ARBORICULTURAL METHOD STATEMENT
to BS 5837:2012
at
Villa Providence
Crow Edge
Penistone
South Yorkshire
S36 4HF

Client:
Kevin Goldthorpe

Client Address:
Villa Providence
Crow Edge
Penistone
South Yorkshire
S36 4HF

JCA Ref:
12756-A/AJB

JCA Limited

Arboricultural Consultants

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1. Introduction

1.1 Purpose of the Method Statement

1.1.1 This Method Statement has been prepared to ensure good practice in the protection of retained trees during the proposed development at **Villa Providence**, **Crow Edge**, **Penistone**.

1.2 Terms of Reference

1.2.1 We are instructed by **Kevin Goldthorpe** to prepare a Method Statement for the proposed development, based on our arboricultural report dated the 22nd of March 2016 (JCA Ref: **12756/AJB**). The arboricultural survey and report conforms to the most recent specifications outlined in BS 5837: 2012 *Trees in relation to design, demolition and construction - Recommendations*.

1.2.2 It is proposed to demolish the existing bungalow and erect a new, detached dwelling close to the footprint of the existing building. The new dwelling is to have a basement, ground floor and first floor.

1.2.3 A sloped driveway is required to enter the basement below the existing ground level. Additionally, a ground heat source pump, retaining walls and areas of hard standing form part of the development proposals

1.2.4 The following drawing has been provided, this is the basis of the Method Statement and the Tree Protection Plan found at **Appendix 5**:

- Development Layout (Drawing Ref: 26 1 16 Villa Providence Survey).

1.3 Status of the Method Statement

1.3.1 This Method Statement should be included as part of the specification and schedule of works issued to the building contractor, and can form part of the contract.

1.3.2 This Method Statement should be available on site for inspection by the local authority, contractors and other relevant persons.

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2. Tree Works Prior, During and Post Construction

2.1 Tree Works Prior to Construction

2.1.1 Prior to any construction activity, the first operation on site will be the undertaking of the necessary arboricultural works, as described at **Appendix 1**.

2.1.2 The tree works include the removal of **T5**, **T6** and **T15**, for arboricultural reasons.

2.2 Tree Works During Construction

2.2.1 In this case, no tree works are envisaged to be required during the construction phase.

2.2.2 Damage to trees during the construction phase should be entirely prevented by the erection of the temporary protective barrier (fencing and ground protection), to create a Construction Exclusion Zone (CEZ). All persons on site must be aware of limitations that apply within the CEZ (please refer to **Section 3.1.3**).

2.2.3 If any trees on site are damaged, this must be immediately reported to JCA to agree on appropriate remedial action. Contact numbers for all parties can be found at **Section 7**.

2.3 Tree Works Post Construction

2.3.1 When the construction phase is complete and when the temporary protective barrier has been removed, some minor remedial works may be required. This may be for aesthetic purposes or provide ground clearance for landscaping schemes.

2.3.2 No post construction remedial works are to be carried out on the trees until prior permission has been granted by the Local Planning Authority.

2.4 Recommendations For Tree Works

2.4.1 All work must be undertaken to BS 3998: 2010 - *Recommendations for tree work* and carried out by qualified, experienced and, ideally, Arboricultural Association approved contractors who must be adequately insured.

2.4.2 Any defects seen by a contractor or the client that were not apparent to the consultant must be brought to the attention of JCA immediately.

2.4.3 No liability can be accepted by JCA in respect of the trees unless the recommendations of this Method Statement are carried out under our supervision.

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3. The Protective Barrier Prior, During and Post Construction

3.1 Protective Barrier Prior to Construction

3.1.1 The installation of the temporary protective barrier will be the very first job to be undertaken on site following the completion of the tree works (**Section 2.1**). This barrier may comprise of protective fencing, ground protection, or a combination of both, as detailed below.

3.1.2 Once installed, the appointed arboriculturalist will be invited on site to inspect the protective fencing and ground protection, ensuring that it is located in the correct position and that it has been constructed in accordance with this Method Statement. No other work, including soil stripping, excavation, or the bringing onto site of materials or machinery, shall commence until the barrier is installed and confirmed to be acceptable by the appointed arboriculturalist.

3.1.3 The protective fencing must be constructed in accordance with BS 5837: 2012 *Trees in relation to design, demolition and construction - Recommendations* and will be located as shown on the Tree Protection Plan at **Appendix 5**. Where possible, the protective barrier will enclose the entire Root Protection Area (RPA) of the trees to make a Construction Exclusion Zone (CEZ); **this area is to be considered a restricted area; no pedestrians, vehicles, storage of materials, equipment or machinery are allowed within the CEZ unless specified within this Method Statement**.

3.1.4 The protective fencing adjacent to **H11, G12** and **H13** will be installed in accordance with BS 5837: 2012 and will comprise of a vertical and horizontal scaffold framework, well braced to resist impacts. The vertical tubes should be spaced at a maximum interval of 3m and driven securely into the ground, taking care to avoid underground services and structural roots. Finally, weld mesh panels are to be securely fixed on the scaffold framework. Please refer to **Appendix 2 (Fig 1)** for protective fencing details.

3.1.5 The protective barrier for all other trees may be chestnut paling or similar attached to permanently set or driven posts.

3.1.6 Once the protective fencing is installed, waterproof signs with the sentence '*Protected tree zone, no storage or operations within this are*a' are to be placed at 3m intervals to ensure that all personnel are aware of the restrictions that apply to the cordoned off area. A prepared sign is available at **Appendix 2**.

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3.2 Ground Protection

3.2.1 Where it is not possible to enclose the entire RPA of a tree with protective fencing, it will be necessary to lay appropriate ground protection which, in combination with the fencing described in **Section 3.1**, will comprise the protective barrier.

3.2.2 Please note that ground protection may not be required where existing hard standing is to be retained or if the no-dig driveway is installed prior to the construction of the new building.

3.2.3 The ground protection will be installed prior to construction and retained until the material completion of development. The purpose of the ground protection is to enable site traffic to pass over the RPAs of trees, whilst minimizing compaction and disturbance of the underlying soil which can lead to root asphyxiation and damage.

3.2.4 Where only pedestrian traffic and light machinery is required (no more than 2 tonnes in weight), a porous, thin geotextile membrane will be laid over the exposed area. A layer of sharp sand or woodchip, no less than 150mm in depth will be evenly spread over the geotextile and **must not** be compacted by mechanical means. Scaffold boards will then placed on top of this. This construction detail will provide adequate ground protection for pedestrian traffic and the use of light machinery.

3.3 Protective Barrier During Construction

3.3.1 No operations shall take place which require the removal of part of the protective barrier without prior agreement with the Local Planning Authority or JCA.

3.3.2 The protective barrier must be inspected for faults or damage by the site manager or other responsible named person on a regular basis and a written record kept. Any faults or defects must be repaired or replaced as soon as is reasonably practicable. Details of the site manager and relevant contact details can be found at **Section 7**.

3.4 Removal of the Protective Barrier

3.4.1 When the development phase is complete and the main site machinery has been removed, the Local Planning Authority should be invited to inspect the site to give approval for the removal of protective barrier.

3.4.2 When this approval has been given the protective barrier may be dismantled and removed from site.

3.4.3 It should be noted the same restrictions apply to all RPAs as the CEZ, following the removal of the protective measures (please refer to **Section 3.1.3**).

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4. Construction Phase

4.1 Demolition Works

4.1.1 The existing building is proposed to be demolished adjacent to the root protection areas of two off-site trees (**G12**).

4.1.2 In order to prevent damage occurring to these trees during this operation, the protective barrier must be in place prior to any demolition works taking place.

4.1.3 As an additional precaution, the building will be collapsed onto its existing footprint in a direction away from the trees; a method referred to as '*top down, pull back*'.

4.2 Ground Level Changes

4.2.1 A reduction in ground level is required in order to create an access driveway leading into the basement, which will impact marginally upon the root protection area of **G12**. This is discussed further in **Section 4.4**.

4.2.2 No further ground level changes are required within the RPA of any other trees to be retained on this site. As such no further mitigation actions are considered necessary.

4.3 Construction of Hard Surfaces

4.3.1 A hard surface, in the form of an access driveway, is proposed within the RPA of **G12, T14, T17** and **T19**. A no-dig method of construction will therefore be implemented to prevent damage to the roots of these trees (please note that **T10** also has a minor encroachment, however this is deemed negligible in this instance and does not require the need for the no-dig method).

4.3.2 First, any minor undulations in ground levels (e.g. pot holes) will be filled-in using suitable top soil or sharp sand, to create a level surface. No excavation will be utilised to achieve a level surface.

4.3.3 Following this, a thin geotextile membrane will be placed on the soil and pegged/pinned into position. A three dimensional, cellular confinement system will be installed over the geotextile membrane and filled with no-fines, washed angular stone, no less than 4mm in diameter and to a minimum depth of 100mm. This may then be compacted using a plate compactor (wacker-plate) and utilised as ground protection for the retained trees.

4.3.4 In order to retain the surfacing in place, edging supports may be required. Such supporting systems will minimize disturbance to the underlying soil and will not utilise continual trenching within the RPA. Acceptable methods include peg and board edging, gabions or sleepers which may be pinned in place if required.

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4.3.5 The final surface treatment must be porous to enable the percolation of water through the surfacing to the tree roots beneath. This method is considered to be appropriate in terms of minimising damage to retained trees. However, a structural engineer should be consulted to ensure that the mechanical needs of the chosen design are adequately met.

4.4 Construction of New Buildings

4.4.1 In this case, the footprint of the proposed building and its associated basement access driveway slightly encroachment within the root protection area of trees contained within **G12**.

4.4.2 The resulting degree of root loss which is likely to occur as a result of the required excavations is deemed to be acceptable in this instance. However; in order to prevent the root damage associated by the 'ripping' action of mechanical digging, all excavations within the root protection area must be carried out by hand under arboricultural supervision. If roots are required to be severed then clean, straight cuts must be made, in order to minimise the extent of wounding.

4.5 Construction of Retaining Wall

4.5.1 A retaining wall is proposed within the footprint of the trees within **G12**. In this instance, a conventional, trench wall foundation would result in a severe degree of root loss and would likely lead to the demise of these trees.

4.5.2 As such; in order to prevent the root damage, the wall must be erected using pile/block and beam or similar using vertically dug or drilled holes. These excavations must be to the minimum size required and carried out by hand only.

4.6 Excavations and Services

4.6.1 Details on service routes are not available at this time. As such, no provision for the routing of utilities within the RPAs is made within the scope of this report. All utilities must therefore be located outside the RPA of retained trees. If, for whatever reason, incursions into the RPAs are considered unavoidable, the consulting arboriculturalist and/or the LPA must be consulted immediately, to prevent a breach of planning conditions and/or damage to retained trees.

4.6.2 Guidance and methodologies on the installation of underground services whilst minimising damage to tree roots is provided at **Appendix 3**.

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4.7 Location of the Site Compound

4.7.1 The site compound, typically including the site office, mess facilities, toilets, storage of materials and parking, must be located away from, and outside the RPA of retained trees. Areas designated for the storage and/or mixing of chemicals, including petrol, diesel and oils must also be located away from, and outside the RPA of retained trees. Such areas should be constructed with consideration to, and contingencies for, the occurrence of spillages, preventing the leaching of chemicals into unprotected, open ground.

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5. Post Construction Phase

5.1 Completion Meeting

5.1.1 Upon completion of the works as specified in **Section 4**, a JCA consultant will invite the Local Planning Authority representative to meet with them on site to agree on any remedial works which may be required.

5.1.2 Any necessary remedial works will be confirmed in writing and must be carried out in accordance with BS 3998: 2010 - *Recommendations for tree work.*

5.1.3 Due to the large potential penalties for illegally carrying out work to protected trees, JCA recommend that a further check is carried out prior to any works being undertaken post development.

5.2 Post Construction Landscaping

5.2.1 Following completion of the main construction phase, the protective fencing and ground protection will be removed and the landscaping phase can commence.

5.2.2 Many of the trees on site may be subject to some form of landscaping or seeding beneath their canopies after the development phase. At this stage the protective barrier will have been removed and the property may be occupied.

5.2.3 Landscaping works should be carried out in such a way as to avoid ground level changes or deep digging within RPAs. Heavy machinery, rotovation or other mechanised cultivation methods must not be used within the RPAs of retained trees.

5.2.4 Herbicides should be appropriate for the purpose and should not be used in such a way as to damage any retained trees or vegetation.

5.2.5 If in doubt, regarding the impact of proposed landscape operations, please contact the appointed arboriculturalist.

5.3 Mycorrhizal Fungi Inoculation

5.3.1 As the proposed development will encroach into the RPA of **G12, T14, T17** and **T19**, the application of *Mycorrhizal fungi* will be undertaken to the soils around these trees after the construction phase is complete.

5.3.2 *Mycorrhizae* fungi form a symbiotic relationship with tree roots; a tree root associated with *Mycorrhiza* takes up nutrients more effectively than a non associated root. An application of *Mycorrhizae* will therefore be beneficial for these trees.

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6. Timescale of Works

6.1.1 The timescale for arboricultural requirements are summarised below:

Timescale	Action	✓	Initial
Stage 1	All requirements listed in the planning consent are approved by the Local Authority planning office.		
Stage 2	Undertake the tree works (as detailed at **Appendix 1)**.		
Stage 3	Install the temporary protective fencing around the trees (as detailed at **Appendix 2** and as shown on the Tree Protection Plan at **Appendix 5**).		
Stage 4	Install ground protection (where required) within the RPAs of those trees which are not fully protected by the fencing (as detailed in **Section 4**).		
Stage 5	Have the Local Planning Authority inspect the fencing and ground protection measures prior to any on site construction. Once inspected, the protective fencing and ground protection must not to be moved or breached.		
Stage 6	Undertake the demolition of the existing building and features (as detailed in **Section 4**).		
Stage 7	Undertake the construction of the new building (as detailed in **Section 4**).		
Stage 8	Install permanent hard surfaces whilst undertaking suitable measures to avoid root damage and soil compaction (as detailed in **Section 4** and at **Appendix 4**).		
Stage 9	Following the completion of the construction phase and when all site traffic and machinery has left, the protective fencing and ground protection can be removed.		
Stage 10	Landscaping scheme and post construction remedial tree works to be undertaken (where required) including *Mycorrhizal* inoculation within the RPA of **G12, T14, T17** and **T19**.		

7. Relevant Contact Details

Contact Name	Organisation/Detail	Contact Number
Andrew Bussey	JCA Limited	01422 376335
Local Authority Tree Officer	Barnsley Metropolitan Borough Council	01226 770770
Kevin Goldthorpe	Owner	01484 601122
Site Manager	To be confirmed	To be confirmed

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Appendices

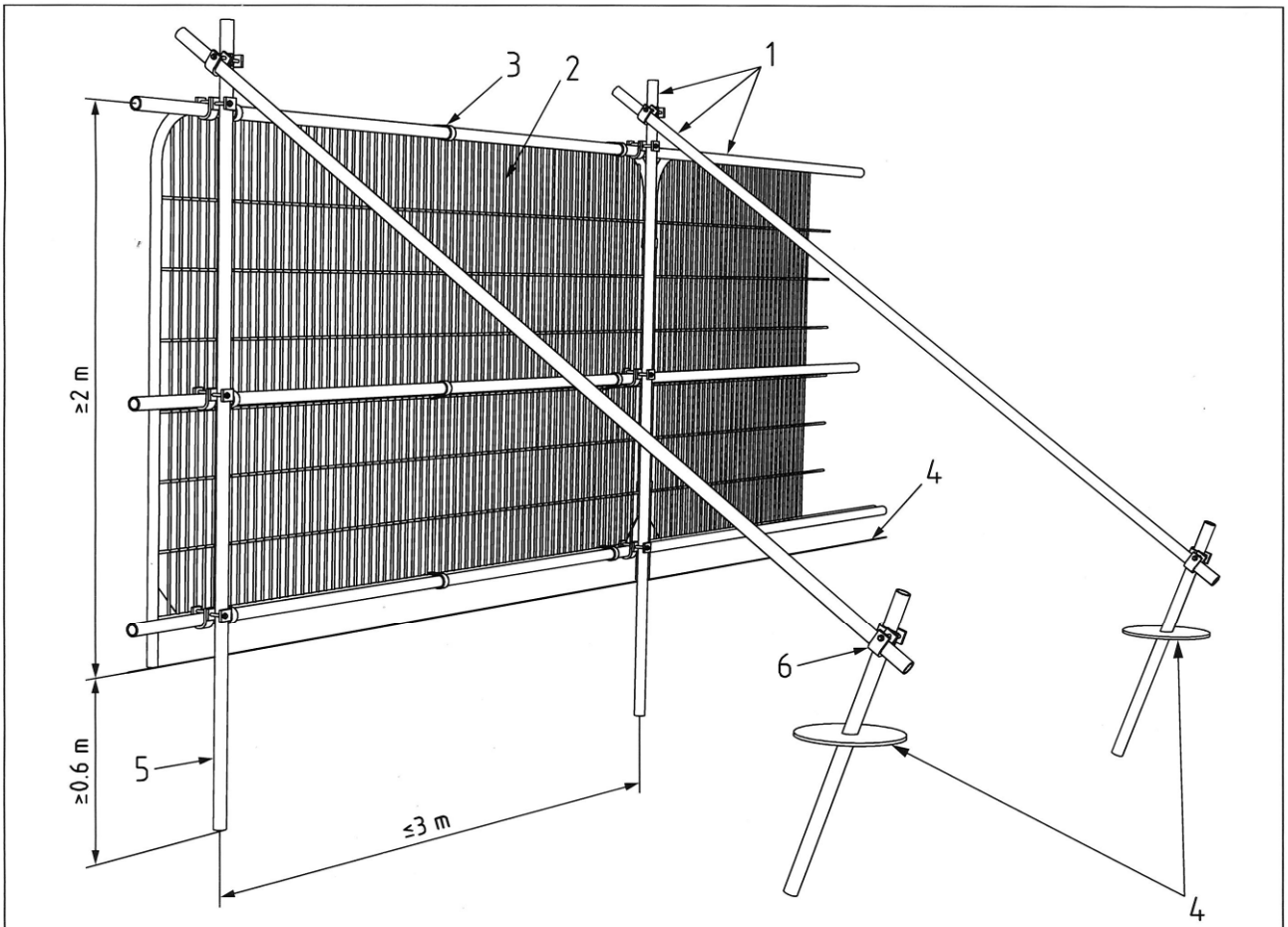
Tree Ref.	Age Common Name *Botanical Name*	Height (m)	Crown Height (m)	Height (m) and Direction of the Lowest Branch	Diameter (cm)	Crown Spread N W E S	Observations	Recommendations Priority	Physiological Condition	Structural Condition	Amenity Value	NHBC Water Demand	Life Expectancy (yrs)	Retention Category
G 1	Semi-mature Hawthorn & Silver Birch *Crataegus monogyna and Betula pendula*	To 6	0+	0+ n/a	To 25	See plan	Three trees of poor leaning form with bark wounds present on the stems.	No action required. n/a	FAIR	FAIR	LOW	HIGH	10+	C 1
T 2	Early-mature Sycamore *Acer pseudoplatanus*	9	3	1.5 NW	48	5# 4 4 5.5	Twin-stemmed at 0.5m with a balanced crown. Occasional pruning wounds. No major visible defects.	No action required. n/a	GOOD	GOOD	LOW	MOD	40+	C 1
T 3	Semi-mature Horse Chestnut *Aesculus hippocastanum*	9	1.5	2 n/a	32	3.2 0 4.5 3.5	Single-stemmed and leaning with an unbalanced crown. No evidence of significant pruning. No major visible defects.	No action required. n/a	GOOD	FAIR	LOW	MOD	20+	C 1
T 4	Mature Rowan *Sorbus aucuparia*	10	1.5	1.5 n/a	65 at base	4.2 3 3 4.8	Multi-stemmed at 1m with a balanced crown. Occasional pruning wounds. Tight unions present at the stem junction.	Monitor annually. Low	GOOD	FAIR	LOW	MOD	20+	B 1
T 5	Semi-mature Sycamore *Acer pseudoplatanus*	5	3	3 n/a	22	6.5 0 3 0	Single-stemmed and leaning with an unbalanced crown and a very poor form. Wound present on the main stem.	Remove. Low	POOR	POOR	LOW	MOD	<10	U
T 6	Early-mature Sycamore *Acer pseudoplatanus*	13	5	5 N	64 at base	4 3 2 3	Single-stemmed and vertical with an unbalanced crown following the removal of a co-dominant stem, the removal of which has left a decaying pruning wound in place.	Remove. Low	FAIR	POOR	LOW	MOD	<10	U
T 7	Early-mature Cypress sp. *Cupressus sp.*	8	1.5	1.5 n/a	40	2.8 2.8 2.8 2.8	Situated on adjacent land. Multi-stemmed at ground level with a balanced crown. Occasional pruning wounds. No major visible defects. Not fully inspected due to restricted access.	No action required. n/a	GOOD	GOOD	LOW	HIGH	20+	C 1
T 8	Early-mature Sycamore *Acer pseudoplatanus*	12	5	5 W	48#	5# 5# 1# 5	Situated on adjacent land. Single-stemmed and vertical with an unbalanced crown. Occasional pruning wounds. No major visible defects. Not fully inspected due to restricted access.	No action required. n/a	GOOD	GOOD	LOW	MOD	20+	C 1
T 9	Mature Sycamore *Acer pseudoplatanus*	14	6	6 n/a	76	7 5 7.8 7	Twin-stemmed at 5m with a balanced crown. Occasional pruning wounds, some with the onset of decay.	Monitor annually. Low	GOOD	FAIR	LOW	MOD	20+	B 1
T 10	Young Cypress sp. *Cupressus sp.*	2.5	0	0 n/a	10	0.4 0.4 0.4 0.4	Single-stemmed and vertical with a balanced crown. No evidence of significant pruning. No major visible defects.	No action required. n/a	GOOD	GOOD	LOW	HIGH	20+	C 1

Tree Ref.	Age Common Name *Botanical Name*	Height (m)	Crown Height (m)	Height (m) and Direction of the Lowest Branch	Diameter (cm)	Crown Spread N W E S	Observations	Recommendations Priority	Physiological Condition	Structural Condition	Amenity Value	NHBC Water Demand	Life Expectancy (yrs)	Retention Category
H 11	Semi-mature Cherry Laurel & Leylandii *Prunus laurocerasus & X Cupressocyparis leylandii*	To 5	0+	0+ n/a	To 12	See plan	A garden boundary hedge situated on adjacent land. No major visible defects.	No action required. n/a	GOOD	GOOD	LOW	HIGH	20+	C 1
G 12	Mature Sycamore *Acer pseudoplatanus*	To 14	5+	5+ n/a	To 60#	See plan	Situated on adjacent land. Two trees of well balanced and vertical form. Not fully inspected due to restricted access.	No action required. n/a	GOOD	GOOD	MOD	MOD	40+	B 1
H 13	Semi-mature Leylandii *X Cupressocyparis leylandii*	To 4.5	0+	0+ n/a	To 12	See plan	Garden boundary hedge. No major visible defects.	No action required. n/a	GOOD	GOOD	LOW	HIGH	20+	C 1
T 14	Mature Sycamore *Acer pseudoplatanus*	14	2	2 S	63	1.5 6 6.5 6#	Single-stemmed and vertical with an unbalanced crown following the removal of an adjacent tree. Occasional pruning wounds, some with the onset of decay.	Monitor annually. Low	GOOD	FAIR	LOW	MOD	20+	B 1
T 15	Mature Silver Birch *Betula pendula*	12	3	3 n/a	46	1 3 5# 4#	Single-stemmed and leaning with an unbalanced crown. No evidence of significant pruning. Significant decay noted to stem.	Remove. Low	FAIR	POOR	LOW	LOW	<10	U
T 16	Early-mature Sycamore *Acer pseudoplatanus*	10	1	1 n/a	48#	5# 6# 6# 6#	Single-stemmed and vertical with a balanced crown. No evidence of significant pruning. No major visible defects. Not fully inspected due to restricted access.	No action required. n/a	GOOD	GOOD	LOW	MOD	40+	B 1
T 17	Early-mature Holly *Ilex aquifolium*	9	0	0 n/a	46	2.5 5 4 4.5	Multi-stemmed at 1m with a balanced crown. Occasional pruning wounds. No major visible defects.	No action required. n/a	GOOD	GOOD	LOW	LOW	40+	B 1
T 18	Semi-mature Sycamore *Acer pseudoplatanus*	8	0	0 n/a	29	1.5 3 4 3	Single-stemmed and vertical with a balanced crown. No evidence of significant pruning. No major visible defects.	No action required. n/a	GOOD	GOOD	LOW	MOD	20+	C 1
T 19	Semi-mature Swedish Whitebeam *Sorbus intermedia*	6	0	0 n/a	25, 25 & 20	3 3.5 4 3	Multi-stemmed at ground level with a balanced crown. No evidence of significant pruning. No major visible defects.	No action required. n/a	GOOD	GOOD	LOW	MOD	40+	C 1
G 20	Semi-mature Cypress sp. *Cupressus sp.*	To 7	0+	0+ n/a	To 25	See plan	Situated on adjacent land. Two trees of well balanced and vertical form. No major visible defects.	No action required. n/a	GOOD	GOOD	LOW	HIGH	20+	C 1

Tree Ref.	Age Common Name *Botanical Name*	Height (m)	Crown Height (m)	Height (m) and Direction of the Lowest Branch	Diameter (cm)	Crown Spread N W E S	Observations	Recommendations Priority	Physiological Condition	Structural Condition	Amenity Value	NHBC Water Demand	Life Expectancy (yrs)	Retention Category
G 21	Semi to early-mature Sycamore & Common Ash *Acer pseudoplatanus & Fraxinus excelsior*	To 13	0+	0+ n/a	To 45#	See plan	Situated on adjacent land. A group of trees of reasonable form. Not fully inspected due to restricted access.	No action required. n/a	GOOD	GOOD	MOD	MOD	40+	B 1

Appendix 2: Protective Barrier

A2.1 The protective barrier will be installed adjacent to **H11, G12** and **H13** in accordance with BS5837: 2012. The default specification of BS 5837: 2012 (pictured below for reference) recommends a vertical and horizontal, scaffold framework, well braced to resist impacts, with vertical tubes at no more than 3m intervals. These should be driven into the ground. Weld mesh panels should be affixed to this framework with scaffold clamps - See **Figure 1** below.



Key

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

Figure 1: 'Protective Barrier to BS 5837: 2012'. To be used where situated in open ground.

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TREE PROTECTION ZONE

NO STORAGE OR OPERATIONS WITHIN THIS AREA

KEEP OUT

RESTRICTED ACCESS
NO VEHICLES
NO STORAGE OF MATERIALS

REPORT TREE DAMAGE TO JCA LTD ON
01422 376 335

Appendix 3: Utilities and Drainage

A3.1 Over-ground services should be routed away from areas where they are likely to interfere with the crowns of trees. Similarly any landscaping should take account of over-ground services and mature tree size.

A3.2 Underground services must be routed outside the RPA of retained trees, unless otherwise specified within this report. NJUG Volume 4 Issue 2 (below) is a set of accepted guidelines for installing services in the proximity of trees. Please note that this is not a substitute for site-specific advice by an arboriculturalist and consultation should be made wherever incursions of RPAs are envisaged. The contents of this report, specifically **Section 4.5**, supersede the set of guidelines on the next page, which are only included for reference.

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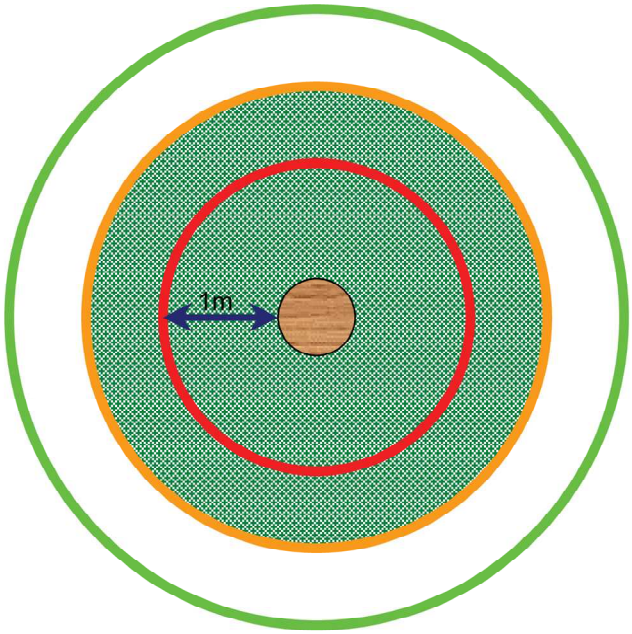
The National Joint Utilities Group

NJUG Guidelines for the Planning, Installation and Maintenance of Utility Apparatus in Proximity to Trees – Issue 2



TREE PROTECTION ZONE

Key to Diagram

Trunk of Tree

Spread of canopy or branches

PROHIBITED ZONE – 1m from trunk. Excavations of any kind must not be undertaken within this zone unless full consultation with Local Authority Tree Officer is undertaken. Materials, plant and spoil must not be stored within this zone.

PRECAUTIONARY ZONE – 4 x tree circumference. Where excavations must be undertaken within this zone the use of mechanical excavation plant should be prohibited. Precautions should be undertaken to protect any exposed roots. Materials, plant and spoil should not be stored within this zone. Consult with Local Authority Tree Officer if in any doubt.

PERMITTED ZONE – outside of precautionary zone. Excavation works may be undertaken within this zone however caution must be applied and the use of mechanical plant limited. Any exposed roots should be protected.

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Appendix 4: Permanent Hard Surfaces

A4.1 This Appendix outlines approach to constructing a No-Dig hard surface within the RPA of a tree. The design of such a construction needs to be sensitive to the requirements of tree roots, substantial enough to withstand the expected levels of traffic and practicable in terms of ease of fabrication (See **Section 4.3** for details)

A4.2 We are not qualified to recommend any particular construction method in terms of durability or structural integrity and any proposed construction should be approved by a qualified structural engineer prior to implementation. However, with regards to trees, we make the following comments:

- Severance of roots and soil compaction should be avoided. However, if it is necessary to sever roots or if they are severed accidentally we must be informed so that we are able to assess and recommend accordingly.

- Air and water must be able to diffuse into the soil beneath the engineered surface. Toxic substances which could leach into the ground must be avoided, as should substances which affect the pH value of the soil, for example limestone.

A4.3 **The No-Dig Method:** This involves construction of a surface with no excavation, soil stripping or site grading (see **Figure 2** below). All construction takes place above ground level. Preparation is as follows:

A4.4 Ground vegetation is killed using a suitable herbicide. Care must be taken to select a herbicide which does not damage the tree roots within the treated area. Once the vegetation has died, the dead organic matter should be removed. This helps prevent the future build up of anaerobic conditions or settlement due to decomposition.

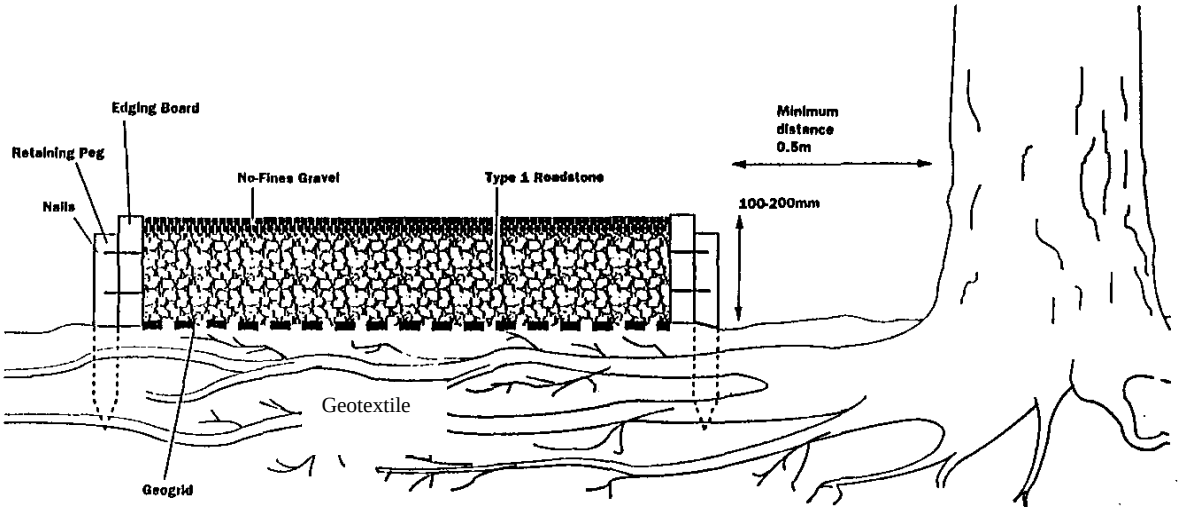

Figure 2. A light duty drive constructed using the ***No Dig Method.***

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Appendix 5: Tree Protection Plan

ADDRESS: Villa Providence, Crow Edge, Penistone, South Yorkshire, S36 4HF.
JCA REF: 12756-A/AJB.

SCALE: 1:200	PAPER SIZE : A1

SURVEYED BY: AJB	DRAWN BY: AJB	APPROVED BY: TT

	TREE TO BE RETAINED
	TREE TO BE REMOVED
	STEM OF TREE TO BE RETAINED
	STEM OF TREE TO BE REMOVED
	ROOT PROTECTION AREA (RPA)
	AREA OF RPA NOT PROTECTED BY FENCING. NO MATERIALS SHOULD BE STORED HERE. GROUND COMPACTION MUST BE AVOIDED. SPECIAL SURFACES /CONSTRUCTION TECHNIQUES MUST BE CONSIDERED WHEN WORKING/CONSTRUCTING WITHIN THESE AREAS AND ONLY HAND EXCAVATIONS ARE PERMITTED
	EXISTING BUILDINGS/FEATURES REQUIRING DEMOLITION
	PROPOSED NEW DEVELOPMENT
	PROTECTIVE FENCE LINE (CEZ)

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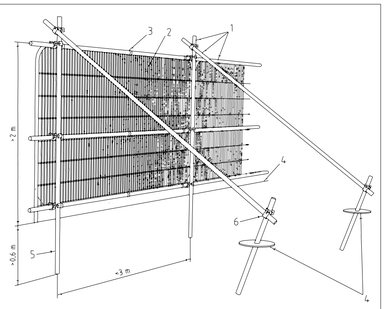
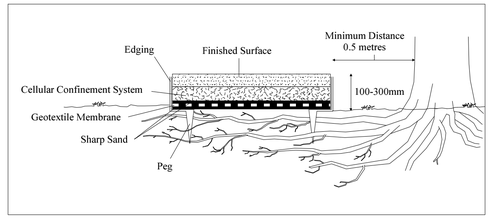
Default specification for a protective barrier



Key

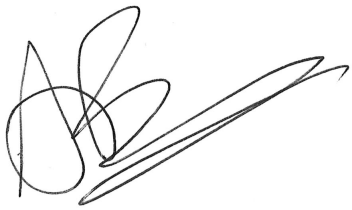
1. Standard scaffold poles
2. Heavy gauge 2m tall galvanized tube and welded mesh infill panels
3. Panels secured to uprights and cross-members with wire ties
4. Ground level
5. Uprights driven into the ground until secure (minimum depth 0.6m)
6. Standard scaffold clamps

An example of a 'no dig' road construction



I hope that this report provides all the necessary information, but should any further advice be needed please do not hesitate to contact the author.

Signed



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Andrew Bussey.

4th of April 2016

For and on behalf of ***JCA Ltd***

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Photo front cover: Sluice at Bowers Mill

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