22nd October 2026

Construction Environmental Management Plan

Code of Practice for the Construction of a 3G AGP at Horsham YM FC

Rev 0

01491 827810 | enquire@mcardlesport.co.uk | mcardlesport.co.uk
McArdle Sport Tec Ltd, 1-2 Thames Park, Lester Way, Wallingford, Oxfordshire OX10 9TA
McArdle Sport Tec Ltd. Registered in England and Wales No. 3692607. Registered address as above.

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Introduction

The Construction Environmental Management Plan CEMP (Code of Practice) should help to minimise the impact of the construction on the surrounding community, both for the construction on site and the transport arrangements for servicing the site.

The completed CMP details the actions employed during the works to mitigate and manage the cumulative impacts of the construction in the vicinity of the site.

Note to site managers:

The Contracts Manager will work with the council to review this CEMP if problems arise in relation to the construction being carried out on site. Any future revised plan must be approved by the relevant control body and complied with thereafter.

It should be noted by site managers that any agreed CMP does not override or prejudice the need to ensure safety of all personnel at all times.

Section 1 – Site Contacts

Pitch Contractor: McArdle Sport-Tec 1-2 Thames Park Lester Way Wallingford Oxon OX10 9TA	**Contracts Director:** Richard Thornton **Tel:** [redacted] **Email:** [redacted]

Section 2 – About the site



Site location plan and brief description of the site, surrounding area and development proposals for which this CEMP applies

Construction of a 3G Artificial Grass Pitch, perimeter fencing, hardstanding, floodlighting, a storage container, access path, associated works and landscaping.

Site address: Horsham YM FC, Gorings Mead, Horsham, RH13 5BP

LOCATION OF SITE ACCESS AND EXIT POINTS:

All construction vehicles shall access and exit the site via the existing entrance gate off Gorings Mead

No alternative access routes shall be used.

No highway works are required to facilitate construction access.

A trained banksman shall be used as required to ensure safe access and egress, particularly as the access road is shared with Willmott Dixon site.

ACCESS AND EGRESS AND RESTRICTIONS:

No development, including demolition and/or construction works shall take place outside 07:30 hours to 18.00 hours Mondays to Fridays; 07:30 hours to 13:00 hours on Saturdays or at any time on Sundays or Bank Holidays.

No deliveries shall be taken at or despatched from the site outside 07:30 hours to 18:00 hours Mondays to Fridays; 07:30 hours to 13:00 hours on Saturdays or at any time on Sundays or Bank Holidays.

No deliveries will be allowed to park on any surrounding roads. There is ample space on site for all construction vehicles.

A banksman will be employed as required to ensure safe access/egress of all deliveries. The access road is narrow and can only accommodate vehicles travelling in one direction, vehicles will be held within the site until it is possible for them to leave freely.

Heras fencing will secure the perimeter of the works with adequate warning signage.

Warning signage for both vehicles and pedestrians will be erected on the approach to the works.

A site speed limit of 5mph will be enforced.

OVERLAP WITH CLIENT'S OPERATIONS:

The adjacent areas will be in use throughout the construction period; our site will be entirely separate from these operations.

The site will be secured at the end of each day and will not interfere with their operations.

RESTRICTIONS ON ACCESS:

The site access is sufficient for 8 wheeled rigid vehicles and articulated vehicles.

There are no deliveries anticipated which will not be able to enter site or exit in a forward gear.

All deliveries are to call site prior to delivery time to ensure the access is safe.

CO-OPERATION WITH OTHER PROJECTS:

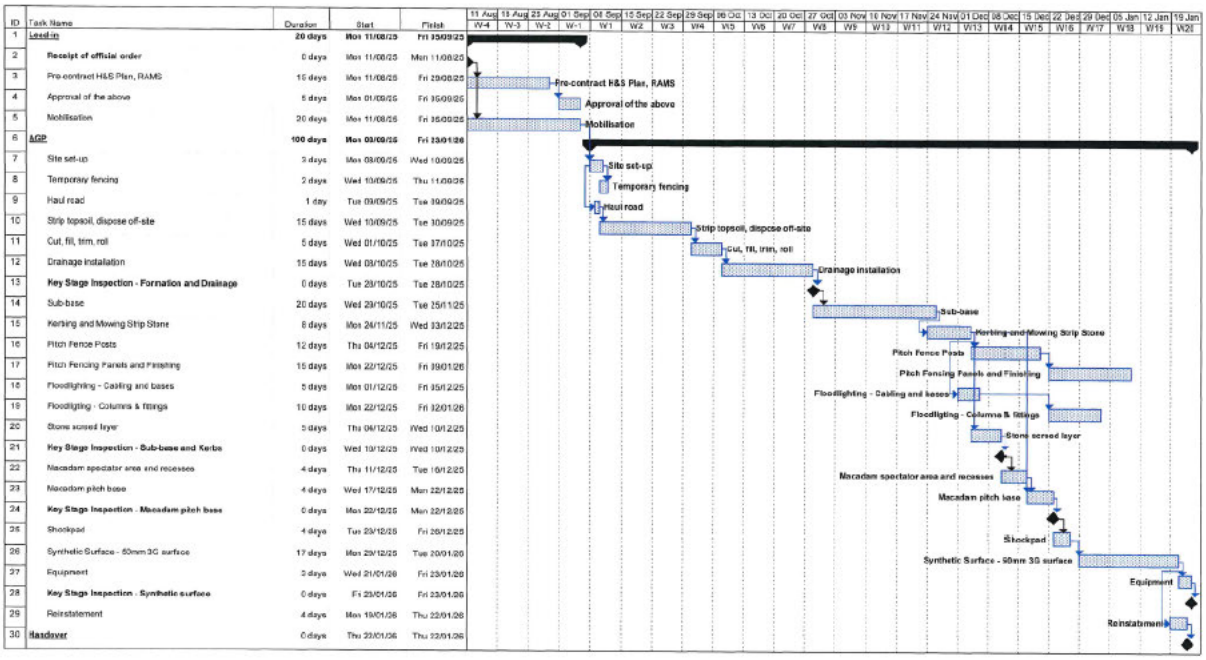
Daily liaison with Willmott Dixon construction site will minimise disruption to either site.

CONSTRUCTION PERIOD:

Anticipated start date: TBC

Construction programme: 20 weeks

Anticipated completion date: TBC



ID	Task Name	Duration	Start	Finish
1	Lead-in	20 days	Mon 11/08/25	Fri 05/09/25
2	Receipt of official order	0 days	Mon 11/08/25	Mon 11/08/25
3	Pre-contract H&S Plan, RAMS	15 days	Mon 11/08/25	Fri 29/08/25
4	Approval of the above	5 days	Mon 01/09/25	Fri 05/09/25
5	Mobilisation	20 days	Mon 11/08/25	Fri 05/09/25
6	AGP	100 days	Mon 08/09/25	Fri 23/01/26
7	Site set-up	3 days	Mon 08/09/25	Wed 10/09/25
8	Temporary fencing	2 days	Wed 10/09/25	Thu 11/09/25
9	Haul road	1 day	Tue 09/09/25	Tue 09/09/25
10	Strip topsoil, dispose off-site	15 days	Wed 10/09/25	Tue 30/09/25
11	Cut, fill, trim, roll	5 days	Wed 01/10/25	Tue 07/10/25
12	Drainage installation	15 days	Wed 08/10/25	Tue 28/10/25
13	Key Stage Inspection - Formation and Drainage	0 days	Tue 28/10/25	Tue 28/10/25
14	Sub-base	20 days	Wed 29/10/25	Tue 25/11/25
15	Kerbing and Mowing Strip Stone	8 days	Mon 24/11/25	Wed 03/12/25
16	Pitch Fence Posts	12 days	Thu 04/12/25	Fri 19/12/25
17	Pitch Fencing Panels and Finishing	15 days	Mon 22/12/25	Fri 09/01/26
18	Floodlighting - Cabling and bases	5 days	Mon 01/12/25	Fri 05/12/25
19	Floodlighting - Columns & fittings	10 days	Mon 22/12/25	Fri 02/01/26
20	Stone screed layer	5 days	Thu 04/12/25	Wed 10/12/25
21	Key Stage Inspection - Sub-base and Kerbs	0 days	Wed 10/12/25	Wed 10/12/25
22	Macadam spectator area and recesses	4 days	Thu 11/12/25	Tue 16/12/25
23	Macadam pitch base	4 days	Wed 17/12/25	Mon 22/12/25
24	Key Stage Inspection - Macadam pitch base	0 days	Mon 22/12/25	Mon 22/12/25
25	Shockpad	4 days	Tue 23/12/25	Fri 26/12/25
26	Synthetic Surface - 50mm 3G surface	17 days	Mon 29/12/25	Tue 20/01/26
27	Equipment	3 days	Wed 21/01/26	Fri 23/01/26
28	Key Stage Inspection - Synthetic surface	0 days	Fri 23/01/26	Fri 23/01/26
29	Reinstatement	4 days	Mon 19/01/26	Thu 22/01/26
30	Handover	0 days	Thu 22/01/26	Thu 22/01/26

CONSTRUCTION PHASES:

1. Site set-up
2. Temporary fencing
3. Haul road
4. Strip topsoil, dispose off-site
5. Cut, fill, trim, roll
6. Drainage installation
7. **Key Stage Inspection - Formation and Drainage**
8. Sub-base
9. Kerbing and Mowing Strip Stone
10. Pitch Fence Posts
11. Pitch Fencing Panels and Finishing
12. Floodlighting - Cabling and bases
13. Floodlighting - Columns & fittings
14. Stone screed layer
15. **Key Stage Inspection - Sub-base and Kerbs**
16. Macadam spectator area and recesses
17. Macadam pitch base

18. **Key Stage Inspection - Macadam pitch base**
19. Shockpad
20. Synthetic Surface - 50mm 3G surface
21. Equipment
22. **Key Stage Inspection - Synthetic surface**
23. Reinstatement
24. **Handover**

Section 3 – Transportation issues associated with the site

Construction vehicle movements are generally acceptable between 07:30 and 18:00 Monday to Friday.

Busy drop off and pick up times will be avoided.

There will be NO parking/waiting of construction vehicles outside of the site.

There is ample room on site for parking of operative's vehicles and space for off-loading.

Site deliveries will be unloaded with suitable plant within the site compound area or within the works area. Both areas will be Heras fenced.

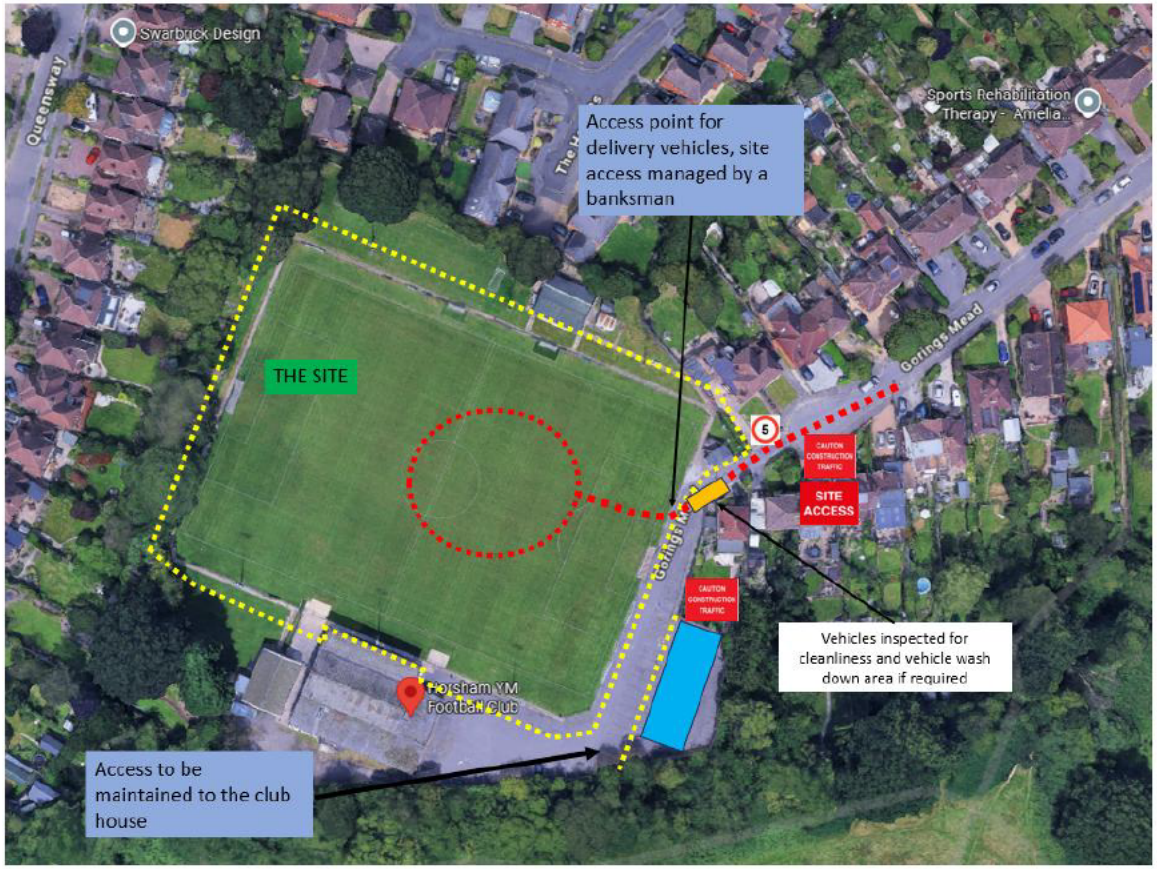
A banksman will be employed as required to ensure safe access/egress of all deliveries.

