

ARMITAGE (UK) LTD
TREE SURVEY
COMMON ROAD
BRIERLEY

CONTENTS

Page 1. **Introduction**
- 1.a Consultant
- 1.b Purpose of Report
- 1.c Terms of Reference

Page 2. **The Site and the Inspection**
- 2.a Background
- 2.b Tree Status
- 2.c Method of Inspection

Page 3. **Explanation of Terms and Abbreviations**

Page 4. **Colour Coded Key**

Page 5-12 **Tree Survey**

Page 13. **Report Summary**

Page 14.
- 14a Protective Fencing around trees
- 14.b Additional precautions outside fenced areas

Page 15. **Precautions in Respect of Temporary Works**

Page 16.
- 16.a Tree Root System
- 16.b Prevention of Damage to Roots

Page 17.
- 17.a Services
- 17.b No Dig Construction

Page 18.
- 18a Tree Removal and Surgery
- 18b Site Inspections

Page 19. **General Site Organisation**
- 19.a Working Area
- 19.b Phasing of Construction

Page 20.
- 20.a Removal of Protective Fencing
- 20.b Post Construction Remedial Work to Trees
- 20.c Completion Meeting

Page 21. **General Guidelines**

TREE SURVEY SITE AT COMMON ROAD BRIERLEY

Our Ref: AA/JEA/506
Date: 05 November 2009

1. INTRODUCTION

1.a CONSULTANT

My name is Adrian Armitage and I have the National Diploma in Horticulture/Arboriculture and the Arboricultural Associations Technical Certificate in Arboriculture. I also have the Royal Forestry Society Certificate in Arboriculture and the National Certificate in Horticulture.

I have worked in the arboricultural industry since 1978 and have a wide range of experience. I have dealt with trees with Tree Preservation Orders, Building Society and Insurance work, Subsidence claims, Planning Appeals and Public Inquires.

1.b PURPOSE OF REPORT

A report as been requested for the above location to give detailed arboricultural advice on the trees present and to give specific recommendations on necessary arboricultural work.

1.c TERMS OF REFERENCE

I was instructed by Mr Cooper of AGC Plant Services Ltd to visit the site and prepare my findings in a report.

2. THE SITE AND THE INSPECTION

2.a BACKGROUND

The site is an area of derelict land located to the north west side of Common Road, Brierley. The area is covered in trees and vegetation.

Mr Cooper has requested an accurate tree survey. The tree survey as been carried out in accordance with British Standard Recommendations 5837:2005 "trees in relation to construction".

The site plan attached shows the location of the trees surveyed.

2.b TREES STATUS

The trees on this site are subject to a blanket Tree Preservation Order.

2.c METHOD OF INSPECTION

The inspection of the trees was carried out at ground level using visual assessment of the trees canopy, stem and rooting area.

3. Explanation of Terms and Abbreviations

Age Class: Y = Young
S/M = Semi-Mature
M = Mature
O/M = Over-Mature

Height: This is measured approximately in metres.

D.B.H.: This is Diameter at Breast Height and is measures in metres.

Spread: This is measured at the crowns widest point in metres.

Cond: The trees condition. G = Good, F = Fair and P = Poor.

Vigour: The trees rate of growth. Vig = Vigourous, Ave = Average and L = Low.

Form: Relates to the trees shape and appearance. G = Good, F = Fair and P = Poor

Life Exp: Details expected life of the tree.
1 = 0 to 10 years life expectancy
2 = 10 to 25 years life expectancy
3 = 25 to 50 years life expectancy
4 = 50+ years life expectancy

Amenity: The amenity value of the tree. High, Average or Low

Epicormic Shoots: These are small branches which grow in clusters around the base or stem of the tree, usually the result of bad pruning or some other stress factor.

Crown thin: The removal of some of the density of a trees crown, usually 5% to 25%.

Crown clean: The removal of weak, crossing and dangerous branches from within the trees crown.

Crown lift: The removal of the lowest branches, usually to a given height.

Deadwood: The removal of all dead, dying and diseased branches from the tree.

