporting drain run (to wider channel). See method statement.

NOTES:

- Refer to Method Statement - Excavation for further details.
- Survey based on a visual inspection from the ground and is not intended as a full arboricultural inspection.
- All proposed measures to be retained are to be implemented by 20/03/25.
- All works to be completed by 20/03/25.
- All works to be completed by 20/03/25.
- All works to be completed by 20/03/25.

This plan MUST be read in conjunction with the Arboricultural Method Statement



Date/Notes/Rev
07.02.22 | Southern pond added | C
02.02.22 | Location of #33 corrected | D
03.02.23 | Trees #3 & 44 added | E
20.03.25 | Trees updated | F

Tree Protection

Emm Brook
Fish Passage Improvements

Date: 04/02/2021 Scale: 1:250 @A0
DWG Ref: MW 21.0124.TPP RevF

MARK WELBY
ARBORENTAL ASSOCIATION
REGISTERED CONSULTANT

III.

AMS for Greenways Bridge

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Arboricultural Method Statement For the Replacement of Greenways Bridge

1. The tree protection on this site is subject to implementation as detailed in the following sections.
2. The recommendations of the British Standard have been applied where viable. Where deviations from the preferred approach are required, impact on any retained trees is minimised through a combination of supervision from an Arboricultural Clerk of Works and adherence to the associated method statement.
3. It is imperative that this strategy is followed to avoid not only impact upon the trees but to adhere to any planning conditions, should consent be granted.
4. The information within this section must be passed to the site foreman and cascaded to all relevant personnel involved in the project.
5. Any questions about the content or its implementation should be directed to **Mark Welby on 01730 239 492**, before action is taken.
6. A plan showing the types of tree protection and their locations is appended. It includes the tree survey data, existing site features along with the proposed construction, drainage, changes in level and other factors that could impact trees.
7. The plan must be read in conjunction with this method statement.

Timing of Operations

8. It is essential that the following phasing is followed if trees are to be effectively protected throughout construction.

1	Tree removals
2	Installation of protection barriers
3	Removal of existing bridge
4	Excavation for concrete supports
5	Casting of concrete supports or installation of pre-formed units
6	Footbridge replacement
7	Removal of barriers after all external construction work has been completed

Table 1: Proposed Timing of Operations (subject to change as dictated by operational requirements)

6.9. The above has been drafted at the planning stage. Should any of the protection measures prove incompatible with elements of the program, please call 01730 239492 to discuss options.

Construction Exclusion Zone (CEZ)

6.10. The CEZ is a root sensitive area where construction activities are to be excluded. The default method of doing so is through the installation of tree protection barriers. If construction access is required in the CEZ then ground protection can be used to facilitate this.

6.11. It is the responsibility of everyone engaged in the construction process to respect the tree protection measures and observe the necessary precautions within and adjacent to them.

6.12. Inside the exclusion zone, the following shall apply:

- No mechanical excavation whatsoever;
- No excavation by any other means without arboricultural site supervision;
- No hand digging without a written method statement having first been approved by the project arboriculturist;
- No lowering of levels for any purpose (except removal of grass sward using hand tools);
- No storage of plant or materials;
- No storage or handling of any chemical including cement washings;
- No vehicular access (unless ground protection is installed);
- No fire lighting.

6.15. In addition to the above, further precautions are necessary adjacent to trees:

- No substances injurious to tree health, including fuels, oil, bitumen, cement (including cement washings), builder's sand, concrete mixing and other chemicals shall be stored or used within or directly adjacent to the protection area of retained trees;
- No fire shall be lit such that flames come within 5m of tree foliage.

6.16. Variations from the above may be specified in the following sections of this method statement. This is only acceptable where detailed and will typically be subject to supervision by the ACoW.