Heras fencing will secure the perimeter of the works including the haul road with adequate warning signage.

Warning signage for both vehicles and pedestrians will be erected on the approach to the works.

SITE ACCESS & SET-UP PLAN (A3 VERSION ATTACHED)

HORSHAM YM FC - PROPOSED TMP



Heras fencing

Site compound & car park for 5 x vans

Site access, delivery drop off and turning circle
All materials will be stored on site

Loading, unloading and storage of plant and materials will be within the footprint of the site. The works are of a manner as to which there is ample space for all materials to be deposited within the footprint.

Topsoil will be stripped and loaded into vehicles for removal. No topsoil will be stored on site.

The site office comprises of a single storey 20ft self contained welfare and office.

Section 4 – Traffic Management & Continuity of the site.

Site management will control deliveries of materials daily. During periods of high traffic movements, a banksman will be placed on the site entrance to ensure safe access / egress.

Although site traffic will be traveling on existing hardstanding or newly prepared stoned up areas, all exiting vehicles will be inspected for cleanliness before leaving the haul road. Road sweepers / power jet washing facilities will be employed as and when required.

All site staff and contractors will park their vehicles within the site compound area.

All construction deliveries will be instructed to access the site using the agreed traffic management plan.

The site manager will monitor the delivery routes, any deliveries not adhering to the traffic management plan will be reported to the Contracts Manager who will then contact the supplier and reinforce the traffic management plan.

The surrounding areas will remain in use, site management will liaise with the users on a daily basis to ensure that our works provide minimal disruption to the other users.

At the end of each day the site will be fully locked up by the site manager.

Section 5 – Environmental issues

The following areas shall be considered during the construction period on site:

CONSULTATION:

The Club will implement a comprehensive communication strategy to keep members, local residents and other stakeholders informed throughout the construction period. Details of the proposed works will be advertised on the Club's website and social media channels prior to commencement and throughout the project where appropriate. In addition, a letter drop will be undertaken to neighbouring properties, providing information on the construction programme, anticipated working hours, and site contact details for both the Club and Contractor. The correspondence will also invite residents and stakeholders to provide feedback, raise any concerns, or discuss any issues arising during the works, ensuring that these can be addressed promptly and effectively.

NOISE:

All plant used on site will have noise reduction in line with current legislation. There will be no plant noise before 07:30 and after 18:00 weekdays and before 07:30 and after 13:00 Saturdays. There will be no work on site on Sundays.

No noise associated with the development should be audible outside of the site boundary outside of these hours.

VIBRATION:

There are no foreseen vibration activities on site. Any unforeseen activities will be dealt with in line with the current HAV and whole-body vibration guidance.

DUST:

Dust and contamination will be monitored throughout the project by the Site Manager, the following will be implemented:

The following mitigation measures will be in place when vehicles are moving around site:

- All vehicles accessing and egressing site use existing approved hardstanding access routes on Traffic Management Plan
- A 5 MPH speed limit shall be imposed.
- Minimise vehicle movements on and off site
- Restrict delivery times to site, avoiding school drop off and pick up times
- Ensure vehicles switch off their engines when stationary
- Ensure loads are fully covered before leaving the operational area
- Inspect access routes daily for integrity and ensure they are free of debris
- Use water bowser if required in dry conditions.
- Use hard standings for vehicle movements
- Cover all loads

The following mitigation measures will be in place when moving material:

- Plan the site layout to ensure as far as possible machinery and dust causing activities are located away from receptors
- If required erect solid barriers around dusty activities
- Minimise movement of material on site
- No hazardous materials on site
- No crushing of materials on site
- Consider prevailing wind direction and strength when moving materials on site
- Minimise drop height from loading shovels
- In dry weather cover or fence stockpiled material
- Use water bowser to dampen material if required.
- Keep site fencing clean using water.

WASTE:

Waste will be dealt with using licenced carriers and tips and general site waste will be placed in site skips.

SPILLAGE:

Fuel storage will be supplied at 110% double bunded bowser.
All refuelling activities will be carried out in the authorised fuelling point only and as per the relevant Method Statement. Spill kits and absorbent granules will be placed at the refuelling station.

FLOODLIGHTING:

No temporary floodlighting will be used during the construction works. The proposed floodlighting system will only be installed and energised during the final stages of the project for testing, aiming and commissioning purposes. During these activities, the floodlights will be operated for short durations and only as necessary to verify the performance and compliance of the installation. The permanent floodlights will be mounted on the approved columns in the locations shown on the submitted plans, with light sources directed towards the playing surface to minimise light spill beyond the site boundary. Other than testing and commissioning, there will be no external lighting associated with the construction works. The operational hours, illumination levels and lighting specifications of the permanent floodlighting system will be as detailed within the approved floodlighting design and planning submission.

CONTAMINATED LAND:

If contaminated land is encountered, then we will contact the Contract Administrator and report the issues to allow them to deal with the contamination in line with the current legislation. Although the ground investigation report does suggest that the ground is inert and not contaminated.

FLORA AND FAUNA:

No part of our construction is to be carried out in the vicinity of any established planted area.

ENVIRONMENTAL PROTECTION AREA:

No part of our construction works will occur outside of our heras fencing boundary, and therefore all areas outside of our site will be treated as a protected area.

Heras fencing will be erected along the northern / northeaster boundary leaving canopy clearance plus 1m of the mature tree line.

The site comprises part existing hardstanding macadam MUGA and amenity grassland which offers minimal habitat.
The full AIA, tree protection plan and AIA will be implemented and have been attached to this CEMP for completeness.

MAMMALS:

Bats

No artificial lighting will be required during construction as work will be limited to daylight hours only.

[redacted]

Dormice

The proposed layout of the development retains the scrub on the woodland edge and therefore no impacts on dormice are predicted.

Nesting birds

Birds nesting in scrub around the margins of the tennis court, and on the eastern edge of the site, within the neutral grassland area south of the tennis courts, could be affected by vegetation clearance if this was carried out when nests were in active use. It is therefore recommended that clearance of any scrub or shrub vegetation is carried out outside the bird breeding season (that is, outside March to August inclusive). Retention and enhancement of the scrub area on the north-eastern edge of the site will ensure continuity of this habitat for nesting birds on the site post-development.

Section 6 – Monitoring, compliance, and reporting.

Monitoring requirements for required mitigation/compensation measures

It is not considered that any of the mitigation or compensation measures described above require specific ecological monitoring post-development.

Site wildlife awareness

It is the responsibility of the developer and their contractors to maintain due care and attention throughout the development process in respect to protected species. The behaviour of wild animals is unpredictable and species that one would not anticipate to be on site may be discovered. If there is any doubt with regards to wildlife or protected species on the site, professional advice should be immediately sought.

AUDITS:

Regular audits of the health and safety, environmental and quality aspects shall be carried out on the implementation of the Contract Environmental Management Plan and associated records.

RECORDS:

The Contracts Manager shall keep the Contract Management Plan under review, incorporating any changes to the contract and issue a revised plan as appropriate.

On completion of the contract, the Contract Management Plan and contract records will be archived in accordance with JMA QA 414 Control of Quality Records.

CONSULTATION:

All persons on site are to receive induction training prior to starting work by the Site Manager. Records of all inductions are held on passport 365. Consultation with employees to be carried out where required on health and safety issues through the Site Manager.

MONITORING:

The Site Manager will carry out weekly site safety inspections, records of which will be retained on passport 365. Any actions required will be set timescales for completion, the Contracts Manager will ensure that all corrective actions are carried out.

The Site Manager is responsible for monitoring overall site safety and for reporting any issues to the Contracts Manager.

ACCIDENT REPORTING:

All accidents and near misses are to be reported and logged in the accident book held on passport 365. Details of any accidents are also to be forwarded to the Principal Designer. For any accidents which fall under the RIDDOR Regulations and are reportable to the HSE the procedures laid down in the Health and Safety Policy will be followed. The reportable incident will be reported to the HSE by the Contracts Manager, who will also be responsible for leading the investigation.

HEALTH SURVEILLANCE:

It is unlikely that health surveillance will be required on this contract, however the Site Manager will ensure that any instances of ill health will be monitored

RESPONSIBILITIES:

The **Contracts Director** is responsible for:

- Co-ordinating the parties to the contractual agreement e.g. ensuring contractual obligations are met.
- Ensuring that sufficient resources are allocated to the contract.
- Ensuring the Company's health and safety, quality and environmental management system is implemented on the contract.
- Ensuring that statutory and other legal obligations are met.

The **Contracts Manager** is responsible for:

- Acting on behalf of the Company in contact with the client and client representatives on contractual issues.
- Allocating resources to the contract.
- Formulating safe systems of work.
- Verifying that materials and workmanship comply with the specification.
- Ensuring risk assessments and method statements are in place for all activities.
- Ensuring quality records are maintained.
- Implementing policies to meet statutory and other legal obligations.
- Ensuring equipment is properly maintained.
- Issuing and keeping under review the Contract Management Plan.
- Monitoring, review and enforcement of site safety.

The **Quantity Surveyor** is responsible for:

- Appointing sub-contractors for the contract.
- Ensure cost and time targets are met.
- Liaising with client representatives on contractual issues at site level.
- Ensuring the specified contract requirements are met.
- Ensuring the receiving, recording and filing of contract documents, drawings and variations, issuing them to site and sub-contractors as appropriate.

The **Site Manager** is responsible for:

- The daily management of the site.
- The efficient application of resources to ensure the programme and specified requirements are met.
- Directing, instructing and supervising the workforce and ensuring they are inducted and competent to carry out the work required.
- Carrying out toolbox talks.
- Co-ordinating the work of sub-contractors.
- Ensuring health and safety working arrangements are monitored and regulations observed, and statutory records completed.
- Inspecting, verifying, and recording the completed works.
- Ensuring the efficient use of materials and equipment.
- Maintaining a tidy and safe site with safe access and egress.
- Maintaining clean and healthy welfare provisions.
- Inspecting and recording incoming materials.
- Carrying out a weekly site safety inspection.
- Ensuring all accidents are reported.
- Ensuring all plant and equipment complies with the requirements of current legislation, is fit for purpose, and is operated only by competent operatives.

Section 7 - Agreement

The approved contents of this CEMP must be complied with unless otherwise agreed with the relevant control body.

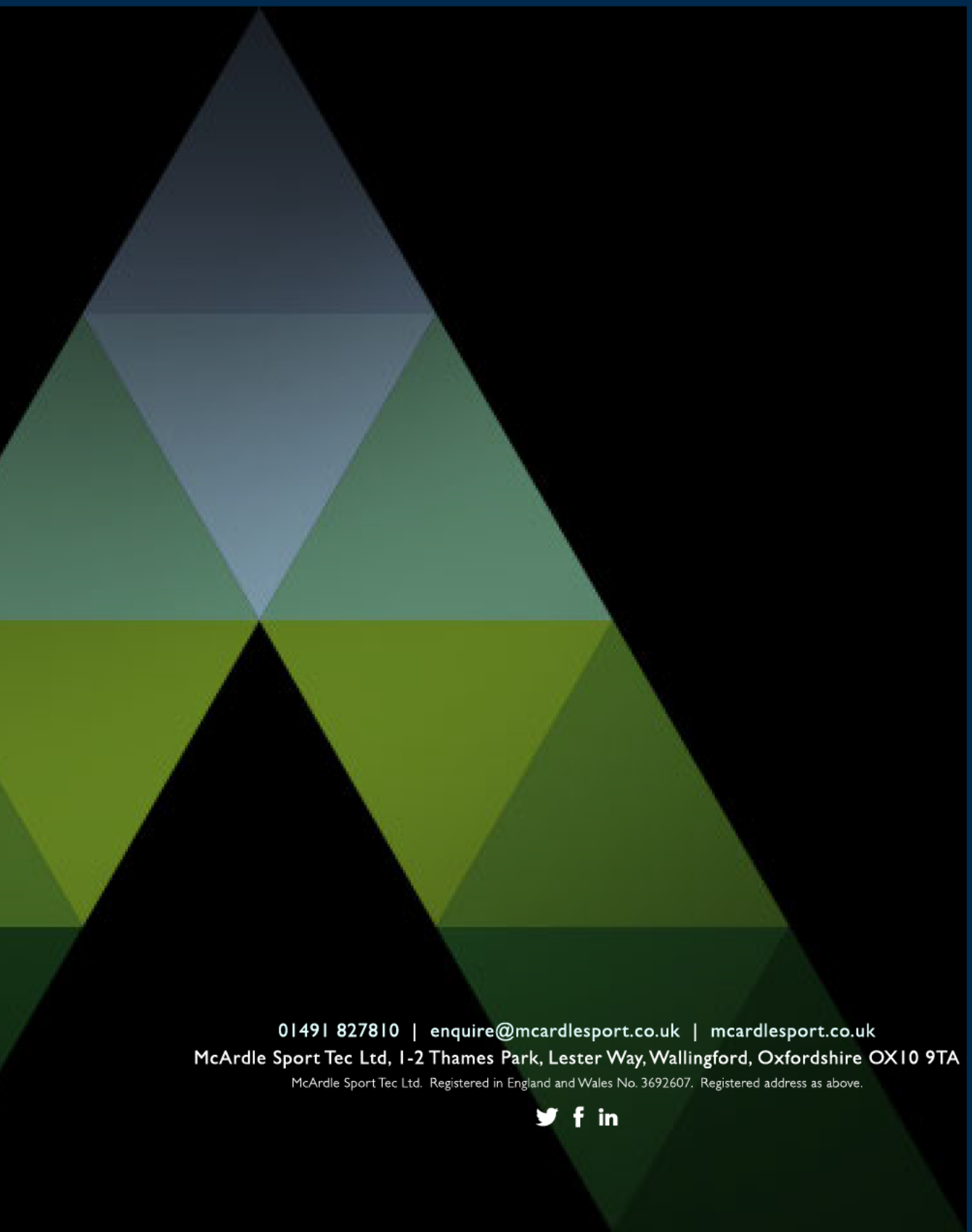
The Contracts Manager will work with the relevant control body to review this CEMP if problems arise in relation to the construction being carried out on site. Any future revised plan must be approved by the local authority and complied with thereafter.

