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Arboricultural Impact Assessment

- Tree Survey
- Tree Protection Plan
- Preliminary Arboricultural
Method Statement

At:-

Moorlands Primary School
Church End Lane
Tilehurst
Reading
Berkshire RG30 4UN

On behalf of:-

HCC Property Services
Three Minsters House
76 High Street
Winchester
Hampshire SO23 8UL

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Survey Dates: 1st December 2016
Report Date: 23rd January 2018
Project no: 771

CONTENTS

- 1 BACKGROUND**
- 2 SURVEY DETAILS AND SCOPE**
- 3 SURVEY LIMITATIONS**
- 4 LEGAL PROTECTION OF TREES**
- 5 PRELIMINARY ARBORICULTURAL METHOD STATEMENT**
- 6 ARBORICULTURAL IMPACT ASSESSMENT**

Appendices

- A Tree Protection Plan: drawing nos: 771-03.1, 771-03.2, 771-03.3**
- B Tree Schedule**
- C BS 5837:2012 - Trees in relation to design, demolition and construction, Table 1**
- D Tree Protection Fencing Detail**
- E Site photos**
- F Landscape Proposals Plans, drawing nos: L-7011A, L-7011B**

1 BACKGROUND

- 1.1** This Arboricultural Impact Assessment relates to the proposed demolition of a modular temporary classroom and the construction of two stand alone teaching blocks, a classroom extension and an extension to the administration block, together with alterations to the playground areas, and provides recommendations for the management of trees on the site. It has been instructed by HCC Property Services on behalf of Moorlands School.
- 1.2** The tree survey was undertaken, and this report has been prepared, by Catherine Fforde HND Hort, Dip Arb L4(ABC), MCIHort, TechArborA and approved by Simon Stephens MA Oxon, Dip Arb (RFS), MArborA, C Env, MICFor a Registered Consultant with the Arboricultural Association, with over 20 years relevant experience.
- 1.3** This survey and report have been prepared in accordance with recommendations provided in BS 5837:2012, Trees in relation to design, demolition and construction - Recommendations.
- 1.4** Documentation supplied:
 - Topographical Survey
 - SJ Stephens Associates, Tree Constraints Report, dated 28-01-2017
 - HCC Property Services, Landscape Proposals School: drawing no: L-7011A
 - HCC Property Services, Landscape Proposals Rec: drawing no: L-7011B
 - HCC Property Services, Proposed Phasing, drawing no: E03153_SK_014 Rev E

2 SURVEY DETAILS AND SCOPE

- 2.1 The site survey included trees and shrubs, within influencing distance of the proposed development, with a stem diameter over 75mm at 1.5m height, located within the area shown on the Tree Protection Plan, included as Appendix A.
- 2.2 Tree inspection took place from ground level with the use of binoculars, sounding hammer and metal probe using the Visual Tree Assessment method (Mattheck & Breloer 1994). The presence and condition of bark and stem wounds, cavities, decay, fungal fruiting bodies and any structural defects that could increase the risk of structural failure were noted.
- 2.3 Tree details have been added to the plan received, which is included as Appendix A. Tree locations have been taken from the topographical survey provided. Where not included on the topographical survey, they have been determined by measuring distances from features shown on the plan, using a laser measuring device. The following information was recorded for each tree, and is shown in the Tree Schedule included as Appendix B:
- **Number:** an identity number for each tree, prefixed with a "T", which cross references locations shown on the plan with the schedule in Appendix B. Where a number of trees, normally of the same species, are located close together and are similar in character and requirements, they have been treated as a Group under a single Number, prefixed with a "G".
 - **Species:** common name.
 - **Tree height:** approximate height in metres.
 - **Stem diameter:** diameter in millimetres, taken at 1.5m above ground. Where there are a number of stems, stem diameters are recorded in the condition column.
 - **Branch spread:** approximate spread in metres to N,S,E and W of the trunk. The approximate branch spread is drawn on the plan.
 - **Canopy clearance:** approximate height of the canopy above ground. Where a significant, low lateral branch is present, its height and direction of growth is included in the Condition column.
 - **Age class:** Young, Semi-mature, Early mature, Mature, Over-mature, Veteran.
 - **Condition:** features that affect the safe useful life expectancy and amenity of the tree, including the presence of decay or any physical defect.
 - **Management Recommendations:** recommendations to ensure the health and safety of the tree, within the future development.
 - **Estimated Remaining Contribution:** <10 years, 5-15 years, 10-20 years, 15-30 years, 20-40 years, >40 years.
 - **Category grading:** tree classification taken from BS 5837:2012, Trees in relation to design, demolition and construction (see Appendix C for details), as follows:
 - Category U: Unsuitable for retention, trees with less than 10 years life expectancy, normally recommended for removal (Red)
 - Category A: high quality trees, able to make a substantial contribution for at least 40 years, normally retained unless there

is an over-riding reason for removal and appropriate mitigation. (Green)

- Category B: moderate quality trees, able to make a significant contribution for at least 20 years, normally retained. (Blue)
- Category B/C: an intermediate category between categories B and C (not specifically described in BS5837). Trees, which should be retained wherever possible, providing retention does not unreasonably constrain the layout. (Blue)
- Category C: low quality, in adequate condition to remain for at least 10 years, or young trees <150mm stem diameter. Trees which can be removed to allow the desired layout or new planting. (Grey)

For category A, B and C trees, a subcategory has been allocated, providing information on the reasons for selection of a specific category, as follows:

- Subcategory 1: mainly arboricultural values.
 - Subcategory 2: mainly landscape values.
 - Subcategory 3: mainly cultural values, including conservation.
- Trees have been classified irrespective of the possible proximity to future construction. The BS 5837 category is colour coded, as indicated above, on the plan included as Appendix A.
 - **Protection Distance:** the protection distance in metres required to provide the Root Protection Area recommended in BS 5837, assuming a circular area centred on the tree.
 - **Root Protection Area (RPA):** the area in m², as recommended in BS 5837, to provide sufficient rooting area to ensure tree survival and which, in most situations, should be fenced off to prevent root damage from construction activities.

3 SURVEY LIMITATIONS

- 3.1 No internal decay devices, or other invasive tools to assess tree condition, were used.
- 3.2 No soil excavation or root inspection was carried out.
- 3.3 This survey has not considered the effect that trees or vegetation may have on the structural integrity of future building through subsidence or heave.
- 3.4 The tree survey has been undertaken for planning purposes. Although any obvious structural defects have been noted, a Tree Hazard Assessment has not been carried out. Mature trees close to highly populated areas or public highways should normally be checked for safety annually, by a suitably qualified person.

4 LEGAL PROTECTION OF TREES

- 4.1.1 Reading Borough Council TPO Directory (updated 16-01-2018) viewed on 22-01-2018 showed that the site does not contain any Tree Preservation Orders. The Reading Borough Council website showed that the school is not within a Conservation Area. The presence of Planning Conditions currently attached to the site, was not checked.

5 PRELIMINARY ARBORICULTURAL METHOD STATEMENT

5.1 Site Overview

- 5.1.1 The proposal is for the construction of two new stand alone classrooms, a classroom extension and an extension to the administration block, together with alterations to the playground areas. Details of the new buildings and new areas of hard surfacing have been added to the survey drawing, along with tree details, to create the Tree Protection Plan attached as Appendix A. The Landscape Proposals drawings, which show details of the proposed alterations to the school, are attached as Appendix F.
- 5.1.2 Moorlands Primary School sits in an open site bordered by hedging to the east, some scattered vegetation to the west and an area of dense woodland to the northwest. The road frontage is attractively planted with small to medium sized trees and hedging. Within the site are small clusters of trees set mainly in close proximity to the school buildings.
- 5.1.3 Many trees within the playground and playing fields have heavily compacted rootplate areas, from foot traffic. A number of trees have exposed and damaged surface roots. An application of wood chip mulch has been recommended around affected trees in order to alleviate compaction and root damage.
- 5.1.4 The new stand alone classrooms are to be located within the existing playground and playing field area. A single, young maple (T15) will require removal to allow construction of a classroom canopy.
- 5.1.5 An existing modular classroom is to be demolished to allow construction of the classroom extension. The existing classroom is in close proximity to a mature Norway maple (T38). The area of the rootplate of this tree has been heavily compacted by foot traffic; a photo is included in Appendix E. The new classroom extension will occupy a smaller footprint and will be located outside the Root Protection Area of T38. New surfacing is proposed in place of the existing classroom, comprised of astro turf around the tree and a new hard surface footpath just within the outer edge of the Root Protection Area.
- 5.1.6 In addition to the proposed construction work within the school grounds an extension is proposed to the car park within the adjacent recreation ground. Trees located within the vicinity of the existing car park are set within a grassed area that is enclosed by post and rail fencing.