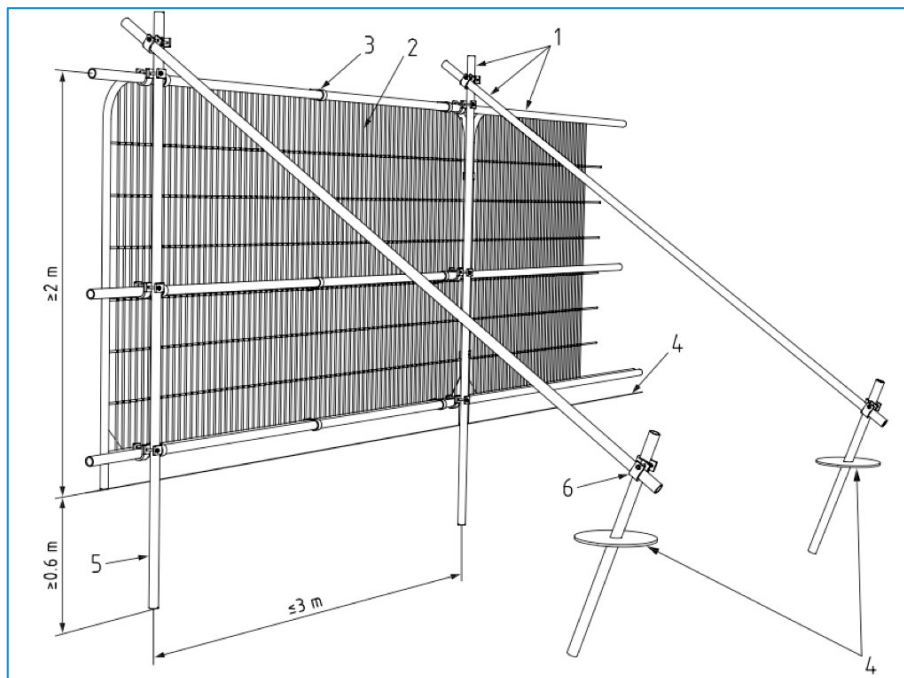
Protection Barriers

6.17. Barriers must be fit for the purpose of excluding construction activity and appropriate to the degree and proximity of work taking place around the retained tree(s). Barriers should be maintained to ensure that they remain rigid and complete.

6.18. The default specification comprises a vertical and horizontal scaffold framework, well-braced to resist impacts. The vertical tubes should be spaced at a maximum interval of 3 m and driven securely into the ground. Onto this framework, welded mesh panels should be securely fixed.

Care should be exercised when locating the vertical poles to avoid underground services and, in the case of the bracing poles, also to avoid contact with structural roots. If the presence of underground services precludes the use of driven poles, an alternative specification should be prepared in conjunction with the project arboriculturist that provides an equal level of protection. Such alternatives could include the attachment of the panels to a free-standing scaffold support framework.

6.19. Alternative specifications may be viable, subject to approval from the project arboriculturist.



Default specification for protective barrier (Fig 2 from BS5837:2012)

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

Stream-Side Plant Access

6.20. If access is required within RPAs for any reason, to minimise impact on underlying roots and soil, ground protection will be when working in the wooded areas or within RPAs of retained trees.

6.21. Typically a trackmat type protection is used, over wood chip to provide root protection and avoid compaction. However, when used in wet areas and on potentially unstable river banks, this can become slippery and unstable, resulting in injury and accidents. To minimise risk, an alternative method is required.

- 6.22. Hazel or chestnut faggots will be laid down under the excavator plant where intense activity is to occur (for silt excavation and spreading). This not only provides a stable work platform, but can be left in situ for biodiversity gains, as it decays post-project. It must be ensured that any faggots used are tied with natural fibres.
- 6.23. In some areas proprietary track-mat style ground protection may be used.
- 6.24. It is not necessary to use protection where the plant is tracking in a straight line and movements are limited.
- 6.25. The locations where ground protection is to be used will be determined by the project manager in conjunction with the project arboriculturist as work progresses.

Tree Protection Plan For Greenways Bridge

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To be retained

Retained Trees / Groups

Ref	Species	Common Name	Height	Stem Diameter	Crown Clearance	Age Class	Observations	Est. Remaining Contribution	Date Surveyed	BS Cat	RPA Radius	RPA Area	No.
30	Mixed species	Mixed species	18m	500mm	1m	Mature	Woodland comprising oak, ash, poplar, elm, holly, hazel, bramble.	40 Years	3/2/2021	A2		3497.46m²	1
45	Populus alba	White poplar	25m	350#mm	2m	Mature	Fair condition but with dense ivy. Location estimated	10 Years	19/3/2025	C1	4.2m	55m²	1
47	Populus alba	White poplar	22m	450#mm	5m	Mature	Group of maturing stems. Many leaning. Suboptimal form.	10 Years	19/3/2025	C1	5.4m	92m²	1
													Total :3

Survey by Mark Welby DipArb(RFS), TechCert(ArborA), FArborA
Arboricultural Association Registered Consultant
www.mwelby.com

denotes estimated dimension. Typically due to the tree being inaccessible.
Where dimensions are not listed please refer to the plan graphics for an indicativie representation (typically for groups).