Signed .....

Date .....

Print name .....

Position.....



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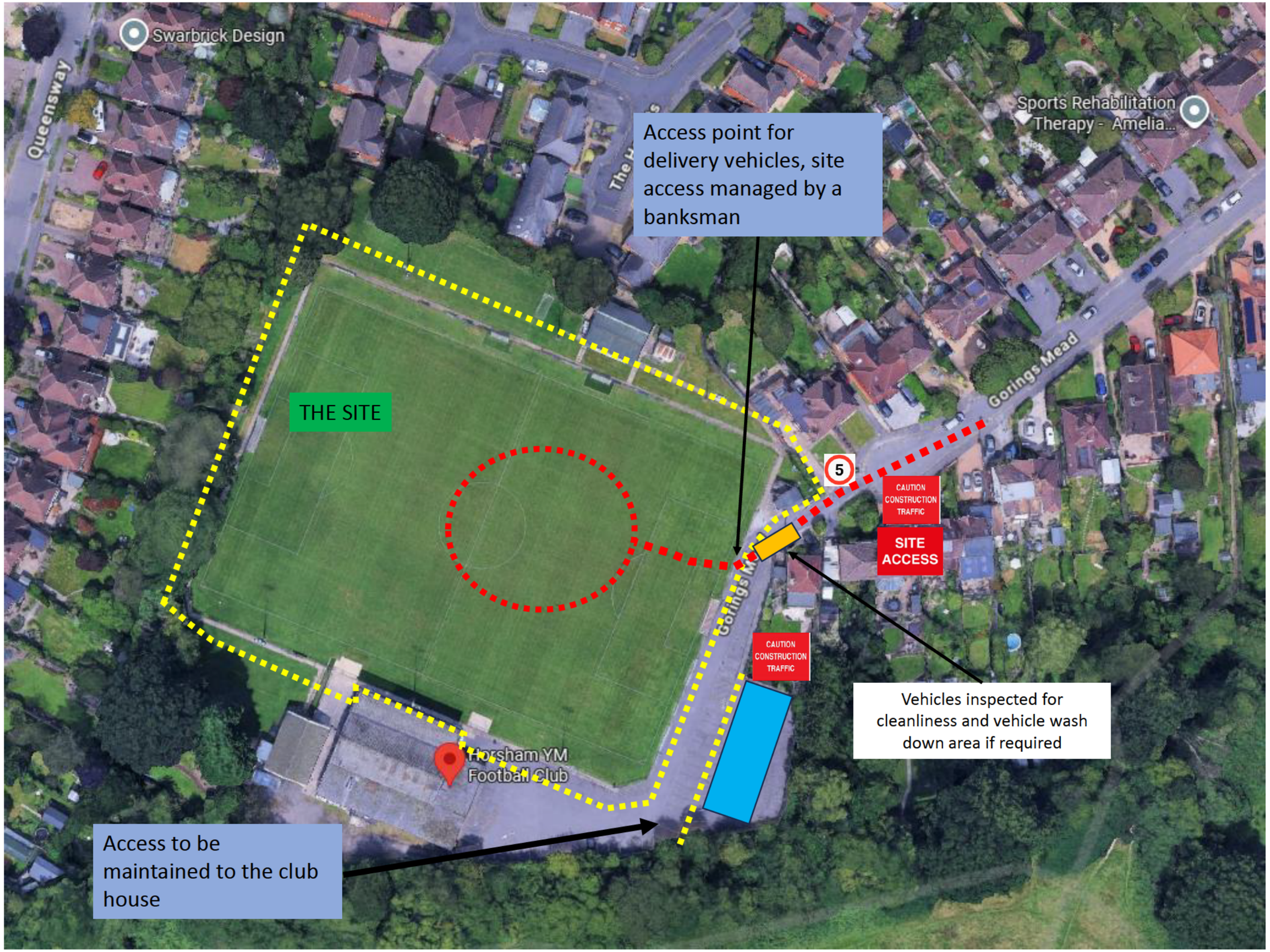

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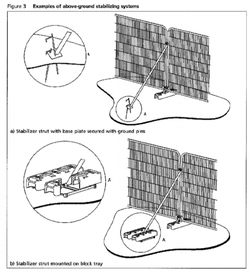
Figure 3 **Examples of above-ground stabilizing systems**



a) Stabilizer strut with base plate secured with ground pins

b) Stabilizer strut mounted on block tray

rps

McARDLE SPORT TEC

HORSHAM YMCA FC (AGP)

Arboricultural Impact Assessment

JSL4231_770

HORSHAM YMCA FC
V4

22 February 2023

rpsgroup.com

Document status

Version	Purpose of document	Authored by	Reviewed by	Approved by	Review date
V1	First Draft	TF	BW	BW	19.08.22
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V3	Second Draft	TF	BW	TF	04.10.22
V4	Amendment	TF	BW	TF	22.02.23

Approval for issue

Thomas Flood	[redacted]	22 February 2023

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Tom Fearns

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1 EXECUTIVE SUMMARY

Scope

1.1 An arboricultural survey and Arboricultural Impact Assessment (AIA) has been undertaken for the proposed Artificial Grass Pitch (AGP) development at Horsham YMCA FC, Gorings Mead, Horsham West Sussex.

1.2 This planning application seeks permission for the construction of the AGP along with required drainage, external storage and access.

1.3 Trees were recorded, and information was gathered, to allow them to be considered using guidance contained within BS5837:2012 - *Trees in Relation to Design, Demolition and Construction – Recommendations*.

1.4 An AIA identifies any trees requiring removal, pruning and how retained trees are to be protected during the implementation of the proposals.

Findings & Recommendations

1.5 The principles in BS5837:2012 were used to fully assess the impacts of the proposed works on the trees and other vegetation.

1.6 A total of 19 individual trees and 5 groups of trees were surveyed during the visit. Of the 19 individuals recorded, 3 were classed as Category A (high quality), 8 Category B (moderate quality) and the remaining 8 trees were Category C (low quality). The 5 groups recorded comprised 1 Category B and 4 Category C.

1.7 It was confirmed that four trees recorded during the survey are covered by a TPO and these comprise T1, T4, T9 and T10. Trees T4, T9 and T10 are covered by TPO/0366 (1980) and T1 is covered by TPO/0858 (1996). The site is not within a Conservation Area.

1.8 The veteran tree T10 cannot be retained in its current form if the development is to proceed. It is therefore recommended that the bulk of the stem be retained as habitat which will allow for retention of some of the habitat value of the tree. Despite the tree potentially declining due to disease in the future, extensive compensatory planting has been proposed anyway to assist the offset of the loss. While the loss of T10 would be considered problematic under usual circumstances given its age class, the situation with ash dieback disease (*Hymenoscyphus fraxinea*) in the UK means the tree is likely, on the balance of probabilities and based on current forecasts, to succumb to the disease *at some point* in the not distant future. '*Research from UK and Europe has found that seven or eight out of every ten ash may die.'* – The Tree Council.

1.9 Additionally, a small section of hedge (S6) will also need to be removed.

1.10 It is considered unlikely that there will be need to prune any of the trees to be retained.

1.11 The trees will be afforded protection by implementing a Construction Exclusion Zone (CEZ) using tree protection fencing (Heras style). This must be erected in the position shown on the Tree Protection Plan attached to this report.

2 INTRODUCTION

2.1 RPS were instructed in October 2021, by McArdle Sport Tec, to undertake a Tree Survey and then to prepare an Arboricultural Impact Assessment (AIA) in respect of the proposed construction of a new Artificial Grass Pitch (AGP) development at Horsham YMCA FC, Gorings Mead, Horsham West Sussex.

2.2 The survey was undertaken in accordance with BS5837:2012 as described within the survey methodology attached to this report at Appendix A.

2.3 The purpose of the survey was to gather data on the trees and to prepare a Tree Constraints Plan that has been used in the design of the proposed new sports facilities. Appendix B – *The Tree Constraints Plan* explains the process of interpreting the plan and how it is used during the design and impact assessment process.

2.4 This report should be read in conjunction with the supplied Tree Constraints Plan (see drawing 700), Tree Removal & Protection Plan (see drawing 710), Landscape Planting Plan (See drawing 780) and all other relevant Tables and Appendices as detailed within the table of contents.

2.5 The tree positions were plotted using Topographical Survey information provided by the client and a sub metre GPS plotting device (Trimble Geo 7x).

2.6 The survey and this assessment were undertaken by RPS Principal Arboriculturist Thomas Flood BSc (Hons) MICFor MArborA.

3 SITE INFORMATION

3.1 The site under consideration comprises an area of existing playing field at Horsham YMCA FC, Gorings Mead, Horsham West Sussex.

3.2 The site is located at Ordnance Survey Grid Reference TQ 17558 30039 and is located just south of Horsham centre.

3.3 The sports field is managed intensively as short grass with Clubhouse, spectator areas and parking. The site is accessed via Gorings Mead at the north-east corner. Trees are located around the majority of the perimeter of the sports ground, both on and off the site. These trees comprise both individuals and groups with sections of hedge also present. The majority of trees recorded were considered mature for their species with a few exceptions, the most significant being a veteran ash (*Fraxinus excelsior*). Other species recorded comprised goat willow (*Salix caprea*), pedunculate oak (*Quercus robur*), Norway spruce (*Picea abies*), hawthorn (*Crataegus monogyna*), silver birch (*Betula pendula*), Leyland cypress (x *Cupressocyparis leylandii*) and western red cedar (*Thuja plicata*).

3.4 A Tree Preservation Order (TPO) check has been made using the Horsham District Council online planning maps (https://horsham.maps.arcgis.com/apps/webappviewer/index.html – accessed 17.08.22). It was confirmed that four trees recorded during the survey are covered by a TPO and these comprise T1, T4, T9 and T10. Trees T4, T9 and T10 are covered by TPO/0366 (1980) and T1 is covered by TPO/0858 (1996). The site is not within a Conservation Area.

4 TREE QUALITY ASSESSMENT

Retention Values

4.1 All trees inspected were categorised using BS5837:2012 and the attached Tree Constraints Plan (see drawing 700) shows tree positions, numbers, and retention categories. Trees were recorded as individuals and as groups.

4.2 Trees have been surveyed as groups where they can be considered as forming a group as they form cohesive features either aerodynamically (i.e. they form a discrete group feature providing companion), culturally (i.e. they are composed of trees of a similar size, age and species subject to the same management) or visually (i.e. where the value of the trees within the group is as a whole rather than individually).

4.3 Where trees have been surveyed as groups the details recorded with respect to condition and retention value intend to represent an average tree within the group; however, on occasion, it must be noted that there will be exceptions within any group that do not conform to the typical character of that group.

4.4 The initial stage of a tree survey in accordance to BS5837:2012 looks at the trees on the site in terms of life expectancy and condition. Trees are then categorised according to their retention value.

4.5 **Category A** trees are those that have been assessed as being of a high quality and value; significant amendments to the proposed scheme should be considered in preference to their removal. These trees are shown in Green on the Tree Constraints Plan.

4.6 **Category B** trees are those that have been assessed as being of a moderate quality and value; amendments to the proposed scheme should be considered in preference to their removal. These trees are shown in Blue on the Tree Constraints Plan.

4.7 **Category C** trees are those that have been assessed as being of a low quality and value; the loss of these specimens should not be considered as a constraint to development. These trees are shown in Grey on the Tree Constraints Plan

4.8 **Category U** trees are those that have been assessed as being in poor condition and having no retention value; these trees should not be a material consideration in the planning process. These trees are shown in Red on the Tree Constraints Plan.

4.9 A total of 19 individual trees and 5 groups of trees were surveyed during the visit. Of the 19 individuals recorded, 3 were classed as Category A (high quality), 8 Category B (moderate quality) and the remaining 8 trees were Category C (low quality). The 5 groups recorded comprised 1 Category B and 4 Category C.

Physiological Condition

4.10 Trees considered to be in a good physiological condition are those with crown density and shoot extension growth levels within the expected ranges for their age and species. Generally, these trees, subject to being of a suitable structural condition, can be expected to make a lasting contribution to the site. Additionally, trees within the good condition class are likely to tolerate

changes within their growing environment that occur as a result of development, as such their successful retention will be easier to achieve.

