

Pre-development Tree Survey BS5837:2012

**The Odd Fellows Arms
25 Main Street
Higham on the Hill
Nuneaton
CV13 6AE**

Client: **A R Cartwright**

Revised February 2024

Report Author:

Dr. Stefan Bodnar BSc (Hons) PhD MIEEM

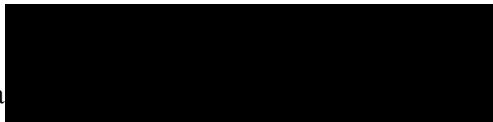
Wallbrook Farm

Allensmore

HR2 9 BE

Tel:

Ema



Contents

1. Introduction and site description	3
2. Arboricultural Survey Method	7
2.1 Condition Status	7
2.2 Root Protection Area	9
3. Results	10
4. Discussion	16
4.1 Tree protection	16
4.2 Tree protection & ground protection	18
4.3 Landscape considerations	22
4.4 Mitigation and compensation	22
5 Site compound	23
6 Haul routes	23
7 Topsoil storage	23
8 Underground services	23
9 Removal of existing hardstanding	24
10 Excavations in RPA	25
11 Facilitation pruning	25

Appendix 1: Tree Location Map

Appendix 2: Tree Images

1.0. Introduction and Site Description

A R Cartwright commissioned Dr. Stefan Bodnar to undertake an arboricultural survey (BS5837:2012) on trees within a potential development site at:

The Odd Fellows Arms
25 Main Street
Higham on the Hill
Nuneaton
CV13 6AE

The trees included within the survey and their relationship to the Development Footprint are identified on the drawing in Appendix 2, the aerial photograph relating to the site and photographs of trees involved are included in Appendix 1, together with examples of the trees concerned.

BS 5837:2012 includes an assessment of all trees within the development footprint in addition to those near to the site boundary. The site assessed is indicated in the location plan of trees (Appendix 2). See site plan below in Figure 1.

The potential development site comprises new build housing.

It is unlikely that any of the trees are protected via a Tree Preservation Order (TPO). However, it is recommended that the client fully satisfy themselves that this is the case during contact with the Local Planning Authority.

Figure 1a) Existing Plan



Figure 1b) Proposed



Figure 2. Satellite image of site



2.0. Arboricultural Survey Methodology

2.1 Condition Status

To determine the status of the trees within the site a full arboricultural survey has been undertaken, assessing species and status of all trees present within the footprint of development. The survey has been carried out in accordance with BS 5837 (2012).

The surveyor has extensive experience of arboriculture, through undertaking BS5837 surveys on many sites between 2005 and 2024. Previous to this, he has undertaken Lantra approved courses for arborists, and is competent to the level of a tree officer operating within a Local Authority, being familiar and having used the systems undertaken by tree officers for undertaking safety and condition surveys for Birmingham City Council. Dr. Bodnar possesses numerous ecological qualifications including a full member of CIEEM and a PhD (Community Forestry, 1998). Recent Certificated BS5837 training (May 2015) from Tree Life Arboricultural Consultancy Ltd.

Individual trees above 75mm (diameter at 1.5m above ground level) have had their position confirmed on the survey drawing. The trees were visually assessed and a schedule prepared listing tree number, species, trunk diameter at 1.m above ground level, tree height, crown spread (radius), age, class and estimated remaining years. Any specific observation or recommendations with regard to management were also noted.

A plan drawing indicating the location of each tree assessed is included in Appendix 2.

The condition of each tree was assessed according to the following categories:

Category A

Those trees of high quality and value. Significant trees that are structurally sound and can be retained in the long term (i.e., >40 years) or trees that can be retained in the long term following remedial tree surgery. Colour code on the plan: pale green.

Category B

Those trees of moderate quality and value. Trees that may live 15-40 years. Trees that may live for more than 40 years, but whose removal may be required in that time frame to allow development of retained trees. Trees that are defective but could be retained in the medium term by remedial tree surgery. Colour code on the plan: mid blue.

Category C

Those trees of low quality and value. Trees that can only be retained in the short term (i.e., 5-15 years) and that have little landscape impact due to poor form or condition. Trees having a stem diameter of <150mm at 1.5m above ground level that could be replaced. Colour code on the plan: grey.

Category U

Unsuitable for retention. Trees that are dead, dying or diseased that will become dangerous in the near future (within years). Colour code on the plan: red.