- 5.1.7 The construction work is to be carried out in three distinct phases. Access for construction will be via the recreation ground to the west of the school site. A thorn hedge (G31) runs along a large part of the boundary fence however there are other sections of fence that could be removed to allow access without impacting on existing vegetation.

5.2 Tree Work

- 5.2.1 Details of proposed tree works are included in the Tree Schedule included as Appendix B.
- 5.2.2 Eleven trees and one tree group are proposed for removal, as detailed in section 5.1 below.
- 5.2.3 In order to have adequate access tree removals will need to be carried out before the erection of tree protection fencing. No vehicles may enter, or woodchipping machinery be operated in, the Root Protection Areas of retained trees.
- 5.2.4 All tree work must be undertaken to the standards set out in BS 3998:2010 Tree work – Recommendations.

5.3 Root Protection Areas

- 5.3.1 Root Protection Areas are shown for all trees in the Tree Schedule attached as Appendix B. They are also shown for all retained trees, as circular areas centred on the trunk, on the Tree Protection Plan attached as Appendix A. This shows the distance that construction must normally be kept back from a tree, to provide the Root Protection Area recommended in BS 5837.

5.4 Tree Protection Fencing

- 5.4.1 Tree Protection Fencing must be erected where shown on the Tree Protection Plan, attached as Appendix A. This provides full protection of the Root Protection Areas of all retained trees, other than for:
- areas hatched in blue on the Tree Protection Plan, where No-Dig Construction must be used, as described in section 5.5 below, to protect underlying roots.
 - areas hatched cyan on the Tree Protection Plan, indicating Ground Protection Areas, where existing hard surfacing is providing protection to underlying roots, as described in section 5.6 below.
- 5.4.2 Tree Protection Fencing must be from weldmesh panels, at least 2m high, securely fixed, with wire or scaffold clamps, to a rigid framework. This framework must be constructed from scaffold tubes with vertical tubes, at a maximum interval of 3m and driven into the

ground at least 0.6m. The structure must be well braced to resist impacts, constructed as per Figure 2 of BS 5837:2012, which is reproduced in Appendix D. Alternatively, weldmesh panels can be supported on blocks, providing the blocks are pinned to the ground with road pins, or similar, and the panels are braced, as per Figure 3 of BS 5837:2012, which is also reproduced in Appendix D.

- 5.4.3 For each phase after erection of Tree Protection Fencing, two days notice must be given to the Local Planning Authority before demolition or construction, including any ground work, starts on site. Tree Protection Fencing must be maintained and retained for the duration of the works, or until such time as agreed in writing with the Local Planning Authority.
- 5.4.4 Weatherproof notices must be fixed to the Tree Protection Fencing, and maintained, stating:-

**TREE PROTECTION AREA
KEEP OUT**

TREES ENCLOSED BY THIS FENCE ARE PROTECTED BY PLANNING CONDITIONS
THE FOLLOWING MUST BE OBSERVED BY ALL PERSONS:

- The Protection Fence must not be moved
- No person or machine must enter the area
- No materials or spoil must be deposited
- No excavation must be permitted

ANY INCURSION INTO THE PROTECTED AREA MUST BE WITH THE WRITTEN
PERMISSION OF THE LOCAL PLANNING AUTHORITY

5.5 No-Dig Construction Areas

- 5.5.1 The No-Dig Construction areas are shown hatched blue on the Tree Protection Plan included as Appendix A. These cover areas within Root Protection Areas where new hard surfacing is to be constructed on existing unsurfaced areas and an area that is below an existing building, where it is assumed there is an area of existing hard surfacing.
- 5.5.2 Where existing soft areas within No-Dig Construction areas are to be replaced by new hard surfacing, they must be constructed without excavation apart from the removal of turf/organic matter, which must be carried out by hand. Engineering details must avoid localised compaction, using both a two dimensional geogrid, and a three dimensional cellular confinement system as integral components of the sub-base. A typical section is shown on the Tree Protection Plan included as Appendix A. As well as being fit for purpose, the design and methodology must protect tree roots, by ensuring the following:-
- topsoil/turf can be removed carefully by hand to a maximum of 75mm, but less if roots are found nearer the surface.
 - following leveling with soil or sand, a permeable, non-woven geotextile membrane, must be laid.
 - a suitable two dimensional geogrid, such the TriAx Geogrid supplied by Tensar International (www.tensar.co.uk), or the Biaxial Geogrid supplied by Geosynthetics

Ltd (www.geosyn.co.uk), must be laid over the entire area and underneath the edging.

- pressure treated timber edging boards, supported by driven stakes must be used.
- a suitable cellular confinement system must then be laid to manufacturers instructions on top of the geogrid. Products that might be considered include Geoweb, supplied by Greenfix (www.greenfix.co.uk) or Cellweb, supplied by Geosynthetics Ltd (www.geosyn.co.uk).
- the cellular confinement system must be filled with clean (no fines), washed angular, 4/20mm, stone to provide load support, while allowing air and moisture to permeate to the root zone.
- a further permeable, non-woven geotextile membrane, such as TreetexT300, or an alternative approved product which has similar oil trapping qualities, must be laid over the cellular confinement system.
- a porous, surfacing material, free from contaminants, must then be laid. Either sand bedding and block paving, gravel or permeable tarmac would be suitable.
- removed turf/topsoil can be used to grade surrounding ground levels.

5.5.3 Where existing hard surfacing within the No-Dig areas is to be replaced by new hard surfacing, no excavation must be permitted beneath the existing sub-base. If existing sub-base remains, it can be used as a base for the new build up. If the existing sub-base is removed, engineering details for the new build must avoid localised compaction, using both a two dimensional geogrid, and a three dimensional cellular confinement system as integral components of the sub-base. As well as being fit for purpose, the design and methodology must protect tree roots, by ensuring the following:-

- topsoil/turf can be removed carefully by hand to a maximum of 75mm, but less if roots are found nearer the surface.
- following leveling with soil or sand, a permeable, non-woven geotextile membrane, must be laid.
- a suitable two dimensional geogrid, such the TriAx Geogrid supplied by Tensar International (www.tensar.co.uk), or the Biaxial Geogrid supplied by Geosynthetics Ltd (www.geosyn.co.uk), must be laid over the entire area and underneath the edging.
- pressure treated timber edging boards, supported by driven stakes must be used.
- a suitable cellular confinement system must then be laid to manufacturers instructions on top of the geogrid. Products that might be considered include Geoweb, supplied by Greenfix (www.greenfix.co.uk) or Cellweb, supplied by Geosynthetics Ltd (www.geosyn.co.uk).
- the cellular confinement system must be filled with clean (no fines), washed angular, 4/20mm, stone to provide load support, while allowing air and moisture to permeate to the root zone.
- a further permeable, non-woven geotextile membrane, such as TreetexT300, or an alternative approved product which has similar oil trapping qualities, must be laid over the cellular confinement system.
- a porous, surfacing material, free from contaminants, must then be laid. Either sand bedding and block paving, gravel or permeable tarmac would be suitable.
- removed turf/topsoil can be used to grade surrounding ground levels.