4.11 Trees considered to be in a fair physiological condition are those specimens exhibiting lower shoot extension growth and reduced crown density than would typically be expected. These specimens have a lower life expectancy than those within the good condition class and will not tolerate significant changes as a result of development as well as those in the good condition class.

4.12 Trees considered to be in a poor physiological condition are those exhibiting crown and shoot dieback and significantly reduced crown density. Trees of a poor physiological condition are not likely to make a lasting contribution to the site and whilst their retention in the short term may be beneficial such retention will only be achievable if the trees are fully protected throughout development as they will not tolerate changes in their growing environment.

4.13 Of the 19 individual trees recorded, 9 were considered to be in good physiological condition and the remaining 10 in fair condition. While variations in condition exist within tree groups, generally speaking the groups were generally fair condition with one exception in good condition.

Structural Condition

4.14 There are variations in the structural condition of the trees surveyed; however individual tree condition is largely consistent with expectations for the age, management, and species of the tree.

4.15 The majority of structural defects that were noted across most of the recorded trees, such as minor deadwood in tree crowns, were not considered significant and are unlikely to result in the premature failure of the tree.

Age Distribution

4.16 Trees assessed as being young (Y) in age are those considered to be less than 10 years old. These trees can generally be considered to have the potential for rapid and significant future growth. Whilst these specimens are not likely to make a substantial contribution to the landscape character of the site at present they will, if retained, provide succession for the eventual removal of mature or over-mature trees as a result of declining physiological or structural condition.

4.17 Trees assessed as being semi-mature (SM) are those of more than 10 years old but having attained less than 40% of the maximum lifespan expected for the species. These trees will generally make some contribution to the current landscape character and appearance of the site and their retention will provide a more immediate succession of mature trees. As with young trees these specimens will have the potential for rapid and significant future growth.

4.18 Early-mature trees (EM) are those considered to have reached between 40% and 70% of their ultimate life expectancy. These trees are generally not considered to have a significant potential for future growth though they will increase in size at a slower rate than young and semi-mature trees.

4.19 Mature trees (M) are those considered to have reached between 70% and 100% of their species life expectancy. These trees will have little future growth potential and they have generally reached their maximum expected size for the location. These trees will generally make the highest contribution to the landscape character of the site at this time; however, a tree stock over dominated by mature trees will require careful management to ensure that a continuation of canopy cover can be achieved.

4.20 Over-mature trees (OM) are those considered to have existed for longer than typical of their species. They do not have the potential to increase in size and may in fact reduce in size as their crowns begin to break up. These trees will often make a significant contribution to the landscape character of the site and are likely to have ecological value. However, the retention of these trees within new development must be carefully planned as they are approaching the end of their useful life expectancy and they will often have structural defects. Where over-mature trees are to be retained in new development it is essential that access is available for their eventual removal.

4.21 Veteran trees (V) are those that show features of biological, cultural, or aesthetic value that are characteristic of an individual surviving beyond the typical age range for the species. These trees have negligible potential to increase in size. Veteran trees are usually of a high ecological value and they will require sensitive management where they are to be retained in new development. As such it is again essential that they are located in areas where access is available to undertake management operations and where there is a reduced risk of harm occurring from failure of the trees.

4.22 Of the 19 individual trees, their age class distributions are distributed as 1 semi mature, 1 early mature, 16 mature and 1 veteran. The 5 groups contained either young to semi mature, semi mature, or semi mature to mature.

Species Distribution

4.23 The tree species recorded during the survey are listed below:

BOTANICAL NAME	COMMON NAME
Betula pendula	Silver birch
Corylus avellana	Hazel
Crataegus monogyna	Hawthorn
Fraxinus excelsior	Ash
Ilex aquifolium	Holly
Picea abies	Norway spruce
Prunus laurocerasus	Cherry laurel
Quercus robur	Pedunculate oak
Salix caprea	Goat willow
Salix fragilis	Crack willow
Sambucus nigra	Elder
Thuja plicata	Western red cedar
X *Cupressocyparis leylandii*	Leyland cypress

5 CONSTRUCTION REQUIREMENTS

5.1 The development will require the construction of the new AGP with associated changes to soft surfaces. It will require the provision of pedestrian access into and around the new facility, installation of ball stop fencing and other barriers, floodlights, gates, storage areas and the artificial grass pitch. There will also be a need to undertake earthworks to excavate the base and install the drainage system for the AGP.

5.2 Access will be required for personnel / equipment to:

- Undertake any tree removal and pruning required;
- Install tree protection fencing;
- Undertake earthworks;
- Install drainage;
- Construct the AGP;
- Install footpaths, access points and floodlights;
- Install ball stop fencing and other barriers; and
- Carry out any final landscaping.

5.3 Reference to this document should form part of any method statement regarding the proposed construction works. This will show an understanding of the issues and actions required to protect the trees.

5.4 Areas of machinery exclusion have been shown on the Tree Protection Plan (see drawing 710) to help in the production of these statements.

5.5 The construction process will need to be monitored during its progress to ensure continued protection of any retained trees.

6 ARBORICULTURAL IMPACT ASSESSMENT - WORKS

Introduction

6.1 The construction process will need to be monitored during its progress and this Arboricultural Impact Assessment should be used as the document provided to guide the construction process.

6.2 Trees have finite energy reserves, developed each year throughout the growing season, which are utilised for biological processes such as growth and defence against pests or diseases throughout the following year.

6.3 Any development in proximity to trees has the potential to cause harm to those trees unless control measures are identified and acted upon; as such it is essential to consider the relationship between the proposed development and the retained trees to identify what precautions are necessary, proportionate and appropriate.

6.4 Development has the potential to impact upon the above ground as well as below ground parts of trees.

6.5 Whilst some damage that can occur, such as physical damage to the trees stems and branches from machinery movements, is clearly visible the impact from other aspects of work common on development sites which can have a significant effect upon the continued health of trees are not always immediately evident.

6.6 Damage that is not immediately evident, but which can cause long term harm to retained trees includes things such as damage to the soil structure by compaction causing root damage and levels changes altering the water table and affecting moisture availability.

6.7 To minimise the potential for harm to occur to retained trees all works should be carried out with regard to the tree protection measures detailed within this report.

6.8 In general, it can be seen that, by adopting appropriate methods of working, precautionary and protective measures, significant harm to retained trees can be avoided.

6.9 In particular, the establishment of a **Construction Exclusion Zone (CEZ)** by erection of tree protection fencing will minimise the potential for harm to occur to retained trees.

Brief Description of Proposed Development

6.10 The proposals are for a new AGP development with fencing, drainage, storage, floodlights and new access arrangements.

Tree Removal

6.11 In order to facilitate the proposals, it will be necessary to partially remove T10, located adjacent the western edge of the new AGP. Due to the trees extensive RPA (15 x stem diameter radius, as per latest guidelines), it would not be feasible to install the retaining structure and excavate the necessary area required for the AGP base without potentially damaging roots to a significant level.

6.12 The removal of any veteran should be avoided unless the benefit of a development outweighs the loss of the tree and this is, of course, a highly subjective issue. It is probable the tree, being ash, may succumb to *Hymenoscyphus fraxinea* (Ash Dieback) in the not-too-distant future. '***Research from the UK and Europe has found that seven or eight out of every 10 ash trees may die – Tree Council'***.

6.13 We recommend that T10 be heavily reduced in size, leaving a manageable core of the tree which would potentially continue to serve an ecological benefit for the locality. The managed decline will retain the core of the tree in the landscape for an extended period and allow the construction of the AGP.

6.14 It is clear that the trees retention, as it is currently, will not permit the development to proceed. In order to assist the offset of the partial retention of T10, new planting will be undertaken within the site on the north-west area of open space adjacent the AGP.

6.15 It will also be necessary to remove the small section of hazel and hawthorn hedge (S6) located adjacent the proposed retaining structure at the south-west corner of the AGP.

Root Protection Areas

6.16 Root Protection Areas (RPAs) for each tree surveyed have been determined in accordance with BS5837:2012 Section 4.6 Root Protection Area.

6.17 Initial RPAs for the trees were plotted onto the Tree Constraints Plan (see drawing 700) and has been used to produce all relevant tree plans in this statement.

6.18 An existing perimeter feature, the concrete spectator path and barrier along the western edge of the existing pitch, will need to be broken up and removed. As a precautionary measure, it is recommended that where the concrete path passes through the RPA of T6 (Category B), T8 (Category C) and T9 (Category B and subject to TPO), it be broken up by hand (using appropriate hand tools) and removed from the RPA by hand also. Any posts requiring removal should, ideally, be cut to ground level retaining any below ground parts. If this is deemed unfeasible, then their removal should be undertaken by hand and under supervision to ensure minimal incursion into underlying soils and to assess any root presence. This will assist in reducing the likelihood of damage to any underlying roots.

6.19 In order to facilitate the proposals a retaining structure will be installed along parts of the west and south-west edges of the AGP. While this structure will encroach very slightly on the RPA of T8, it will prevent the need for earthworks outside of this which would impact tree roots of retained trees.

6.20 The CEZ (Construction Exclusion Zone) has been marked on the Tree Protection Plan (see drawing 710) which will be achieved using Heras style fence panels.

Existing Canopy Spreads

6.21 Where RPA for retained trees do not extend to the edge of existing canopy spreads, it is possible that those parts of a tree which extend beyond the CEZ may sustain damage during construction.

6.22 In this instance, it is considered unlikely that there should be any need to carry out crown pruning for the development to be realised. However, should this change at any point the works should be assessed by the Arboricultural Consultant and/or Tree Officer prior to being undertaken.

Services and Utilities

6.23 No machinery will be permitted within the CEZ during any installation works of this nature so as to avoid compaction of soils and mechanical damage to tree limbs, stems and roots.

6.24 General guidance for such works can also be found in NJUG Volume 4 - *Guidelines for the planning, installation and maintenance of utility services in proximity to trees*. (National Joint Utilities Group 2007).

6.25 The AGP drainage or electricity provision will not interfere with any RPA and is therefore not considered a factor of impact in this assessment.

Contractor Access / Egress

6.26 The site will be accessed / egressed via the north-east corner of the site. All routes should be planned so as to avoid RPA of trees nearby and therefore should not impact them. The CEZ must be in situ prior to the commencement of development works on site.

Planning of Site Operations

6.27 Planning of site operations will take sufficient account of trees to ensure that no access and movement of material into and around the site impact on trees. Physical damage can result if this is not considered. Consequently, any movement of plant or materials in proximity to trees will be conducted under the supervision of a banksman, to ensure that adequate clearance from trees is always maintained.

6.28 All materials or fluids will not be stored within or near the RPA of retained trees, particularly those whose accidental spillage would cause contamination and damage to a tree. Fluids must be handled well away from the outer edge of the RPA of trees.

6.29 Correct planning of access routes and storage areas prior to start on site will ensure no impacts from these activities will occur. It is considered that there should be ample space away from trees for purposes of storage.

7 PRE-DEVELOPMENT WORKS

Tree Removal

7.1 One tree, T10, will require partial removal (leaving a central core for ongoing ecological value) prior to the development commencing.

7.2 It will also be necessary to remove a small section of hedge, S6.

Predevelopment Tree Pruning Works

7.3 While considered unlikely to be required, pruning works should be assessed again by the Site Manager prior to commencement of the proposed development.

Standard of Work

7.4 All tree works should be carried out in accordance with BS3998:2010 *Tree Work - Recommendations* and latest arboricultural best practice.

7.5 All tree work should be carried out by suitably qualified, competent and insured arboricultural contractors.

7.6 All green and woody waste generated by the tree works shall be removed from site and disposed of in an environmentally sustainable manner.

Timing of Works

7.7 All tree works shall be completed prior to commencement of any construction works on the site.

7.8 All works shall be timed to have regard to the phenological cycles of protected species that are associated with trees, notably birds and bats.

Tree Protection Barriers

7.9 All tree protection fencing should be erected to its position during the pre-development periods of construction. The position is shown in blue on the Tree Protection Plan (see drawing 710).

7.10 To ensure successful tree protection during this process, all operatives should be briefed on the need to pay regard the existing trees and all operations adjacent to trees be properly supervised. This will help ensure the works do not affect adversely the trees.

7.11 Once the protective barriers are in place they must remain in situ (unless stated otherwise in this section) throughout the course of the development until the completion of all building works.

7.12 Copies of the Tree Protection Plans shall be placed in the site office for reference by all site staff.

7.13 The protective fencing barrier is to be constructed in accordance with the specification detailed at Appendix D.

7.14 Signs (A3 in size) detailing the purpose of the protective fencing shall be attached to the fencing at 10m intervals. Such signs should be weatherproof and shall be substantially in the form of the specimen provided at Appendix E. Signs must be replaced as necessary should they be removed or become illegible.

8 CONSTRUCTION WORKS

Construction Exclusion Zone

8.1 The CEZ as defined by the protective fence line shall be regarded as sacrosanct, and the protective fencing shall not be moved or taken down at any time.

8.2 Within the CEZ there must be no mechanical digging or scraping, no alteration to existing ground levels including soil stripping, no earthworks, no handling or discharge of any chemical substance, concrete washings or of any fuels.

8.3 Furthermore, vehicular or pedestrian access and the storage of any materials is prohibited within the CEZ.

8.4 Additionally, no materials that may contaminate the soil such as concrete mixings, diesel oil and vehicle washings shall be discharged within 10m of the stem of any tree and no fires shall be lit within 10m of the maximum extent of a trees crown.