Categories A, B and C have further sub-categories with regard to the reasons for tree retention:

- 1: Mainly arboricultural values
- 2: Mainly landscape values
- 3: Mainly cultural values, including conservation.

2.2 Root Protection Area (RPA)

In order to avoid damage to the roots or rooting environment of retained trees, the RPA has been calculated for each of the category A, B and C trees. This is a minimum area of m^2 , which should be left undisturbed around each retained tree. These figures are calculated utilising the formula taken from BS 5837 (2012).

During construction works the root protection areas – ‘Construction Exclusion Zones’ are to be protected by barriers and ground protection in accordance with Section 9.0 of BS 5837:2012 and as specified and indicated on an approved Tree Protection Plan.

Where construction operations (demolition / hard surfacing) are proposed/ permitted within the Root Protection Area precautions should be taken to maintain the condition and health of the root system in accordance with BS5837:2012.

Construction of hard surfacing within the root protection area should be designed to avoid root loss during excavation. The structure of the hard surface should be designed to avoid localised compaction, including the use of three dimensional cellular confinement system as an integral component of the sub-base.

The hard surfacing in these areas should be a permeable and gas-porous nature such as washed gravel or paving slabs and block pavers (with infiltration spaces). Edge supports such as kerb and edgings on foundations and haunchings are not to be used within the RPA. Consideration should be given to the use of pegged timber edging or propriety or steelpaver or edge restraints.

3.0 Results

The site comprises a small number of young trees top the edges. On the Western edge are a number of young planted hornbeam and to the rear extent a semi-mature declining ash tree of note.

In general, A and B category trees or hedges should be retained and carefully protected during any development work with appropriate root protection fencing. As many C category trees or hedges as possible should be protected and retained, although suitable replacement planting within the scheme area could adequately mitigate for losses of category C trees.

A map detailing the location of trees and their BS5837:2012 determined category can be seen in Appendix 2, all other trees on site are noted as being below 150mm stem diameter and therefore, outside the requirements of BS5837:2012. Trees below 150mm stem diameter but above 75 mm stem diameter are included in the topographical survey of the site.

Scientific names for species identified:

Common Name	Species Name
Ash	<i>Fraxinus excelsior</i>
Hawthorn	<i>Crataegus monogyna</i>
Cherry	<i>Prunus sp.</i>
Holly	<i>Ilex aquilifolium</i>
English oak	<i>Quercus robur</i>
Horsechestnut	<i>Aesculus hippocastaneum</i>
Field maple	<i>Acer campestre</i>
Silver birch	<i>Betula pendula.</i>
Hornbeam	<i>Carpinus betulus</i>
Apple	<i>Malus sylvestris</i>

Survey as of February 2024

Tree no.	Species	Stem diam (mm) DBH	Crown S (m)	Crown W (m)	Crown E (m)	Crown N (m)	Height (m)	Age Class	Estimated remaining contribution (years)	Physiological and Structural Condition	Category	Radius of nominal circle (m)	Root Protection area (m ²)
1	Silver birch	200	3	3	3	3	5	Young	10-15		C1	2.4	18
2	English oak	225	4	4	4	4	8	Young	10-15		C1	2.7	23
3	Horsechestnut	Coppice from base 175	2	2	2	2	6	Young	10-15		C1	2.1	14
4	Holly	175	2	2	2	2	8	Young	10-15		C1	2.1	14

5	Cherry	225	4	4	4	4	9	Young	10-15		C1	2.7	23
6	Weeping willow	225	5	5	5	5	10	Young	10-15		C1	2.7	23
7	Hawthorn	200	4	4	4	4	8	Young	10-15		C1	2.4	18
8	Ash	500	7	7	7	3	18	Early mature	20+	Deadwood in crown, lacks vigor	B3	6	113
9	Hawthorn	250	3	3	3	3	8	Former hedge	10-15	Heavily ivied	C1	3	28

10	Hawthorn	250	3	3	3	3	8	Former hedge	10-15	Heavily ivied	C1	3	28
11	Hawthorn	250	3	3	3	3	8	Former hedge	10-15	Heavily ivied	C1	3	28
H1	Hawthorn hedge	To 150	3	3	3	3	6	Hedge	20+		B3	1.8	10
G1	Field maple	150	2	2	2	2	10	Former hedge	10-15	Will need removal to accommodate scheme or pruning back to modest hedge.	C1	1.8	10
12	Hornbeam	275	5	5	5	5	10	Young	20+	Good form 'Fastigiata'	B1	3.3	34