To be removed

Removed Trees / Groups

Ref	Species	Common Name	Height	Stem Diameter	Crown Clearance	Age Class	Observations	Est. Remaining Contribution	Date Surveyed	BS Cat	No.
29	Fraxinus excelsior	Common ash	19m	740mm	7m	Mature	Some visible dieback and deadwood	10 Years	19/3/2025	C1	1
46	Populus alba	White poplar	7m	150mm	2m	Semi-Mature	Group of five stems becoming established	10 Years	19/3/2025	C1	1
48	Alnus glutinosa	Common alder	10m	240mm	2m	Early-Mature	Seedling becoming established. Competing with adjacent hazel	10 Years	19/3/2025	C1	1
49	Corylus avellana	Hazel	5m	400#mm	2m	Early-Mature	Typical coppice form	10 Years	19/3/2025	C1	1
50	Alnus glutinosa	Common alder	10m	240mm	2m	Early-Mature	Seedling becoming established. Competing with adjacent hazel	20 Years	19/3/2025	C1	1
51	Fraxinus excelsior	Common ash	10m	200mm; 200mm; 200mm; 200mm	3m	Early-Mature	Group of self-seeded stems. Dense ivy	10 Years	19/3/2025	C1	1
52	Alnus glutinosa	Common alder	25m	350#mm	2m	Mature	Fair condition but with dense ivy. Location estimated	10 Years	19/3/2025	C1	1
Total :7											

1:200					
2.0	4.0	6.0	8.0	10.0	12.0m
REV:	DATE:	UPDATES:			DRAWN:

NOTES
This Tree Survey has been undertaken within the recommendations of British Standards 5837:2012 and current arboricultural best practice.

- The reference numbers of surveyed trees and groups of trees are shown. Stem locations within groups may be estimated, and indicative of canopy only.
- The tree survey was carried out from ground level only, with the aid of binoculars as necessary, following the Visual Tree Assessment (VTA) method.
- Where trees are located on neighbouring land an estimated appraisal has been made of their quality and dimensions.
- Where stems or branches are obscured by ivy or other materials a full assessment of those parts will not be possible.
- Height dimensions are estimated and are given in metres.
- Trunk/stem diameters are measured in mm at 1.5 metres above ground level, unless otherwise stated. Where this is not possible, then Figure C.1 of the British Standard is followed.
- Tree canopies are graphically represented on the plan. They, where markedly asymmetrical, were measured (or estimated by pacing) in four directions using a laser measure. Symmetrical canopies are measured in one direction only, with dimensions in the remaining directions assumed to be similar. For the canopies of groups of trees, the maximum radius for each compass point is measured (more complicated groups will have further notes taken and an accurate representation will be shown on the plan).



Tree protection barriers



Ground protection

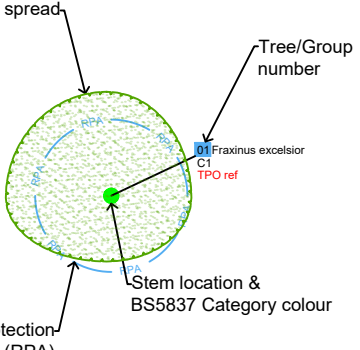
 Construction Exclusion Zone (CEZ)

 Temporary protective barriers in accordance with section 6.2 - BS5837:2012. See inset details for example barriers and report for alternative options

 Tree to be removed

 Bridge replacement within RPAs. See method statement

Key



BS 5837:2012 Tree Quality Categories - Table 1

- Category A - High quality
- Category B - Moderate quality
- Category C - Low quality
- Category U - Unsuitable for retention

Tree Protection Greenways Bridge

Emm Brook
Woosehill
Fish Passage Improvements

Date: 20/03/2025

Scale: 1:200 @A2

DWG Ref: MW.21.0124.GB.TPP

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