Site Compounds and Materials Stores

8.5 Activities related to the establishment of a temporary site compound have the potential to impact upon retained trees by various means. In particular the storage and mixing of chemicals and materials such as concrete can have a damaging effect on tree health if precautions are not taken.

8.6 To prevent harm occurring to trees provision for materials storage, site offices, deliveries and other related activities should be made available in areas away from retained trees.

8.7 The offices, parking of site and contractor vehicles, along with secure storage will be provided in an area away from retained trees. This area will be directly controlled by the Site Manager.

Monitoring

8.8 Following erection of the protective fencing and prior to commencement of the construction phase an inspection of the site by the Council's Tree Officer, should be arranged to confirm fencing has been installed in accordance with the Tree Protection Plan (see drawing 710).

8.9 Further monitoring visits should be carried out during implementation of the works on site, ideally on a monthly basis to ensure all planning conditions are being implemented.

Reporting

8.10 During the construction phase of the development the Site Manager will be responsible for liaising with the Council Tree Officer on all arboricultural issues.

8.11 Should any arboricultural issues become apparent during the works the site manager should immediately contact the appointed Arboricultural Consultant or the Council's Tree Officer for advice upon how to proceed.

Tables

Table 1: Tree Schedule

Key to Inspection Report Form

Species	Genus and variety
Height	Measured Clinometer Reading or Estimated Height in Metres
Girth (dbh @ 1.5m)	Diameter measured in cms, or estimated, Where multi stemmed below 1.5m the diameter is taken as that just above the root flare
Spread (m)	Canopy height estimated in metres above ground level
Canopy height (m)	Crown Spread, radius estimated in metres
Physiological Condition	Good, Fair, Poor, Dead
Age Class	Y – Young, SM – Semi mature, EM – Early Mature, M – Mature, OM - Over mature, V – Veteran
Useful Life Expectancy (years)	<10, 10-20, 20-40, 40+
BS Categorization	See Cascade Appendices 2

Table 1: Tree Data Schedule

Tree No.	Species	Diameter (mm)*	Height	Crown Spread				Crown Height	First Branch Direction	Branch Height above Ground	Age Class	Vigour	Life Expectancy	Structural Condition/Comments	BS5837 Category
				N	S	E	W								
1	Salix caprea	550	13	6.0	7	3	7.0	2.0	South	4.0	M	Good	20-40	Deadwood in the crown of minor extent.Restricted inspection due to access and ivy.Hard surface located in RPA.	B2
2	Betula pendula	400	15	6	6.0	5.0	2	2.0	SE	3.0	M	Good	20-40	Pruning wounds to crown.Restricted inspection due to access and ivy.Hard surface located in RPA.	B2
3	Crataegus monogyna	280	9	3.5	3	3	3.5	5	SW	3.5	M	Fair	10-20	Deadwood in the crown of minor extent.Restricted inspection due to access and vegetation.	C2
4	Quercus robur	800	17	9	9	8.0	9.0	4.0	SW	3.0	M	Good	40+	Pruning wounds to crown.Deadwood in the crown of minor extent.Restricted inspection due to access and vegetation. TPO oak. High value tree of excellent form.	A3
5	Betula pendula	650	19	9.5	8.0	7.0	9.0	4.0	SE	3.0	M	Good	20-40	Restricted inspection due to access and ivy. Good quality specimen for species.	B2
6	Picea abies	400	19	5	5	5	5	3.5	South	4	M	Good	20-40	Deadwood in the crown of minor extent.Restricted inspection due to access and ivy.	B2
7	Prunus laurocerasus	200	8	3	3	1	3	2	SE	1.5	EM	Good	10-20	Pruning wounds to stem and crown.Restricted inspection due to access and vegetation.	C2
8	Picea abies	260	9	2	3	3.5	1.5	5	South	5	SM	Fair	10-20	Pruning wounds to stem and crown.Crown previously topped at 8 metres.Deadwood in the crown of minor extent.Restricted inspection due to access and vegetation.	C2
9	Fraxinus excelsior	600	14	7	8	7	5	4	SE	3	M	Fair	20-40	Pruning wounds to crown.Bifurcated stem formed at 1.5metres.Deadwood in the crown of minor extent.Restricted inspection due to access and vegetation.Located off site.	B2
10	Fraxinus excelsior	1360	16	8	7	7	10	4	SW	3	V	Fair	40+	Pruning wounds to crown.Previous crown reduction.Restricted inspection due to vegetation. Veteran ash growing at foot of pitchside embankment.	A3
11	Salix caprea	480	9	3	3	5	2	2	South	0.5	M	Fair	10-20	Pruning wounds to stem and crown.Deadwood in the crown of minor extent.Restricted inspection due to vegetation. Tri-stemmed willow growing from embankment. Two stems topped.	C2
12	Quercus robur	1000	20	10	10	10	10	5	South	6	M	Good	40+	Deadwood in the crown of minor extent.Restricted inspection due to no access. Excellent oak specimen.	A1
13	Crataegus monogyna	290	8	3.0	3.0	2.0	3.0	3.0	South	2.0	M	Good	20-40	Restricted inspection due to ivy.	B1
14	Fraxinus excelsior	650	16	6	8	7	6	6	East	3	M	Fair	20-40	Epicormics growth on crown.Deadwood in the crown of minor extent.Restricted inspection due to access and ivy.	B1

* Where the tree is multi-stemmed the conventions within BS5837:2012 are applied

Tree No.	Species	Diameter (mm)*	Height	Crown Spread				Crown Height	First Branch Direction	Branch Height above Ground	Age Class	Vigour	Life Expectancy	Structural Condition/Comments	BS5837 Category
				N	S	E	W								
15	Sambucus nigra	200	6	1.5	2	3	1.5	4	SW	0.5	M	Fair	10-20	Deadwood in the crown of minor extent.Restricted inspection due to access and ivy.	C2
16	Crataegus monogyna	280	7	3	3	3	3	5	North	5	M	Good	20-40	Deadwood in the crown of minor extent.Restricted inspection due to access and ivy.	B2
17	Crataegus monogyna	250	6	2	2	2	2	3	East	1.5	M	Fair	10-20	Pruning wounds to crown.Restricted inspection due to access and ivy.	C2
18	Salix caprea	400	6	2	3	3	3	3	SW	2	M	Fair	10-20	Pruning wounds to crown.Previous branch failures noted.Restricted inspection due to access and ivy. Lost its top in past.	C2
19	Crataegus monogyna	300	8	3	2	4	1	5	SW	0.0	M	Fair	10-20	Deadwood in the crown of minor extent.Restricted inspection due to access and ivy.	C2

* Where the tree is multi-stemmed the conventions within BS5837:2012 are applied

Table 2: Tree Group Schedule

Table 1: Group Data Schedule

Group No.	Species	Min/Max Diameter (mm)		Average Height (m)	Average Crown Spread	Ave. Crown Height	Max. Age Class	Vigour	Life Expectancy	Structural Condition/Comments	BS5837 Category
G1	Sambucus nigra	12	18	6	3	2	SM	Fair	10-20	Epicormic growth on base and stem.Deadwood present of minor extent,Pruning wounds present.	C2
	Corylus avellana									Row of low value trees.	
	Crataegus monogyna										
	Ilex aquifolium										
G2	Crataegus monogyna	10	15	8	2	5	SM	Fair	10-20	Epicormic growth on stem.Deadwood present of minor extent,Pruning wounds present. Restricted inspection due to no access.	C2
	Corylus avellana									Hedgerow section growing between residential properties and site.	
	Ilex aquifolium										
G3	x Cupressocyparis leylandii	17	50	13	5	4	M	Fair	10-20	Deadwood present of minor extent,Pruning wounds present. Restricted inspection due to vegetation.	C2
										Row of closely planted Leyland cypress. Crown lifted on east side and crown reduced.	
G4	x Cupressocyparis leylandii	20	30	8	4	1.5	SM	Fair	10-20	Deadwood present of minor extent,Previously topped, Restricted inspection due to no access.	C2
										Row of closely planted cypress. Topped leaving unsightly.	
G5	Thuja plicata	20	50	13	5	1	M	Good	20-40	Deadwood present of minor extent,Previous branch failure, Pruning wounds present. Off site tree group. Restricted inspection due to no access.	B2
	Salix fragilis									Predominantly western red cedar group.	

Table 3: Hedge and Scrub Schedule

Table 1: Woody Scrub / Shrubs / Hedge / Saplings

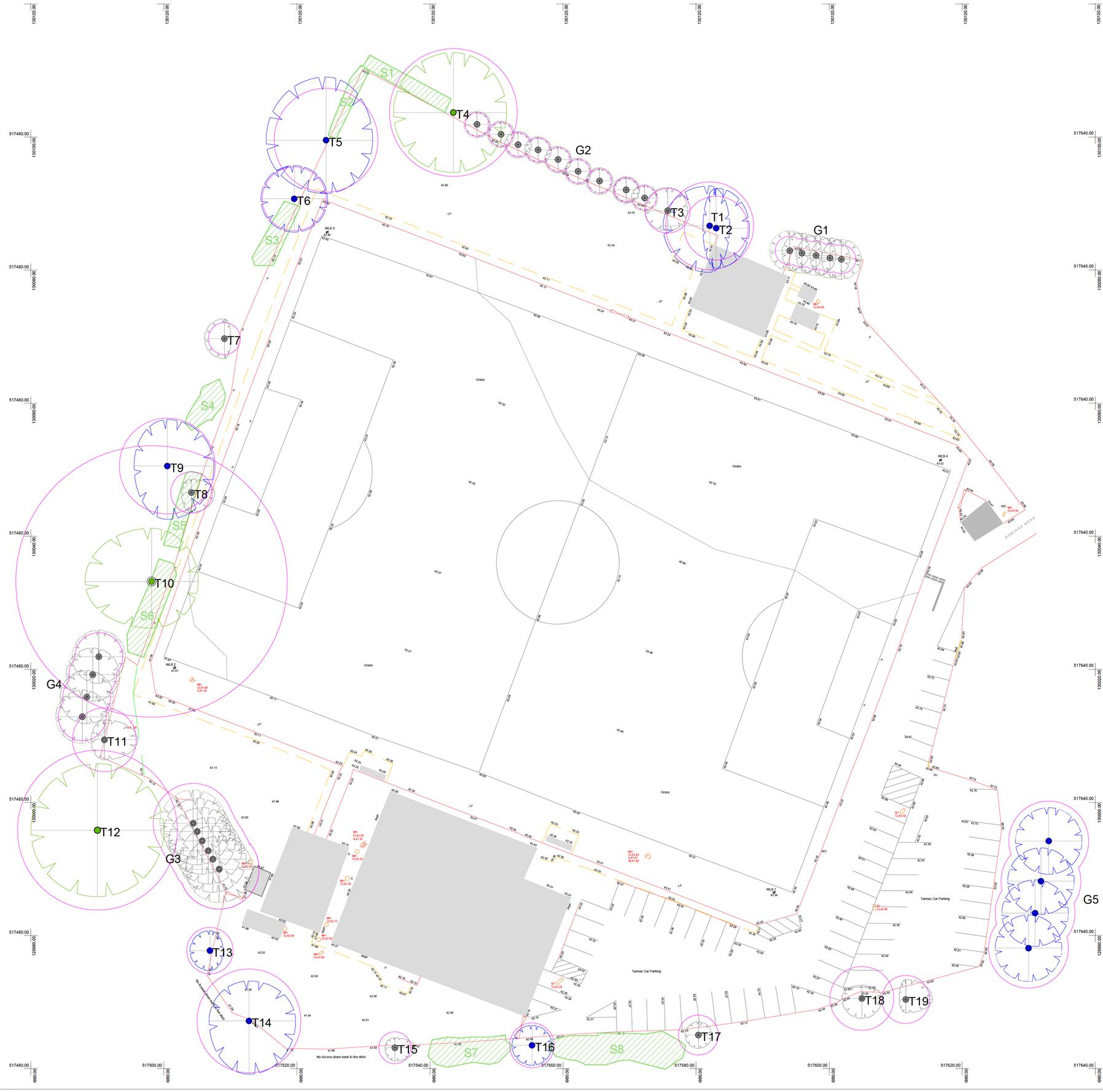
Section No.	Species		Height (m)	Comments
S1	Corylus avellana Ilex aquifolium	x Cupressocyparis leylandii	3.5	Hedge section. Regularly trimmed.
S2	Lonicera nitida Snowberry	Pyracantha sp.	2	Hedgerow section. Regularly trimmed.
S3	Corylus avellana Budleia davidii	Ilex aquifolium	5	Hedge section. Regularly trimmed to sides.
S4	Corylus avellana	Ilex aquifolium	7	Hazel/holly shrubs. Off-site.
S5	Prunus laurocerasus		4	Hedge section. Regularly trimmed to sides.
S6	Corylus avellana	Crataegus monogyna	6	Hedge section. Regularly trimmed to sides. Parts of hazel have been layered into fence by ground staff approx. 5 years ago. Land drops steeply away on
S7	Corylus avellana Viburnum opulus	Salix fragilis Salix caprea	5.0	Mass of vegetation growing outside fence on embankment down to stream to south.
S8	Salix caprea	Salix fragilis	5.0	Mass of vegetation growing outside fence.