13	Hornbeam	225	4	4	4	4	10	Young	10-15	'Fastigiata'	C1	2.7	23
14	Hornbeam	200	4	4	4	4	10	Young	10-15	'Fastigiata'	C1	2.4	18
G2	English oak/hawthorn	To 250	4	4	4	4	10	Young	10-15		C1	3	28
15	Hawthorn	350	4	4	4	4	8	Over- mature	10-15		C1	4.2	55
16	Hawthorn	300	3	3	3	3	8	Over- mature	10-15		C1	3.6	41

17	Apple (6 trees)	To 150	2	2	2	2	4	Young fruit trees	10-15		C1	2.1	14
----	-----------------	--------	---	---	---	---	---	----------------------	-------	--	----	-----	----

4.0 Discussion

4.1 Tree Protection:

4.1.1 Tree Removal and Retention:

The application is a detailed application for 7 units (the existing pub is to be converted in to 2 dwellings and there are 5 new builds on site).

The constraints in terms of nominal RPAs and trees of quality are described below. The trees present are largely of C quality. None of these are proposed for removal, for the initial scheme (Conversion of the public house) and for the larger application, this will require only removal of the G1 group of young field maple (Category C). All the on-site B quality trees are outside the zone of development. The development are assessed as having minimal arboricultural impacts, as each has been carefully planned to avoid the canopies and RPZs of the (mainly) boundary trees. The design allows for the boundary trees to be within the back garden areas of properties. See summary below:



In addition, it is recommended that all retained trees, are protected during development by tree protection fencing as detailed below in section 4.1.4.

In general, developments should aim to primarily retain and protect trees in the 'A' and 'B' Categories and as many of Group 'C' as can be retained. Although suitable replacement planting, at minimum of a 1:1 ratio with native nectar rich and berry bearing native trees, within the scheme area could adequately mitigate for losses of category C trees. To ensure equilibrium between retained trees, any new trees and the new development, the physiological requirements of trees must be carefully considered within the planting layout.

4.1.2 Avoiding Accidental Damage to Trees: Trees may be negatively affected by the construction period by both direct and indirect actions, which are often borne out of ignorance as to the tree physiological requirements. Careful site planning and management along with the implementation of robust physical protection measures is necessary to ensure the retention of important trees.

4.1.3 Soil and Root Protection: It is essential to safeguard a pre-determined volume of soil around the base of the retained trees to ensure that then ongoing biological functioning of the root system along with the interaction with the soil is not impaired. This requires, that prior to the commencement of development activity on site that a robust protective barrier is erected.

4.1.4 Suitable Barriers: The specifications for this barrier should be as per the British Standard 5837 of 2012 (Trees in Relation to Construction – recommendations). In brief, this consists of 2.3m high panels attached to an adequately braced scaffold structure to deter un-authorized dismantling and robust enough to rebut physical impacts from site plant and machinery. In practice Heras weld-mesh type panels perform well when attached to the above mentioned scaffold structure.