COMMON ROAD, BRIERLEY

SCHEDULE 1. TREES TO BE FELLED FOR ARBORICULTURAL AND HEALTH AND SAFETY REASONS

Tree No.	Species	Age	H'gt	Cr/Spr	DBH	Cond	Vigour	Form	Amenity	Life Exp.	Category	Comments	Action
00001	Sycamore	s/m	12m	7m	0.25m	Poor	Ave	Poor	Ave	1	R	Acute branch junction at base Close to boundary wall	Fell
00009	Ash	s/m	14m	5m	0.2m	Fair	Ave	Fair	Ave	1	R	Weak branch junction at base	Fell
00010	Sycamore	s/m	10m	8m	0.2m	Poor	Ave	Poor	Ave	1	R	Multi-stemmed stump regrowth	Fell
00011	Sycamore	s/m	10m	6m	0.15m	Poor	Ave	Poor	Ave	1	R	Weak base affecting wall	Fell
00014	Sycamore	s/m	7m	9m	0.1m	Poor	Ave	Poor	Low	1	R	Stump regrowth decay evident	Fell
00017	Sycamore	Y	8m	2m	0.1m	Poor	Ave	Poor	Low	1	R	Stump regrowth, dying	Fell
00021	Sycamore	s/m	12m	4m	0.1m	Poor	Ave	Poor	Low	1	R	Multi-stemmed stump regrowth	Fell
00023	Malus	mat	4m	4m	0.1m	Poor	Low	Poor	Ave	1	R	Leaning towards roadway Deadwood and dieback evident	Fell
00029	Sycamore	mat	15m	7m	0.25m	Poor	Ave	Poor	Ave	1	R	Multi-stemmed regrowth, showing early signs of decay	Fell
00030	Sycamore	s/m	14m	4m	0.15m	Poor	Ave	Poor	Low	1	R	Decay in base due to old pruning wounds	Fell
00032	Hazel	mat	6m	8m	0.1m	Poor	Ave	Poor	Ave	1	C	Multi-stemmed coppice Hedge Some decay in base	Fell
00034	Sycamore	mat	18m	12m	0.4m	Poor	Ave	Fair	Ave	1	R	Weak branch junctions	Fell
00038	Sycamore	s/m	10m	7m	0.1m	Poor	Ave	Poor	Low	1	R	Multi-stemmed coppice regrowth. Limited potential	Fell

COMMON ROAD, BRIERLEY

SCHEDULE 1. TREES TO BE FELLED FOR ARBORICULTURAL AND HEALTH AND SAFETY REASONS

Tree No.	Species	Age	H'gt	Cr/Spr	DBH	Cond	Vigour	Form	Amenity	Life Exp.	Category	Comments	Action
00039	Sycamore	s/m	11m	3m	0.1m	Poor	Ave	Poor	Low	1	R	Coppice regrowth, decay in base	Fell
00040	Sycamore	s/m	11m	6m	0.15m	Poor	Ave	Poor	Ave	1	R	Coppice regrowth, cavity in base	Fell
00041	Sycamore	mat	16m	10m	0.2m	Poor	Ave	Poor	Ave	1	R	Multi-stemmed tree with weak basal junctions	Fell
00042	Sycamore	mat	16m	8m	0.15m	Poor	Ave	Poor	Ave	1	R	Multi-stemmed tree with weak junction at base	Fell
00043	Sycamore	s/m	15m	5m	0.2m	Poor	Ave	Poor	Ave	1	R	Multi-stemmed with weak junctions, some damage to crown	Fell
00045	Sycamore	s/m	15m	6m	0.2m	Poor	Ave	Poor	Ave	1	R	Weak Junctions at base	Fell
00046	Sycamore	Y	7m	4m	0.1m	Poor	Ave	Poor	Low	1	R	Coppice regrowth with little future potential	Fell
00048	Sycamore	s/m	12m	4m	0.15m	Poor	Ave	Poor	Ave	1	R	Multi-stemmed regrowth with a large cavity in its base	Fell
00053	Sycamore	Y	10m	3m	0.1m	Poor	Ave	Poor	Low	1	R	Drawn specimen with no future potential	Fell
00064	Sycamore	s/m	13m	7m	0.15m	Poor	Ave	Poor	Ave	1	R	Group of four coppiced stumps	Fell
00078	Sycamore	Y	7m	3m	0.1m	Poor	Ave	Poor	Low	1	R	Poor specimen	Fell

COMMON ROAD, BRIERLEY

SCHEDULE 2. TREES TO BE FELLED FOR HOUSE DEVELOPMENT

Tree No.	Species	Age	H'gt	Cr/Spr	DBH	Cond	Vigour	Form	Amenity	Life Exp.	Category	Comments	Action
00018	Sycamore	s/m	16m	7m	0.25m	Fair	Ave	Poor	Low	1	C	Suppressed specimen	Fell for access
00035	Sycamore	mat	18m	10m	0.4m	Poor	Ave	Fair	Ave	1	C	Deadwood present	Fell for development
00036	Sycamore	mat	16m	9m	0.45m	Poor	Ave	Fair	Ave	1	C	Old pruning stubs showing early signs of decay	Fell for development

COMMON ROAD, BRIERLEY

SCHEDULE 3. TREES TO BE RETAINED

Tree No.	Species	Age	H'gt	Cr/Spr	DBH	Cond	Vigour	Form	Amenity	Life Exp.	Category	Comments	Action
00002	Sycamore	s/m	14m	8m	0.35m	Poor	Ave	Poor	Ave	2	C	Deadwood in crown	Retain/crown clean
00003	Sycamore	mat	14m	9m	0.4m	Fair	Ave	Fair	Ave	2	C	Deadwood in crown	Retain/crown clean
00004	Oak	s/m	10m	6m	0.2m	Fair	Ave	Fair	Ave	3	B	Deadwood in crown	Retain/crown clean
00005	Hawthorn	s/m	7m	5m	0.2m	Fair	Ave	Fair	Ave	1	C	Lean on main stem	Retain/crown clean
00006	Sycamore	mat	16m	10m	0.3m	Fair	Ave	Fair	Ave	2	C	Multi-stemmed	Retain/prune
00007	Sycamore	s/m	14m	6m	0.25m	Poor	Ave	Poor	Ave	1	R	Weak base	Retain/prune
00008	Sycamore	s/m	13m	7m	0.25m	Fair	Ave	Fair	Ave	2	C	One-sided crown	Retain/prune
00012	Ash	s/m	10m	4m	0.1m	Poor	Ave	Poor	Low	1	R	Dying back	Retain/prune
00013	Ash	s/m	12m	6m	0.2m	Poor	Ave	Poor	Ave	1	R	Deadwood in crown	Retain/prune
00015	Sycamore	s/m	14m	7m	0.25m	Poor	Ave	Poor	Low	1	R	Multi-stemmed regrowth	Retain/prune
00016	Sycamore & Ash	s/m	14m	7m	0.2m	Poor	Ave	Poor	Ave	1	R	Both poor specimens	Retain/prune
00019	Sycamore	s/m	14m	5m	0.15m	Poor	Ave	Poor	Low	1	R	Tall drawn specimen	Retain/prune
00020	Sycamore	s/m	16m	5m	0.2m	Poor	Ave	Poor	Ave	1	R	Multi-stemmed regrowth	Retain/prune

COMMON ROAD, BRIERLEY

SCHEDULE 3. TREES TO BE RETAINED

Tree No.	Species	Age	H'gt	Cr/Spr	DBH	Cond	Vigour	Form	Amenity	Life Exp.	Category	Comments	Action
00022	Sycamore	s/m	16m	8m	0.2m	Poor	Ave	Poor	Ave	1	R	Multi-stemmed regrowth, decay at base	Retain/prune
00024	Sycamore	mat	14m	9m	0.2m	Poor	Ave	Poor	Ave	1	R	Multi-stemmed tree, decay in base	Retain/prune
00025	Sycamore	mat	14m	4m	0.15	Poor	Ave	Poor	Low	1	R	Limited future potential	Retain/prune
00026	Sycamore	s/m	14m	6m	0.15m	Poor	Ave	Poor	Ave	1	R	Weak basal junctions	Retain/prune
00027	Sycamore	s/m	14m	4m	0.2m	Poor	Ave	Poor	Ave	1	R	Coppice regrowth	Retain/prune
00028	Sycamore	mat	15m	4m	0.25m	Poor	Ave	Poor	Ave	1	R	Pockets of decay in base	Retain/prune
00033	Oak	mat	16m	11m	0.8m	Fair	Ave	Fair	Ave	2	B	Deadwood in crown	Retain, crown clean
00037	Sycamore	s/m	12m	6m	0.15m	Poor	Ave	Poor	Low	1	R	Tall drawn specimen	Retain/prune
00044	Sycamore	s/m	15m	5m	0.15m	Poor	Ave	Poor	Ave	1	R	Multi-stemmed coppice regrowth	Retain/prune
00047	Sycamore	s/m	14m	6m	0.15m	Poor	Ave	Poor	Ave	1	R	Multi-stemmed regrowth	Retain/prune
00049	Sycamore	s/m	14m	4m	0.15m	Poor	Ave	Poor	Ave	1	R	Multi-stemmed regrowth	Retain/prune
00050	Sycamore	Y	10m	5m	0.1m	Poor	Ave	Poor	Low	1	R	Coppice regrowth with no future potential	Retain/prune

COMMON ROAD, BRIERLEY

SCHEDULE 3. TREES TO BE RETAINED

Tree No.	Species	Age	H'gt	Cr/Spr	DBH	Cond	Vigour	Form	Amenity	Life Exp.	Category	Comments	Action
00051	Sycamore	s/m	12m	4m	0.15m	Poor	Ave	Poor	Low	1	R	Twin stemmed with weak branch junction	Retain/prune
00052	Sycamore	s/m	14m	3m	0.15m	Poor	Ave	Poor	Low	1	R	Base showing early signs of decay	Retain/prune
00054	Sycamore	s/m	12m	3m	0.15m	Poor	Ave	Poor	Low	1	R	Tall drawn specimen	Retain/prune
00055	Sycamore	s/m	12m	2m	0.15m	Poor	Ave	Poor	Ave	1	R	Multi-stemmed Tree Base showing signs of decay	Retain/prune
00056	Sycamore	mat	16m	10m	0.3m	Fair	Ave	Poor	Ave	2	C	Multi-stemmed tree with some deadwood in its crown	Retain/prune
00057	Sycamore	mat	16m	8m	0.25m	Poor	Ave	Poor	Low	1	R	Sharp junctions at base cracking evident	Retain/prune
00058	Hawthorn	mat	10m	8m	0.3m	Fair	Ave	Fair	Ave	2	C	Minor wounds and cavities in main stem	Retain, crown clean
00059	Sycamore	s/m	14m	6m	0.2m	Poor	Ave	Poor	Low	1	R	Cavity in base	Retain/prune
00060	Sycamore	s/m	14m	4m	0.15m	Poor	Ave	Poor	Low	1	R	Coppice regrowth with cavity at ground level	Retain/prune
00061	Sycamore	s/m	14m	5m	0.25m	Poor	Ave	Poor	Low	1	R	Sharp branch junctions pressure cracks evident	Retain/prune

COMMON ROAD, BRIERLEY

SCHEDULE 3. TREES TO BE RETAINED

Tree No.	Species	Age	H'gt	Cr/Spr	DBH	Cond	Vigour	Form	Amenity	Life Exp.	Category	Comments	Action
00062	Sycamore	s/m	14m	4m	0.2m	Poor	Ave	Poor	Low	1	R	Tall drawn specimen	Retain/prune
00063	Sycamore	s/m	12m	4m	0.2m	Poor	Ave	Poor	Ave	1	R	Multi-stemmed tree with a weak base	Retain/prune
00065	Sycamore	s/m	12m	4m	0.2m	Poor	Ave	Poor	Ave	1	R	Tall drawn specimen with limited future potential	Retain/prune
00066	Sycamore	s/m	12m	4m	0.15m	Poor	Ave	Poor	Ave	1	R	Twin stemmed with weak branch junction, cracks evident	Retain/prune
00067	Sycamore	s/m	14m	4m	0.15m	Poor	Ave	Poor	Low	1	R	Poor specimen	Retain/prune
00068	Sycamore	s/m	12m	4m	0.15m	Poor	Ave	Poor	Low	1	R	Showing signs of decay	Retain/prune
00069	Sycamore	s/m	14m	4m	0.2m	Poor	Ave	Poor	Low	1	R	Multi-stemmed coppice regrowth	Retain/prune
00070	Sycamore	s/m	11m	3m	0.1m	Poor	Ave	Poor	Low	1	R	Tall drawn specimen	Retain/prune
00071	Sycamore	Y	10m	4m	0.1m	Poor	Ave	Poor	Ave	1	R	Poor specimens situated adjacent boundary wall	Retain/prune
00072	Sycamore	s/m	11m	3m	0.15m	Poor	Ave	Poor	Ave	1	R	Drawn specimen with no future potential	Retain/prune
00073	Sycamore	s/m	12m	6m	0.2m	Poor	Ave	Poor	Ave	1	R	Multi-stemmed tree with a weak base, cracks evident	Retain/prune

COMMON ROAD, BRIERLEY

SCHEDULE 3. TREES TO BE RETAINED

Tree No.	Species	Age	H'gt	Cr/Spr	DBH	Cond	Vigour	Form	Amenity	Life Exp.	Category	Comments	Action
00074	Sycamore	s/m	14m	5m	0.2m	Poor	Ave	Poor	Low	1	R	Twin stemmed tree with a weak base	Retain/prune
00075	Sycamore	s/m	14m	4m	0.2m	Poor	Ave	Poor	Low	1	R	Tall drawn specimen with limited future potential	Retain/prune
00076	Sycamore	s/m	14m	5m	0.2m	Poor	Ave	Poor	Low	1	R	Poor specimen	Retain/prune
00077	Sycamore	s/m	14m	3m	0.15m	Poor	Ave	Poor	Low	1	R	Tall drawn specimen	Retain/prune
00079	Sycamore	s/m	10m	5m	0.2m	Poor	Ave	Poor	Ave	1	R	One-sided leaning into road	Retain/prune
00080	Sycamore	mat	14m	8m	0.3m	Fair	Ave	Fair	Ave	2	C	Three trees growing as one	Retain, crown clean
00081	Sycamore	mat	18m	15m	0.8m	Fair	Ave	Fair	Ave	2	C	Reasonable specimen	Retain, crown clean
00082	Sycamore	mat	16m	11m	0.5m	Fair	Ave	Fair	Ave	2	C	Damage to main stem Showing early signs of decay	Retain, crown clean
00083	Hawthorn	mat	10m	7m	0.15m	Poor	Ave	Poor	Ave	1	R	Decay in base	Retain/prune
00084	Ash	Y	10m	4m	0.15m	Poor	Ave	Poor	Low	1	R	No future potential	Retain/prune
00085	Field Maple	mat	10m	9m	0.3m	Poor	Ave	Poor	Ave	2	C	Some wounds and deadwood in crown	Retain, crown clean

REPORT SUMMARY

As you will appreciate from the report the majority of trees are Category R trees and are not of any particular importance. Many of these trees need to be removed whether or not any planning permission is forthcoming. Most of the trees are self-sown and are competing for light and space on the site. Many of them are also situated close to the retaining wall and this is resulting in an unacceptable impact on the retaining wall and accordingly for health and safety reasons need to be removed.

Accordingly schedules have been prepared showing trees that need to be removed whether or not planning permission is forthcoming and subsequent to the trees which need to be removed if planning permission is to be granted. Of course if planning permission is granted it is accepted that there will be a landscaping scheme and further trees will be planted on the site in suitable areas and taking account of the siting of the existing trees. Any such landscaping scheme will of course be agreed with the Council's arboricultural officer together with a time period for the scheme to be carried out. Hopefully any such planting scheme will also result in a better mix of trees and trees of greater importance than those that currently exist on the site.

On the northern boundary the existing sporadic hazel and hawthorn bushes will be managed and fortified to reform the hedge line as a mixed hedge with native species such as hawthorn, hazel, holly and beech and a similar hedge is also to be formed on the southern boundary.

14.a Protective fencing around trees

All the trees that are to be retained should be protected by stout fencing to avoid damage to their root systems by severance or asphyxiation. The fencing should run in a continuous line, which runs along the position of the working zone as depicted on the site plan. Such fencing should be erected before any materials or machinery are brought on site and before development commences. Once erected it should not be removed without prior consultation with a specialist in arboriculture.

The fencing should be at least 1.2m high and comprise of a vertical and horizontal framework of scaffolding, well braced to resist impacts. It should be strong and appropriate for the degree of construction activity taking place on site.

14.b Additional precautions outside fenced areas

Once the area has been fenced off, any works on the remainder of the site can be carried out providing such works do not impinge on the protected areas.

To prevent injury to the trees, oil or cement should not be stacked or discharged within 10m of the bole. Materials generally should not be stacked or discharged within 5m of the bole.

Concrete mixing should not be carried out within 10m of the tree.

Fires should not be lit beneath or in close proximity to the trees canopy.

Trees to be conserved should not be used as anchorage for equipment used for removing stumps, roots or other trees, or any other purposes.

Care should be exercised when using cranes or similar equipment near the spread of the canopy of the tree.

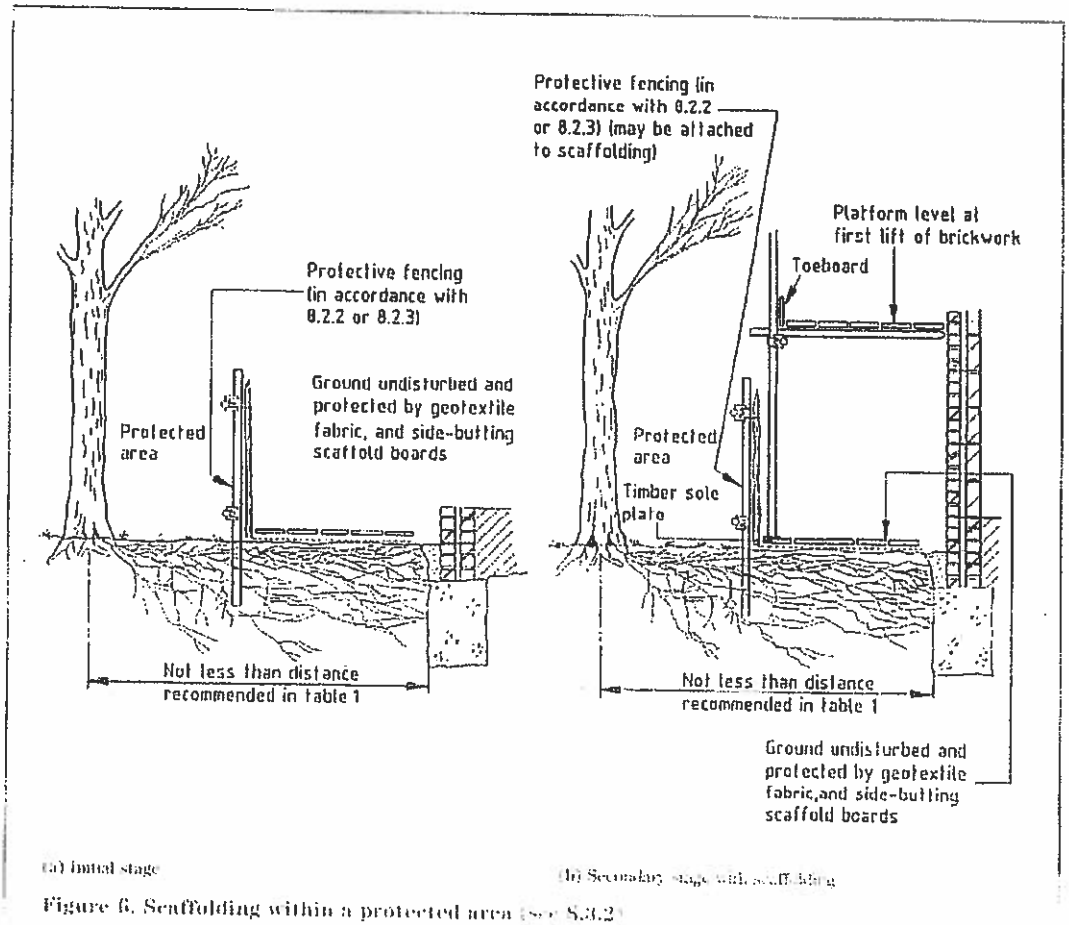
Allowances should be made for the slope of ground so that damaging materials such as concrete washing; mortar or diesel oil cannot run towards the tree.

Trees to be felled that are adjacent to, or that lie within a continuous canopy of, trees to be retained should be removed with care. In some cases a tree may have to be removed in sections to avoid damage.

15. Precautions in Respect of Temporary Work

If temporary vehicle access is required through the protected area, a reinforced concrete slab should be laid over the existing soil surface, with appropriate protection along the road edge.

If it is essential for scaffolding to be erected within a protected area, fencing in accordance with 8.2.2 or 8.2.3. should be erected to provide just sufficient space for the scaffolding. The ground between this fencing and the building should be protected by boarding e.g. scaffold boards, as shown in figure 6. A single thickness of boarding laid on the soil surface will provide sufficient protection for pedestrian loads, but more substantial boarding sufficient to spread the load should be used for heavier traffic. The ground beneath the boarding should be left undisturbed and should be protected with a porous geotextile fabric. If necessary, sand should be laid on the fabric to level the ground. When required, the building scaffolding should be erected. The boarding should be left in place until the building works are finished.



(a) Initial stage (b) Secondary stage with scaffolding

Figure 6. Scaffolding within a protected area (see 8.3.2)

16.a Trees root system

Most trees have been growing undisturbed on a site for many years and will have developed an extensive root system. There is a balance between the trees crown (which demands water) and the roots (which supply it). Any change in the soil conditions will upset this balance. During construction machinery can squeeze the soil causing compaction, this reduces the amount of oxygen available to roots preventing them growing through the soil. Any material placed over the roots of a tree will reduce air movement into and out of the soil resulting in the reduction of oxygen to the roots. This results in progressive shoot and branch dieback until a new balance can be reached. However, if damage is severe and a new balanced cannot be reached the tree will ultimately die.

16.b Prevention of damage to roots

The majority of feeder roots occur in the uppermost 600mm of soil; changes in level should be minimised.

Kill ground vegetation using an appropriate herbicide such as glyphosate. Herbicide products containing sodium chlorate should not be used. All dead organic material should then be gathered up, this would prevent the build up of anaerobic conditions beneath the construction, which may otherwise occur if vegetation is allowed to decompose.

Construction should ideally be undertaken between May and October when the ground is driest and least prone to compaction.

All major protrusions such as tree or shrub stumps should be removed. Stumps should be ground out rather than excavated to minimise soil disturbance.

If excavation is so close to the tree that roots larger than 50 mm in diameter are encountered, extra care should be taken to avoid damage. Excavations should be undertaken by hand, avoiding damage to bark. The roots should then be surrounded with sharp sand before soil is replaced.

For roots to be retained undamaged no excavation, soil stripping or site grading should be carried out within the protected zone.

If it is necessary for a service trench to be taken closer to the tree than recommended, boring a hole for the service is acceptable. Provided the borehole is small root damage should be minimal. Boreholes should be kept as deep as possible. Alternatively a narrow trench can be excavated passing directly towards the tree along a radius no closer than 1 m from the trunk. Tunnel straight beneath the tree to a depth of no less than 750 mm. Provided the trench is kept as narrow as possible, root severance will be minimal.

17.a Services

The drainage and services will need to be placed in a trench that is set well outside the crown spread and rooting zone of the trees to be retained. Should it be necessary to dig within the protected area at any time, the developers arboricultural consultant should be present to ensure only hand digging is undertaken.

All services work on site will follow the National Joint Utilities Group's Guidelines for Planning, Installation and Maintenance of Utility services in Proximity to trees.

17.b No Dig Construction

Successful retention of trees even when adopting a no dig method, particularly within the protected zone, depends upon the condition of the trees, which should be assessed by a qualified arboriculturist, and on adherence to three simple rules.

- Roots must not be severed
- Soil must not be compacted
- Oxygen must be able to diffuse into the soil beneath the engineered surface

Damage to trees can only be avoided if the construction embraces the above principles and (within the protected zone) is no more than 4m wide.

Construction should incorporate two main components: a geogrid and an aggregate sub-base. Geogrid are high tensile strength synthetic grids designed to support roads on soft ground. When placed on the geogrid, appropriate granular sub-base material penetrates the mesh, but is unable to pass through it, forming positive interlock. This interlock between aggregate and geogrid provides a reinforced platform and efficient load spread into the underlying ground. A suitable geogrid/aggregate combination will prevent rutting of the ground beneath the construction.

Granular sub-base material Type 1. As specified by the Department of Transport (Department of Transport, 1991: clause 803) is the recommended aggregate. This has a relatively low fines content, which means that even when it is compacted it should be freely draining and will allow oxygen to diffuse into the soil.

For site-specific prescriptions and materials specifications advice may be sought from a qualified geotechnical or civil engineer.

Tensar SS30 Geogrid is manufactured by Netlon Ltd, New Wellington Street, Blackburn, BB2 4PJ.

18.a TREE REMOVAL AND SURGERY

Prior to the erection of the protective fencing any tree felling or pruning works should be carried out.

This will involve the removal of 27 trees. Only 3 of these trees will need to be removed for the development the rest are to be removed due to their poor condition.

All the remaining trees on site will be crown-cleaned/pruned to help promote health and vigour.

All works should be carried out to British Standard 3998:1989. by qualified arborists.

18.b SITE INSPECTIONS

After the tree surgery works have been completed and the protective fencing erected, the developers Arboricultural Consultant will visit the site. This will be to ensure that all works are being carried out correctly. This would also be a good opportunity to invite the Local Authorities Tree Officer to carry out a site inspection. Any changes discussed at this time can then be implemented to the satisfaction of all parties.

During development the Arboricultural consultant should visit the site on a weekly basis to ensure that all works are being carried out in line with British Standard 5837:91, trees in relation to construction.

19. General Site Organisation

19.a Working Area

The working area of the site will need to allow sufficient space to permit all the building operations to be carried out. This may include access for long or wide loads, or heavy materials; temporary site roads for these will not necessarily conform in size or position to the final road layout.

Adequate height clearance often poses problems, cranes, tipping lorries, piling rigs or other tall vehicles will all need adequate space for working.

Space will also be needed for storage of building materials, and for site cabins. It is essential that materials which are potentially toxic or damaging to trees not be stored in their vicinity. Nothing should be stored within the crown spread or rooting zone of the trees on site.

All deliveries to the site must be monitored, and their unloading supervised, to eliminate the risk of loads being placed outside the designated storage areas.

19.b Phasing of Construction

Where possible the building of the units should be phased to keep the maximum working and storage areas available for as long as possible. Phasing of construction may help to reduce the amount of materials being stored on site at any one time.

In certain situations, where development is very close to the minimum protection zone, it may be necessary to dig and install the foundations from within the buildings footprint.

Alternatively the use of piling may be considered to reduce the amount of ground disturbance in these very sensitive areas.

20.a Removal of protective fencing

When construction works have been completed, and the site machinery has been removed the protective fencing can be taken down. This should be undertaken with care ensuring heavy machinery is not used.

When works have been completed it may be necessary to carry out de-compaction around some trees. This should be carried out with a manually operated machine to avoid further disturbance.

20.b Post construction remedial work to trees

Even though trees to be retained have been protected as recommended, direct damage can still occur. Alternatively it may not have been possible to detect the weakened condition of a tree prior to development and the change in the environment could cause indirect damage and accelerate decline of the tree.

The development of any site should not be considered complete until all the trees have been re-examined by a specialist with experience in the detection of early signs of declining tree health. Any remedial work necessary to ensure the health of the tree should be implemented before work is completed

At this late stage in the development, the safety of people and property in the vicinity of trees should be paramount when making decisions about retention and treatment of trees.

20.c Completion meeting

On completion of all the works, a site meeting should be arranged with the developer's Arboricultural Consultant and the Local Authority Tree Officer to discuss any further works that may be required.

21. General Guidelines

- All work must be carried out to British Standard 3998 1989 by a competent Tree Surgeon with adequate Public Liability Insurance.

- This report has been prepared by Adrian Armitage and based on a visual inspection. It was submitted with good intent, drawing on 29 years experience. The consultant will not be responsible for events that happen after this time, which were not apparent at the time.

- Any defects seen by a contractor or the employer that were not apparent at the time should be brought to the consultants attention immediately.

- The consultant in respect of the trees can accept no liability unless the recommendations of this report are carried out under his supervision and within his time scale.

- Terms and conditions: payment is due on receipt of survey unless previously agreed.

- The client means the person or the company who gave instructions.

- Payment should be made to Armitage (UK) Ltd

We trust this information meets your requirements, but should you require any further assistance please do not hesitate to contact the undersigned.

Signed

[redacted] Friday, 06 November 2009

Adrian Armitage N.C. Hort.N.D.Ht/Arb
Arboricultural Consultant

4 Laithes Drive
Alverthorpe
Wakefield
WF2 9TE

Tel: 01924 386973
Fax: 01924 290125
Mobile: 07889 339252
Email : aarmitagetrees@aol.com