Figures

JSL4231_700: TREE CONSTRAINTS PLAN

JSL4231_710: TREE PROTECTION PLAN

JSL4231_780 & 781: LANDSCAPE PLANTING PLAN



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Notes

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Key

- Site boundary.
- Tree with numbered reference. Canopy spread and BS5837:2012 tree quality category as shown below.
- G1 Vegetation group with numbered reference. Average canopy extent and BS5837:2012 tree quality category as shown below.
- Scrub/Hedge/Shrubs/Saplings with numbered reference.

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

- Root protection area (RPA) calculated in accordance with Section 4.6 - BS5837:2012

NOTES:

- Refer to RPS Tree Schedule for further details.
- Survey based on a visual inspection from the ground and is not intended as a full arboricultural inspection.
- Plan produced in accordance with recommendations set out in BS 5837:2012 - 'Trees in Relation to design, demolition and construction'.
- Due to the legal protection afforded to breeding birds vegetation removal should not take place during the bird nesting period; generally, although not restricted to, March - August inclusive.
- Survey carried out using sub metre GPS survey device and Topographical Survey information provided.

N

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SCALE 1:200

Rev	Description	By	CB	Date

RPS MAKING COMPLEX EASY
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Client: McARDLE SPORT TEC

Project: Horsham YMCA FC AGP

Title: Tree Constraints Plan

Status	Drawn By	PM/Checked by
Planning ready	BW	TF

Job Ref	Scale @ A0	Date Created
JSL4231	1:200	October 2021

RPS Drawing / Figure Number: 700

Rev: -

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Tree Protection Specification

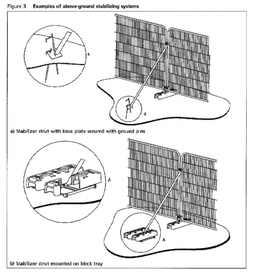
All vegetation identified for removal should be removed prior to the start of works. The Tree Protection Plan (see drawings 710), provide details of vegetation removals.

An assessment of crown impacts should be carried out by the Consultant Arboriculturist or the Clients Landscape Manager prior to implementing tree protection, so that any potential requirements for access pruning have been assessed.

Any access pruning should be carried out prior to the installation of the Tree Protection Fencing and carried out to the standards set out in BS3998:2010 Tree Works - Recommendations.

Tree Protection Fencing should be to the specification below:

Figure 3 **Examples of above-ground stabilizing systems**



a) Stabilizer strut with base plate secured with ground pins

b) Stabilizer strut mounted on block tray

Tree Protection should be form of braced Heras fencing panels secured with anti tamper clips and with supports fixed into the ground to prevent movement once installed. Manufacturers' recommendations should be provided to assure correct installation.

All personnel should be made aware of the protected areas and instructed to keep them free of materials, waste and excess soil. Soil disturbance should be prohibited and travel of any kind, including foot traffic should also be excluded within the root protection area (RPA) unless previously agreed and adequate ground protection has been installed. Where foot traffic is agreed within the RPA, single thickness scaffold boards laid over a compressible material on a geotextile, or supported by scaffold should suffice. Where vehicular access through the RPA is agreed an engineer should be consulted to design adequate ground protection methods.

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Key

- Site boundary
- Tree to be retained (T1/G1)
- Tree to be heavily reduced leaving manageable core for continued ecological benefit to locality (T5)
- Tree subject to TPO

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

- Root protection area (RPA) calculated in accordance with Section 4.6 - BS5837:2012
- Scrub/Hedge/Shrubs/Saplings to be retained
- Scrub/Hedge/Shrubs/Saplings to be removed
- CEZ (Construction Exclusion Zone) - Tree Protection Fencing (Heras style - see inset)

NOTES:

- Refer to RPS Tree Schedule for further details.
- Survey based on a visual inspection from the ground and is not intended as a full arboricultural inspection.
- Plan produced in accordance with recommendations set out in BS 5837:2012 - 'Trees in Relation to design, demolition and construction'.
- Due to the legal protection afforded to breeding birds vegetation removal should not take place during the bird nesting period; generally, although not restricted to, March - August inclusive.
- Survey carried out using sub metre GPS survey device and Topographical Survey information provided.

N

0m 2 4 6 8 10 12 14 16 18 20m
SCALE 1:200

Rev	Description	By	CB	Date
B	Amended text in key	TF	BW	Feb 23
A	First issue	BW	TF	Aug 22

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Client: McARDLE SPORT TEC

Project: Horsham YMCA FC AGP

Title: Tree Removal & Protection Plan

Status	Drawn By	PM/Checked by
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Job Ref	**Scale @ A0**	**Date Created**
JSL4231	1:200	August 2022
RPS Drawing / Figure Number		**Rev**
710		B

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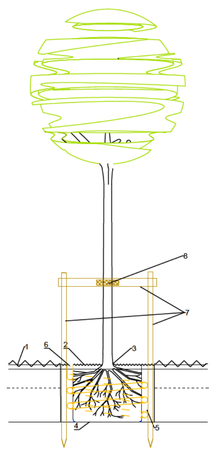
Individual Tree Planting Specification

Individual Tree Planting Specification

Tree Pit Design: Planting Deciduous



Key

1. Grass Sward
2. Tree pit surface area as large as possible, with organic mulch layer
3. Root Flare
4. Base of tree pit undisturbed unless drainage problems are apparent
5. Backfill replicating existing topsoil/subsoil profile.
6. Irrigation pipe
7. Double stake system with crow bar (no higher than one third tree height)
8. Tree Block and tie as agreed with client

Plant Handling at Site

Unloading and temporary storage

The contractor shall ensure that the young trees from the nursery should ensure that the trees are unloaded from the lorry in a speedy and efficient manner. A full quality check should take place at the time of unloading. Any defects or breakages should be reported to the dispatching nursery immediately. Trees that do not meet the specification or are otherwise unsatisfactory or damaged should be rejected and returned.

Rootballed or containerized trees shall be lowered intact from the delivery vehicle and shall not be dropped onto the ground, as this can cause damage to the root system.

The time that trees are held in temporary storage should be kept to a minimum. The storage area should be specific for that purpose. The site should be isolated from areas where there is the potential for contamination from other stored materials on neighbouring sites or damage from vehicles.

Planting

Considerations Below Ground

The planting pit position and rooting location will be reviewed by the contractor and any issues reported to the site manager for discussion with the client.

When digging the pit the base of the tree pit should remain undisturbed unless there are specific problems such as poor drainage, soil smearing or pans resulting from pit construction which need to be rectified.

The backfill medium used should be as close as possible in texture and structure to the soil excavated from the tree pit. Ideally the soil dug from the excavated pit should be used as the backfill medium.

Topsoil should not be used below the depth of the original topsoil layer.

An approved below-ground irrigation system should be used to aid establishment.

Considerations above ground

Prior to placing the tree within the pit the tree stake used should be driven into the ground to a sufficient depth to provide full support for the tree.

The ties and support system should be attached as recommended by the manufacturer. The support system should be no higher than one third the height of the tree being planted.

The length of time for which this support system is left in place should be assessed during the initial and on-going maintenance of the landscape area. All support systems should be removed as soon as possible.

Mulches are beneficial to transplanting success and should be used. The root flare and the base of the stem should be maintained free from mulch. The tree should be irrigated before mulch is applied. A mulch depth of 50 mm to 100 mm is required. The mulch should be an organic based material such as composted bark or similar.

Planting the tree

NOTE Planting depth is critical to transplanting success. Planting too deep is often identified as a common cause of failure. The root flare of the newly planted tree should be clearly visible at the soil surface. It should not be buried by excess soil or mulch. Where root flare should be revealed at the time of planting.

If a rootballed tree has used the hessian, twine and the wire cage should be loosened. If wire encircles the stem diameter as part of the wire cage of the rootball, this should be cut and removed. If a containerised tree has been used all pot/bag materials should be removed and disposed of.

Any minor branch damage should be removed by pruning, ensuring that any branch removal does not include the branch collar attachment.

At no time should trees at the planting site be left with their root systems exposed or vulnerable to drying out.

The planting pit should be no deeper than the existing rootball or container depth.

Tree pit sides should not have compacted, glazed or smeared sides from digging. Sides of a planting pit that have been smeared or smoothed during excavation should be scarified.

Tree pits should have a diameter at least 75 mm greater than that of the root system.
During excavation of the tree pit the soil dug should be placed to one side separating topsoil and subsoil as far as is practical.

The tree's root system should be wetted prior to planting.

The tree should be planted at the correct depth taking into account the position of the root flare and the finished level. Allowance should be made for settling of the soil after planting.

Backfill should be added gradually in layers of 150 mm to 230 mm depth, ensuring the tree is held upright. At each stage the fill should be firmed in to eliminate all air pockets under and around the root system, but with care being taken not to excessively compact the soil.

The final layer of backfilling should not be consolidated, but should be of a sufficient depth to allow for settlement and mulching.

Immediately after planting, the tree pit should be saturated to field capacity

At this point the tree support system should be used.

Trees	Species	No.	Size	Type	Height (Metres)	Clear Stem (Metres)
1.	Acer campestre - Filed Maple	2	10-12	Select Standard	3.0	1.5-1.75
2.	Carpinus betulus - Hornbeam	3	12-14	Heavy Standard	3.5	1.75-2.0
3.	Quercus robur - English Oak	4	12-14	Heavy Standard	3.5	1.75-2.0
4.	Tillia cordata - Small Leaved Lime	3	12-14	Heavy Standard	3.5	1.75-2.0

Note : Trees to be planted in positions shown on plan.

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Key

Existing Tree with Canopy Spread

Tree Group with Average Canopy Extent

Scrub/Hedge/Shrubs/Saplings

Proposed Deciduous Individual Tree



N

0m 2 4 6 8 10 12 14 16 18 20m

SCALE 1:200

Rev	Description	By	CB	Date

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Client McARDLE SPORT TEC

Project Horsham YMCA FC
Proposed - AGP

Title LANDSCAPE PLANTING PLAN

Status	Drawn By	PM/Checked by
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Job Ref	Scale @ A1	Date Created
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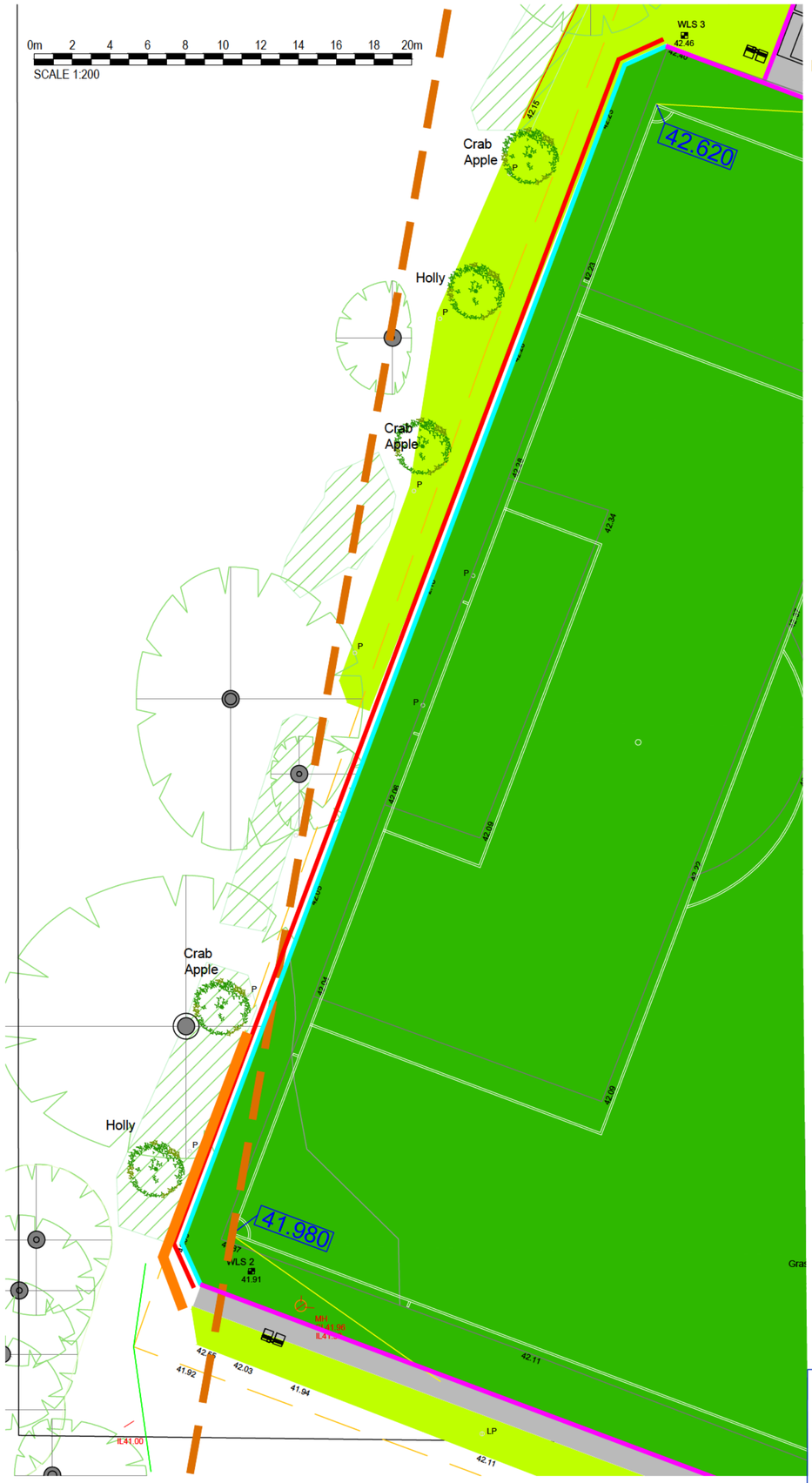

Individual Tree Planting Specification

Plant Handling at Site

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Planting

Considerations Below Ground

The planting pit position and rooting location will be reviewed by the contractor and any issues reported to the site manager for discussion with the client. When digging the pit the base of the tree pit should remain undisturbed unless there are specific problems such as poor drainage, soil smearing or pans resulting from pit construction which need to be rectified. The backfill medium used should be as close as possible in texture and structure to the soil excavated from the tree pit. Ideally the soil dug from the excavated pit should be used as the backfill medium.