- 5.5.4 Excavators, dumpers and other site traffic must not be allowed to track on the No-Dig areas until roots are protected by the No-Dig surfacing, or unless suitable ground protection has been laid. If access is required across No-Dig areas before the No-Dig surfacing is laid ground protection panels must be laid. Either Trakmats (supplied by the Marwood Group, www.marwoodgroup.co.uk), Groundtrax panels (see www.groundtrax.com), Ground-Guards, as supplied by Greentek (www.greentek.org.uk), or a similar approved product, must be used, laid on top of a compressible layer of sand or woodchips, laid onto a geotextile.
- 5.5.5 No-Dig construction will result in an increase in levels. This must be fully taken account of in all other aspects of the design.

5.6 Ground Protection Areas

- 5.6.1 The Ground Protection Areas, which are hatched cyan on the Tree Protection Plan, contain hard surfacing which is protecting any underlying roots. No excavation must be permitted beneath the base course within these areas.
- 5.6.2 Following demolition of the existing modular classroom within the Root Protection Area of the Norway maple, T38, an excavator must only be used for the removal of the hard surfacing to the west and south sides of the tree, and the floor slab and/or foundations of the classroom, if it can work only from areas of hardstanding, or from outside the Root Protection Area. A banksman must be present during this operation and excavation must go no deeper than the existing base course and must cease immediately if roots are found. Once the hard surfacing and any building foundations have been removed, immediately either:
- the new astro turf must be installed and tree protection fencing erected at the outer edge of this area, or
 - No-Dig surfacing must be laid, or
 - Tree Protection Fencing must be erected for temporary protection, or
 - Ground protection must be laid for temporary protection.

5.7 General measures

- 5.7.1 No construction activity whatsoever, including routing of underground services, storage of materials or on-site parking, must be allowed within Root Protection Areas, other than that specifically described above.
- 5.7.2 No mixing of cement, or concrete, or storage of fuel must take place within 10m of retained trees, nor in any position where the slope of the ground could lead to contamination of the Root Protection Area.
- 5.7.3 Fires must not be lit in a position where their flames could extend to within 10m of foliage, branches or trunk.
- 5.7.4 Landscape works carried out within Root Protection Areas must be undertaken with great care so as not to damage shallow roots. Tractor mounted rotovators or other heavy mechanical cultivation must not be used within the Root Protection Areas.
- 5.7.5 A copy of the Tree Protection Plan must be kept on site and must be fully understood by the Site Agent.

5.8 Bat roosts

- 5.8.1 The current legislation makes it a criminal offence to disturb, damage or destroy any bat roost or hibernation area. Contractors must be reminded of their responsibilities and should contact the relevant authorities if any signs of bats are found.

5.9 Birds

- 5.9.1 The current legislation makes it a criminal offence to disturb nesting birds. The nesting season is generally assumed to be from 1st March to 31st July, however this can vary depending on species and location. During these months a careful inspection must be made before work commences and works must be postponed if active nests are found.

5.10 Arboricultural Supervision

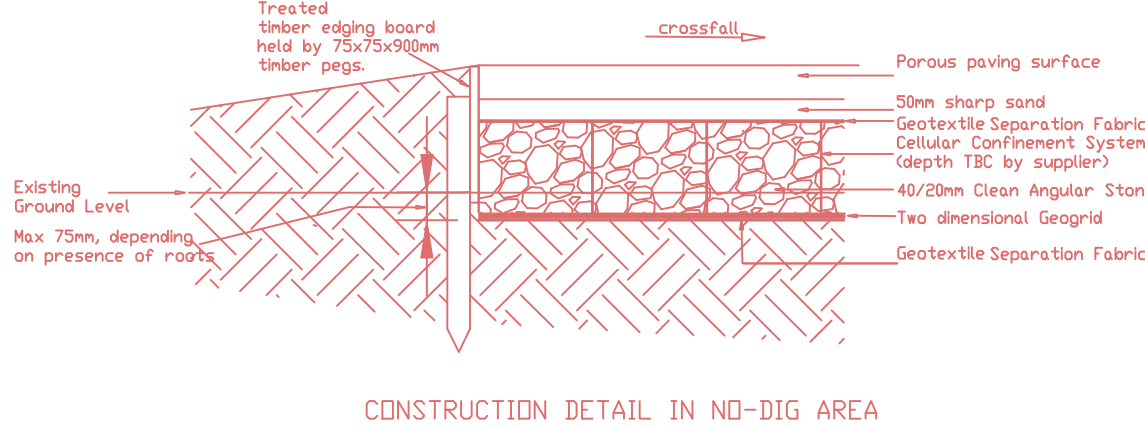
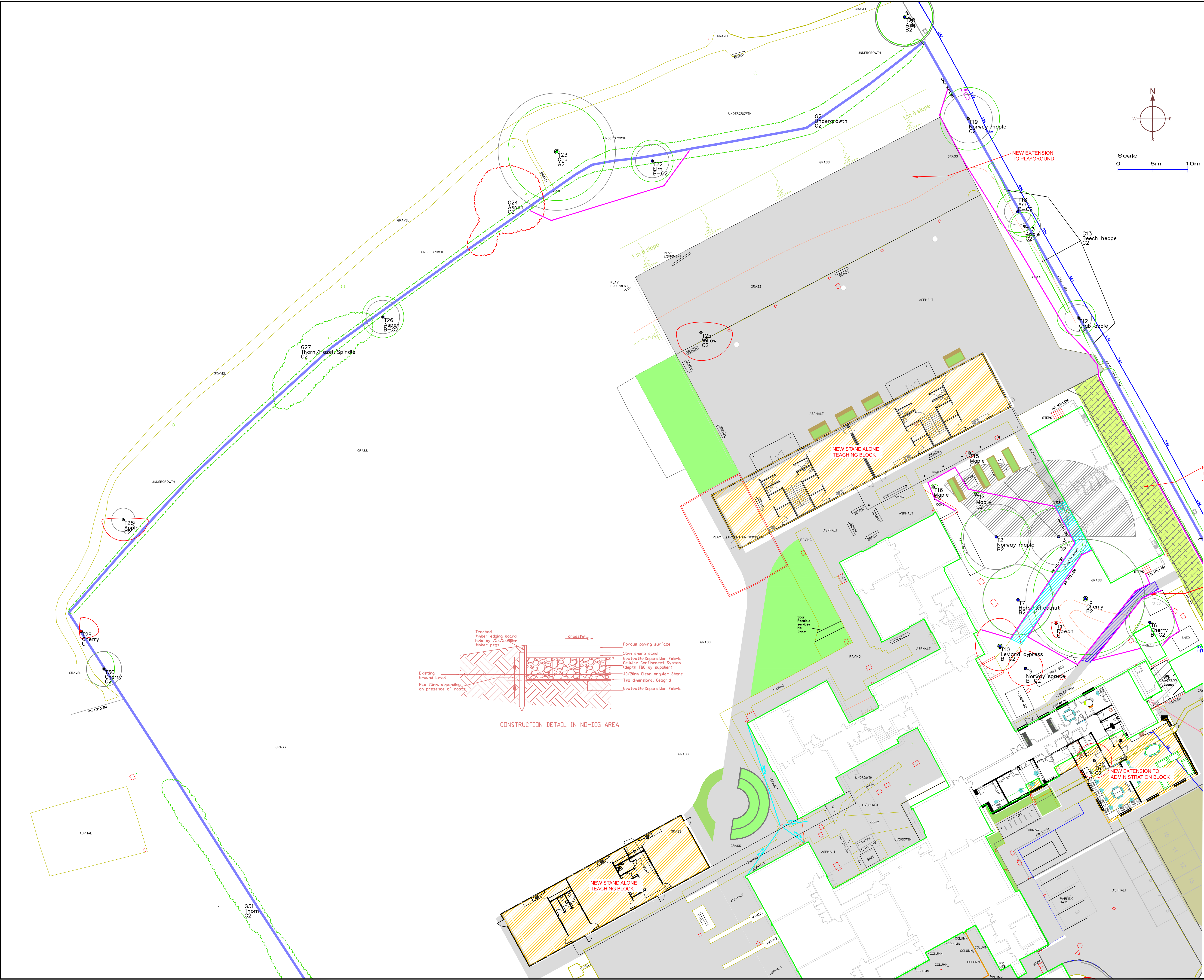
5.10.1 A qualified Arboricultural Consultant must be retained during the period of construction to carry out the following:

- to prepare a detailed Arboricultural Method Statement, to include tree protection plans specific to each phased stage of work, to include details of drainage, services, contractors facilities, construction access and a cross section through the No-Dig areas showing existing and proposed levels. The Arboricultural Method Statement must be approved by the Local Planning Authority, prior to construction or demolition starting on site.
- for each phase, to inspect Tree Protection Fencing and ground protection, prior to construction or demolition starting on site.
- as necessary, to advise on any issues at the request of the Local Planning Authority, the developer, architect or contractor.