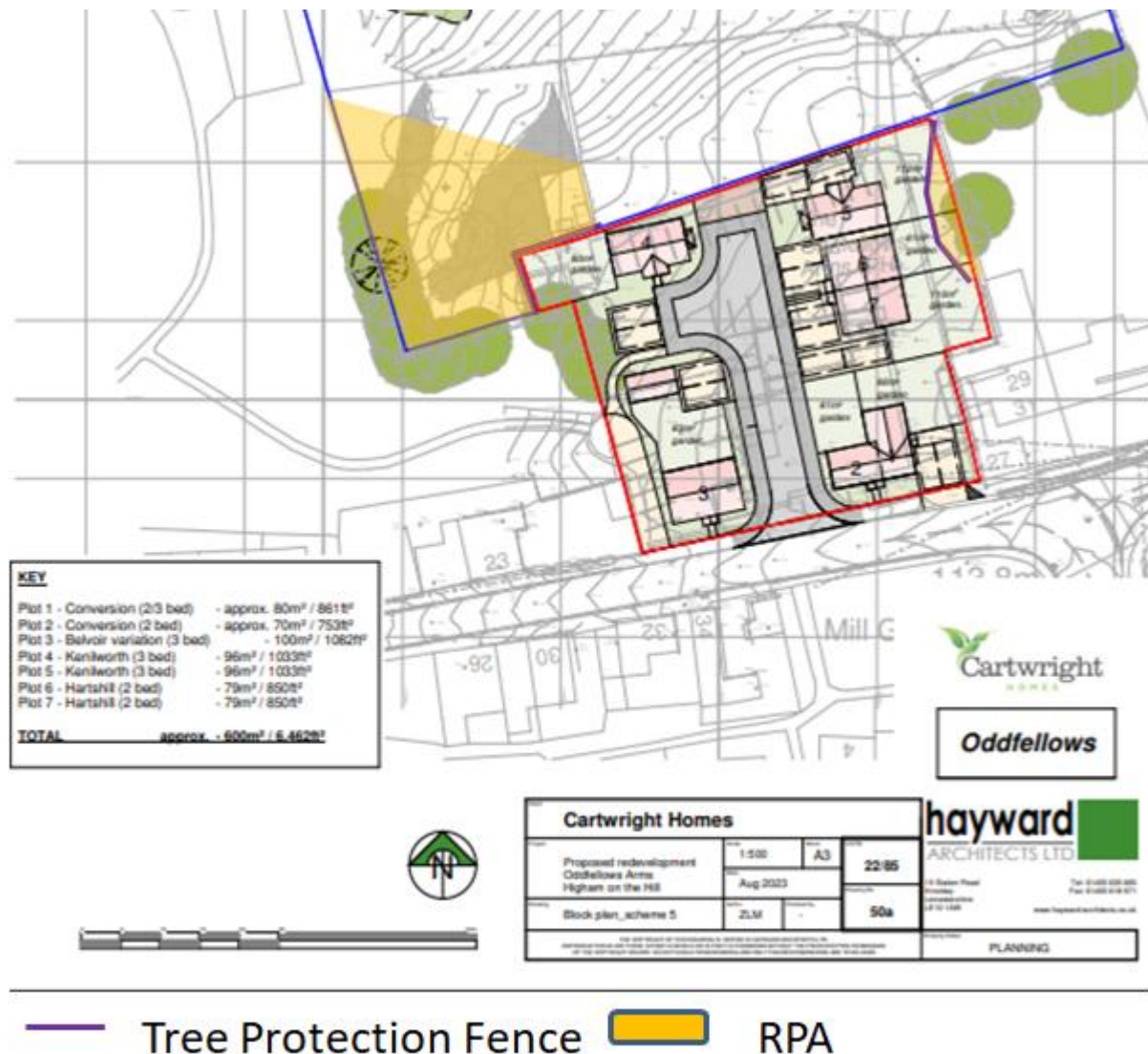
4.1.5 Bird breeding season: All site clearance should ideally take place outside of the bird breeding season. Bird breeding season is between mid March and mid July, although certain species can breed outside these months and if breeding birds are found then work should cease and the advice of an ecologist sought. If clearance is undertaken within the bird breeding season

then all site features should preferably be checked immediately prior to clearance by a suitably qualified ecologist.

4.1.6 Shading: The retained trees are not likely to cause any significant issues as they lie to the western, eastern and edges of the plot and to the north.

4.2 Tree Protection & Ground Protection

The Tree Protection plans are shown below:



4.2.1 All trees that are being retained on site are to be protected by barriers and/or ground protection before any materials or machinery are brought onto the site, and before any demolition, development or stripping of soil commences. Where all activity can be excluded from the RPA, vertical barriers are to be erected to create a construction exclusion zone. The

default barrier specification is to be in accordance with BS 5837:2012 'Trees in Relation to Design, Demolition and Construction - Recommendations' as illustrated in Figure 3 below.

4.2.2 The protected area is to be regarded as sacrosanct, and, once installed, barriers and ground protection is not to be removed or altered without prior recommendation by the project arboriculturist and, where necessary, approval from the Local Planning Authority.

4.2.3 All weather tree protection posters (an example is detailed in Figure 4 below) are to be securely fixed to the tree protection fencing in plain view.