Topsoil should not be used below the depth of the original topsoil layer. An approved below-ground irrigation system should be used to aid establishment.

Considerations above ground

Prior to placing the tree within the pit the tree stake used should be driven into the ground to a sufficient depth to provide full support for the tree. The ties and support system should be attached as recommended by the manufacturer. The support system should be no higher than one third the height of the tree being planted. The length of time for which this support system is left in place should be assessed during the initial and on-going maintenance of the landscape area. All support systems should be removed as soon as possible.

Mulches are beneficial to transplanting success and should be used. The root flare and the base of the stem should be maintained free from mulch. The tree should be irrigated before mulch is applied. A mulch depth of 50 mm to 100 mm is required. The mulch should be an organic based material such as composted bark or similar.

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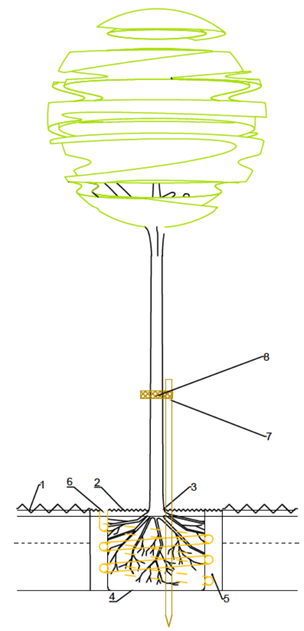
The final layer of backfilling should not be consolidated, but should be of a sufficient depth to allow for settlement and mulching. Immediately after planting, the tree pit should be saturated to field capacity. At this point the tree support system should be used.

Individual Tree Planting Specification

Trees	Species	No.	Size	Type	Height Metres
1.	Ilex aquafolium - Holly	2	10 -12	Select Standard	2.0-2.5
2.	Malus Rudolph - Crab Apple	3	10 -12	Select Standard	2.0-2.5

Tree Pit Design:



Key

1. Existing Ground Level
2. Tree pit surface area as large as possible, with organic mulch layer
3. Root Flare
4. Base of tree pit undisturbed unless drainage problems are apparent
5. Backfill replicating existing topsoil/subsoil profile.
6. Irrigation pipe
7. Single stake system (no higher than one third tree height)
8. Tree Block and tie as agreed with client

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Key

- Existing Tree with Canopy Spread
- Tree Group with Average Canopy Extent
- Scrub/Hedge/Shrubs/Saplings
- Proposed Deciduous Individual Tree

N

Rev	Description	By	CB	Date

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Project: Horsham YMCA AGP

Title: LANDSCAPE PLANTING PLAN

Status	Drawn By	PM/Checked by
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Job Ref	Scale @ A2	Date Created
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781	P01

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Appendix A

Methodology

General

Trees were inspected from ground level during a site visit. All data was recorded electronically within a ESRI ArcPad project and then upon return to the office it was imported into an MS Access database. Individual tree numbers and locations were plotted by eye on to a drawing at the time of the survey. Tree positions were then related to a Topographical survey of the site provided, where not shown on the topographical survey tree positions have been plotted by eye only and require confirmation. Colour coded versions of the drawings form part of this report (see drawing 700).

The data recorded includes:

- Height - data gathered using a Suunto optical clinometer PM - 5/1520. Where access to the tree was not possible the Heights were estimated.
- Diameter - measurements taken at 1.5 metres above ground level (or where multiple stems exist complying with requirements for BS5837).
- Tree crown spread – estimated measurement of the four cardinal points to provide information to be used with the arboricultural constraints plan
- Tree Crown Clearance – crown height above ground level
- Tree Condition - judged visually using the guidelines produced in the report. The condition is indicated with the appropriate colour on the map found in the report. (see drawing 700)
- Age class - estimated from an examination of the tree in question.

Age Classification

The following classification is employed:

Y - Young:	Saplings and young trees under 10 years of age
SM – Semi-Mature:	Trees older than 10 years but less than 40% of the life expectancy of their species.

EM – Early-Mature:	Trees between 40% and 70% of the life expectancy of their species.
M - Mature:	Trees between 70% and 100 of the life expectancy of their species.
OM - Overmature:	Trees considered to be beyond the normal life expectancy of their species.
V – Veteran:	Trees that show features of biological, cultural or aesthetic value that are characteristic of an individual surviving beyond the typical age range for the species.

Estimated Remaining Contribution in Years

The estimated remaining contribution in years is an estimate based on currently known factors of the possible remaining life of the tree as an asset. Clearly, it is impossible to predict changes in condition which may occur in the future and this reflects what is considered reasonable under existing circumstances. The following classification is employed:

Death or removal is likely within less than 10 years
Death or removal is likely within 10+ years.
Death or removal is likely within 20+ years.
Death or removal is likely beyond 40 years
The estimated remaining contribution in years will be dependent on the interaction of the typical longevity of the species, its current age and condition with prevailing environmental factors. The estimated remaining contribution in years also dependent on future tree management that can extend useful life in some instances.

Tree Condition.

The tree survey assessed the individual condition of all trees identified on the site. The assessment of condition is based on a visual and professional view.

The categories considered for Physiological Condition are good, fair, poor and dead.

Structural Condition is also commented on and this will include such items of presence of decay and physical defects.

Trees are living organisms and their condition can change rapidly in response to environmental variables. Condition remarks refer to the date of survey and cannot be assumed to remain unchanged. While there is no such thing as a safe tree, regular inspection of trees is recommended to reduce the foreseeable risks associated with trees. There is currently no published guidance from the UK insurance industry on the frequency of tree inspections. In the

German courts a bi-annual routine inspection is normally expected for older street trees, giving an indication of the rapidity of change in condition that can occur.

Preliminary Management Recommendations

Recommendations are given where it is felt by the arborist that further investigations are required due to suspected defects and work recommendations for pre-construction tree work.

Tree Categorisation Using BS 5837 Methodology

The trees surveyed were categorised using the method explained in BS5837:2012. This method categorizes individual trees, groups and woodlands in a systematic way. Each tree, group or woodland is identified on an attached plan.

Groups are identified as those trees forming a single arboricultural feature with trees that provide companion shelter, are avenues or screens or cultural.

Initially the surveyor will determine if the tree should be regarded as a U category tree. U category trees are those that are low value trees that have little future due to physiological and structural condition.

Other trees are graded A, B or C. The initial category should reflex the trees value in making an important contribution to the amenity of the site over a period of time. The higher the category the longer the perceived time period.

A sub category is included 1, 2 or 3. This sub category reflects the type of value the surveyor feels the tree presents in regards its value to 1 – arboricultural, 2 – landscape, 3 – cultural or conservation.

The cascade chart used is included as Appendix C of this report.

Appendix B

The Tree Constraints Plan

The Tree Constraints Plan (see drawing 700) is designed to show the influence that the trees have upon the site by virtue of their size and position. The plan seeks to act as a design tool that shows both the above and below ground constraints presented by the trees.

The information provided within this section of the report is to assist in the interpretation of the Tree Constraints Plan and aims to ensure that those trees selected for retention can be successfully integrated within the proposed development.

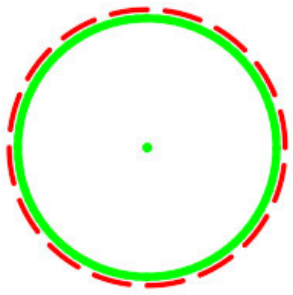
It should be noted that some of the tree positions shown on the plan have been plotted by eye to an Ordnance Survey base map and as such should be considered to be of a provisional nature.

Below Ground Constraints

Root Protection Areas

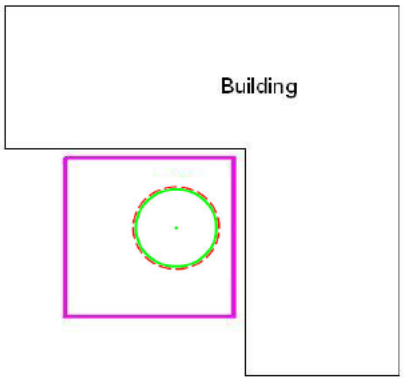
Root Protection Areas for each tree and group of trees surveyed have been determined in accordance with BS5837:2012 and a schedule of Root Protection Areas is attached to this report as Table 2.

As shown below Root Protection Areas (RPA's) for the trees, where no significant constraints to root development are considered to be present, have been plotted onto the Tree Constraints Plan as circles, with the tree located centrally, extending to encompass the area of ground, and thus the rootable soil volume, required for protection.



Where tree root spread is considered to have been influenced by site conditions the trees RPA's have been plotted to the Tree Constraints Plan as a polygon. The plotted polygon is of the same area as it would be as a circle and its shape reflects an arboricultural assessment of likely root distribution.

An example of a polygonal RPA, considered appropriate due to the presence of a building in close proximity to a tree, is shown below.

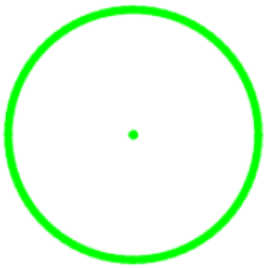


Where possible all development, including new hard landscaping, shall be situated outside of the retained trees designated Root Protection Areas.

Above Ground Constraints

Existing Canopy Spreads

The existing canopy spreads of the trees on site are shown on the Tree Constraints Plan as depicted below.



The current spread of the tree is a constraint due to its dominance, size and movement in strong winds.

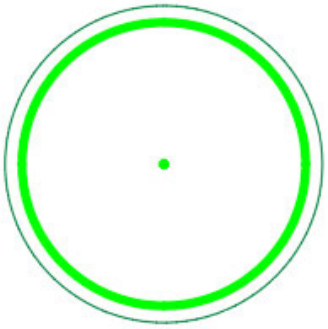
It will typically be unacceptable to design any built development within the current spread of a tree.

Where built development is proposed in close proximity to existing trees consideration should be given to the amount of working space required to allow its construction.

Future Tree Growth

Some of the trees surveyed are not yet mature and they have the potential for future growth. Where these are to be retained consideration to their ultimate crown spread should be given as future branch growth may result in interference with proposed development, damage to branches and the need for a tree pruning regime.

To facilitate assessment of future tree growth maximum expected canopy spreads have been marked on the Tree Constraints Plan (see drawing 700) as shown below.



The area of mature tree spread is estimated by the arboriculturist and is their best judgement of mature crown spread based on experience and with regard to the current tree growth observed on the site.

Within the area of maximum branch spread construction activities should be restricted for the long-term health and vigour of the trees.

In this respect it is considered that within the area of maximum branch the construction of utility buildings, such as single storey garages or sheds and the installation of hard surfaces would generally be an appropriate form of construction, however should car parking be proposed beneath the ultimate spread of trees the likelihood of fruit fall, leaf litter or sap exudate causing a nuisance must be considered.

In addition it is important to consider the likelihood of damage to trees or structures that may be caused by continuous whipping of branches in windy conditions. In such circumstances branches may have to be repeatedly cut back which will introduce wounds in the tree and may spoil its form or shape. In general terms trees should not be retained upon the basis that their ultimate branch spread can be significantly controlled by periodic pruning.

Canopy Height / Clearance

The height and growth direction of the lowest branch of each tree is recorded in the Tree Data Schedule contained within this report as Table 1. Additionally the vertical clearance of the trees canopy above ground level is recorded within the Tree Data Schedule.

The two figures can be used to inform the extent to which a trees crown may be at risk of damage during development as a result of vehicular or plant movements within the site and to assess the need for additional protective measures to be implemented to protect low branches.

In particular it should also be noted that where the Root Protection Areas for retained trees do not extend to the edge of existing canopy spreads it is possible that those parts of the trees extending beyond the RPA fencing may sustain damage during construction.

Where this occurs there are two primary options available to manage and minimise the potential for damage to tree canopies to occur during development and these may be used singularly or in combination.

The first option is to create a Construction Exclusion Zone (CEZ), by the erection of protective fencing, around the full extent of the trees. The second is to undertake pre-development pruning works to the trees to reduce the potential for branch damage to occur.

Appendix C

BS5837 Cascade Chart for Tree Quality Assessment

Table 1 Cascade chart for tree quality assessment

Category and definition	Criteria (including subcategories where appropriate)			Identification on plan
Trees unsuitable for retention (see Note)				
Category U Those in such a condition that they cannot realistically be retained as living trees in the context of the current land use for longer than 10 years	□ 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**.*			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 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)	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 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	Mid Blue
Category C Trees of low quality with an estimated remaining life expectancy of at least 10 years, or young trees with a stem diameter below 150 mm	Unremarkable trees of very limited merit or such impaired condition that they do not qualify in higher categories	Trees present in groups or woodlands, but without this conferring on them significantly greater collective landscape value; and/or trees offering low or only temporary/transient landscape benefits	Trees with no material conservation or other cultural value	Grey

Appendix D

Tree Protection Barriers

Root Protection Area Barrier Details

Protective Barrier Specifications

Since trees are living organisms which interact with their immediate environment any changes made to their surroundings may have a bearing on that trees future. Developing a site will undoubtedly place any trees within close proximity under some level of stress, which could predispose them to infection. The aim of this method statement is to limit the amount of stress induced by introducing protection measures.

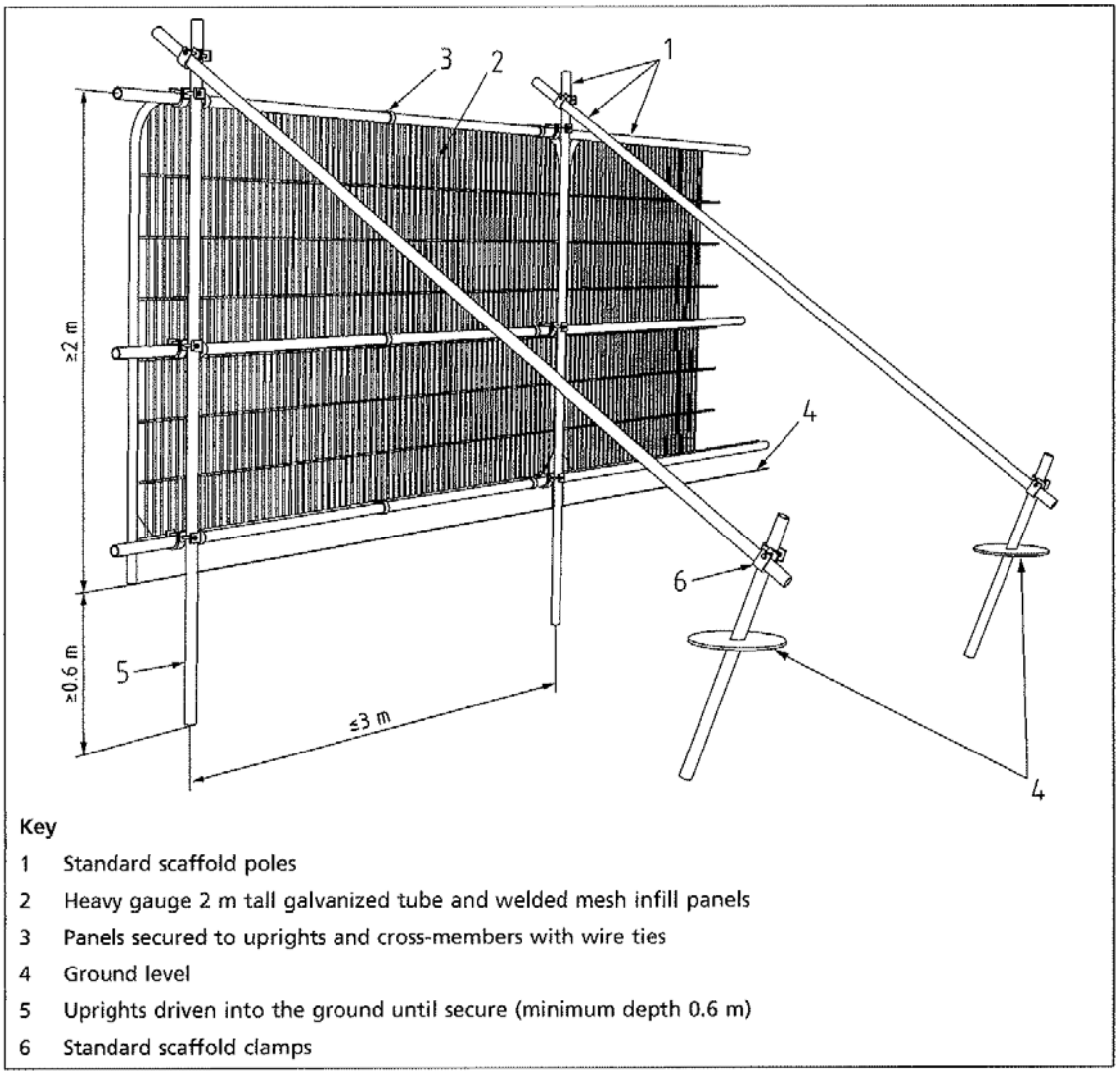
The most effective way of offering protection is by erecting protective barriers set at a distance from the tree stem using the methods given within BS 5837: 2012 Trees in Relation to Design, Demolition and Construction. Barriers should be braced and constructed to resist impacts; see below for barrier specification required. Barriers can be of an alternative specification to that within the BS5837:2012 provided it is approved by the Local Planning Authority Tree Officer.

Barriers should be erected before any works commence on site with the exception of recommended tree work. Areas of retained and future structure planting should be similarly protected.

All personnel should be made aware of the protected areas and instructed to keep them free of materials, waste and excess soil. Soil disturbance should be prohibited and travel of any kind, including foot traffic should also be excluded within the root protection area (RPA) unless previously agreed and adequate ground protection has been installed. Where foot traffic is agreed within the RPA, single thickness scaffold boards laid over a compressible material on a geotextile, or supported by scaffold should suffice. Where vehicular access through the RPA is agreed an engineer should be consulted to design adequate ground protection methods.

Suggested Barrier Specification (as per BS5837: 2012)

Figure 2 **Default specification for protective barrier**



Key

1 Standard scaffold poles
2 Heavy gauge 2 m tall galvanized tube and welded mesh infill panels
3 Panels secured to uprights 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

Appendix E

Construction Exclusion Signage – Example





Appendix F

Arboricultural Glossary

Abiotic Factors - Non-living factors of the environment, including temperature & wind.

Age-class - A general classification of the tree into either - young, semi-mature/maturing, mature, over-mature, or senescent.

Apical Bud/Shoot – The apical bud, also known as the leading shoot, is responsible for shoot extension and is dominant.

Apical Dominance – A singular, leading shoot remains dominant.

Arboreal - In connection with, or in relation to, trees.

Arboriculturist – Person who has, through relevant education, training and experience, gained recognised qualifications and expertise in the field of trees in relation to construction.

Arboricultural Implications Assessment (AIA) – Study, undertaken by an arboriculturist, to identify, evaluate and possibly mitigate the extent of direct and indirect impacts on existing trees that may arise as a result of the implementation of any site layout proposal.

Arboricultural Method Statement (AMS) – Methodology for the implementation of any aspect of development that has the potential to result in the loss of or damage to a tree. Note the AMS is likely to include details of an on-site tree protection monitoring regime.

Biotic factors - Living factors. For example, animals and pathogens.

Bottle Butt – Term used to describe shape of stem base, usually associated with an internal defect – refer to 'Reaction Wood' below.

Branch union/junction - The point at which a branch joins a larger stem. Can be a point of weakness, especially in certain species.

Cambium - A lateral meristem (see below) in vascular plants located just beneath the bark responsible for secondary growth, e.g. production of annual growth rings.

Canker – A clearly defined area of dead and sunken or malformed bark, caused by bacteria or fungi. Can have a bearing on structural integrity of infected limb(s) depending on size and location.

Chlorosis/Chlorotic – Abnormal yellow or yellow-green coloration of usually green leaves. Essentially a reduction of chlorophyll levels often as a result disease or nutrient deficiency.

Co-dominant stems - A growth characteristic, where two or more stems of similar size grow from the same point. Can create an inherent weakness.

Compaction - The compressing & hardening of soil around tree root systems, due to vehicular/pedestrian use etc. Loss of pore space between soil granules limits water movement and gaseous exchange and inhibits root growth.

Competent person – Person who has training and experience relevant to the matter being addressed and an understanding of the requirements of the particular task being approached

Note 1 A competent person understands the hazards and the methods to be implemented to eliminate or reduce the risks that can arise. For example, when on site, a competent person is able to recognise at all times whether it is safe to proceed.

Note 2 A competent person is able to advise on the best means by which the recommendations of this British Standard may be implemented.

Condition – Assessment based on a visual and professional view giving consideration to many factors such as tree health, structural integrity and suitability of its position.

Construction Exclusion Zone – Area based on the RPA (in m^2), identified by an arboriculturist, to be protected by development, including demolition and construction work, by the use of barriers and/or ground protection fit for purpose to ensure the successful long-term retention of a tree.

Coppice - The method of managing trees by cutting the stems at between 1.0 inch and 1.0 foot from the ground level on a regular cycle, the cut stumps of the trees or shrubs are allowed to re-grow many new stems.

Crown spread - Gives distances between extreme limits of the crown and the stem, usually along the four compass points. Helps to show crown symmetry.

Crown Reduction – The removal of branch ends to reduce the extreme limits of a trees branch spread and height.

Crown Thin – The removal of selected branches within the crown to thin the internal branch structure.

D.B.H. - 'Diameter at Breast Height', an industry standard to gauge tree stem size and development. Within arboriculture, breast height is taken to be 1.5m above ground level.

Dieback - The reduction in crown vigour and extension growth progressing to death of distal parts; often associated with decline.

Epicormic/adventitious growth - New growth from dormant buds that can often form tenuous attachments. Although some species readily form such shoots, it can be an indication of stress.

Feathered Whip – Size of tree for planting, usually ranging from 1.25m to 2.5m in height.

Form - A general assessment of the shape and position of the tree within its' environment.

Frass – Debris such as bore dust left by wood boring insects.

Hanger – Term used to describe a branch that has become detached and is being supported by other branches. Can be a hazard to persons and property below.

Hazard Beam – After the loss of a distal part, a limb concentrates growth upwards creating adverse end weights that can render the limb susceptible to failure.

Heavy Standard – Size of tree for planting, usually above 3.5m in height.

Included bark – Growth characteristic usually caused when two or more stems/branches growing in close proximity 'fuse' together entrapping the bark from when the parts were separate in the middle, creating a structural weakness.

Meristem - The undifferentiated plant tissue from which new cells are formed, such as that at the tip of a stem or root.

Meristematic Disorder – A growth disorder caused by a disruption of the meristem (see above) from any of a number of biotic factors (see above). Manifests as growths such as 'Witches Brooms' & 'Galls'.

Necrosis/Necrotic – Death of tissues usually characterised by a blackening in colour.

Occlusion/Occluded – Normally used to describe the overgrowth of a wound. Also, immoveable foreign objects in contact with a tree part can become encased or 'occluded' by the tree as it grows incrementally.

Pathogen - An agent that causes disease, especially a living microorganism such as a bacterium or fungus.

Plasticity index - The table used to calibrate the shrinkability of a clay soil.

Pollard – The removal and subsequent regular re-removal of the crown of a tree above animal browsing height. Can be an effective method of controlling the size of trees in urban areas. This is ideally begun in the trees early stages and maintained throughout its life.

Reaction wood - Essentially additional wood laid down by the tree to compensate for structural defects such as cavities.

Ring barking/Girdling – the removal of bark around the entire circumference of a stem or branch, causing the death of all distal parts.

Root Protection Area (RPA) – Layout design tool indicating the area surrounding a tree that contains sufficient rooting volume to ensure the survival of the tree, shown in plan form in m^2.

Saprophyte – An organism which exists on dead plant material.

Scaffold branches - The main structural branches within the crown.

Services – Any above ground and piped and/or ducted underground infrastructure including water main, electricity supply, gas supply, fibre optic utilities, telecommunications cabling, storm and foul water drainage, including temporary storage for run-off, pumping stations, interceptors and other allied buried structures.

Shrinkable clay – Clay soil which alters in volume depending on moisture content. Property sited on shrinkable clay can suffer subsidence damage due to soil desiccation; this can be due to the water uptake of nearby vegetation, including trees.

Special engineering – design of a structure with the physiological requirements of trees as the priority.

Standard – Size of tree for planting, usually ranging from 2m to 3.5m in height.

Structure – Man-made object, such as a building, carriageway, path, wall, services, and built and excavated earthworks.

Transplant – (1) size of tree for planting, usually ranges from 0.2m to 0.9m in height (2) the relocation of a tree or shrub including a given portion of the root system.

Tree Constraints Plan (TCP) – Plan prepared by an arboriculturist for the purposes of layout design showing the RPA and representing the effect that the mature height and spread of retained trees will have on layouts through shade, dominance, etc.

Tree protection plan – scale drawing prepared by an arboriculturist showing the finalised layout proposals, tree retention and tree and landscape protection measures detailed within the arboricultural method statement (AMS), which can be shown graphically.

U.L.E – 'Useful Life Expectancy' is an estimate based on currently known factors of the possible remaining life of the tree as an asset.

Veteran tree – Tree that, by recognised criteria, shows features of biological, cultural or aesthetic value that are characteristic of, but not exclusive to, individuals surviving beyond the typical age range for the species concerned.

Vigour - A general classification, as to the present and future potential growth and development of a tree. A comment regarding the health status of the tree specific to its species.

Water Demand - A generic classification of the water demand of specific species as outlined by the NHBC (National House Building Council).

Whip – Size of tree for planting, usually ranging from 1m to 1.75m in height.