The details of each site visit must be recorded using a site visit pro forma, with copies circulated to the contractor, developer and the local authority Tree Officer.

6 ARBORICULTURAL IMPACT ASSESSMENT

- 6.1** The following trees / tree groups, categorised as per BS 5837 (see Appendix C for details), are proposed for removal:
- Category U – unsuitable for retention: Four trees – T11, T29, T41 and T42.
 - Category C – low quality: Four trees – T15, T25, T36 and T51, and one tree group – G24.
- Category B/C – between categories B and C: Three trees – T9, T10 and T50
- T9 – a 10.5m, early mature Norway spruce of low amenity value.
 - T10 – a 12m, mature Leyland cypress. An unattractive tree of low amenity value.
 - T50 – a 10m, semi-mature beech that is growing from the base of a building. Future growth will cause damage to the building.
- 6.2** New landscaping, including provision of replacement trees, has been proposed to mitigate the loss of trees.
- 6.3** Although tree protection measures have been specified in this report for the entirety of the proposed works, the phasing of the work will affect which trees will require protection measures at each stage. For this reason it has been recommended that a full Arboricultural Method Statement is prepared, with tree protection measures specified for each of the phased stages.
- 6.4** Although preservation of Root Protection Areas is deemed to protect tree roots, in some cases buildings may need to be set further back to ensure the future sustainability of trees. If large trees are too close to buildings, future occupiers may be likely to seek their reduction, or removal, if they are cutting out excessive sunlight or providing a claustrophobic or threatening environment. Section 5.2.2 of BS 5837:2012 states that “an indication of potential direct obstruction of sunlight can be illustrated by plotting a segment with a radius from the centre of the stem equal to the height of the tree, drawn from due North West to due East, indicating the shadow pattern through the main part of the day.”
- 6.5** Shading patterns for key trees have been shown on the plan. This shows that the new classroom extension is within a potential shade area. However, as this room is used for educational purposes and is not a living space, in this case the shade is not considered to be an issue.
- 6.6** Provided the recommendations in this report are followed, the arboricultural impact of this development on existing trees is considered acceptable. Arboricultural supervision has been recommended to assist with tree protection measures, including preparation of a full Arboricultural Method Statement for each phase of the works.



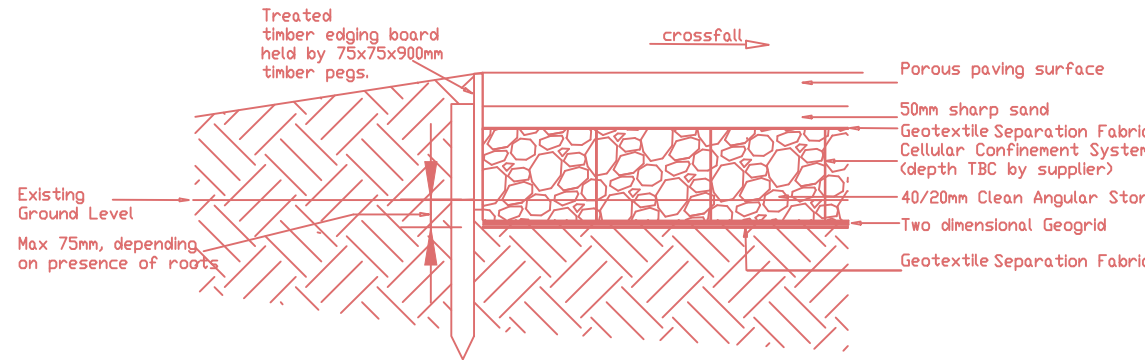
Key

- Category U
- Category A
- Category B
- Category C
- Crown spread: retained trees
- Trees For Removal
- Root Protection Area
- Tree Protection Fence
- No-Dig Construction
- Ground Protection Area: existing hard surface
- BS 5837 Shade Area

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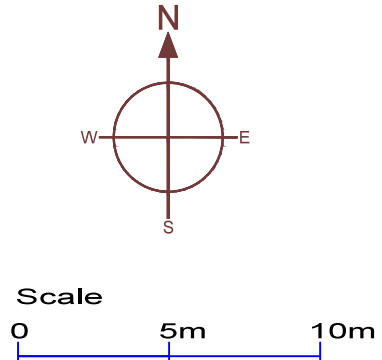
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DRAWING TITLE TREE PROTECTION PLAN		
DRAWING NUMBER 771-03.1		REV
REVISIONS		
SCALE 1:250 at A1	DATE JAN 18	DRAWN BY C Fforde

APPENDIX A



Key

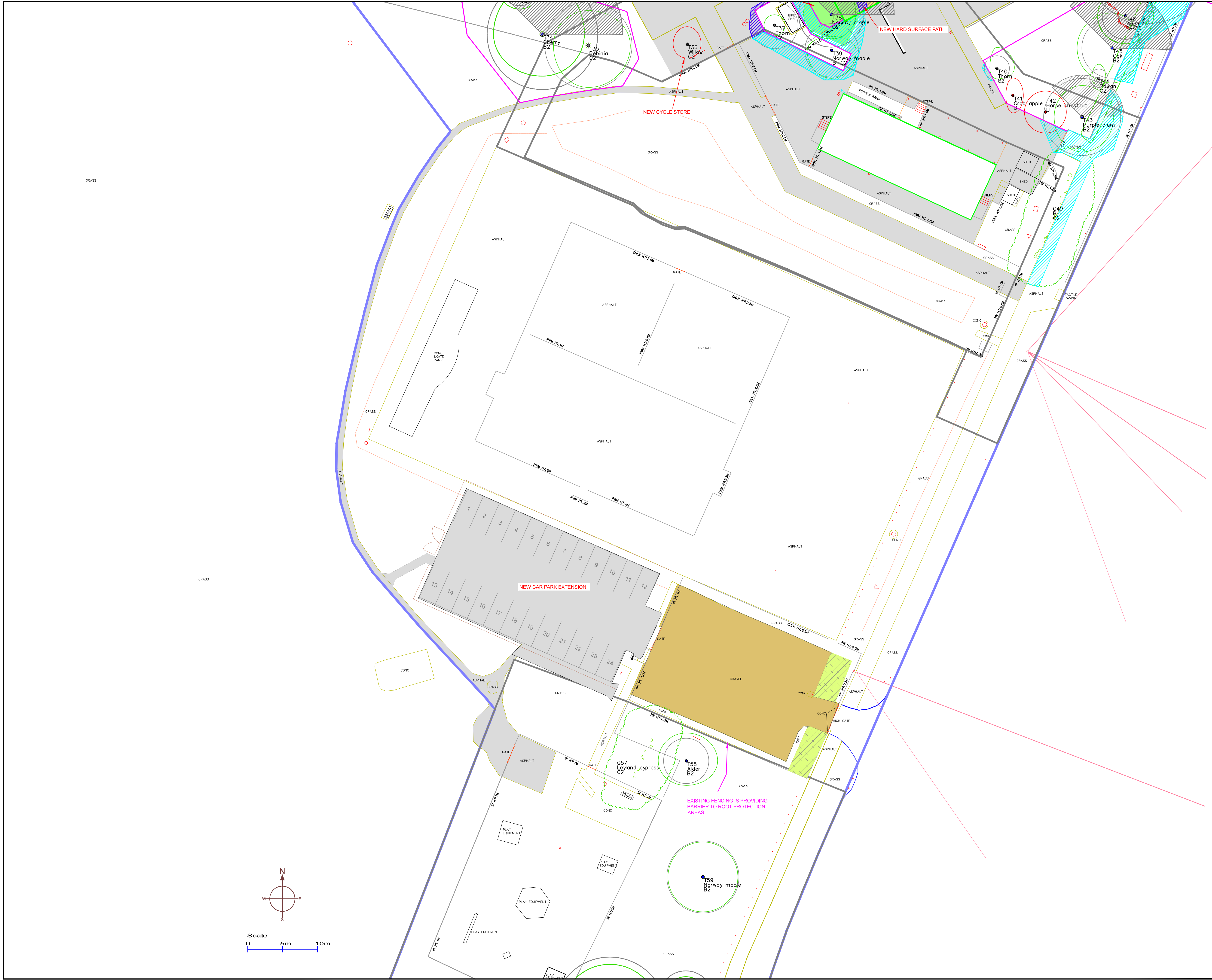
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JOB TITLE MOORLANDS SCHOOL		
DRAWING TITLE TREE PROTECTION PLAN		
DRAWING NUMBER 771-03.2		REV
REVISIONS		
SCALE 1:250 at A1	DATE JAN 18	DRAWN BY C Fforde

APPENDIX A



Key

- Category U
- Category A
- Category B
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JOB TITLE
MOORLANDS SCHOOL

DRAWING TITLE
TREE PROTECTION PLAN

DRAWING NUMBER
771-03.3

REVISIONS

SCALE 1:250 at A1	DATE JAN 18	DRAWN BY C Fforde
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Tree/ Group No.	Species	Height (m)	Stem Diam. at 1.5m (mm)	Branch Spread (m)				Canopy Cleara nce (m)	Age Class	Observations	Management Recommendations	Estimated Remaining Contribution (years)	BS 5837 Category Grading	Protect ion Distnce (m)	Tree Protect. Area (m2)
				N	S	E	W								
T2	Norway maple	10.5	390	4	6	5	5	1.8	Mature	Extensive minor deadwood in lower crown. Stem bifurcates at 2m.		15-30	B2	4.7	69
T3	Lime	11	340	4	5	3.5	5.5	1.5	Semi-mature	Three stems from 3m, with tight forks. Low branches pruned. Surface roots.	Remove deadwood.	20-40	B2	4.1	52
T5	Cherry	7.5	710	8.5	8	8.5	7.5	1.5	Mature	Approx eight stems from 1.2m - average 250mm. Large lateral to north from 1m, with extensive decay from attachment point. Long, dead branch stubs in lower crown. Heavy lateral to south from 1m, with extensive area of dysfunctional tissue. Extensive deadwood throughout lower crown but showing good vigour. Surface roots. Utility line through crown.	Remove major laterals, as shown on the photos included as Appendix E. Lift crown, as necessary, to provide clearance to ramp, access and building. Remove deadwood.	10-20	B2	8.5	228
T6	Cherry	6.5	290	4	3	3.5	3	1.2	Early mature	Three stems from base - 110, 170 & 200mm - tight unions. Well balanced crown. Crown oversailing, and rubbing on adjacent structures. Damaged surface roots. Caretaker informs that roots have to be regularly cleared from adjacent drains to prevent blockage.	Crown lift to provide 0.5m clearance to adjacent structures. Remove basal stems.	10-20	B-C2	3.5	38
T7	Horse chestnut	9.5	420	5	5	5	5	1.2	Early mature	Three stems from 1.2m - 230, 240 & 250mm - tight union with some adaptive growth. Attractive tree with well balanced crown. Surface roots - some damaged. Low limbs cut to provide clearance to new path, leaving stubs up to 200mm and tearing wounds - likely decay entry points.	Remove damaged stubs.	20-40	B2	5.0	80
G8	Beech hedge	2	50 - 100					0	Mature	Clipped hedge. Aphid infestation but good vitality.		20-40	B-C2	1.2	5
T9	Norway spruce	10.5	250	2.5	2.5	2.5	2.5	1.2	Early mature	Low branches removed to west. Surface roots. Showing good vigour.	Remove to open up area behind new offices.	15-30	B-C2	3.0	28
T10	Leyland cypress	12	660	4	3.5	3	3.5	2	Mature	Low limbs removed to south and to east, leaving large wounds and some long stubs. Surface roots. Unattractive tree.	Remove to open up area behind new offices.	10-20	B-C2	7.9	197
T11	Rowan	3.5	70	0	2	0.7	0.7	1.2	Young	Two stems from 1.1m - 45 & 55mm. Suppressed. Decayed at base. Dying back.	Remove.	<10	U	0.8	2
T12	Crab apple	4	160	2.5	2.5	2.5	3	1.2	Mature	Multi stem from 1.5m. Crossing branches. Chainlink fence rubbing stem. Old pruning wounds. Providing screening to adjacent property.	Remove basal stems growing through chainlink fence.	10-20	C2	1.9	12
G13	Beech hedge	1.5 - 2	10					0.1	Young	Recently planted hedge.		20-40	C2	0.1	0
T14	Maple	3.5	40	0.2	0.2	1	0.5	1.7	Young	Basal stem wounds. Leader cut and new leader tied into long stub. Kinked stem at 2m where secondary stem has been removed - bark damage around pruning point.		15-30	C2	0.5	1
T15	Maple	3.5	40	0.3	0.7	0.7	0.5	2.0	Young	Area of bark cracking around tree ties - approx 300mm in length. Leader removed leaving 100mm stub. Crossing branches. Long stubs from cut branches.	Remove to facilitate construction.	15-30	C2	0.5	1
T16	Maple	3.5	40	0.4	0.3	0.7	0.3	1.8	Young	Leader removed leaving 75mm stub.		15-30	C2	0.5	1
T17	Apple	6	190	2	1.5	1.5	2	1.5	Early mature	Four stems from 0.5m - 75, 80, 90 & 120mm. Poor structure. Pruning wounds.		5-15	C2	2.3	16
T18	Ash	8	160	3	3	3	3	3.0	Semi-mature	Stem kinked at 1.2m and leaning on fence. Three stems from 3.5m.		15-30	B-C2	1.9	12
T19	Norway maple	8	290	4.5	4.5	4.5	4	1.8	Early mature	Three stems from 1m - 150, 150 & 200mm, with a tight fork. Embedded in chainlink fence. Large buttress roots. Large area of decay in southern stem.	Remove southern stem. Remove basal stem growth. Re-inspect within 18 months.	5-15	C2	3.5	38

Tree/ Group No.	Species	Height (m)	Stem Diam. at 1.5m (mm)	Branch Spread (m)				Canopy Clearance (m)	Age Class	Observations	Management Recommendations	Estimated Remaining Contribution (years)	BS 5837 Category Grading	Protect ion Distnce (m)	Tree Protect. Area (m2)
				N	S	E	W								
T20	Ash	10.5	est 350	4	4	4	4	3	Early mature	Growing outside site - base not inspected. Stem bifurcates at approx 5m, and multi stem above. Reasonable tree.		20-40	B2	4.2	55
G21	Undergrowth	2 - 3	10 - 90					0	Semi- mature/ Mature	Ivy and bramble growing through chainlink fence - very dense at eastern end with concrete posts collapsing into foliage. Occasional semi-mature elm.		5-15	C2	1.1	4
T22	Elm	8	200	3	3	3	3	2.5	Early mature	Secondary stem from 1.2m - 80 & 180mm. Limited life expectancy due to disease susceptibility.		10-20	B-C2	2.4	18
T23	Oak	15	est 700	7	7	7	7	2.5	Mature	Growing outside site - base not inspected. Dense ivy to upper crown. Canopy extending up to 3m into site. Major deadwood, but outside site.	Remove section of ivy from base. Remove elm from under crown to south.	>40	A2	8.4	222
G24	Aspen	10 - 12	75 - 150					3	Semi- mature	Group of poorly structured trees growing through chainlink fence, with stems embedded.	Remove.	5-15	C2	1.8	10
T25	Willow	6	240	1.5	4	4.5	3.5	1	Mature	Approx seven stems, average 90mm - all leaning to south. Small broken branches.	Remove to facilitate construction.	5-15	C2	2.9	26
T26	Aspen	11	200	3	3	3	3	3	Semi- mature	Two stems from base - 130 & 150mm, with two small basal shoots. Poor form.		15-30	B-C2	2.4	18
G27	Thorn/Hazel/Spindle	2 - 7	25 - 150					0	Semi- mature/ Early mature	Growing outside site. Occasional willow, dogwood and young oak. All low quality but contributing to screening and habitat.		15-30	C2	1.8	10
T28	Apple	6	est 140	0	3	3.5	3	2.5	Early mature	Leaning at acute angle to southeast over site, with bark cracking at 2.5m.	Remove to prevent risk from future failure.	5-15	C2	1.7	9
T29	Cherry	7	120	2	1	2.5	0	2	Semi- mature	Two stems from approx 0.5m - 75 & 90mm - smallest stem dead. Growing through chainlink fence and embedded.	Remove.	<10	U	1.4	7
T30	Cherry	7	210	2.5	2.5	1.5	2.5	0.5	Semi- mature	Approx seven stems, average 80mm - growing through and embedded in chainlink fence - unsustainable. One further stem to south.	Consider new replacement planting within site.	5-15	C2	2.5	20
G31	Thorn	2.5 - 3.5	50 - 100					0	Early mature	Line of trees growing outside site, against fence. Side cut within site, but grown out above fence.		15-30	C2	1.2	5
T32	Oak	8.5	340	4	4	4	4	1.6	Semi- mature	Good form and structure. Memorial stone embedded in root to east. Ground heavily compacted. Low limbs with bark wounds.	Apply 75mm depth of woodchip mulch under crown of tree.	>40	B2	4.1	52
T33	Sweet chestnut	6.5	210	3	3	3	3	1.6	Semi- mature	No clear leader. Ground compacted around base.	Apply 75mm depth of woodchip mulch under crown of tree.	>40	B2	2.5	20
T34	Cherry	11.5	660	7.5	6	6	7	1.8	Mature	Two stems at 1.4m, with stems forking at 1.5 & 1.7mm into total of 7 stems, average 250mm. Old dead stubs and pruning wounds. Compacted ground, surface roots.	Apply 75mm depth of woodchip mulch under crown of tree.	15-30	B2	7.9	197
T35	Robinia	11.5	520	5	6	6	5	2	Mature	Two wide spread stems from base - 350 & 390mm. Declining. Deadwood. Compacted rootplate area.	Remove deadwood. Apply 75mm depth of woodchip mulch under crown of tree.	5-15	C2	6.2	122
T36	Willow	6	210	2.5	2	2	2	1.2	Early mature	Low quality multi stem tree with path through stems. Approx 7 stems, average 80mm.	Remove to facilitate construction.	5-15	C2	2.5	20
T37	Thorn	4.5	280	1.5	1.5	1.5	1.5	1.2	Early mature	Multi stem - approx eight older stems, average 100mm. Previously topped at 1.5m, but regrown. Low quality.		5-15	C2	3.4	35
T38	Norway maple	9	390	5	3.5	3.5	4	2.5	Mature	Stem bifurcates at 2.5m. Heavily compacted rootplate area with surface roots.	Apply 75mm depth of woodchip mulch under crown of tree.	20-40	B2	4.7	69

Tree/ Group No.	Species	Height (m)	Stem Diam. at 1.5m (mm)	Branch Spread (m)				Canopy Clearance (m)	Age Class	Observations	Management Recommendations	Estimated Remaining Contribution (years)	BS 5837 Category Grading	Protect ion Distnce (m)	Tree Protect. Area (m2)
				N	S	E	W								
T39	Norway maple	8.5	320	2	4	3.5	3.5	1.6	Early mature	Three stems from 1.8m. Dead stem from 3m to southeast. Area of dysfunctional bark at 2m to southeast, with further small area on stem to southwest. Low vigour. Minor deadwood.	Remove dead stem. Remove deadwood. Re-inspect in 12 months.	10-20	B-C2	3.8	46
T40	Thorn	4.5	150	3	1.5	2.5	1	1.2	Early mature	Leaning at acute angle to east but with reasonably balanced crown. Moderate vigour. Congested.		5-15	C2	1.8	10
T41	Crab apple	6	170	2.5	2.5	1.5	1	3	Early mature	Multi stem from 1.7m, including a number of dead stems. Very low vigour. Area of dysfunctional bark on main stem.	Remove.	<10	U	2.0	13
T42	Horse chestnut	7	260	3	3	3	3	2	Semi- mature	Extensive bark cracking and exudate from main stem - symptomatic of bacterial canker. Fungal fruiting bodies on scaffold limbs. Occasional dead branches.	Remove.	<10	U	3.1	31
T43	Purple plum	6	460	4.5	5	4.5	4	1.6	Mature	Multi stem from 2m. Main stem leans to southeast. Congested crown. Ground compacted.	Apply 75mm depth of woodchip mulch under crown of tree.	15-30	B2	5.5	96
T44	Rowan	5	110	2	1	1	1	1.5	Semi- mature	Partially suppressed. Bark damage. Compacted ground.		10-20	C2	1.3	5
T45	Oak	8.5	360	5	5	4	5	1.7	Semi- mature	Two stems from 1.5m - 230 & 280mm, with lateral to east originating at union. Minor deadwood.		>40	B2	4.3	59
T46	Apple	6.5	280	4	4	4	4	1.8	Mature	Multi stem from 1.6m. Extensive burring to limbs. Old pruning wounds. Congested crown.		10-20	B-C2	3.4	35
T47	Cherry	9.5	750	7	5	6	6	2.5	Mature	Large girdling roots. Low branches cut back. Limb removed at 1.4m to north - callusing, some exudate. Two main stems from 1.8m. Feature tree.		15-30	B2	9.0	254
G48	Beech hedge	1.2	50 - 75					0	Early mature	Good quality clipped hedge.		20-40	C2	0.9	3
G49	Beech	10	90 - 420					2.5	Semi- mature	Line of closely spaced trees - outgrown and unmanaged former hedge. Some twin stem trees with tight forks. Old concrete posts embedded in some. All of poor form and structure.	Consider removal and replacement with new beech hedge with small/medium growing standards.	10-20	C2	5.0	80
T50	Beech	10	est 380	4	4	4	2	3	Semi- mature	Growing from base of building within fenced off area - base not inspected. Four stems from 1.6-2m. Good vigour but insufficient space to develop.	Remove to prevent future damage to building.	10-20	B-C2	4.6	65
T51	Thorn	5.5	220	2.5	2.5	2.5	2.5	2.5	Mature	Previously reduced. Old wound where section has broken out - decay beginning.	Remove to facilitate construction.	5-15	C2	2.6	22
T52	Norway maple	9.5	370	4	4	4	4	2	Early mature	Four stems from base - 170, 180, 180 & 210mm - tight fork. Utility line at edge of crown. Good crown shape.		20-40	B2	4.4	62
T53	Apple	5.5	270	2	3	2	2	2	Mature	Multi stem from 1.4m-1.6m. Extensive burring. Low vigour. Deadwood. Old pruning wounds.	Remove deadwood. Remove basal stem shoots.	5-15	C2	3.2	33
T54	Purple plum	7.5	440	4.5	4.5	4.5	4.5	1.5	Mature	Multi stem from 1.8m, including one stem with extensive decay at base. Main stem with slight lean to east. Old pruning wounds. Fungal fruiting bodies.	Remove stem with decayed base. Re-inspect within 18 months.	10-20	B-C2	5.3	88
T55	Apple	5.5	240	3	3	3	3	1.8	Mature	Multi stem from 1.6m. Burring to main limbs. Low vigour. Congested. Deadwood.	Remove deadwood. Remove basal growth.	5-15	C2	2.9	26
G56	Beech hedge	1.5 - 2	50 - 100					0	Early mature	Clipped hedge - varying heights.		20-40	C2	1.2	5
G57	Leyland cypress	11.5 - 15.5	140 - 530					2.5	Early mature	Line of closely spaced trees. Stem wounds. Old pruning wounds. Areas of decay. Low amenity value.	Carry out Tree Hazard Assessment.	10-20	C2	6.4	127

Tree/ Group No.	Species	Height (m)	Stem Diam. at 1.5m (mm)	Branch Spread (m)				Canopy Clearance (m)	Age Class	Observations	Management Recommendations	Estimated Remaining Contribution (years)	BS 5837 Category Grading	Protect ion Distnce (m)	Tree Protect. Area (m2)
				N	S	E	W								
T58	Alder	10.5	270	4	3.5	4.5	4	2.5	Early mature	Bent upper stem. Minor deadwood.		15-30	B2	3.2	33
T59	Norway maple	10	430	5	5	5	5	2.5	Mature	Multi stem from 1.8m. Good crown shape. Large damaged surface root. Minor deadwood.		20-40	B2	5.2	84
T60	Norway maple	8	320	3	3	3	3	3	Early mature	Low limbs removed.		20-40	B2	3.8	46
T61	White poplar	15	670	7	5	7	7	2	Mature	Large damaged surface roots with decay. Stem leans to east. Low limbs removed. Some laterals reduced but with fresh growth. Deadwood.	Remove deadwood.	15-30	B2	8.0	203
T62	White poplar	16	590	9.5	9.5	10	9	2	Mature	Large damaged surface roots with decay. Low limbs reduced. Minor deadwood.	Remove deadwood.	15-30	B2	7.1	157

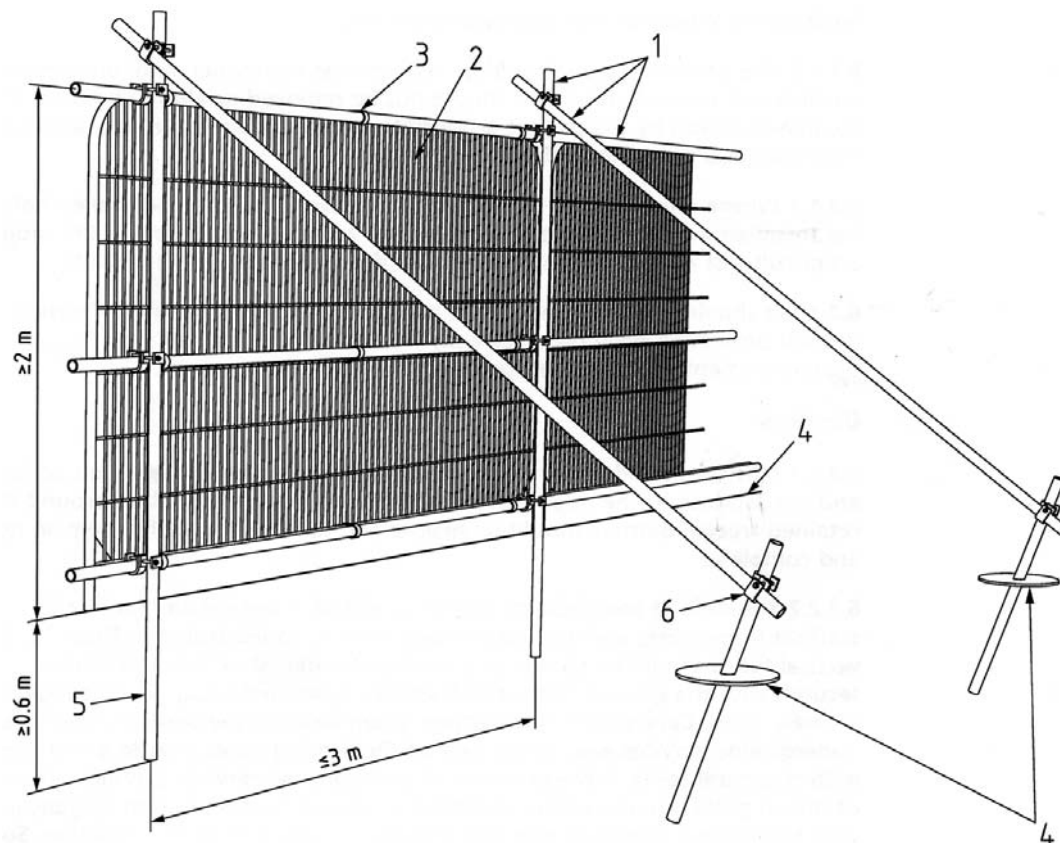
BS 5837:2012, Table 1 Cascade chart for tree quality assessment

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 <i>NOTE Category U trees can have existing or potential conservation value which it might be desirable to preserve; see 4.5.7.</i>	See Table 2			
<table border="1"> <thead> <tr> <th>1 Mainly arboricultural qualities</th><th>2 Mainly landscape qualities</th><th>3 Mainly cultural values, including conservation</th></tr> </thead> </table>			1 Mainly arboricultural qualities	2 Mainly landscape qualities	3 Mainly cultural values, including conservation
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 significant conservation, historical, commemorative or other value (e.g. veteran trees or wood-pasture)			
Category B Trees of moderate quality with an estimated remaining life expectancy of at least 20 years	Trees that might be included in category A, but are downgraded because of impaired condition (e.g. presence of significant though remediable defects, including unsympathetic past management and storm damage), such that they are unlikely to be suitable for retention for beyond 40 years; or trees lacking the special quality necessary to merit the category A designation	Trees present in numbers, usually growing as groups or woodlands, such that they attract a higher collective rating than they might as individuals; or trees occurring as collectives but situated so as to make little visual contribution to the wider locality			
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 with material conservation or other cultural value			
	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			

Figure 2

Key

- 1 Standard scaffold poles
- 2 Heavy gauge 2 m galvanised 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



Examples of above-ground stabilising systems

Figure 3a

Stabiliser strut with base plate secured with ground pins

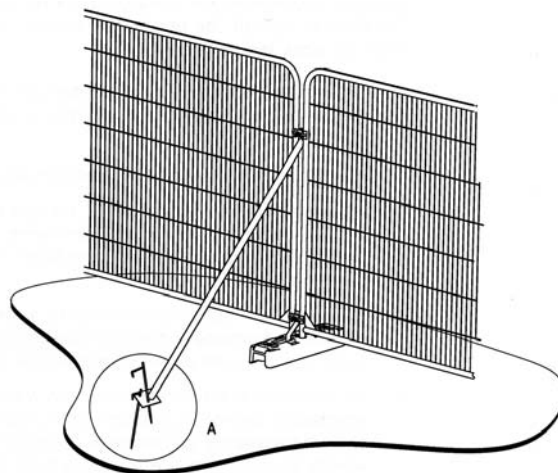
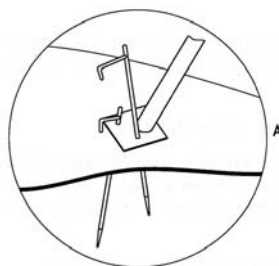
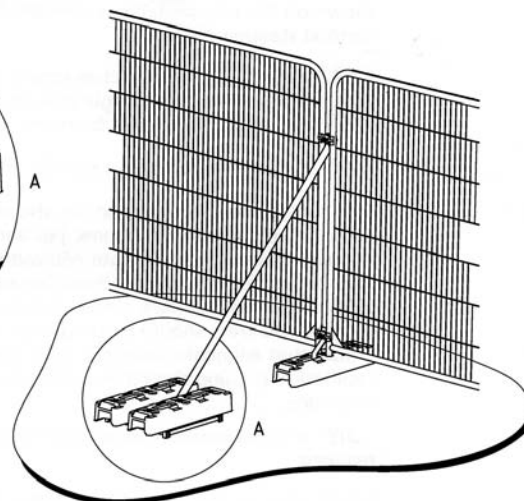
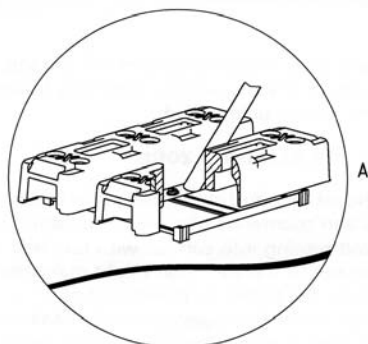


Figure 3b

Stabiliser strut mounted on block tray





Existing modular classroom to be demolished.



Compacted area around base of T38. A new astro turf surface is proposed over this area.

- ① Playground extended to compensate for loss to new buildings.
- ② Play equipment relocated with new safety surface beneath
- ③ Artificial grass soft play surface
- ④ Performance space to include tiered seating and planting to enclose area.
- ⑤ Existing playground marked for small games.
- ⑥ Additional cycle and scooter storage.
- ⑦ Pre-School entrance reconfigured to improve security, and to provide porous surfacing over tree roots and a variety of play surfaces.
- ⑧ Existing play equipment relocated.
- ⑨ One storage container relocated from environment area to accommodate PTA equipment.
- ⑩ Geocell sown with grass to provide emergency vehicle access.
- ⑪ Environmental education area including wildflower meadow and productive growing. Two conifers felled to improve light levels and views from reception. Small tree relocated from beneath new classroom canopy.
- ⑫ New fire escape path.
- ⑬ Improvements to school entrance including a replacement tree in a raised planter, and flag paving.
- ⑭ Asphalt car parking reconfigured to include 3 accessible spaces.
- ⑮ Gravel car parking spaces stabilised with geo-grid system. Through-route for emergency access.
- ⑯ Small enclosed staff garden.
- ⑰ Enlarged bin storage area.
- ⑱ Constrained beech tree replaced by new tree further from building, and surrounded with ground cover plants to create more attractive approach.
- ⑲ Replacement tree planting.

-  Slab paving
-  Asphalt
-  Natural grass
-  Wildflower meadow
-  Artificial grass
-  Shrub and herbaceous planting
-  Vehicular geocell over grass
-  Vehicular gravel-filled geocell
-  Rubber crumb / wet pour
-  Existing trees
-  Trees to be removed
-  New trees



**Hampshire County Council**

HCC Property Services,
Three Minsters House,
76 High Street, Winchester SO23 8UL.
Tel: 01962 847801

Property Services

Project Title
**Moorlands Primary School
1FE Expansion**

Client

Drawing Title
**Landscape Plan
Proposed Layout
General Arrangement**

Scale 1:250 @ A1 1:500 @ A3	Date of Origin 15.01.18	Drawn PD	Checked
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Drawing No. E03153-HCC-ZZ-00-GF-DR- L-7011A	Revision
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Status
Planning Application

KEY:

- Asphalt
- Natural grass
- Shrub and herbaceous planting
- Vehicular geocell over grass
- Vehicular gravel-filled geocell
- Rubber crumb / wet pour
- Existing trees
- Trees to be removed
- New trees

- 1

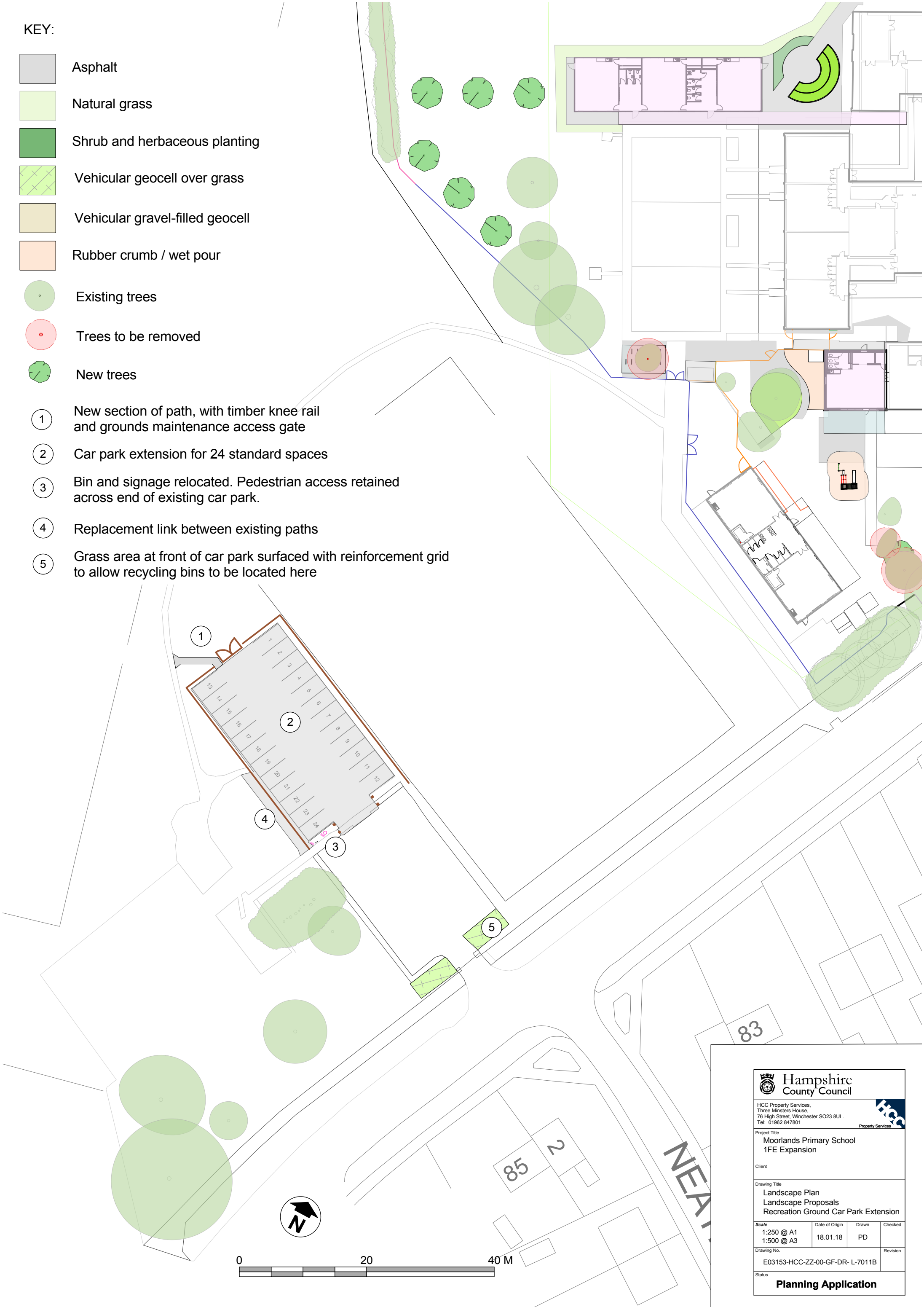
New section of path, with timber knee rail and grounds maintenance access gate
- 2

Car park extension for 24 standard spaces
- 3

Bin and signage relocated. Pedestrian access retained across end of existing car park.
- 4

Replacement link between existing paths
- 5

Grass area at front of car park surfaced with reinforcement grid to allow recycling bins to be located here



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Project Title
**Moorlands Primary School
1FE Expansion**

Client

Drawing Title
**Landscape Plan
Landscape Proposals
Recreation Ground Car Park Extension**

Scale
1:250 @ A1
1:500 @ A3

Date of Origin
18.01.18

Drawn
PD

Checked

Drawing No.
E03153-HCC-ZZ-00-GF-DR- L-7011B

Revision

Status
Planning Application