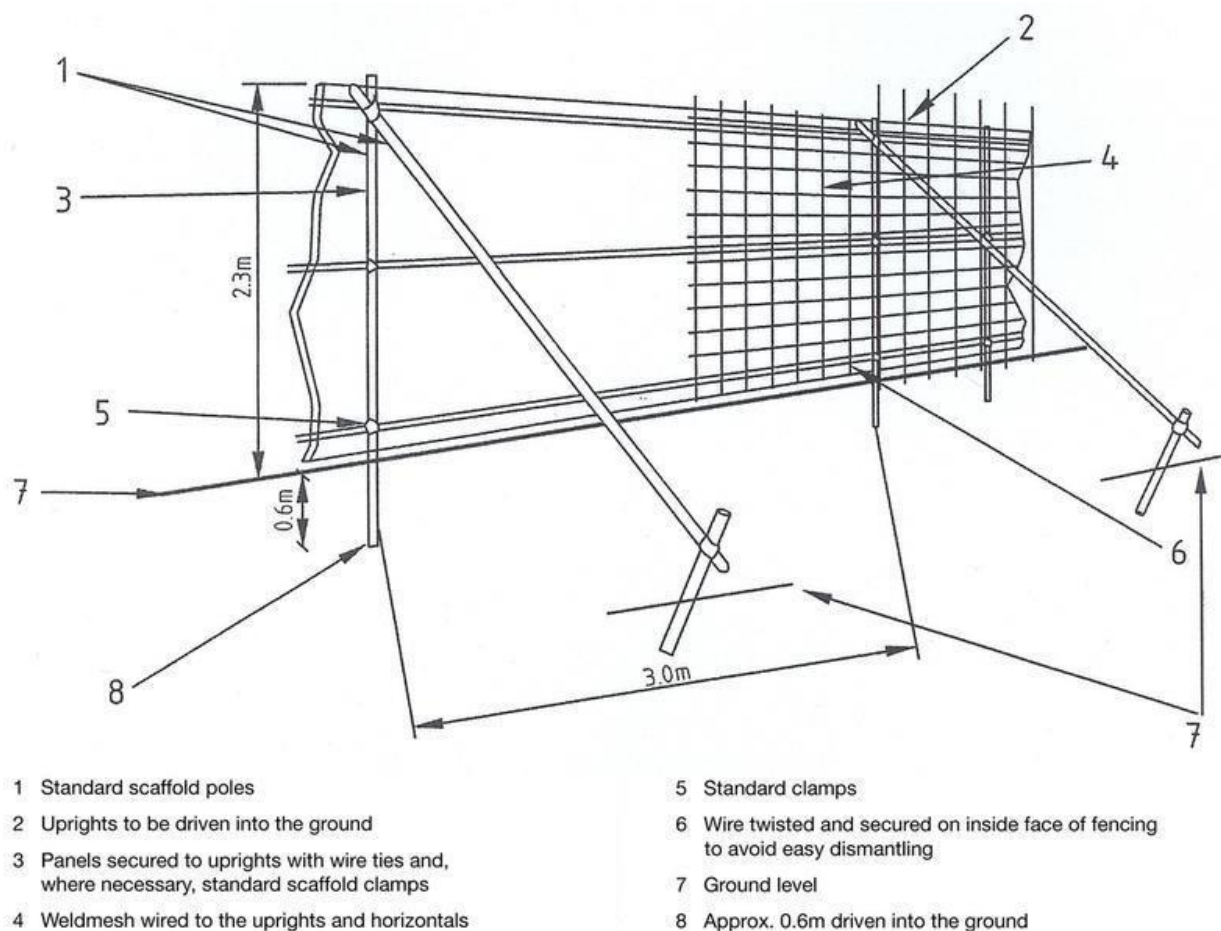


Figure 3. Example of protective fencing required for all Root Protection Areas.



Figure 4. Example of an all weather tree protection poster.

4.2.4 Care is to be exercised when locating the vertical poles to avoid underground services and, in the case of the bracing poles, also to avoid contact with structural roots. If the presence of underground services precludes the use of driven poles, an alternative specification that provides an equal level of protection is to be prepared in conjunction with the project arboriculturist as illustrated within Figure 3 above.

4.2.5 Where the set-back of the tree protection barrier exposes unmade ground to construction damage, temporary ground protection is to be installed as part of the implementation of physical tree protection measures prior to work starting on site.

4.2.6 Temporary ground protection is to be capable of supporting any traffic entering or using the site without being distorted or causing compaction of underlying soil. Detail is shown in Figure 5 below: Scaffolding and root protection within the RPA.

a) for pedestrian movements only, a single thickness of scaffold boards placed either on top of a driven scaffold frame, so as to form a suspended walkway, or on top of a compression-resistant layer (e.g. 100 mm depth of woodchip), laid onto a geotextile membrane.

- b) for pedestrian-operated plant up to a gross weight of 2t, proprietary, inter-linked ground protection boards placed on top of a compression resistant layer (e.g. 150 mm depth of woodchip), laid onto a geotextile membrane.
- c) for wheeled or tracked construction traffic exceeding 2t gross weight, an alternative system (e.g. proprietary systems or pre-cast reinforced concrete slabs) to an engineering specification designed in conjunction with arboricultural advice, to accommodate the likely loading to which it will be subjected.

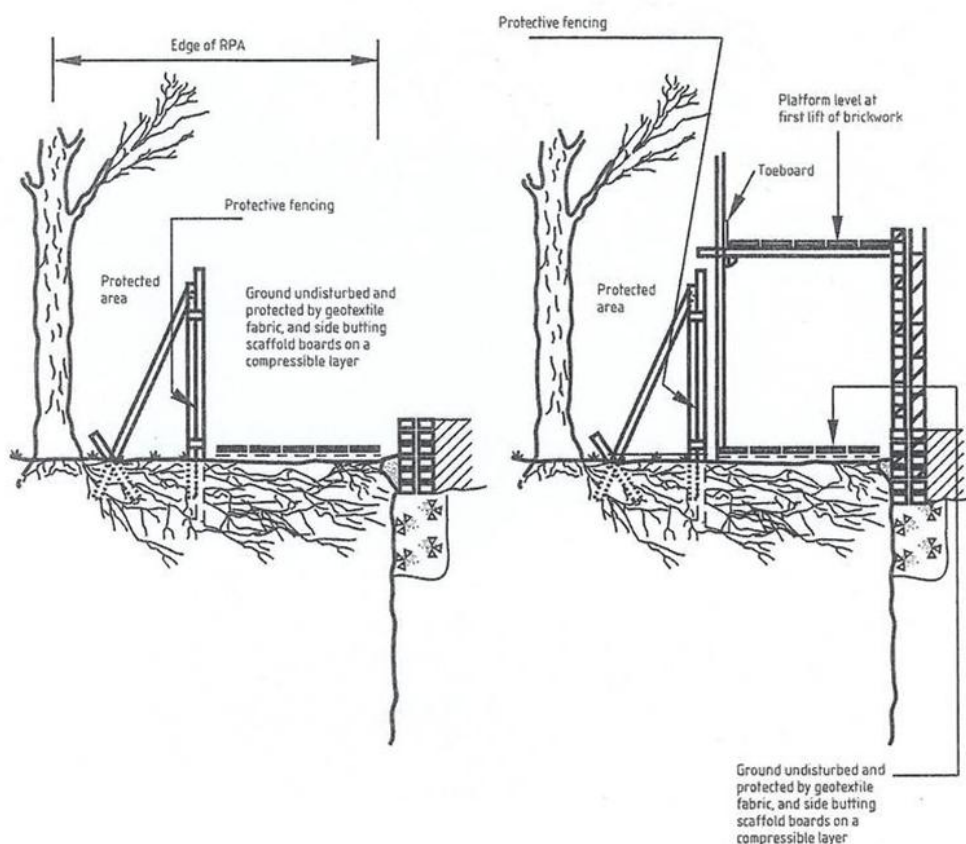


Figure 5. Scaffolding and root protection within the Root Protection Area.

4.3 Landscape considerations:

Consideration should be given to maintaining tree-lined boundary features, landscape impacts, habitat connectivity and reinforcing site boundaries. Further consideration should be given to the appearance of frontages and screening. The appropriate landscape mitigation and compensation will need to be discussed at the pre-application stage with the appropriate Local

Authority Planning Landscape Officer. It is recommended that compensation planting is undertaken and located to enable the landscape value of this area to be reinforced, if any trees with landscape value are to be removed from the site.

4.4 Mitigation and Compensation:

In compensation for the loss of any of the existing trees, at least an equal number of native trees should be planted as part of the new development. The trees will be species that have wildlife benefits and are sympathetic both to the existing tree structure and suitable for their likely eventual size limitation, such as hawthorn, elder, rowan, crab apple, and silver birch. All trees will be planted as 9-10cm Light Standards. All appropriate British Standards will be applied in terms of planting specifications. The location of the replacement trees should be determined in a detailed landscape design plan including location and species.

5.0 Site Compound and Working Area

5.1 The works are to be restricted to within the site boundary which is to incorporate an area for the site compound, site offices and associated contractors staff parking.

5.2 The site compound, site offices and associated contractors staff parking areas are to be located outside of any RPA's of retained trees. The exact location for these facilities during the construction period is to be detailed by the contractor and approved prior to any site works commencing.

6.0 Haul Routes

6.1 The route for the haulage, site access and egress is to be via the existing hardstanding access route. To limit offsite ground compaction and damage to the main drive, a temporary trackway system is to be provided if weather conditions dictate, should these conditions occur during any resurfacing works.

6.2 The planning of site operations should take sufficient account of wide loads, tall loads and plant with booms, jibs and counterweights (including drilling rigs), in order that they can operate without coming into contact with retained trees. Any transit or traverse of plant in proximity to trees should be conducted under the supervision of a banksman, to ensure that adequate clearance from trees is maintained at all times. Access facilitation pruning is to be undertaken as specified in this document to maintain this clearance.

7.0 Temporary Topsoil Storage

7.1 The stripped topsoils are to be stored in temporary mounds outside of the construction exclusion zones of the retained. In accordance with BS 4428 topsoil heaps should not exceed 3m in height.

8.0 Underground Services

In general it is considered that all services will be routed away from the Root Protection Zones of retained trees.

8.1 There may be instances where the proposed underground services impact on the RPA's of existing trees and hedgerows (refer to the project engineer's services plan). Particular care should be taken in the routing and installation of all underground services.

8.2 Excavations for proposed services within or immediately adjacent to the RPA's of retained trees are to be excavated using hand-held tools or compressed air soil displacement in accordance with clause 7.2 of BS 5837:2012;

8.3 The installation of underground service routes within the RPA's of existing trees to be retained are to be installed using trenchless solutions such as micro-tunnelling, surface launched directional drilling or impact moling as per Table 3 within clause 7.7 of BS5837:2012, with entry and retrieval pits being sited outside of the RPA.

8.4 Shallow service runs are to be excavated using hand held tools being careful to protect and cause minimal damage to retained tree roots.

8.5 Where utility operations do not require planning permission, including those performed by statutory undertakers, they are still be undertaken in accordance with these principles. As a minimum standard, such operations are be undertaken in accordance with NJUG Volume 4, issue 2 [N1].

9.0 Removal Of Existing Hard Surfacing

9.1 Prior to the removal of the remainder of existing hard surfacing appropriate tree protection fencing and ground protection is to be installed to protect the existing trees in accordance with BS 5837:2012.

9.2 Care is to be taken not to disturb tree roots that might be present beneath the existing surfacing. Handheld tools or appropriate pedestrian operated machinery is to be used to remove

the existing surface, working backwards over the area, so that the machine is not moving over the exposed ground.

9.3 Any exposed tree roots are to be treated in accordance with section 7.2 of BS5837:2012 and as detailed above.

9.4 Any sections of the existing hard surface construction that are within the RPA's of any tree to be retained and fall within the proposed parking / access roads areas are to be assessed for their suitability of reuse, thus negating the need for deep excavations. Such areas of existing hard surfacing that are suitable for reuse are to be reduced and additional base and wearing courses installed as necessary.

10.0 Excavations within the RPA

There are to be no excavations within the RPA's of existing trees on site.

11.0 facilitation pruning:

It is considered that no Facilitation pruning will be required for the work to proceed, with the exception of reduction of Group G1 to a modest hedge size (1.5 height max.).

REPORT ENDS

Appendix 1: Tree Location Plan



Category A

Those trees of high quality and value. Significant trees that are structurally sound and can be retained in the long term (i.e. >40 years) or trees that can be retained in the long term following remedial tree surgery. Colour code on the plan- pale green.

Category B

Those trees of moderate quality and value. Trees that may live 15-40 years. Trees that may live for more than 40 years, but whose removal may be required in that time frame to allow development of retained trees. Trees that are defective but could be retained in the medium term by remedial tree surgery. Colour code on the plan- mid blue.

Category C

Those trees of low quality and value. Trees that can only be retained in the short term (i.e., 5-15 years) and that have little landscape impact due to poor form or condition. Trees having a stem diameter of <150mm at 1.5m above ground level that could be replaced. Colour code on the plan- grey.

Category U

Trees that are dead, dying or diseased that will become dangerous in the near future (within years). Colour code on the plan- red.

Appendix 2: Tree images:







