



**Arboricultural Method Statement & Tree Protection Plan – In
Accordance with BS 5837:2012**

Proj. No 9775	Ashley Road Depot, Park View Road, London, N17 9AZ		
Client:		London Borough of Haringey	
Date of Report:	26/05/2023	Revision:	A

***Arboricultural Method Statement &
Tree Protection Plan
In Accordance with
BS 5837:2012***

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1.0 Introduction

1.1 Terms of Reference

- 1.1.1 Hayden's Arboricultural Consultants Limited has been commissioned by London Borough of Haringey to prepare a bespoke Arboricultural Method Statement for the proposed development at Ashley Road Depot, Park View Road, London, N17 9AZ.
- 1.1.2 This report provides supplementary information to that submitted in the Tree Survey, Arboricultural Impact Assessment and Preliminary Method Statement & Tree Protection Plan, dated 14/03/2022, ref: 8765 rev. A.
- 1.1.3 In accordance with the requirements of London Borough of Haringey, condition 53 of planning permission ref: HGY/2022/0752 states:

"Prior to the commencement of works on site an Arboricultural Method Statement, in accordance with the tree protection measures shown in the approved Tree Survey, Arboricultural Impact Assessment Preliminary Arboricultural Method Statement & Tree Protection Plan shall be submitted to the Local Planning Authority for its written approval. Once approved the details shall be followed thereafter."

- 1.1.3 Based on the above, London Borough of Haringey require information regarding the following:

- (i) Site Access
- (ii) Site Compound, Office and Welfare
- (iii) Fencing
- (iv) Access facilitation pruning
- (v) Tree Works
- (vi) Demolition
- (vii) Construction Methods
- (viii) Drainage
- (ix) Services
- (x) Soft Landscape Proposal and Specification
- (xi) Hard Landscape Proposal and Specification
- (xii) Project Phasing and Monitoring Schedule

2.0 Specific Details

2.1 Site Access

- 2.1.1 Site access is encumbered by the theoretical Root Protection Area (RPA) of G001, located in Down Lane Park adjacent to the site's southern boundary. In this case the RPA is safeguarded by existing hard surfaces. From a purely arboricultural perspective, it will therefore not be necessary to install a temporary load bearing road to protect tree roots.

2.2 Site Compound, Office and Welfare

- 2.2.1 The site compound, office and welfare facilities will be located outside of the retained trees RPAs shown on the attached drawing no. 9775-D-AMS.



2.3 Fencing

- 2.3.1 Prior to the commencement of construction and immediately after the completion of the necessary tree work, discussed at items 2.4 and 2.5 below, protective fencing will be erected on site. This must be fit for purpose, in full accordance with the requirements of BS 5837:2012 and positioned as shown on the attached drawing no. 9775-D-AMS (Appendix G).
- 2.3.2 Original positioning and all subsequent re-alignments must be agreed on site by the Project Arboriculturalist, following which photographic evidence will be submitted to the Local Planning Authority (LPA).
- 2.3.3 Details of fencing are supplied in Appendix F and shown on the attached drawing no. 9775-D-AMS.

2.4 Tree Surgery to Facilitate Proposed Development

- 2.4.1 The specification for the required AFP is detailed below and at Appendix C. The works are also identified on the attached drawing no. 9775-D-AMS.

Feature No	Description of Works Required
T001	Undertake linear root pruning at the location shown on drawing no. 9775-D-AMS to permit development.
T002	Undertake linear root pruning at the location shown on drawing no. 9775-D-AMS to permit development.
T003	Reduce southern aspect of crown and undertake linear root pruning at the location shown on drawing no. 9775-D-AMS to permit development.
T013	Undertake linear root pruning at the location shown on drawing no. 9775-D-AMS to permit development.

- 2.4.2 To facilitate construction of the approved structures in the RPA of T001, T002, T003 and T013 it may be necessary to undertake root pruning. To ensure no damage occurs, the ground will be carefully excavated by hand to the depth of the proposed construction. Any roots unearthed will be cleanly severed using secateurs and a non-permeable membrane inserted between any roots severed and the structures foundations.
- 2.4.3 Root pruning will be monitored by the Project Arboriculturalist and photographic evidence submitted to the LPA.
- 2.4.4 All tree works shall be carried out in accordance with BS 3998:2010.



2.5 Tree Works

- 2.5.1 The tree removals are detailed below and at Appendix C. The location of the trees to be felled are shown on the attached drawing no. 9775-D-AMS.

Feature No	Reason for Removal
T005	To facilitate landscape enhancement works.
T006	To facilitate landscape enhancement works.
T007	To facilitate landscape enhancement works.
T008	To facilitate landscape enhancement works.
T010	To facilitate landscape enhancement works.
T014	To permit construction of proposed residences.
T015	To permit construction of proposed residences.
T016	To facilitate landscape enhancement works.
T017	To facilitate landscape enhancement works.
T019	To facilitate landscape enhancement works.
T020	To permit construction of proposed residences.
T021	To permit construction of proposed residences.
T022	To permit construction of proposed residences.
T023	To permit construction of proposed residences.
T024	To permit construction of proposed residences.

2.6 Demolition

- 2.6.1 Existing hard surfacing within the RPA of T001, T002, T003 and T012 is to be removed and returned to soft landscaping, as shown on the attached drawing no. 9775-D-AMS. The existing hard surfacing will be retained until the new soft landscaping is installed. The hard surfacing will be broken out manually, or with appropriate lightweight machinery, within the RPA of the retained trees.
- 2.6.2 Existing hard surfacing within the RPA of G001 is to be removed and replaced, as shown on the attached drawing no. 9775-D-AMS. The existing hard surfacing will be retained until the replacement hard surfacing is installed. The hard surfacing will be broken out manually, or with appropriate lightweight machinery, within the RPA of the retained trees.
- 2.6.3 If the findings of the Project Engineer are such that the sub-base is unsuitable for re-use, the sub-base will be removed by hand to the depth of previous construction. Any roots exposed will be retained in situ and covered with damp sharp sand or wet hessian sacking to prevent rapid drying by exposure to atmospheric conditions and this covering will be maintained for the duration of exposure and regularly moistened until a new surface is reinstated. No excavations will be made below the depth of previous construction without consultation with the supervising Arboriculturalist. The lowest level of previous structures will thereafter be regarded as the base level on which the new surface is to be established. The implications of this will be assessed by the Project Engineers and an appropriate construction specification will be produced in consultation with the Project Arboriculturalist.

2.7 Construction Methods

- 2.7.1 It is proposed to install 'no-dig' surfacing in the RPA of T003, T004, T009, T011, T012 and T013, as shown on the attached drawing no. 9775-D-AMS. During the main phase of construction and until the 'no-dig' surfacing is installed, the existing hard surfacing will be retained to act as ground protection.



- 2.7.2 A drawing that includes three cross sections detailing the construction make-up of the 'no-dig' surfacing has been prepared by Levitt Bernstein. A copy of this drawing, no: 3742A-LB-XX-00-DR-L-900000 rev. A, is included at Appendix H.
- 2.7.3 Following completion of the main phase of construction the existing hard surfacing will be removed and the 'no-dig' surfacing installed, in accordance with the specification detailed on drawing no. 3742A-LB-XX-00-DR-L-900000 rev. A and 3742A-LB-XX-00-DP-L-200001 rev. P2:
- 2.7.4 Installation of the 'no-dig' surfacing in the RPA of T003, T004, T009, T011, T012 and T013 will be monitored by the Project Arboriculturalist and photographic evidence submitted to the LPA.

2.8 Drainage

- 2.8.1 The foul and surface water drainage schemes are shown on the site plans prepared by Civic Engineers, drawing no. 1832-CIV-XX-XX-D-C-30001/30002/30003/30011 and 30012. The proposal has been superimposed onto the attached drawing no. 9775-D1-AMS.
- 2.8.2 Where the proposed drainage route is to be installed in the RPA of T001, T002, T003, T004, T009, T011, T012 and T013, as identified on the attached drawing no. 9775-D1-AMS-Drainage, trenchless techniques will be used. The minimum number of launch and reception pits should be utilised and their final location will be agreed with the Project Arboriculturalist prior to their installation. To avoid damage to roots by percussive boring techniques, the depth of the drainage run should be below 600mm. It must also be given due consideration that trenchless techniques involving external lubrication of the equipment with materials other than water (e.g. oil) must not be used.
- 2.8.3 Installation of the drainage route in the RPA of T001, T002, T003, T004, T009, T011, T012 and T013 will be monitored by the Project Arboriculturalist and photographic evidence submitted to the LPA.

2.9 Services

- 2.9.1 The service routes are shown on the site plan prepared by Max Fordham, drawing no. J7010-MXF-XX-00-DR-J-55001. The proposal has been superimposed onto the attached drawing no. 9775-D2-AMS.
- 2.9.2 Where the proposed services are to be installed in the RPA of T002, T003, T004, T009, T011, T012 and T013, as identified on the attached drawing no. 9775-D2-AMS-Services, trenchless techniques will be used. The minimum number of launch and reception pits should be utilised and their final location will be agreed with the Project Arboriculturalist prior to their installation. To avoid damage to roots by percussive boring techniques, the depth of the drainage run should be below 600mm. It must also be given due consideration that trenchless techniques involving external lubrication of the equipment with materials other than water (e.g. oil) must not be used.
- 2.9.3 Installation of services in the RPA of T002, T003, T004, T009, T011, T012 and T013 will be monitored by the Project Arboriculturalist and photographic evidence submitted to the LPA.



2.10 Soft Landscape Proposal

- 2.10.1 The soft landscape proposal is shown on drawing no. 3742A-LB-XX-00-DP-L-200004 rev. P2, prepared by Levitt Bernstein and a copy of which is included at Appendix I.
- 2.10.2 Existing hard surfacing within the RPA of T001, T002, T003 and T012 is to be returned to soft landscaping, as shown on the attached drawing no. 9775-D-AMS. Prior to the topsoil being imported, the existing hard surface and sub-base will be removed by hand or with appropriate lightweight machinery. Sharp sand will then be laid over any roots that are exposed, onto which good quality debris free topsoil will be laid. The original hard surfacing will be retained until this work commences, as discussed at item 2.6.

2.11 Hard Landscape Proposal

- 2.11.1 The hard landscape proposal is shown on drawing no. 3742A-LB-XX-00-DP-L-200001 rev. P2, prepared by Levitt Bernstein and a copy of which is included at Appendix J.

2.12 Project Phasing and Monitoring Schedule

- 2.12.1 The proposal involves the integration of several complex aspects that affect tree protection (e.g. – but not exclusively – installation of drainage, services and ‘no-dig’ surfacing). For this reason, the project must be carefully phased to ensure the highest level of protection for trees at all times. Accordingly, Hayden’s Arboricultural Consultants have produced a method statement flowchart/checklist phasing recommendation to cover the major operations on site as they affect retained trees. This is included on drawing no. 9775-D-AMS.
- 2.12.2 In accordance with item 6.3 of BS 5837:2012, the site and associated development must be monitored regularly by a competent Arboriculturalist to ensure that the arboricultural aspects of the planning permission are complied with. As such, the method statement flowchart/checklist included on drawing no. 9775-D-AMS should be used as an auditable monitoring schedule to assess the progress of key site events/activities.
- 2.12.3 In addition to the method statement flowchart/checklist, it is beneficial to identify the key arboricultural responsibilities associated with the progression of the development. Accordingly, a draft “Statement of Supervision (Arboriculture)” has been included at Appendix E. The purpose of this document is to identify a definite decision making and data recording structure in the monitoring process, together with providing a list of specific inspection trigger points. Prior to works commencing on site, this document should be re-issued with contact names and document reference numbers included.
- 2.12.4 It is the responsibility of the Site Manager, with authorisation from their client, to commission and plan Arboricultural Monitoring site visits as listed in the Statement of Supervision (Appendix E) and on drawing no. 9775-D-AMS. Hayden’s upon this request will produce a detailed quotation to match with the critical Arboricultural Monitoring points outlined.



3.0 Appendices

Appendix	A	Species List
Appendix	B	Schedule of Trees
Appendix	C	Schedule of Works to Allow Development
Appendix	D	Explanatory Notes
Appendix	E	Statement of Supervision (Arboriculture)
Appendix	F	Advisory Information & Sample Specifications
	1.	BS 5837:2012 Figure 1 - Flow Chart – Design and Construction & Tree Care
	2.	European Protected Species and Woodland Operations Checklist (v.4)
	3.	BS 5837:2012 Figure 2 - Default specification for protective barrier
	4.	BS 5837:2012 Figure 3 - Examples of above-ground stabilising systems
	5.	Figure 4 Detail of protective barrier where construction encroaches within BS5837:2012 Root Protection Area
	6.	Method Statement for 'No Dig' Construction in line with Arboricultural Practice Note 12 ' <i>Through the Trees to Development</i> '
	7.	Air Spade/Air Excavation Specification
Appendix	G	Drawing no. 9775-D-AMS Drawing no. 9775-D1-AMS (Drainage) Drawing no. 9775-D2-AMS (Services)
Appendix	H	Drawing no. 3742A-LB-XX-00-DR-L-900000 rev. A
Appendix	I	Drawing no. 3742A-LB-XX-00-DP-L-200004 rev. P2
Appendix	J	Drawing no. 3742A-LB-XX-00-DP-L-200001 rev. P2



Appendix A - Species List

Species List:

Apple	<i>Malus sp</i>
Cherry	<i>Prunus sp</i>
Cypress	<i>Cupressus sp</i>
European Lime	<i>Tilia sp</i>
London Plane	<i>Platanus sp</i>
Pear	<i>Pyrus sp</i>
Sycamore	<i>Acer sp</i>



Appendix B

Schedule of Trees

SCHEDULE OF TREES (AIA)

Ashley Road Depot, Park View Road, London,

Surveyed By: Nick Hayden Date: 23/06/2022

Managed By: Nick Hayden

TreeNo	Species	DBH	Height		Visual	Crown Spread	Problems / Comments	BS Cat	Work Required (TS)	Priority (TS)	Work Required (AIA)	Priority (AIA)
		Min Dist	Crown Base	Lowest Branch	Age	Water Demand						
On site		RPA (m²)	Aspect	Aspect	SULE	Ground Cover						
G001	Lime x24	50	20		High	N5, E5, S5, W5	Locate in park adjacent to site's southern boundary. First twelve trees from Ashely Road entrance lifted to 5 metres and epicormic growth removed. DBH of each stem recorded for constraints plan. Deadwood. Informal footpath to south. Not plotted on TOPO.	B2	Remove deadwood.	3		
		0.6	0-2m		M	Moderate						
No		1.1			20+ years	Grass, Concrete						
G002	Lime x4	50	18		High	N4, E4, S4, W4	Dense undergrowth impeded a detailed inspection. Not plotted on TOPO. Dimensions estimated.	B2	No work required.	4		
		0.6	0-2m		EM	Moderate						
No		1.1			20+ years	Dense undergrowth						

TreeNo	Species	DBH	Height		Visual	Crown Spread	Problems / Comments	BS Cat	Work Required (TS)	Priority (TS)	Work Required (AIA)	Priority (AIA)
		Min Dist	Crown Base	Lowest Branch	Age	Water Demand						
On site		RPA (m²)	Aspect	Aspect	SULE	Ground Cover						
T001	London Plane	1110	19		High	N7, E8, S7.5, W5.5	Restricted rooting environment. Boundary wall within 0.3 metres to north, beyond which is level change of circa. 1.5 metres. Inspection of northern aspect of stem impeded by fencing. Large area of bark necrosis on south eastern aspect from ground level to 2.5 metres, at which point tree is multi-stemmed. Exposed, dysfunctional sapwood. South aspect old wound at base, 0.3 by 0.4 metres, which is hollow when tapped with a sounding mallet. Western aspect there is a further large occluding wound with notable decay from base to 1.7 metres. Possible decay throughout south and south western aspect of lower stem. Notable bark wounds / necrosis on eastern and southern extending stems. Southernmost stem dead over yard and adjacent one in severe decline, almost dead. Minor deadwood throughout. Thinning, upper central cavity. Historically reduced. Secondary investigations recommended following which remedial works will be prescribed. B.S. may alter too depending on findings. October 2021 - Secondary investigations undertaken. Please refer to letter / report ref. 9163/NH dated 11th November 2021.	C2	Pollard at 8m.	2	Undertake linear root pruning at the location shown on drawing no. 9775-D-AMS to permit development.	0
		13.32	0-2m		M	Moderate						
Yes		557.4			10+ years	Concrete						

TreeNo	Species	DBH	Height		Visual	Crown Spread	Problems / Comments	BS Cat	Work Required (TS)	Priority (TS)	Work Required (AIA)	Priority (AIA)
		Min Dist	Crown Base	Lowest Branch	Age	Water Demand						
On site		RPA (m²)	Aspect	Aspect	SULE	Ground Cover						
T002	London Plane	1060	19		High	N4, E7.5, S6.5, W10	Restricted rooting environment. Boundary wall within 0.5 metres to north, beyond which is level change of circa. 1.5 metres. Inspection of northern aspect of stem impeded. Large area of bark necrosis on southern aspect from ground level to 5 metres that extends circa. 25% of stem's circumference. Exposed dysfunctional sapwood. Little evidence of wound wood formation at edges and appears to be extending into base of south eastern and south western extending codominant stems at 2.5 metres above ground level. Central stem dead. Northern extending stem has dieback in upper crown and bark necrosis on southern aspect of stem. Stem also in decline. Exposed dysfunctional sapwood. Minor deadwood throughout. Thinning, upper central cavity. Historically reduced. Removal of dead central stem will create a large gap within the crown exposing adjacent stems and pollarding will be required to retain safely. Consideration may want to be given to its removal. Limited SULE. October 2021 - Secondary investigations undertaken. Please refer to letter / report ref. 9163/NH dated 11th November 2021.	C2	Pollard at 8m.	2	Undertake linear root pruning at the location shown on drawing no. 9775-D-AMS to permit development.	0
		12.72	0-2m		M	Moderate						
Yes		508.3			10+ years	Concrete						

TreeNo	Species	DBH	Height		Visual	Crown Spread	Problems / Comments	BS Cat	Work Required (TS)	Priority (TS)	Work Required (AIA)	Priority (AIA)
		Min Dist	Crown Base	Lowest Branch	Age	Water Demand						
On site		RPA (m²)	Aspect	Aspect	SULE	Ground Cover						
T003	London Plane	1140	21		High	N8, E9, S8.5, W9	Restricted rooting environment. Cabin within 1 metre to south. Boundary wall within 0.5 metre to north, beyond which is level change of circa. 2 metres. Area of bark necrosis on south eastern aspect from ground level to 2 metres, circa. 0.4 metres wide that possibly originates from large pruning wound at 2 metres. Reasonable wound wood formation at edges. Multi-stemmed from 2 metres above ground level, unions appear stable. Stem wounds and cavities. Minor deadwood. Reasonable vigour. Historically reduced.	B2	No work required.	4	Reduce southern aspect of crown and undertake linear root pruning at the location shown on drawing no. 9775-D-AMS to permit development.	0
		13.68	0-2m		M	Moderate						
Yes		587.9			20+ years	Concrete						
T004	London Plane	1040	17.5		High	N7.5, E8.5, S7.5, W7.5	Restricted rooting environment. Boundary wall within 0.5 metres to west, beyond which there is a level change of circa. 1.5 metres. Buildings and structures to east. Small cavity at base on eastern aspect, decay appears localised. Areas of loose / detached bark on northern aspect, again localised. Multi-stemmed from circa. 2.5 metres above ground level, unions appear stable. Stem and branch wounds. Historically reduced. Reasonable vigour.	B2	No work required.	4		
		12.48	0-2m		M	Moderate						
Yes		489.3			20+ years	Light undergrowth						
T005	Cherry	110	4		Moderate	N2.5, E2, S3.5, W3	Suppressed specimen. Not plotted on TOPO.	C2	No work required.	4	Fell to facilitate landscape enhancement works.	0
		1.32	0-2m		Y	Moderate						
Yes		5.5			10+ years	Light undergrowth						
T006	Cherry	200	5		Moderate	N3.5, E4, S5, W2.5	Twin-stemmed from ground level. Stem abutting adjacent boundary wall. Resinosus. Reasonable vigour.	C2	No work required.	4	Fell to facilitate landscape enhancement works.	0
		2.4	0-2m		SM	Moderate						
Yes		18.1			10+ years	Bare earth						
T007	Cherry	130	8		Moderate	N2.5, E4.5, S2, W2.5	Tight unions. Reasonable vigour.	C2	No work required.	4	Fell to facilitate landscape enhancement works.	0
		1.56	0-2m		Y	Moderate						
Yes		7.6			10+ years	Bare earth						

TreeNo	Species	DBH	Height		Visual	Crown Spread	Problems / Comments	BS Cat	Work Required (TS)	Priority (TS)	Work Required (AIA)	Priority (AIA)
		Min Dist	Crown Base	Lowest Branch	Age	Water Demand						
On site		RPA (m²)	Aspect	Aspect	SULE	Ground Cover						
T008	Cherry	70	5		Low	N0.5, E3, S2.5, W0.5	Suppressed specimen. Reasonable vigour.	C2	No work required.	4	Fell to facilitate landscape enhancement works.	0
		0.84	0-2m		Y	Moderate						
Yes		2.2			10+ years	Bare earth						
T009	London Plane	910	17.5		High	N6.5, E8.5, S8, W7.5	Restricted rooting environment. Boundary wall within 0.5 metre to west, beyond which there is a level change of circa. 1.5 metres. Buildings and structures to east. No notable defects around base. Ivy impeded a detailed inspection from 1 metres above ground level. Reasonable vigour. Historically reduced. Crown spread estimated due to adjacent structures / restricted access.	B2	Remove Ivy and reinspect.	1		
		10.92	2.1-4m		M	Moderate						
Yes		374.6			20+ years	Light undergrowth						
T010	Pear	620	9		Moderate	N4, E5.5, S6, W5	Restricted rooting environment. Buildings to east, south and west. Crown spread estimated due to building / restricted access. Twin stemmed from ground level. Dense Ivy impeded a detailed inspection.	C2	Remove Ivy and reinspect.	2	Fell to facilitate landscape enhancement works.	0
		7.44	2.1-4m		M	Moderate						
Yes		173.9			10+ years	Ivy, Building						
T011	London Plane	1110	17.5		High	N6, E7, S7, W7	Restricted rooting environment. Boundary wall within 0.5 metres to west, beyond which there is a level change of circa. 1.5 metres. Buildings and structures to east. Dense Ivy impeded a detailed inspection of base, stem and crown. Reasonable vigour. Historically reduced.	B2	Remove Ivy and reinspect.	1		
		13.32	2.1-4m		M	Moderate						
Yes		557.4			20+ years	Light undergrowth, Ivy						
T012	London Plane	1100	19		High	N8, E8, S8, W8	Located in a neighbouring property. Restricted access impeded a detailed inspection. All dimensions therefore estimated. Reasonable vigour.	B2	No work required.	4		
		13.2	2.1-4m		M	Moderate						
No		547.4			20+ years	Off-site/ No access						
T013	London Plane	1110	20		High	N8, E8, S8, W8	Located in a neighbouring property. Restricted access impeded a detailed inspection. All dimensions therefore estimated. Reasonable vigour.	B2	No work required.	4	Undertake linear root pruning at the location shown on drawing no. 9775-D-AMS to permit development.	0
		13.32	2.1-4m		M	Moderate						
No		557.4			20+ years	Off-site/ No access						

TreeNo	Species	DBH	Height		Visual	Crown Spread		Problems / Comments	BS Cat	Work Required (TS)	Priority (TS)	Work Required (AIA)	Priority (AIA)
		Min Dist	Crown Base	Lowest Branch	Age	Water Demand							
		RPA (m²)	Aspect	Aspect	SULE	Ground Cover							
T014	Cypress	350	14		Moderate	N4.5, E4.5, S4.5, W4.5		Located in a neighbouring property. Restricted access impeded a detailed inspection. All dimensions therefore estimated. Reasonable vigour.	C2	No work required.	4	Fell to permit construction of proposed residences.	0
		4.2	0-2m		EM	High							
No		55.4			10+ years	Off-site/ No access							
T015	Cypress	300	11		Moderate	N3.5, E3.5, S3.5, W3.5		Located in a neighbouring property. Restricted access impeded a detailed inspection. All dimensions therefore estimated. Reasonable vigour.	C2	No work required.	4	Fell to permit construction of proposed residences.	0
		3.6	0-2m		EM	High							
No		40.7			10+ years	Off-site/ No access							
T016	Cherry	150	6		Moderate	N2, E2, S2.5, W2		Basal Epicormic Growth. Tight unions. Cankers. Minor branchtip dieback.	C2	No work required.	4	Fell to facilitate landscape enhancement works.	0
		1.8	2.1-4m		SM	Moderate							
Yes		10.2			10+ years	Grass							
T017	Cherry	240	6.5		Moderate	N3, E2, S2.5, W3		Exposed surface roots. Basal Epicormic Growth. Multi-stemmed. Crossing, rubbing stems. Tight unions. Cankers. Minor branchtip dieback.	C2	No work required.	4	Fell to facilitate landscape enhancement works.	0
		2.88	0-2m		SM	Moderate							
Yes		26.1			10+ years	Grass							
T018	Cherry	260	6		Moderate	N2.5, E2, S2.5, W2		Twin stemmed. Tight unions. In notable decline. Limited SULE.	U	Fell.	3		
		3.12	2.1-4m		SM	Moderate							
Yes		30.6			<10 years	Grass							
T019	Cherry	160	6		Moderate	N2.5, E2, S2.5, W2.5		Basal Epicormic Growth. Tight unions. Cankers. Reasonable vigour.	C2	No work required.	4	Fell to facilitate landscape enhancement works.	0
		1.92	0-2m		SM	Moderate							
Yes		11.6			10+ years	Grass							
T020	Apple	370	9.5		Moderate	N3.5, E5, S4.5, W4		Dense shrubs impeded a detailed inspection of base. Multi-stemmed from circa. 1.5 metres above ground level. Tights unions. Crossing, rubbing stems and branches. Reasonable vigour. Overhangs building to north.	C2	Cut back and lift to provide minimum 1 metre clearance from adjacent building.	2	Fell to permit construction of proposed residences.	0
		4.44	2.1-4m		M	Low							
Yes		61.9			10+ years	Shrub bed, Block paving							
T021	Cherry	130	3		Moderate	N2.5, E2, S2, W2		Dense shrubs impeded a detailed inspection of base. Contorted stem growth. Reasonable vigour.	C2	No work required.	4	Fell to permit construction of proposed residences.	0
		1.56	0-2m		SM	Moderate							
Yes		7.6			10+ years	Shrub bed							

TreeNo	Species	DBH	Height		Visual	Crown Spread	Problems / Comments	BS Cat	Work Required (TS)	Priority (TS)	Work Required (AIA)	Priority (AIA)
		Min Dist	Crown Base	Lowest Branch	Age	Water Demand						
On site		RPA (m²)	Aspect	Aspect	SULE	Ground Cover						
T022	Cherry	160	3		Moderate	N2.5, E3, S2, W2.5	Dense shrubs and Ivy impeded a detailed inspection. Reasonable vigour.	C2	No work required.	4	Fell to permit construction of proposed residences.	0
		1.92	0-2m		SM	Moderate						
Yes		11.6			10+ years	Shrub bed						
T023	Cherry	160	3		Moderate	N2.5, E3, S2.5, W3	Dense shrubs impeded a detailed inspection of base. Contorted stem growth. Reasonable vigour.	C2	No work required.	4	Fell to permit construction of proposed residences.	0
		1.92	0-2m		SM	Moderate						
Yes		11.6			10+ years	Shrub bed						
T024	Sycamore	70	4.5		Moderate	N1, E2, S1.5, W1.5	Restricted rooting environment. Self set specimen.	C2	No work required.	4	Fell to permit construction of proposed access.	0
		0.84	0-2m		Y	Moderate						
Yes		2.2			10+ years	Concrete						

Appendix C

Schedule of Works to Allow Development

SCHEDULE OF WORKS (AIA)

Ashley Road Depot, Park View Road, London,

Surveyed By: Nick Hayden

Surveyed: 23/06/2022

Managed By: Nick Hayden

Tree No.	Species	Work required	Priority
T001	London Plane	Undertake linear root pruning at the location shown on drawing no. 9775-D-AMS to permit development.	0
T002	London Plane	Undertake linear root pruning at the location shown on drawing no. 9775-D-AMS to permit development.	0
T003	London Plane	Reduce southern aspect of crown and undertake linear root pruning at the location shown on drawing no. 9775-D-AMS to permit development.	0
T005	Cherry	Fell to facilitate landscape enhancement works.	0
T006	Cherry	Fell to facilitate landscape enhancement works.	0
T007	Cherry	Fell to facilitate landscape enhancement works.	0
T008	Cherry	Fell to facilitate landscape enhancement works.	0
T010	Pear	Fell to facilitate landscape enhancement works.	0
T013	London Plane	Undertake linear root pruning at the location shown on drawing no. 9775-D-AMS to permit development.	0
T014	Cypress	Fell to permit construction of proposed residences.	0
T015	Cypress	Fell to permit construction of proposed residences.	0
T016	Cherry	Fell to facilitate landscape enhancement works.	0
T017	Cherry	Fell to facilitate landscape enhancement works.	0
T019	Cherry	Fell to facilitate landscape enhancement works.	0
T020	Apple	Fell to permit construction of proposed residences.	0
T021	Cherry	Fell to permit construction of proposed residences.	0
T022	Cherry	Fell to permit construction of proposed residences.	0
T023	Cherry	Fell to permit construction of proposed residences.	0
T024	Sycamore	Fell to permit construction of proposed access.	0

Appendix D

Explanatory Notes

Explanatory Notes



Categories

Below is an explanation of the categories used in the attached Tree Survey.

No Identifies the tree on the drawing.

Species Common names are given to aid understanding for the wider audience.

BS 5837 Main Category Using this assessment (BS 5837:2012, Table 1), trees can be divided into one of the following simplified categories, and are differentiated by cross-hatching and by colour on the attached drawing:

Category A - Those of high quality with an estimated remaining life expectancy of at least 40 years;

Category B - Those of moderate quality with an estimated remaining life expectancy of at least 20 years;

Category C - Those of low quality with an estimated remaining life expectancy of at least 10 years, or young trees with a stem diameter below 150 mm;

Category U - Those trees in such condition that they cannot realistically be retained as living trees in the context of the current land use for longer than 10 years.

BS 5837 Sub Category Table 1 of BS 5837:2012 also requires a sub category to be applied to the A, B, C, and U assessments. This allows for a further understanding of the determining classification as follows:

Sub Category 1 - Mainly arboricultural qualities;

Sub Category 2 - Mainly landscape qualities;

Sub Category 3 - Mainly cultural values, including conservation .

Please note that a specimen or landscape feature may fulfil the requirements of more than one Sub Category.

DBH (mm) Diameter of main stem in millimetres at 1.5 metres from ground level. Where the tree is a multi-stem, the diameter is calculated in accordance with item 4.6.1 of BS 5837:2012.

Age Recorded as one of seven categories:

Y Young. Recently planted or establishing tree that could be transplanted without specialist equipment, i.e. less than 150 mm DBH.

S/M Semi-mature. An established tree, but one which has not reached its prospective ultimate height.

E/M Early-mature. A tree that is reaching its ultimate potential height, whose growth rate is slowing down but if healthy, will still increase in stem diameter and crown spread.

M Mature. A mature specimen with limited potential for any significant increase in size, even if healthy.

O/M Over-mature. A senescent or moribund specimen with a limited safe useful life expectancy. Possibly also containing sufficient structural defects with attendant safety and/or duty of care implications.



D Dead.

Height	Recorded in metres, measured from the base of the tree.						
Crown Base	Recorded in metres, the distance from ground and aspect of the lowest branch material.						
Lowest Branch	Recorded in metres, the distance from ground and aspect of the emergence point of the lowest significant branch.						
Life Expectancy	Relates to the prospective life expectancy of the tree and is given as 4 categories: 1 = 40 years+; 2 = 20 years+; 3 = 10 years+; 4 = less than 10 years.						
Crown Spread	Indicates the radius of the crown from the base of the tree in each of the northern, eastern, southern and western aspects.						
Minimum Distance	This is a distance equal to 12 times the diameter of the tree measured at 1.5 metres above ground level for single stemmed trees and 12 times the average diameter of the tree measured at 1.5 metres above ground level tree for multi stemmed specimens. (BS 5837:2012, section 4.6).						
RPA	This is the Root Protection Area, measured in square metres and defined in BS5837:2012 as “a layout design tool indicating the minimum area around a tree deemed to contain sufficient roots and rooting volume to maintain the tree’s viability, and where the protection of the roots and soil structure is treated as a priority”. The RPA is shown on the drawing.. Ideally this is an area around the tree that must be kept clear of construction, level changes of construction operations. Some methods of construction can be carried out within the RPA of a retained tree but only if approved by the Local Planning Authority’s tree officer.						
Water Demand	This gives the water demand of the species of tree when mature, as given in the NHBC Standards Chapter 4.2 “Building Near Trees”.						
Visual Amenity	Concerns the planning and landscape contribution to the development site made by the tree, hedge or tree group, in terms of its amenity value and prominence on the skyline along with functional criteria such as the screening value, shelter provision and wildlife significance. The usual definitions are as follows: <table><tr><td>Low</td><td>An inconsequential landscape feature.</td></tr><tr><td>Moderate</td><td>Of some note within the immediate vicinity, but not significant in the wider context.</td></tr><tr><td>High</td><td>Item of high visual importance.</td></tr></table>	Low	An inconsequential landscape feature.	Moderate	Of some note within the immediate vicinity, but not significant in the wider context.	High	Item of high visual importance.
Low	An inconsequential landscape feature.						
Moderate	Of some note within the immediate vicinity, but not significant in the wider context.						
High	Item of high visual importance.						
Problems/ Comments	May include general comments about growth characteristic, how it is affected by other trees and any previous surgery work; also, specific problems such as deadwood, pests, diseases, broken limbs, etc.						
Work Required (TS)	Identifies the necessary tree work to mitigate anticipated problems and deal with existing problems identified in the “Problems/comments” category.						



Work Required (AIA)	Identifies the tree work specifically necessary to allow a proposed development to proceed.
Priority	This gives a priority rating to each tree allowing the client to prioritise necessary tree works identified within the Tree Survey. 1 Urgent – works required immediately; 2 Works required within 6 months; 3 Works required within 1 year; 4 Re-inspect in 12 months, 0 Remedial works as part of implementation of planning consent.



Access Facilitation Pruning	One-off tree pruning operation, the nature and effects of which are without significant adverse impact on tree physiology or amenity value, which is directly necessary to provide access for operations on site.
Arboricultural Method Statement	Methodology for the implementation of any aspect of development that is within the root protection area, or has the potential to result in loss of or damage to a tree to be retained.
Arboriculturist	Person who has, through relevant education, training and experience, gained expertise in the field of trees in relation to construction.
Competent Person	Person who has training and experience relevant to the matter being addressed and an understanding of the requirements of the particular task being approached. <i>NOTE - a competent person is expected to be able to advise on the best means by which the recommendations of this British Standard may be implemented.</i>
Construction	Site-based operations with the potential to affect existing trees.
Construction Exclusion Zone	Area based on the root protection area from which access is prohibited for the duration of a project.
Root Protection Area (RPA)	Layout design tool indicating the minimum area around a tree deemed to contain sufficient roots and rooting volume to maintain the tree's viability, and where the protection of the roots and soil structure is treated as a priority.
Service	Any above or below ground structure or apparatus required for utility provision. NOTE - examples include drainage, gas supplies, ground source heat pumps, CCTV and satellite communications.
Stem	Principal above ground structural component(s) of a tree that supports its branches.
Structure	Manufactured object, such as a building, carriageway, path, wall, service run, and built or excavated earthwork.
Tree Protection Plan	Scale drawing, informed by descriptive text where necessary, based upon the finalized proposals, showing trees for retention and illustrating the tree and landscape protection measures.
Veteran Tree	Tree that, by recognized criteria, shows features of biological, cultural or aesthetic value that are characteristic of, but not exclusive to, individuals surviving beyond the typical age range for the species concerned. NOTE - these characteristics might typically include a large girth, signs of crown retrenchment and hollowing of the stem.



Appendix E

Statement of Supervision

Ashley Road Depot, Park View Road, London, N17 9AZ

Statement of Supervision (Arboriculture)

Introduction

In accordance with Planning Permission ref: HGY/2022/0752 dated 31/08/2022, London Borough of Haringey are undertaking the development of the above site.

The purpose of this document is to ensure that all works that have an impact on retained trees are undertaken in accordance with the approved Method Statement and Tree Protection Plan. As such, the purpose of the Statement is to identify the following arboricultural issues:

- Approved documents
- Key staff and contacts
- Critical phases of pre-commencement, induction and construction.

Approved Documents

The following documents must be available to all those with responsibility for arboricultural matters during construction:

- BS 5837:2012 Trees in relation to design, demolition and construction – Recommendations.
- Notice of Planning Decision ref: HGY/2022/0752 (dated 31/08/2022)
- Preliminary Arboricultural Method Statement & Tree Protection Plan for this project – produced by Hayden's Arboricultural Consultants, ref: 8765 rev. A dated 14/03/2022.
- Arboricultural Method Statement & Tree Protection Plan for this project – produced by Hayden's Arboricultural Consultants, ref. 9775 rev. A dated 26/05/2023.

Key Staff

The following have or are to be appointed responsible for arboricultural matters at the site:

- Developer: TBC
- Arboricultural Consultant: Hayden's Arboricultural Consultants Ltd. Contact Nick Hayden (Arboricultural Manager South Office) – 01722 657423, nick@treesurveys.co.uk
- Site Manager/Agent – TBC

Critical phases of pre-commencement, induction, construction & completion

REF	ACTIVITY	ONE OFF /REPEAT	ATTENDEES	ACTION
1	Pre-commencement meeting (to discuss working methods, timescales and tree protection)	One off	Developer, Arboricultural Consultant, Site Manager/Agent, Ground Works Contractor, Council Arboricultural Officer	Arboricultural Consultant to record minutes – copies to be submitted to attendees
2, 3	Inspection of completed tree surgery & erection of fencing	One off	Arboricultural Consultant, Site Manager/Agent	Arboricultural Consultant to record minutes – copies to be submitted to Developer and Council Arboricultural Officer
4, 5, 8	Inspection of specific tasks during construction (e.g. root pruning, installation of 'no-dig' surfacing, services and drainage)	One off (for each identified item)	Arboricultural Consultant, Site Manager/Agent, Contractors (as required)	Arboricultural Consultant to record minutes – copies to be submitted to Developer and Council Arboricultural Officer
7	Completion of construction – prior to removal of fencing	One off	Arboricultural Consultant, Site Manager/Agent	Arboricultural Consultant to record minutes – copies to be submitted to Developer and Council Arboricultural Officer
10 & 11	Final tree assessment – after fencing removal	One off	Developer, Arboricultural Consultant, Site Manager/Agent, Ground Works Contractor, Council Arboricultural Officer	Arboricultural Consultant to record minutes – copies to be submitted to Developer and Council Arboricultural Officer
-	Additional inspections (if necessary) to ensure periods not greater than three months elapse between any of above listed monitoring events	Dependent on progress of the project	Arboricultural Consultant, Site Manager/Agent	Arboricultural Consultant to record minutes – copies to be submitted to Developer and Council Arboricultural Officer

Variations and Incidents

Any proposed variations to the proposed working method (relating to arboricultural matters) will be referred by the on-Site Manager/Agent to the Developer who will seek advice from the Arboricultural Consultant. The Arboricultural Consultant shall advise on minor amendments (e.g. realignment of fencing etc) and will subsequently report these to the LPA Tree Officer by email or minutes. Issues directly relating to tree surgery or tree retention will be forwarded by the Arboricultural Consultant (with recommendations) to the LPA Tree Officer for approval. Except in an emergency and when the LPA Tree Officer is unavailable, no such actions will occur without the written approval of the LPA Tree Officer.

A handwritten signature in dark ink, appearing to read 'Nick Hayden', enclosed within a light blue oval-shaped stamp.

Nick Hayden

Arboricultural Manager (South Office) - Hayden's Arboricultural Consultants Ltd

26/05/2023

Reasons for a Qualified Monitoring Arboriculturalist

It is essential that the works are monitored by a qualified and experienced Arboriculturalist for the following reasons.

1. An Arboriculturalist has the skill and expertise to identify if the approved tree surgery specification has been complied with and the knowledge to provide appropriate remedial advice.
2. It is necessary for informed decisions to be made regarding the impact of tree surgery, particularly root pruning. The location of roots is assessed via a calculation, but in reality, roots may grow in a more unpredictable fashion dependent on topographic and historic features. Under CDM it is essential that expert individual knowledge is available and can advise on the inevitable unforeseen circumstances that arise.
3. An Arboriculturalist provides the point of liaison and information exchange with the Local Planning Authority's Tree Officer who is also normally a qualified Arboriculturalist. This allows fellow professionals to discuss the technical matters that inevitably arise and agree appropriate and balanced solutions. Having an Arboriculturalist engaged on the supervision of a project provides comfort to the Local Planning Authority that tree protection measures are complied with and hence it is much more likely that there will be less direct scrutiny from the Local Planning Authority (regarding tree matters) during the build of the project than would otherwise be the case.
4. Arboricultural input is essential to confirm that tree protection measures are adequate and fit for purpose. This can often save the client time (and therefore money) by identifying working methods and systems that are site efficient.
5. As living entities sensitive to their environment, the condition of trees changes, and over the course of a project it may be necessary to advise on additional tree surgery or felling as a result of, for example disease or storm damage.
6. An Arboriculturalist will provide detailed briefing notes and "toolbox talks" to site staff to ensure their compliance with conditions and prevent arboricultural breaches of conditions arising which can have severe consequences for project progression.
7. Close liaison between the Site Manager and the Arboriculturalist will ensure that the retained trees are protected but as minimal an inconvenience to construction as possible. This leads to the final outcome which is the completion of the project with retained healthy trees complementing the buildings in the manner that the designers and planners envisaged.



David M Carmichael
Practice Manager



Tree Protection Briefing Note

Introduction:

The trees that are to remain as part of the development are important and must not be harmed. They have been carefully selected as part of an extensive appraisal, design and planning process and therefore are legally protected by a combination of Tree Preservation Orders and Planning Conditions. This means that any damage caused to retained trees is a serious offence, as is the undertaking of any work to trees that has not been authorised in writing by the Local Planning Authority. Contravention of this legislation is liable to lead to heavy personal or corporate fines together with the imposition of stop notices, expensive mitigation measures and replacement planting instructions. Given this, it is vital that all development staff are familiar with the approved Tree Protection Plan (TPP).

Typical Forms of Construction Damage to Trees:

1. **Physical Injury to Trunk and Crown.** Construction equipment can injure the above-ground portion of a tree by breaking branches, tearing the bark, and wounding the trunk. These injuries are permanent and, if extensive, can be fatal.
2. **Root Cutting*.** Excavation, grading and trenching associated with construction and underground service installation can be very damaging to tree roots which are vital for both anchoring the tree in the ground and gathering moisture and nutrients. Unacceptable levels of damage to the roots will lead to a tree losing vitality, dropping branches, dying or becoming unsafe – either immediately or in the future.
3. **Soil Compaction.** An ideal soil for root growth and development contains about 50% pore space for water and air movement. Tracking by construction equipment and the storage of materials can compact soil and dramatically reduce pore space. Compaction inhibits root growth, limits water penetration, and decreases oxygen needed for root survival. If the compaction is too severe, in addition to preventing effective root growth, it will cause physical injury to both anchor and feed roots.
4. **Smothering Roots by Adding Soil*.** The majority of fine moisture and nutrient absorbing roots are within the top 30 cm of soil. Even a few centimetres of soil piled over the root system to change the grade can smother fine roots and eventually lead to the death of larger roots.
5. **Rooting Zone Contamination*.** Many materials used on development sites (e.g. salt, lime, concrete, cement, oil) are toxic to trees. If such contaminants are spilled or allowed to leach into the RPA, they can quickly kill the roots, thus causing the same effects as root cutting, soil compaction and smothering.



* As the location of tree roots cannot be seen, each retained tree close to a developable portion of the site has a designated Root Protection Area (RPA) as shown on the approved TPP. No excavation, grading, trenching, storage of materials nor any other activity may take place within the designated RPA unless it is in accordance with the approved Tree Protection Plan and completed under the supervision of Hayden's Arboricultural Consultants.

Preventing Damage to Trees During Construction:

The approved TPP provides specific instruction on the tree protection measures required across whole site in order to prevent damage. The primary methods of protection are as follows: -

1. **Installation of Protective Fencing.** The alignment and specification of this is shown to scale on the approved TPP. It must be erected prior to any demolition or development commencing on site and must not be moved or altered without prior written agreement of the Hayden's Arboricultural Consultants or the Local Planning Authority. No activities may take place within the fenced area, and no materials may be stored within the fenced area. The fencing may not be removed until ALL construction activities in the vicinity have been completed and only then with the written agreement of Hayden's Arboricultural Consultants or the Local Planning Authority.
2. **Ground Protection.** Where fencing is impractical the TPP provides instruction on other forms of effective ground protection. An example of this would be the provision of a temporary load bearing surface to prevent soil compaction and contamination. This must be of bespoke design for each situation so as to ensure it is fit for purpose. As with the fencing, this must be installed prior to any demolition or development commencing on site and must not be moved or altered without prior written agreement of the Hayden's Arboricultural Consultants or the Local Planning Authority. The temporary ground protection may not be removed until ALL construction activities in the vicinity have been completed and only then with the written agreement of Hayden's Arboricultural Consultants or the Local Planning Authority.
3. **Monitoring Visits from Hayden's Arboricultural Consultants.** Under the terms of the planning permission the development must be monitored by an Arboriculturalist on a suitably frequent basis. The purpose of this is twofold: -
 - a. To ensure that the above tree protection measures are complied with and report findings to the developers AND the Local Planning Authority.
 - b. To be available to provide help and advice regarding the inevitable requests for changes and supervision when working around retained tree.
4. **Operational Planning.** Whilst it is understood that trees are far from the only issue to be managed on site, they do represent a significant and potentially costly constraint if the protection measures required in the TPP are not strictly adhered to and as a result construction damage to trees occurs. Therefore, if problems in terms of work space conflicting with tree protection measures are identified, early liaison with Hayden's Arboricultural Consultants is essential so as to agree supervised works, alternate working methods or if necessary seek additional approval from the Local Planning Authority. Failure to identify these matters at an early stage may lead to significant delays as it can be a lengthy procedure in gaining a response from the Local Planning Authority.



Conclusion:

- Tree Protection Measures are there to protect the environment. They are also there to protect you. If they are complied with, trees will not be harmed. Therefore, DO NOT amend the protection unless you have written consent from Hayden's Arboricultural Consultants or the Local Planning Authority.
- If you are unsure on any tree related matter, seek advice before you act. Hayden's Arboricultural Consultants will discuss your concerns and help find practical and timely solutions (where possible).
- Hayden's Arboricultural Consultants, in conjunction with the Local Planning Authority, may change the frequency of Arboricultural Monitoring Inspections if it is deemed necessary to ensure the approved standards of tree protection are adhered to.
- Hayden's Arboricultural Consultants can be contacted in the first instance at the Head Office on 01284 765391.



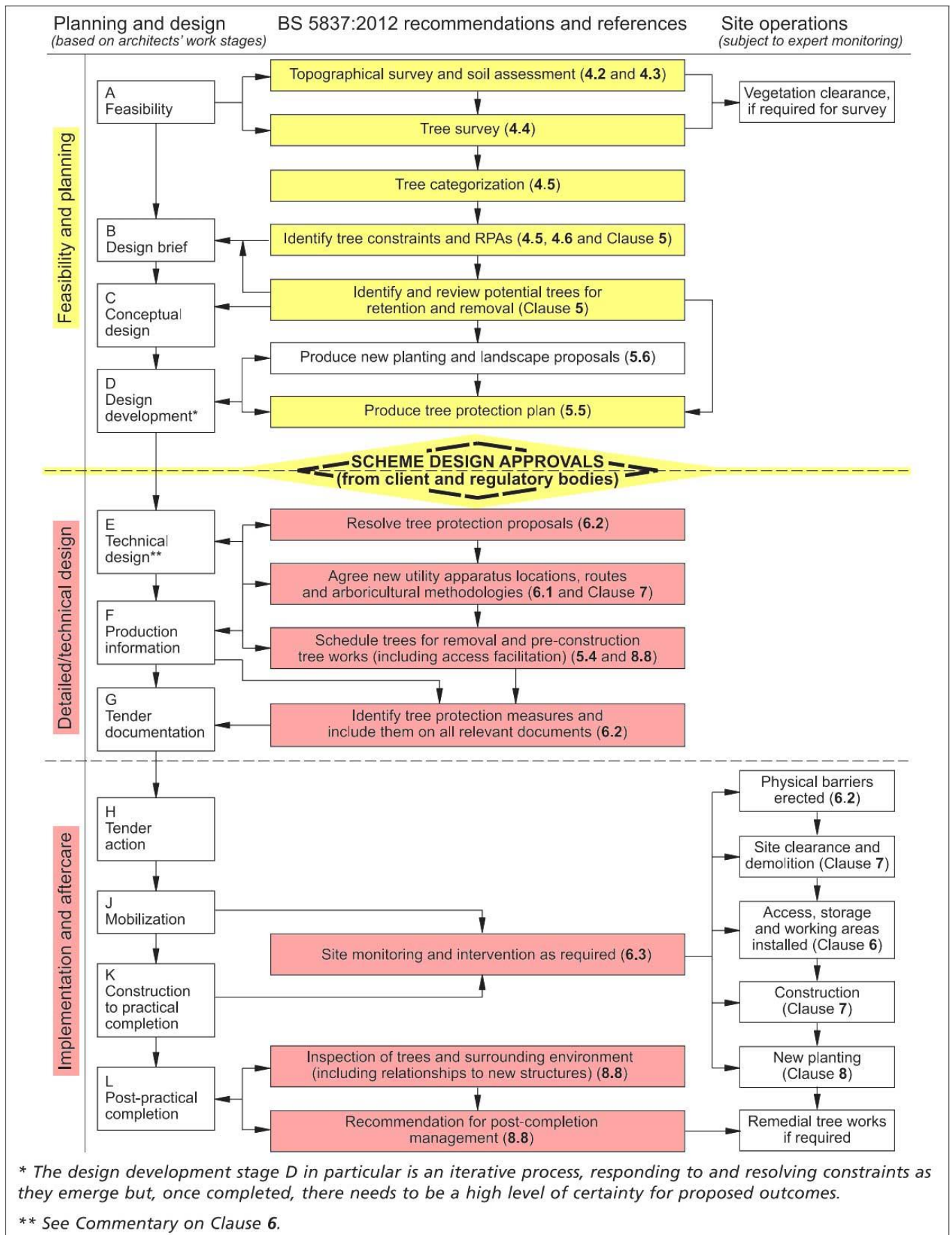
David M Carmichael
Practice Manager



Appendix F

Advisory Information & Sample Specifications

1. BS 5837:2012 Figure 1 - Flow Chart – Design and Construction & Tree Care



European Protected Species and woodland operations. (V4)

Complete all sections of the Checklist



Checklist

1	Are you within, or close to, the known mapped range of any of the protected species OTHER THAN BATS which are potentially everywhere? Tick any that apply. See distribution maps in the Good Practice Guidance for each species - ☐ Dormice ☐ Otters ☐ Great crested newts ☐ Sand lizards ☐ Smooth snakes	YES NO
----------	---	--

2	Does your wood contain any of the following habitats? Tick any that apply. ☐ Old trees with holes and crevices which might be used bats ☐ Species rich scrub/coppice, early growth stage plantations and forest interfaces ☐ Rivers on which otters might be found ☐ Ponds which might be occupied by great crested newts ☐ Open areas on heathy soils	YES NO
----------	--	--

3	Have any of the protected species been recorded in this wood or on adjoining sites? Tick any that apply. Indicate which sources of information you have checked: ☐ National Biodiversity Network (www.nbn.org.uk) ☐ Local Biological Records Centre ☐ Local Wildlife Trust ☐ Other <i>Specify Other:</i>	YES NO
----------	---	--

4	Have your inspections or any expert surveys found any of the following signs or evidence? Tick any that apply. ☐ Signs (e.g. otter spraint, nuts gnawed by dormice, leaves folded by newts) ☐ Sightings (or echo-location) ☐ Potential breeding or roosting sites (e.g. veteran trees, old trees with crevices, riverside hollow trees, ponds, timber stacks, large fallen deadwood) ☐ Confirmed breeding or roosting sites (i.e. evidence of sites actually being used) <i>Details:</i>	YES NO
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CHECK POINT

If you have answered NO to ALL of the above then only bats need to be considered in your operations.

If you have answered YES to any of the above then the species concerned must be considered as well as bats.

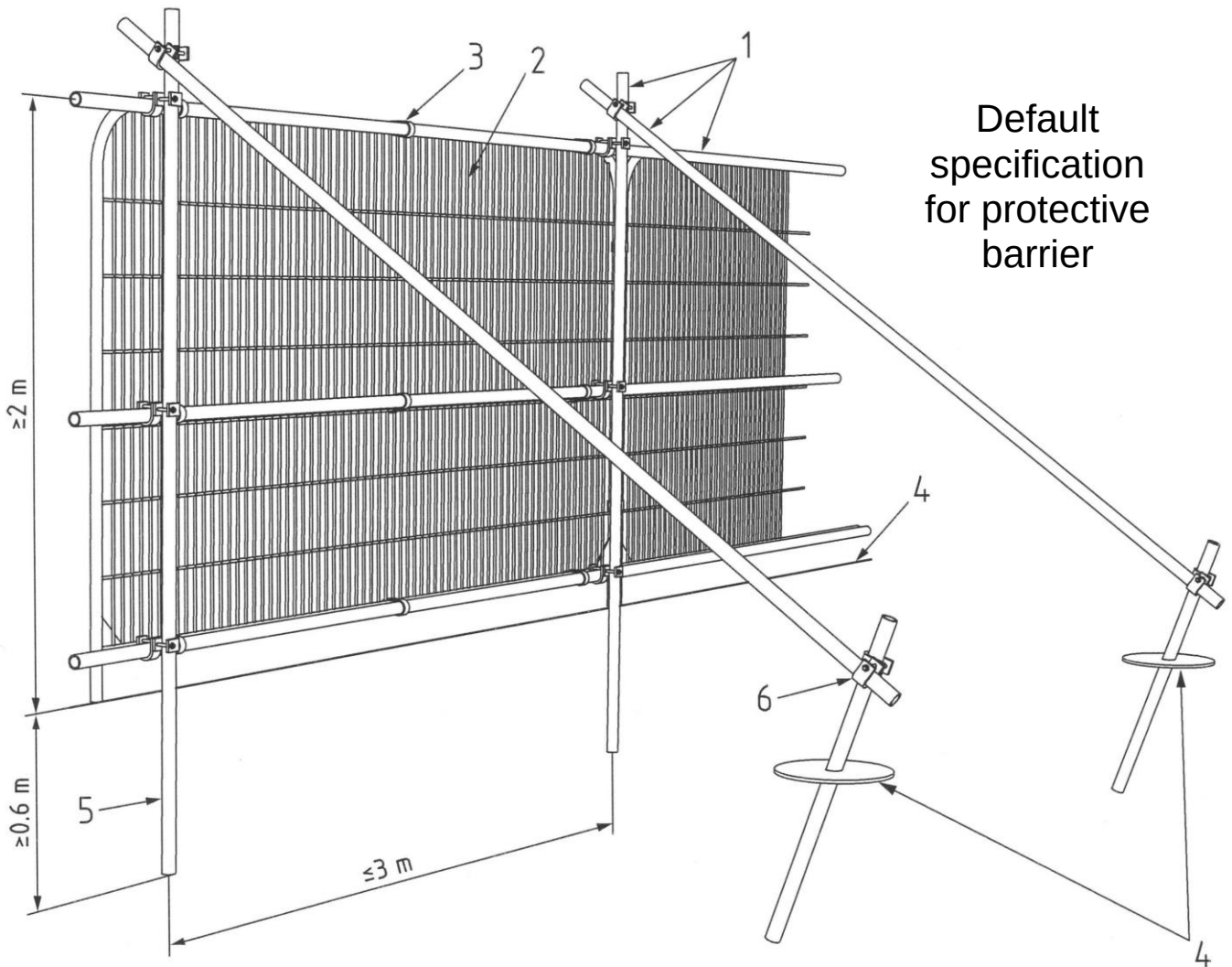
Details

Name of Wood:
Grid Reference:
Area: (ha)
Date of Assessment:
Name of Assessor:

Notes

5	Do the operations comply with Good Practice for bats and any other species found (or likely to be found in your wood) or can the operations be modified to do so? <i>Details: Use reverse of form to expand as required:</i>	YES NO	A licence is not required but continue to sections 6 and 7 below You will need to obtain a licence BEFORE carrying out the work (see EPS Licence Application Forms and Notes)
6	<u>Whether or not a licence is required...</u> Has the information been communicated to operators (including the location of breeding sites and sensitive areas)? Tick any that apply. ☐ Included in documentation (e.g. contract, letter of instruction, site assessment or other management plan) ☐ Shown to operators and/or their supervisor ☐ Marked with paint or hazard tape ☐ Shown on the site plan <i>Other means:</i>	YES NO	You may commit an offence if you do not tell your operators about the protected species in your wood.
7	Have arrangements for supervision been made to ensure Good Practice guidance is complied with during the operations? <i>Details:</i>	YES NO	You may commit an offence if you do not take steps to ensure that your operators comply with the Good Practice guidance.

3. BS 5837:2012 Figure 2: Default specification for protective barrier

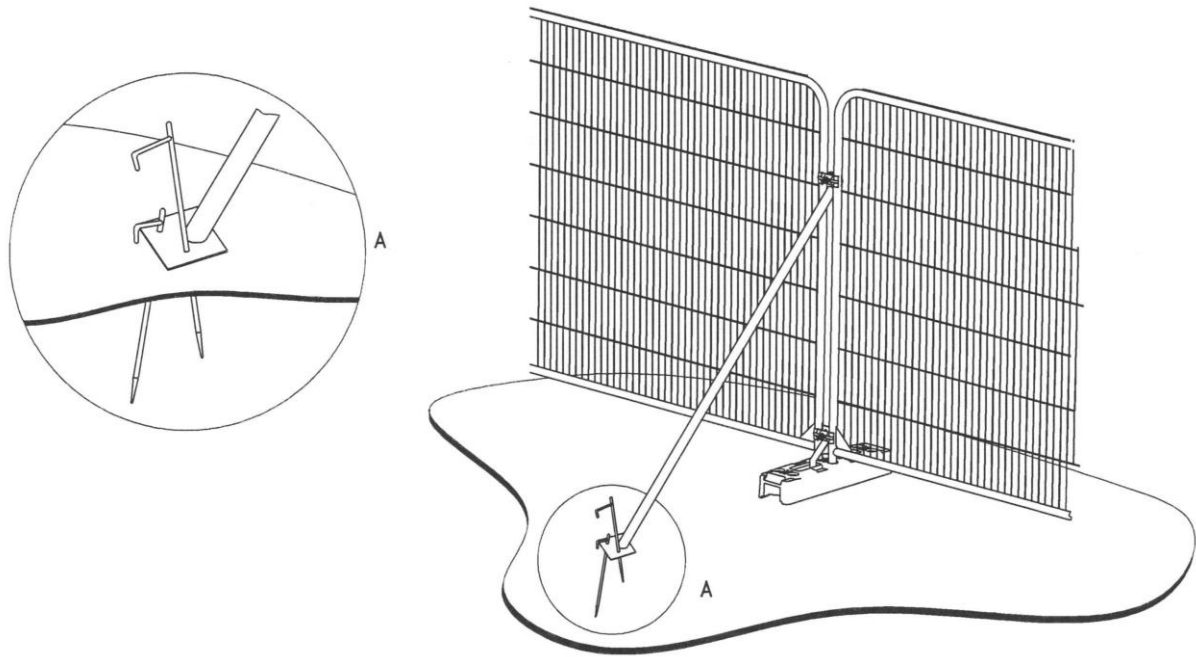


Default
specification
for protective
barrier

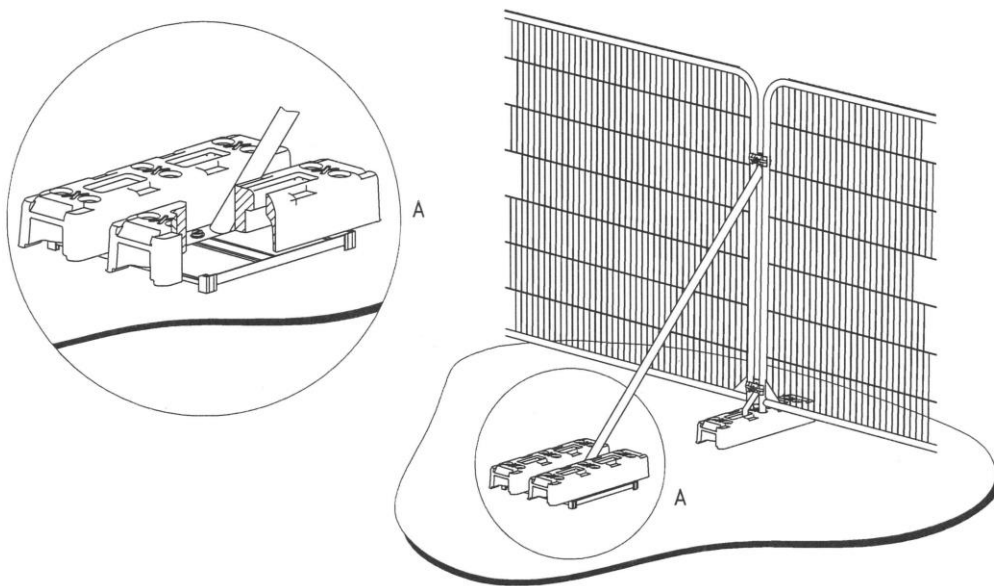
Key

- 1 Standard scaffold pole
- 2 Heavy gauge 2m tall 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 0.6m)
- 6 Standard scaffold clamps

4. BS 5837:2012 Figure 3: Examples of above-ground stabilizing systems

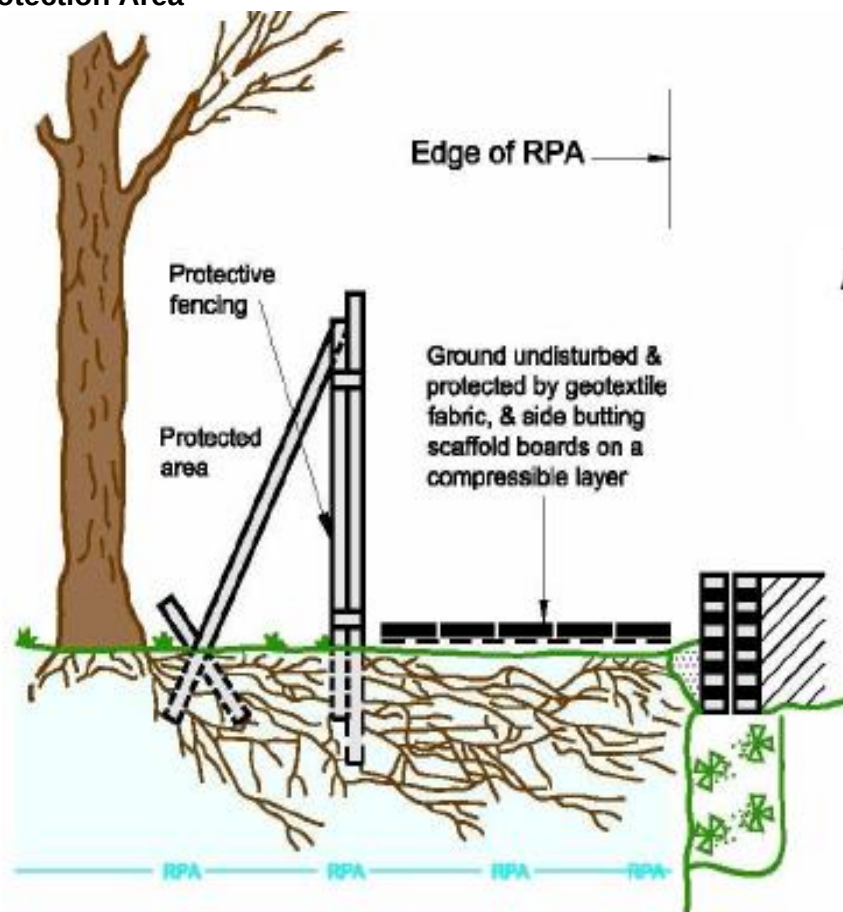


a) Stabilizer strut with base plate secured with ground pins



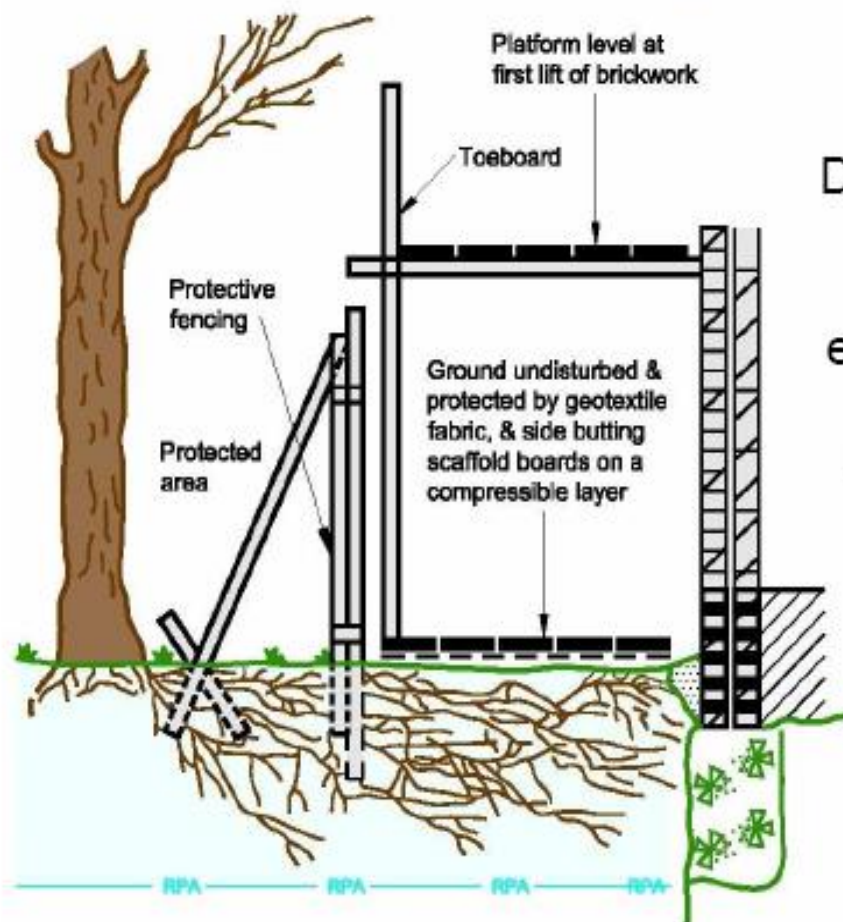
b) Stabilizer strut mounted on block tray

5. Figure 4 Detail of protective barrier where construction encroaches within BS5837:2012 Root Protection Area



Appendix No 2.1

Figure 4 –



Detail of protective barrier where construction encroaches within BS 5837:2012 Root Protection Area (RPA)

**6. METHOD STATEMENT FOR “NO-DIG” CONSTRUCTION IN LINE WITH
ARBORICULTURAL PRACTICE NOTE 12
“Through the Trees to Development”**

Prior to commencing any demolition or construction on site, erect protective fencing around trees to form an exclusion zone (see attached plan).

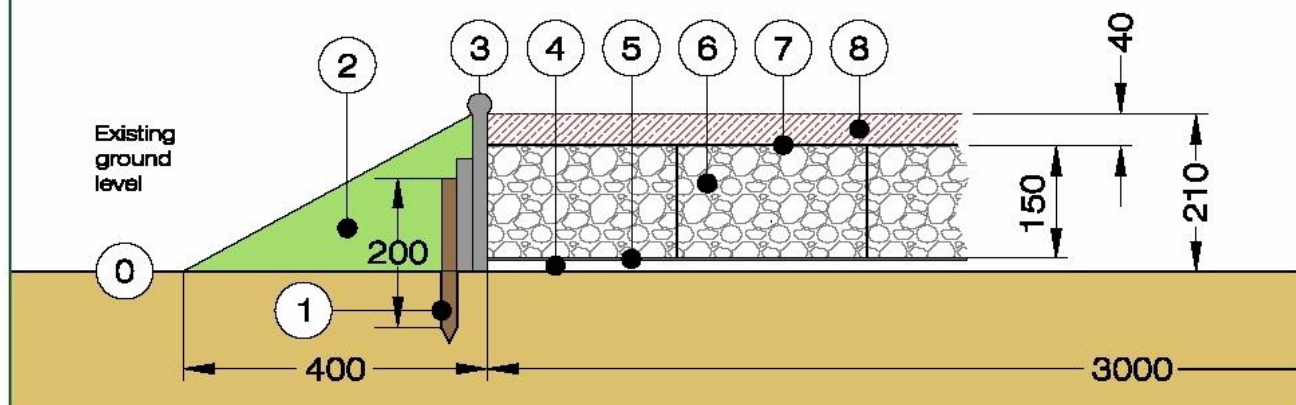
This will ensure that roots will not be severed during the construction work and the soil in the area of the exclusion zone will not be compacted thus enabling oxygen to continue to diffuse into the soil beneath.

Construction of the driveway, path or other hard surface should be undertaken in dry weather between May and October when the ground is driest and least prone to compaction.

- 1 Kill ground vegetation using a translocated herbicide (glyphosate), ensuring that the selected herbicide doesn't damage the root of the tree(s) below the surface of the path.
- 2 Remove the dead or organic material from the site and ensure that large stones and shrub stumps are removed from the proposed route.
- 3 Any tree stumps should be ground out rather than excavated to minimize soil disturbance.
- 4 The resulting hollows and any other holes along the route driveway, path or other hard surface should be filled with sharp sand.
- 5 Lay *Terram Geotextile* matting across the full width of the driveway, path or other hard surface. This will prevent the intrusion of roots into the sub-base whilst still allowing nutrients and gaseous exchange.
- 6 Lay *Terram 150 Geocell* (cellular confinement system). (This is available from the Terram Ltd, tel: 01495 757722, fax: 01495 762393, and can be cut with a Stanley knife on site to the length, width and profile of the path required).
- 7 The driveway, path or other hard surface is to be supported against 150 x 20mm tanalised softwood boarding and 200mm long tanalised soft wood pegs driven into the ground at 1500mm centres.
- 8 Carefully push 20mm – 40mm gravel chippings (no fines) into the *Geo 150 Geocell* matting to form an aggregate sub-base.
- 9 The chippings should be placed at one end of the matting and pushed/spread across the matt to prevent compaction of the soil, working on either side of the driveway, path or other hard surface.
- 10 Compact the sub base to ensure binding with the *Geocell* and to minimise future wheel rutting.
- 11 Lay second layer of *Terram Geotextile* matting across the full width of the driveway, path or other hard surface. This will prevent the intrusion of fines into the gravel chippings.
- 12 Add layer of 'no fines, sharp sand and compact if using pavers as surface treatment.
- 13 Place proposed surface treatment (e.g. Pavers) on top of the compacted sub-base to form the finished surface to the path and 'bank up' the edging with topsoil, which is to be grass seeded in spring/autumn. This will form a gentle slope from the edging to the existing ground level.

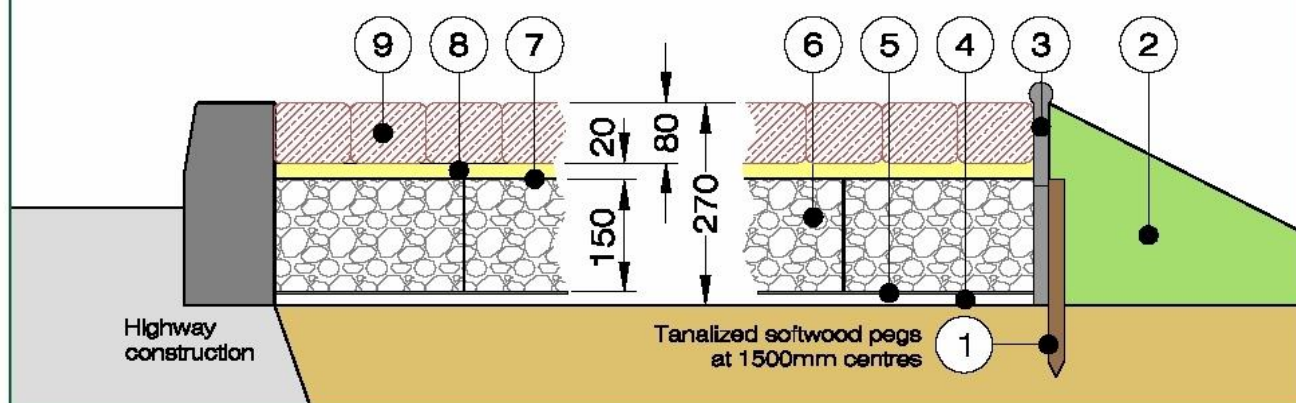
- 1) Tanalised softwood pegs at 1500mm centres
- 2) Top soil banked up to edging
- 3) Softwood boards / Concrete edging 'tiles'
- 4) Existing surface to be cleared of ground vegetation using a translocated herbicide such as glyphosate

- 5) Geo-textile matting "Terram" laid on top of footpath
- 6) "Geocell" Cellular Confinement System (150mm deep) with gravel chippings
- 7) Geo-textile matting "Terram" laid on top of cellular confinement system
- 8) Gravel or paving laid on top of permeable sub-base

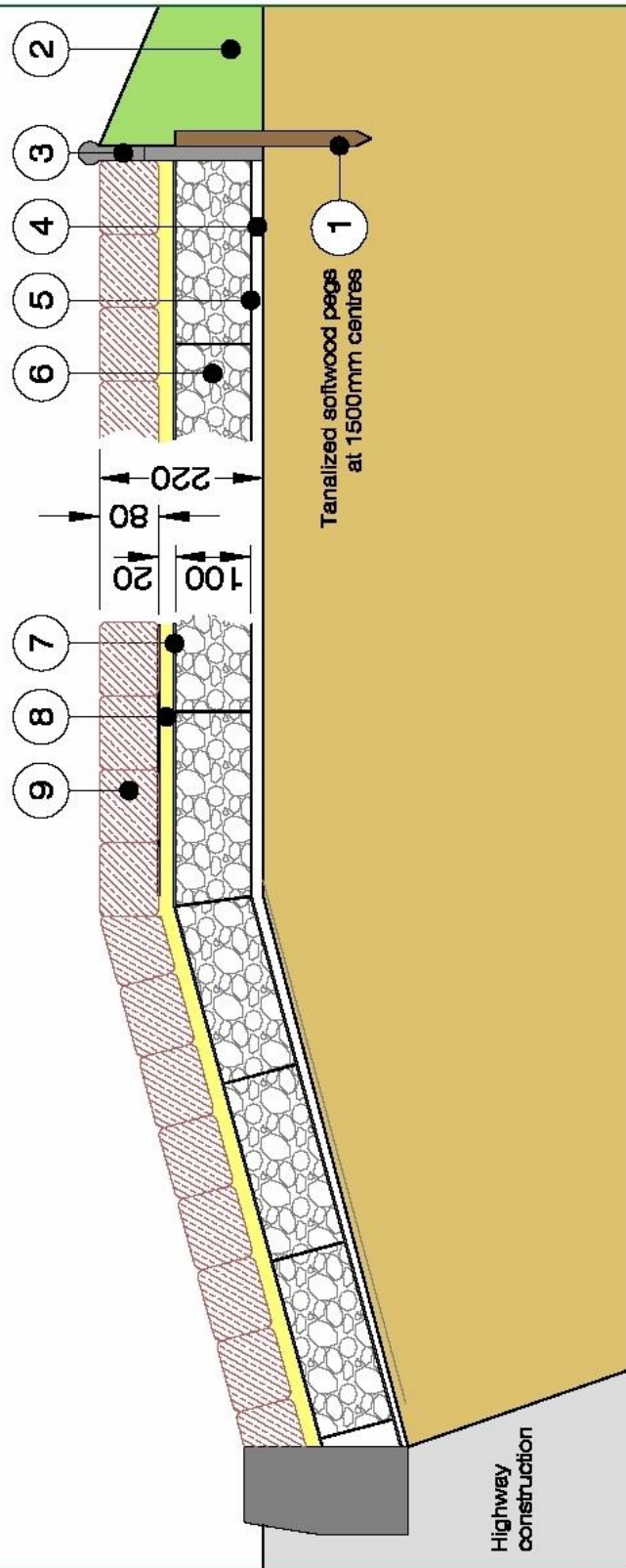


- 2) Top soil banked up to edging
- 3) Softwood boards / Concrete edging 'tiles'
- 4) Existing surface to be cleared of ground vegetation using a translocated herbicide such as "glyphosate"
- 5) Geo-textile matting "Terram" laid on top of footpath

- 6) "Geocell" Cellular Confinement System (150mm deep) with gravel chippings
- 7) Geo-textile matting "Terram" laid on top of cellular confinement system
- 8) 'No fines' sand laid on top of geo-textile matting
- 9) Aquaflo permeable paving laid on top of no fines sharp sand and permeable sub-base



- 2) Top soil banked up to edging
- 3) Softwood boards / Concrete edging 'tiles'
- 4) Existing surface to be cleared of ground vegetation using a translocated herbicide such as glyphosate
- 5) Geo-textile matting "Terram" laid on top of footpath
- 6) "Geocell" Cellular Confinement System (150mm deep) with gravel chippings
- 7) Geo-textile matting "Terram" laid on top of cellular confinement system
- 8) 'No fines' sand laid on top of geo-textile matting
- 9) Gravel or paving laid on top of permeable sub-base



HAYDEN'S
Arboricultural Consultants

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Bury St Edmunds
Suffolk IP28 6JY

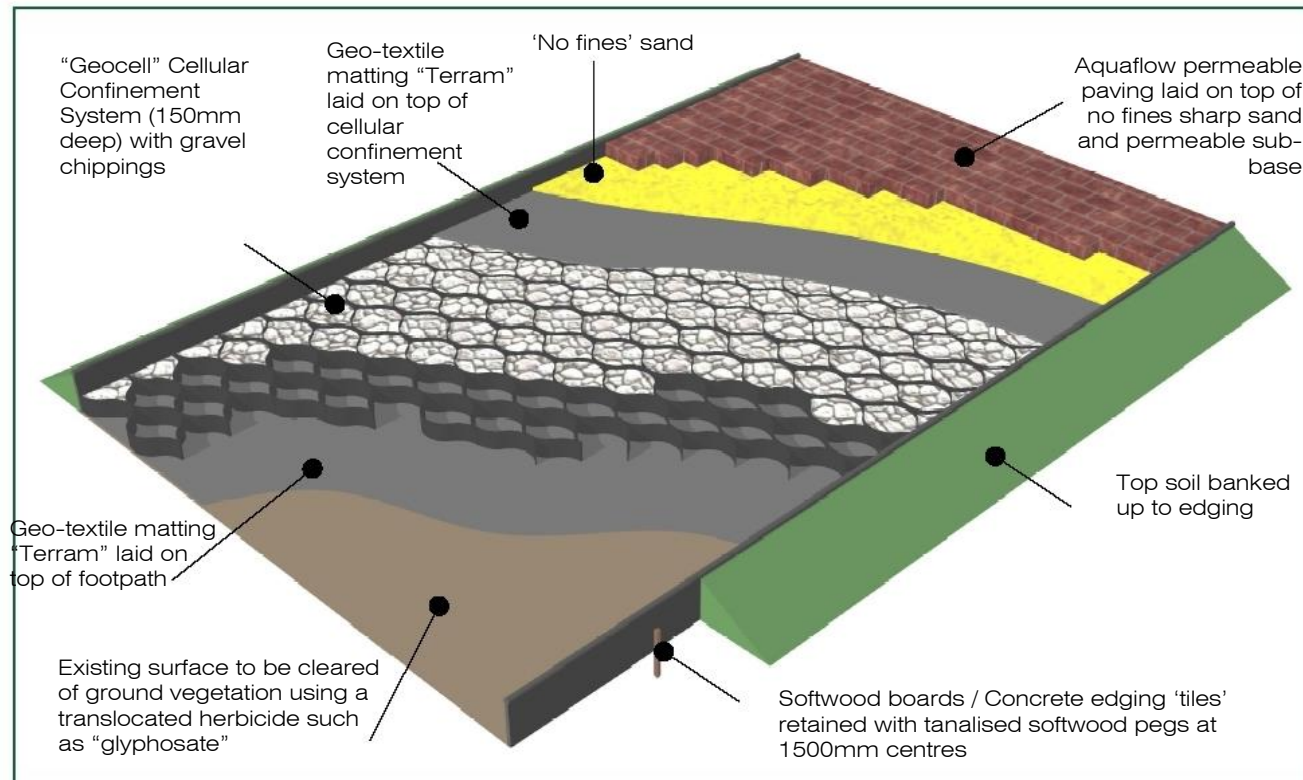
Tel: 01284 765391
Fax: 01284 765181
Mob: 07850167400
info@treesurveys.co.uk
www.treesurveys.co.uk

© Hayden's 2011

'No Dig' Footpath & Driveway Specification

Scale
1:10 (A4)

Drg No.
Hayden's.ND



The 3D drawing above may not accurately depict the construction to be carried out and should be taken as indicative only. Use the section drawings on the previous page for full details on the required construction method

'No Dig' system during construction (right)

"Geocell" Cellular Confinement System (100mm deep) with gravel chippings (below)



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The Aquaflow® range of permeable paving

Aquaslab®

For use on Pedestrian areas

Size

300 x 450 x 60mm

Laying pattern

Staggered stretcher bond

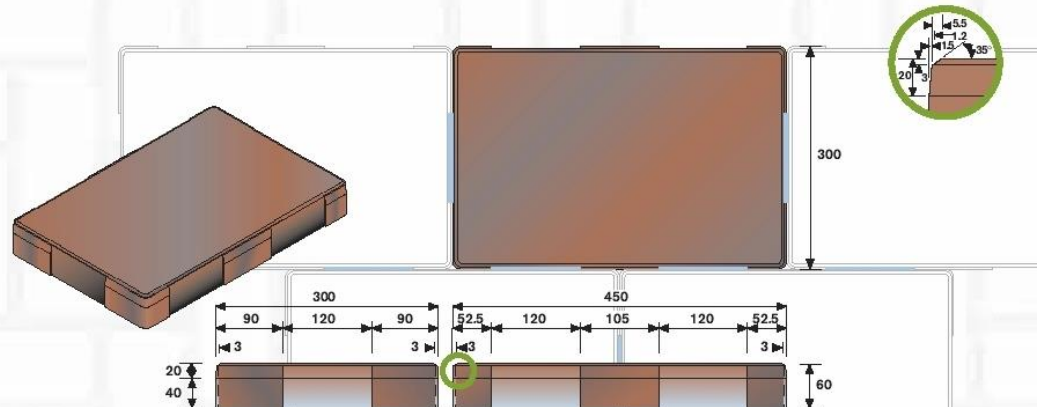
Colours*

Natural, Burnt Red, Red brindle, Golden brindle and Charcoal

Finish

Standard

Bush hammered to special order



Aquasett®

For use on footpaths, domestic drives and roads (80mm)

Range of colours and the Olden finish make the Aquasett appropriate for use in conservation areas or on projects where architectural heritage is a major consideration.

Sizes

150 x 250 x 60/80mm

Laying pattern

Staggered stretcher bond or 90° herringbone for trafficked areas.

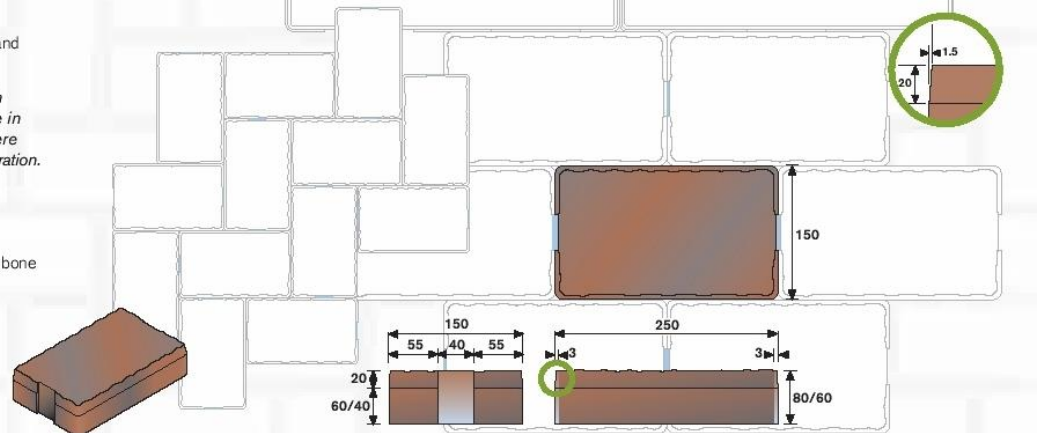
Colours*

Traditional, Red Brindle, Vendage and Pennant.

Finish

Olden

Bush hammered to special order



Aquasett combined®

For use on footpaths and domestic drives

Range of colours and the Olden finish make the Aquasett combined appropriate for use in conservation areas or on projects where architectural heritage is a major consideration

Sizes

Large 150 x 250 x 60/80mm

Medium 150 x 150 x 60/80mm

Small 100 x 150 x 60/80mm

Ratio of blocks in 0.8 square metre manufactured format: 10 large, 14 medium and 7 small.

Laying pattern

Staggered stretcher bond

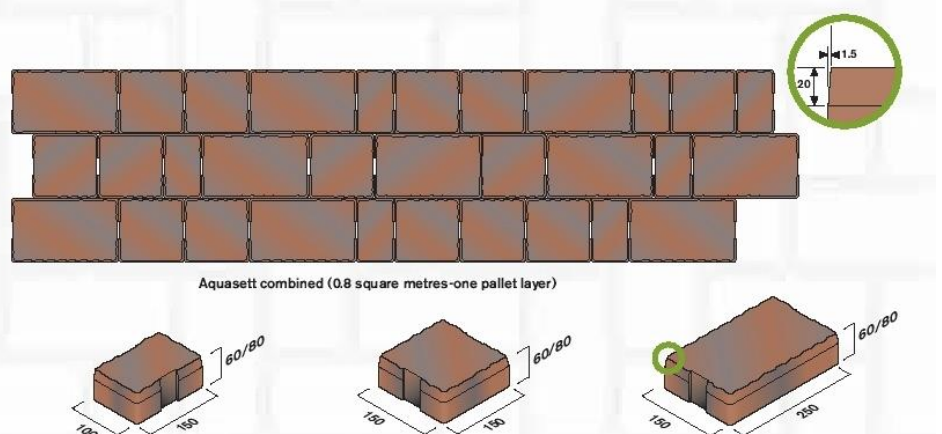
Colours*

Traditional, Red Brindle, Vendage and Pennant.

Finish

Olden

Bush hammered to special order



Formpave have designed a range of Aquaflow paving blocks to be used in conjunction with either tanked or infiltration systems.

The range consists of six blocks manufactured from concrete with a tensile splitting strength in accordance with BS EN 1338:2003.

Included within the range is the Aquaslab which has been designed for use on non-trafficked pedestrian areas.

All of the blocks and slabs provide drainage through vertical channels and will allow water through the surface at a rate of approximately 9000mm per hour (9000 litres per m² per hour). The Inbitex geotextile beneath the laying course will allow approximately 4500 litres per m² per hour through and this figure should be used for design purposes.

The Aquaflow ML block system consists of an interlocking block with specialist top, bottom and edge blocks and has been specifically designed for heavy duty applications.

The ML blocks can be laid by hand or by machine. Where the blocks are machine laid modules of .65m² are laid in one pass. Laying rates of over 600m² per day have been readily achieved with a three man crew.

* Other colours and finishes such as EcoGranite are available to special order.

Aquaflow block®

For use on car parks, drives and moderately trafficked areas

Sizes

100 x 200 x 60/80mm

Laying pattern

Must be laid in 90° herringbone

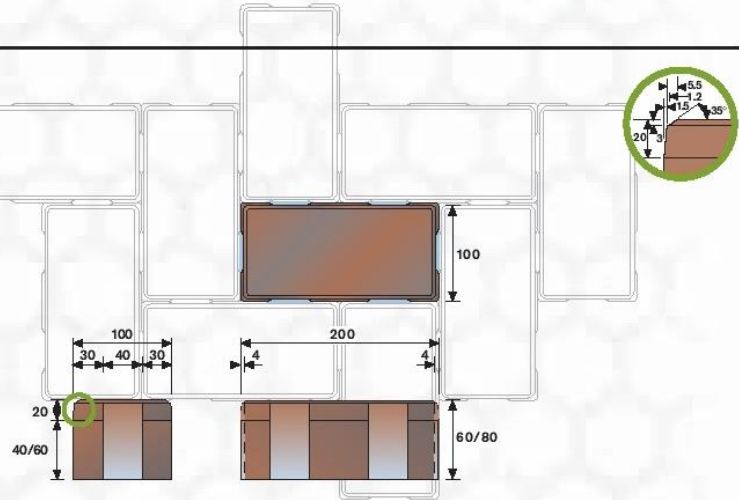
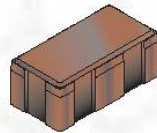
Colours*

Natural, Burnt Red, Red brindle, Golden brindle and Charcoal.

Finish

Standard

Bush hammered to special order



Aquaflow ML block®

For Roads and heavy duty use

Size

80mm

Laying pattern

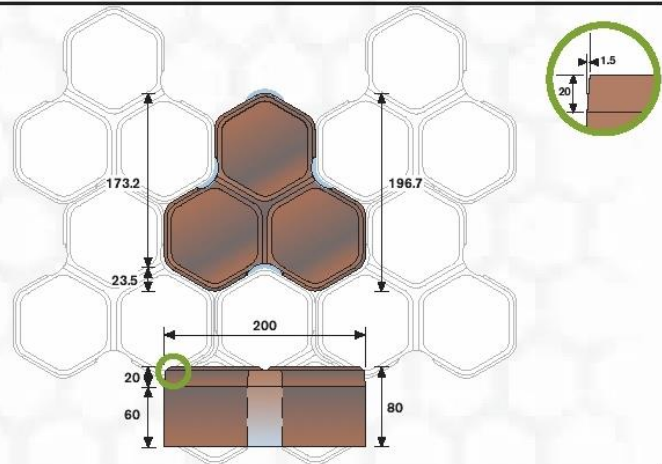
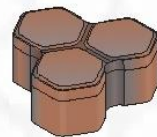
Include stretcher course around edge in conjunction with MLE and MLTB

Colours*

Natural, Burnt Red, Red brindle, Golden brindle and Charcoal.

Finish

Standard



Not available in EcoGranite

Aquaflow MLE® top drawing

End block

For use with Aquaflow ML blocks

Aquaflow MLTB® bottom drawing

Top and bottom block

For use with Aquaflow ML blocks

Size

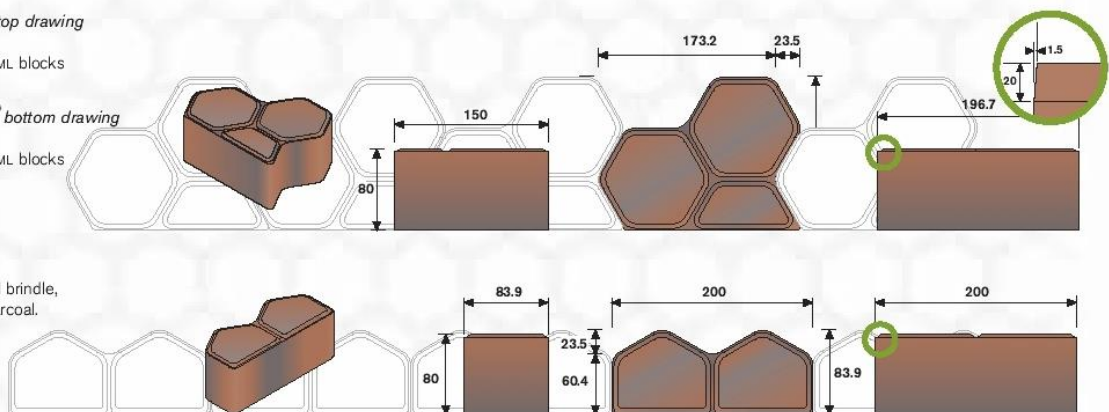
80mm

Colours*

Natural, Burnt Red, Red brindle, Golden brindle and Charcoal.

Finish

Standard



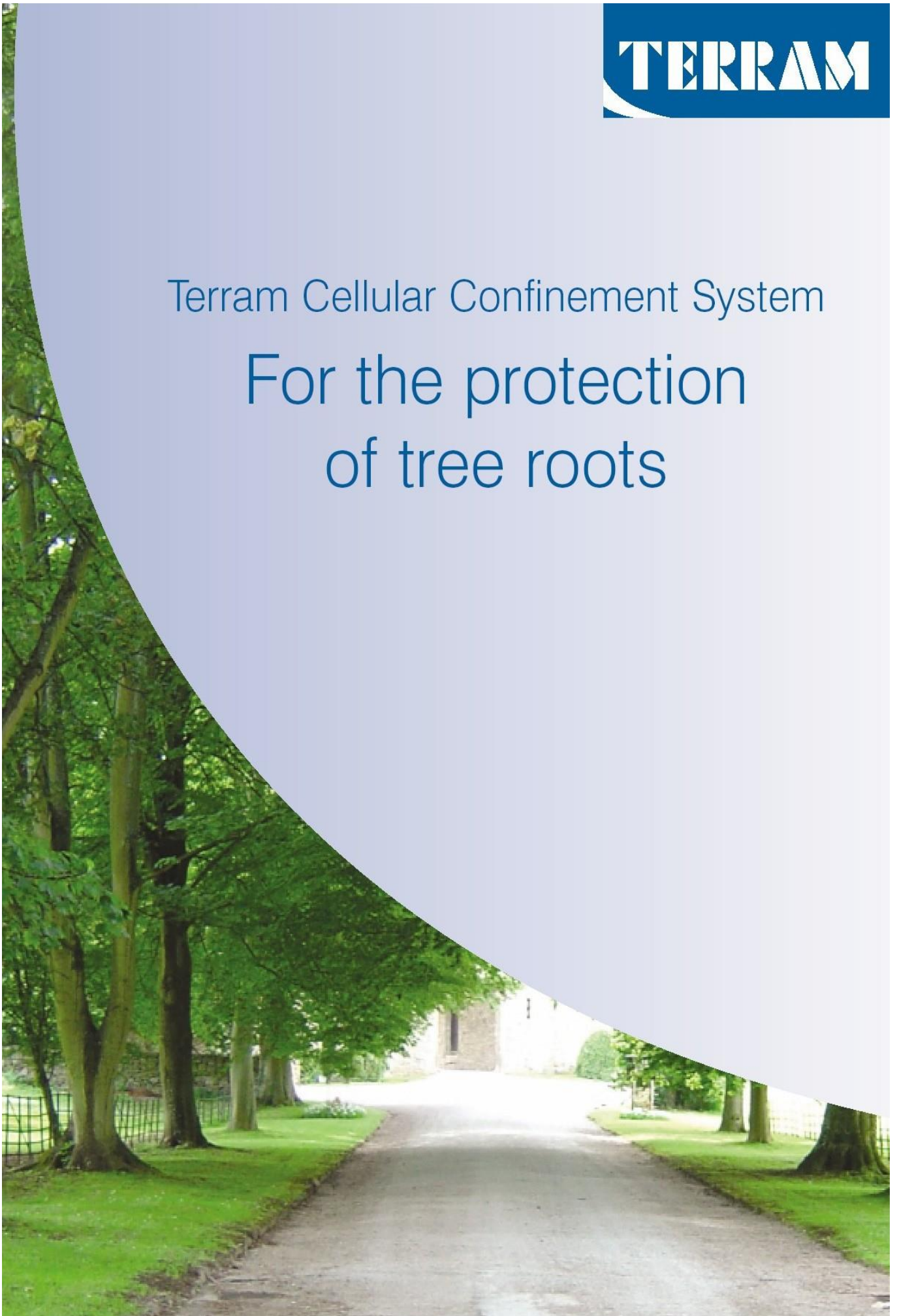
Not available in EcoGranite

The logo for TERRAM, featuring the word "TERRAM" in white, bold, sans-serif capital letters on a blue rectangular background. A white curved line is positioned below the letters "T" and "E".

TERRAM

Terram Cellular Confinement System

For the protection
of tree roots



Cellular Confinement Systems

The perfect no-dig ground reinforcement system.
Provides above-ground load bearing for paths and driveways
whilst preventing soil compaction and protecting tree roots.

Damage to tree roots during driveway construction

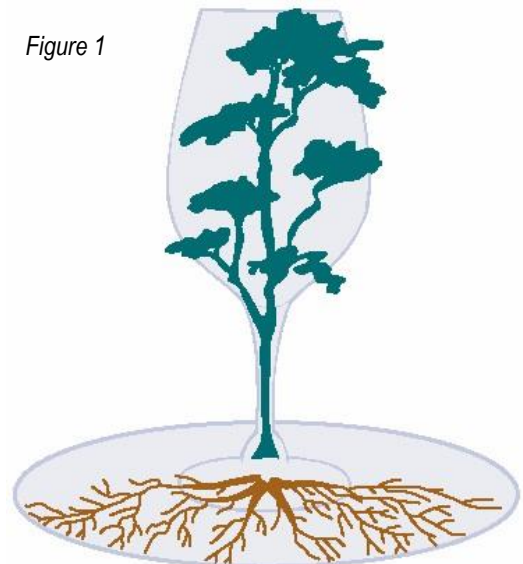
The conventional method for constructing paths, drives and roads involves excavating soil to enable the installation of a sub-base that will adequately support traffic loads. Unfortunately this method of construction can badly damage trees since a by-product of the excavation is root severance. Most people don't realise that trees are very sensitive to disturbances in the soil around them. The reason for this is that, contrary to popular belief, trees do not have massive roots that go deep down into the soil but rather have lots of relatively small roots (frequently only a few centimetres in diameter) which spread out from the tree very close to the soil surface for quite large distances (often equal to the height of the tree).

If you imagine a tree system as a wine glass standing on a dinner plate you will have a roughly accurate idea of the above and below ground proportions of a tree (Figure 1). It may come as a surprise to learn that about 80-90% of all tree's roots are in the upper metre of soil (Figure 2). These roots serve two purposes: anchorage and absorption of moisture. If even relatively small roots are severed, for example by digging a trench, the tree can begin to suffer symptoms of drought stress as it is no longer able to obtain all its water needs. In addition the tree may become unstable as cutting the roots is a bit like cutting the guy roots on a tent.

It is not only root severance that may harm trees but also compaction of the soil. If the root zone of a tree is not protected during development then the soil may become compacted by vehicles or heavy machinery moving repeatedly over the ground (Figure 3). The effect of compaction is to close up pores in the soil which contain air and water. The tree's roots then suffer from both a lack of oxygen and a lack of moisture, and, as the soil becomes denser, roots find it hard to penetrate the soil. All this can lead to a dieback of the root system and frequently dieback of the tree. Raising of soil levels has a similar damaging effect as it deprives roots of oxygen and creates a build up of harmful carbon dioxide around the roots.



Figure 1



So, How Do Tree Roots Grow?

People often wrongly assume that tree roots are thick and grow down into the soil for many metres (Figure A). In reality tree roots:

- Are usually only large near to the trunk and get thinner the deeper and further from the tree they go. At a distance of just 3-4 metres from the trunk most roots are no bigger than a few centimetres in diameter.
- Spread outwards from the trunk, more or less parallel with the soil rather than growing downwards (Figure B).
- Can spread horizontally in any direction for a distance equivalent to at least the tree's height.
- Are usually relatively shallow; 80-90% of a tree's roots are in the Upper metre of soil. Few roots reach depths of more than about 2-3 metres and at this depth they are only a few millimetres in diameter.

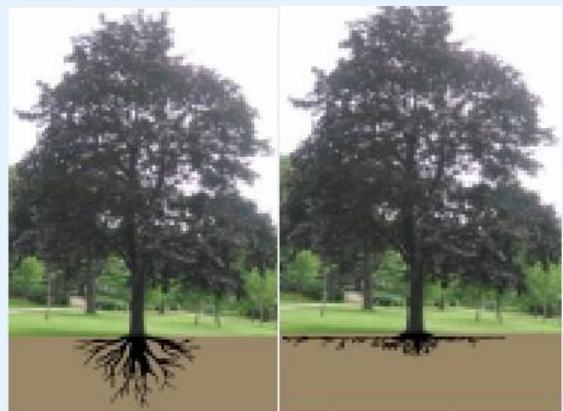


Figure A: Incorrect

Figure B: Correct

British standard for trees in relation to construction and APN1

In recognition of the fact that trees are sensitive to disturbance the British Standards Institution has published recommendations on how to protect trees during development. In line with the earlier British Standard (BS 5837: 1991) the most recent guide, published in September 2005 (see further reading), recommends that there should be a 'root protection area' in which development should not be permitted.

In most case this are has a radius equal to twelve times the trunk diameter and forms a exclusive zone around the tree protected by means of robust fencing. This guidance had the effect of prohibiting the installation of roads, driveways and parking areas near to trees. But in 1996 the Arboricultural Advisory and Information Service published Arboricultural Practice Note 1 Driveways Close to Trees (APN1) which suggested that driveways could be installed within the root protection area provided roots and soil were not damaged.

The conditions set out for a suitable system were as follows:

- Roots must not be severed
- Soil should not be compacted
- Free movement of oxygen and carbon dioxide into and out of the soil should be maintained
- Water infiltration into the soil should not be impeded

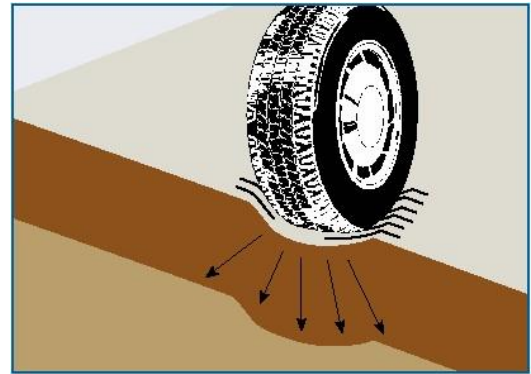
The, APN1 advised that driveways could be installed within the root protection zone provided that an above-ground, no-dig construction was used. This advice was incorporated into the recent British Standard which recommended that the most effective means of achieving this was through the use of a three-dimensional cellular confinement system.

Terram Geocell ground protection

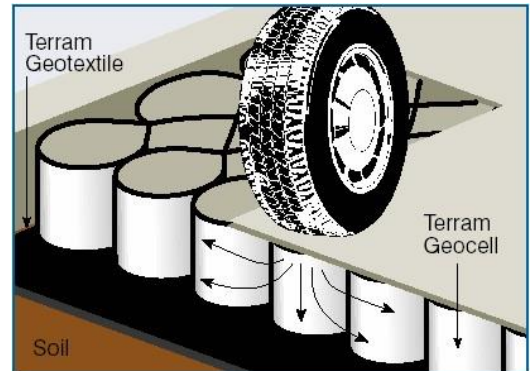
Terram Geocell is an ideal solution for providing ground reinforcement with tree protection areas. It confines fill material within its strong flexible cell structure in order to provide a stable base for traffic and an even load distribution (Figure 3 and 4). A big advantage of Terram Geocell over other products is that the geotextile material is permeable and allows lateral movement of air and water.

Terram Geocell is suitable for permanent woodland trails, paths, driveways, roads and parking areas.

It may also be used as temporary ground reinforcement where access to a site is limited by the presence of trees. Once operations on site are completed the temporary surface can easily be removed and the ground left undamaged.



No ground reinforcement: Unreinforced soil becomes compacted and rutted by vehicle loads



Geocell ground reinforcement: Forces are spread laterally reducing loads on the underlying soil

Figure 3. The Geocell Distributes loads evenly in order to prevent rutting

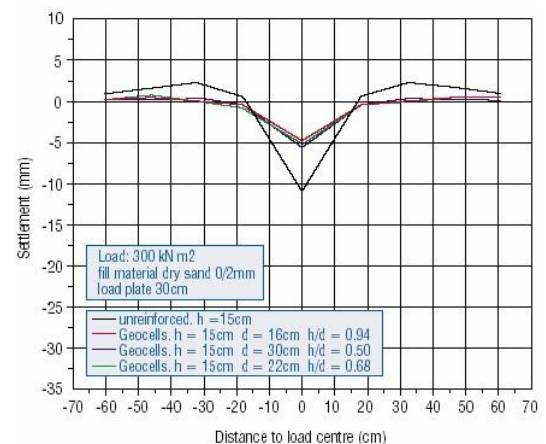


Figure 4. Static loading tests of up to 300kN/m2 revealed only minimal deflection (<5mm) of the surface of filled Geocell



Getting the design right

Every application will be slightly different so it is important to have the input of an engineer and arboriculturist together in order to design the right solution for an installation near to trees. The Arboriculturist will be able to advise on tree protection issues and the engineer will be able to specify details such as cell depth, fill type (Figure 5) and load bearing capacity.

For example, the design of a pedestrian footpath may be less rigorous than that of an access road that may have to withstand the load of a heavy crane or lorry.

But there are some principles that should be considered in every application (see Figure 6):

- The ground must be protected at all stages during installation – there is no point in installing a ground protection system where soil or roots have already been damaged by other site activities
- Terram Geotextile should be used underneath the Geocell to prevent fill materials penetrating the soil
- The fill material should be granular and should permit water and air flow
- Any edgings should be carefully designed to avoid excavation and root severance
- A permeable and gas-porous wearing course should be installed above the Geocell
- In most cases the driveway or parking area should not exceed 20% of the root protection area.

If correctly designed and installed the Geocell cellular confinement system should allow paths, drives and parking areas to be located within a tree's protection zone, thus enabling development that might not otherwise be permitted by local authorities.

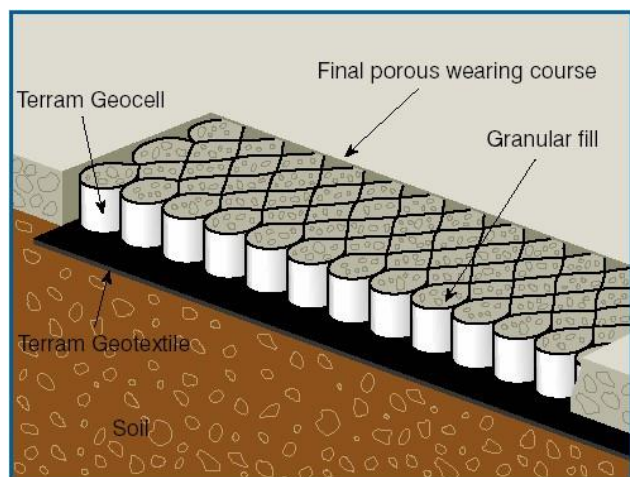


Figure 6. Components of an above-ground load bearing platform suitable for vehicles

Example installation Driveway construction

- 1 Remove grass and other vegetation and the upper organic layer of soil by hand digging. Arisings should be wheel-barrowed out of the tree protection area. Machinery (even low ground pressure tracked vehicles) should not be used due to the danger of soil compaction
- 2 Small depressions may be filled with sharp sand
- 3 Lay out Terram Geotextile over the driveway area
- 4 Lay out Terram Geocell and carefully peg in place
- 5 Fill the cells working from the area furthest from the trees first. Further filling should be carried out using the filled Geocell as a platform
- 6 Install a permeable wearing course, e.g. porous tarmac, block pavements on a sharp sand base (a further layer of Terram above the filled Geocell will be needed in this case to prevent the sand mixing with the granular fill below).

Conclusion

BS5837 Trees in Relation to Construction and APN1 allow the careful development of paths, drives and roads within the root protection area of trees provided an above-ground, no-dig construction is used.

The use of Terram Geocell as a ground reinforcement Platform is Therefore an Ideal solution that can facilitate such development near to tree which might not otherwise be permitted due to fears of damage to soil structure and tree roots.

Further reading

BS 583: 2005 *Trees in relation to construction – Recommendations*. British Standards Institution.

Dobson, M. (1995): *Tree Root Systems*. Arboriculture Research and Information Note 130/ARB/95. Arboricultural Advisory and information Service, Farnham.

Patch, D. and Dobson, M. (1996). *Driveways Close to Trees*. Arboricultural Practice Note 1. Arboricultural Advisory and Information Service, Farnham.

Nicholson, R. (2001). APN1, BS5837 & PPG 3, *Guidance for Trees: Conflict or Complement?* Arboricultural Journal 25, 361-376.

Products Available	Panel size	Depth	Cell Diameter
Erocell 22/20	5.0m x 10.1m	200mm	220mm
Erocell 25/15	7.0m x 10.0m	150mm	250mm
Erocell 25/10	7.0m x 10.0m	100mm	250mm

The cell depth and diameter is dependent upon specific site conditions

Cellular Confinement Systems 1 June 2006

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Email: info@terram.co.uk Web: www.terram.com

Recommendations for use are a guide and purchasers must determine the suitability of the product for their intended use. Terram Ltd assumes no liability for claims beyond the replacement value of the product.

The instructions contained here are a general guide only and therefore cannot cover all aspects involved or all possible uses of Terram Cellular System. If you are not experienced in carrying out projects of the type Terram Cellular System is designed for, you should seek advice from someone appropriately qualified. Any recommendations or suggestions (including design guidance) given by or on behalf of Terram on the use of its products for particular applications are given in good faith and (unless otherwise agreed) free of charge, but it remains your responsibility to ensure the use is appropriate and the product correctly installed. Terram, its agents and employees, accept no responsibility for guidance or advice given. Terram guarantees that this product is in accordance with its specification and if not Terram will at its option supply replacement product or reimburse the price paid for it. This states Terram's entire liability, all other liability and responsibility is excluded. THIS DOES NOT AFFECT THE STATUTORY RIGHTS OF A CONSUMER.

Industrial / Construction Applications

AIR-SPADE® is the ideal tool for contractors, utility companies and everyone practicing safe excavation. Common uses include:

Pot holing
Utility line Locating
Crack Cleaning
Valve box cleaning
Utility Installation
Line spotting for backhoe
Vacuum excavation
Trench rescue
Meter locating

Full Range of Parts Available

AIR-SPADE® Series 2000 tool *

2 ft. 3 ft, 4 ft or 5 ft. extensions

Custom length barrel
Extra 15, 25, or 60 scfm nozzle
Extra 105 or 150 scfm nozzle
Extra 225 scfm nozzle
45o Angled Adapter
Arboricultural Applications Benefits
AIR-SPADE® Handle

10 Ft. Lightweight Hose
25 Ft. Lightweight Hose
50 Ft. Lightweight Hose

Scratch Proof Face Shield

Spare Parts Kit
Storage Case with lock
* includes handle, 150 cfm / 90 psi nozzle, and 4 foot barrel.

Why does the AIR-SPADE® out perform other air tools?

In head to head tests, the AIR-SPADE® dislodged harder clay soil and dug faster than other air digging tools. Soil fractures from compressive stress, tons per square foot (tsf), exerted on its surface. As shown above for the same pressure and flow, compressed air exiting from a pipe nipple, orifice, or improperly designed nozzle expands outward rapidly to 3 to 4 times the area versus the jet from the patented supersonic nozzle in the AIR-SPADE®. The flow from these competitors can even go sub-sonic as indicated by the presence of a "Mach Disk," which can be seen in the flow if the

7. Air Spade/Air Excavation Specification

The largest specialist Arboricultural suppliers in the North of England.

UK Distributors to the Tree Care Industry of the
AIR-SPADE®
AIR EXCAVATION TOOL
Industrial / Construction Applications



Arboricultural Applications

Benefits

AIR-SPADE® is used by arborists and landscape professionals worldwide for:

Root Collar Excavation

Plant Aeration

Vertical Mulching

Soil Compaction Relief

Disease diagnosis and treatment

Transplanting

Bare rooting

Damage analysis

Locating Roots in New Construction

Root Pruning and Structure Analysis

Running utilities through the root zone

Radial trenching

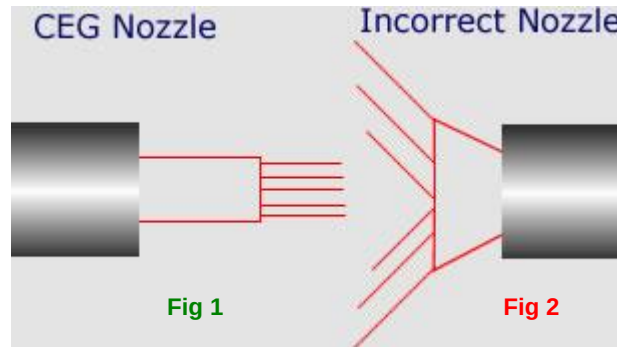
- Digs faster and harder soils than competitive or home made wands
- Less worker fatigue/injuries than a pick or shovel
- Faster and safer than hand digging
- Saves expensive hourly labour costs
- Non-damaging to all kinds of buried utilities or plant roots
- Digs without making mud and does not create "contaminated" spoil like water
- Excavated soil is ideal for recompaction
- Modular design with parts that screw together without tools
- Interchangeable nozzles sized to match air compressors from 15 to 250 scfm
- Interchangeable extensions to 8ft and reducers to 2 ft
- Ergonomic handle with thermal shield and pressure gauge
- Safety "dead Man" trigger with guard
- Electrically insulating barrel
- Hardened wear resistant stainless steel nozzle
- 45 deg adaptor

Will higher pressure make the AIR-SPADE® work Better?

How Does it Work?

Increasing the air pressure above 90 psi on a properly designed supersonic nozzle does not lead to a proportional gain in excavation capability. For example, doubling the nozzle pressure to 180 psi increases the air jet force by only 10% and the exit momentum flux (stress seen by the soil) by only 45%. Supplying higher pressure to a nozzle designed to work at 90 psi actually un-focuses the air jet degrading performance and consuming more air.

Patented CEG Supersonic nozzle turns 90 psig compressed air into laser-like Mach 2 jet. Jet penetrates and fractures friable materials like soil but harmlessly goes around buried pipes, cables, fibre optic lines and tree roots.



Jet from CEG nozzle focuses all of its energy and momentum onto concentrated spot on the soil. **Fig 1**

Air from pipe nipple, orifice, or improperly designed nozzle, expands greatly reducing its effectiveness. **Fig 2**

In what types of soil will an AIR-SPADE® work?

Because of its unique, focused air-jet, the **AIR-SPADE®** works in most soils, even hard clays. Cohesive soils can be classified and described by unconfined compressive strength as shown below. Tests have shown the **AIR-SPADE®** to be effective in compacted soils with unconfined compressive strengths well above the values listed to the right for hard clay.

Watering the work area ahead of time can be helpful sometimes. Watering reduces airborne dust if the soil is extremely dry. It also reduces the soil's strength making the digging easier. Combined use of the **AIR-SPADE®** with a low pressure water jet is effective even with extreme cases of highly compacted or sun-baked soils.

The **AIR-SPADE®** in general will not cut through rock, since its unconfined compressive strength is much greater than for soil. In fact, soil results from the physical and chemical breakup of weathered rock. Shales, however, may be broken apart by the **AIR-SPADE®** if the jet is directed between the laminations of the rock. Similarly, the **AIR-SPADE®** will not dislodge hard frozen soil which may behave like pavement or concrete.

Type	Unconfined Compressive Strength tsf	Description Cohesive soils including:
A	≥ 1.5 stiff	Clay, silty clay, sandy clay, clay loam, caliche, hardpan, and sometimes silty clay loam and sandy clay loam.
B	< 1.5 and > 0.5 med	Granular cohesive soils like angular gravel, silt, silt loam, sandy loam, and sometimes silty clay loam and sandy clay loam.
C	≤ 0.5 soft /v.soft	Granular soils such as gravel, sand, loamy sand, submerged soil, or soil from which water is freely seeping.

What size nozzle should I use?

Nozzles are available that use from 15 to 225 cfm of compressed air. The amount of soil that can be dislodged in a given amount of time is roughly proportional to the amount of air used. The 150 cfm nozzle is the most commonly used size for arboricultural and industrial applications. It has good productivity and is designed to run from the most common size of portable air compressor, a 175 to 185 cfm unit

Pressure Loss (psi) for 50 feet of common air hose						Excavation Rates (cu ft / min)			Recommended Compressor Size	
FLOW 9CFM						Nozzle Air Flow (CFM)	Soil Type A	Soil Type C	Nozzle (cfm)	Flow Rating (cfm) at 100 psi
Hose ID	25	60	105	150	225	15	0.5	0.2	15	15
						25	0.9	0.4	25	25 - 30
¾"	0.3	1.6	5.6	12.3	25.0	60	1.1	0.7	60	60 – 70
1"	0.1	0.4	1.3	2.8	5.5	105	1.5	0.9	105	125
1 1/4"	0.0	0.1	0.4	0.8	2.0	150	1.8	1.2	150	175 – 185
						225	2.3		225	250

How should I dig with the AIR-SPADE® ?

The **AIR-SPADE®** will dislodge up to several inches deep in a medium to stiff soil. High-speed movies show that an air-jet penetrates and dislodges the soil in a fraction of a second. Unless the soil is highly compacted, dwelling on the same spot is unnecessary and tends to increase spray. The **AIR-SPADE®** can be moved over the soil surface at a rate of about 1 to 2 feet per second. When several inches of soil have been loosened, the soil should be removed to expose a fresh working face for the air jet. Vacuum suction, as provided by our AIR-VAC and SAFEX® units, is an excellent companion to the **AIR-SPADE®** since it is likewise non-damaging.

What size of air hose do I need to use the AIR-SPADE® properly?

Compressed air flowing through a hose experiences a drop in pressure from friction and constrictions. Friction loss is proportional to the length of the hose. The amount of air, its pressure, the hose inner diameter and its smoothness also determine the loss. The table below shows the pressure loss for 50 feet of common air hose with couplings as a function of size and nozzle flow, cfm, for air at a pressure of 90 psi. Generally, a 1-inch air hose is recommended for use with the AIR-SPADE®.

How much will it Cost?

Arbor Kit complete includes:

AIR-SPADE® Series 2000 tool

AIR-SPADE® Series 2000 tool



45deg Angled Adapter
10 Ft. Lightweight Hose
Storage Case with lock



Who can supply me with it – and How long will it take to arrive?

You can be using this tool within 6 days of ordering it, it will be delivered to your door, carriage paid (Mainland UK).



The largest specialist Arboricultural
suppliers in the North of England
Import the

AIR-SPADE®

Air Excavation Tool
&
Arbor Kit

CONTACT US NOW TO DISCUSS THIS INVALUABLE ADDITION TO YOUR WORKING TOOLS DO THE WORK FASTER - GET BETTER RESULTS !

TELEPHONE 0113 2296006:

EMAIL info@treesunlimited.co.uk

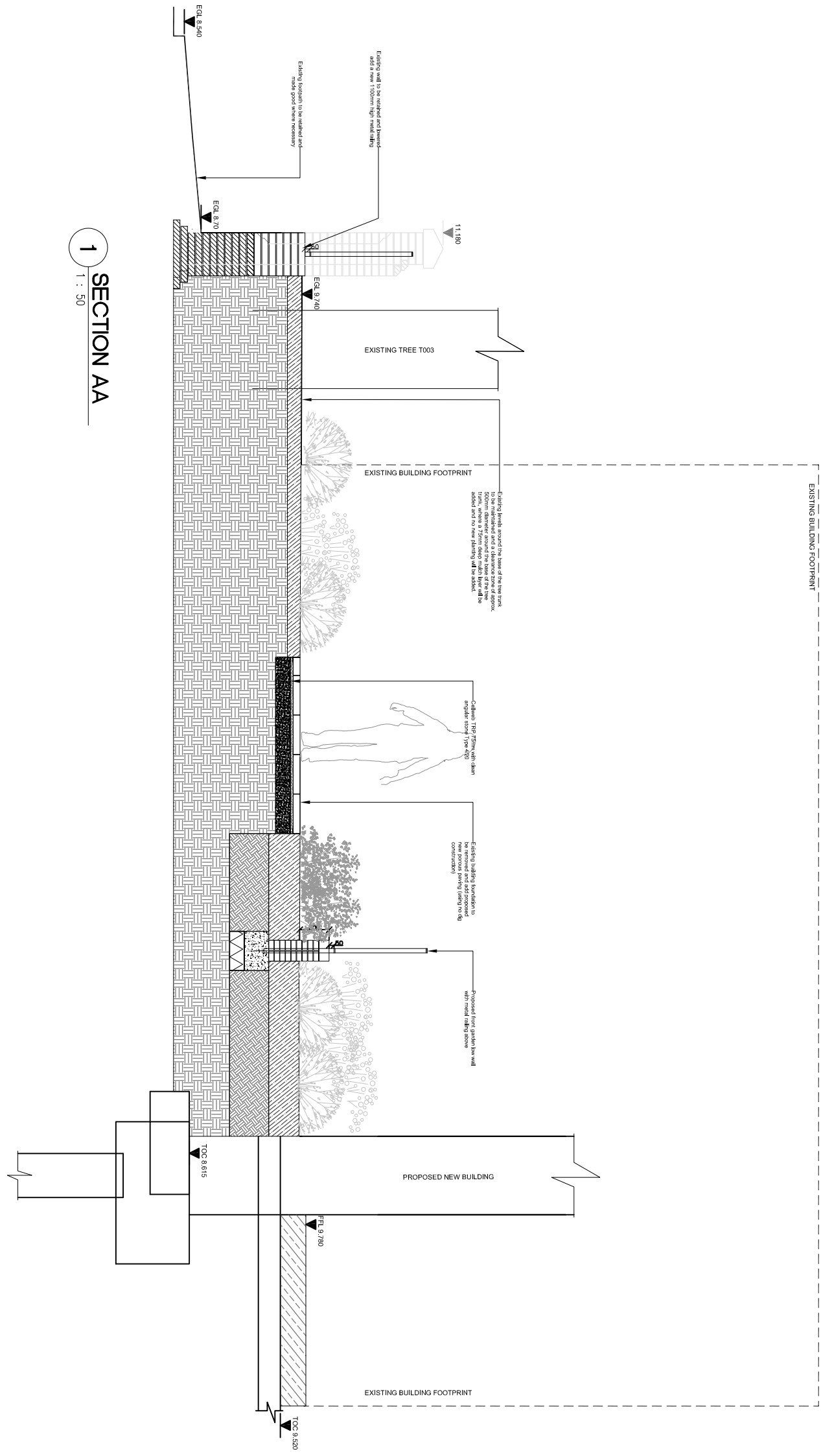
FAX 0113 2295171

Appendix G

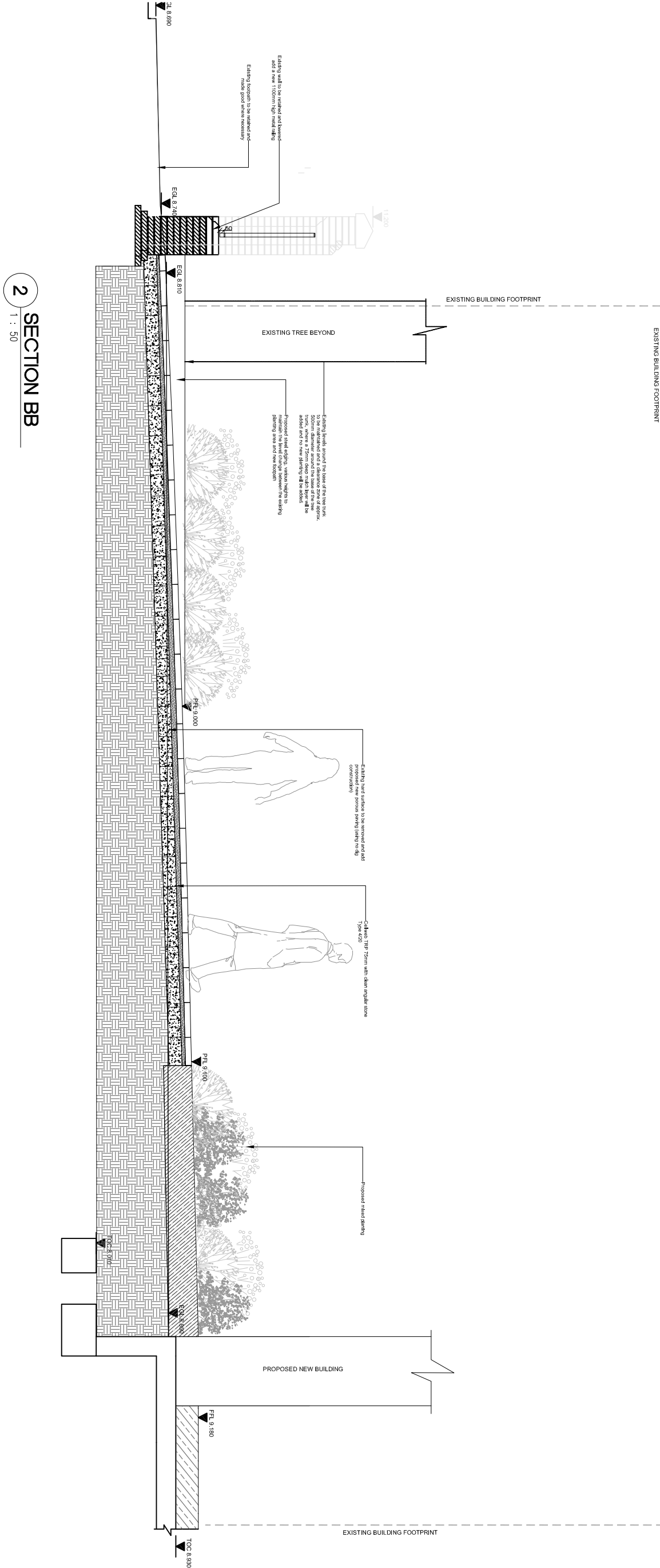
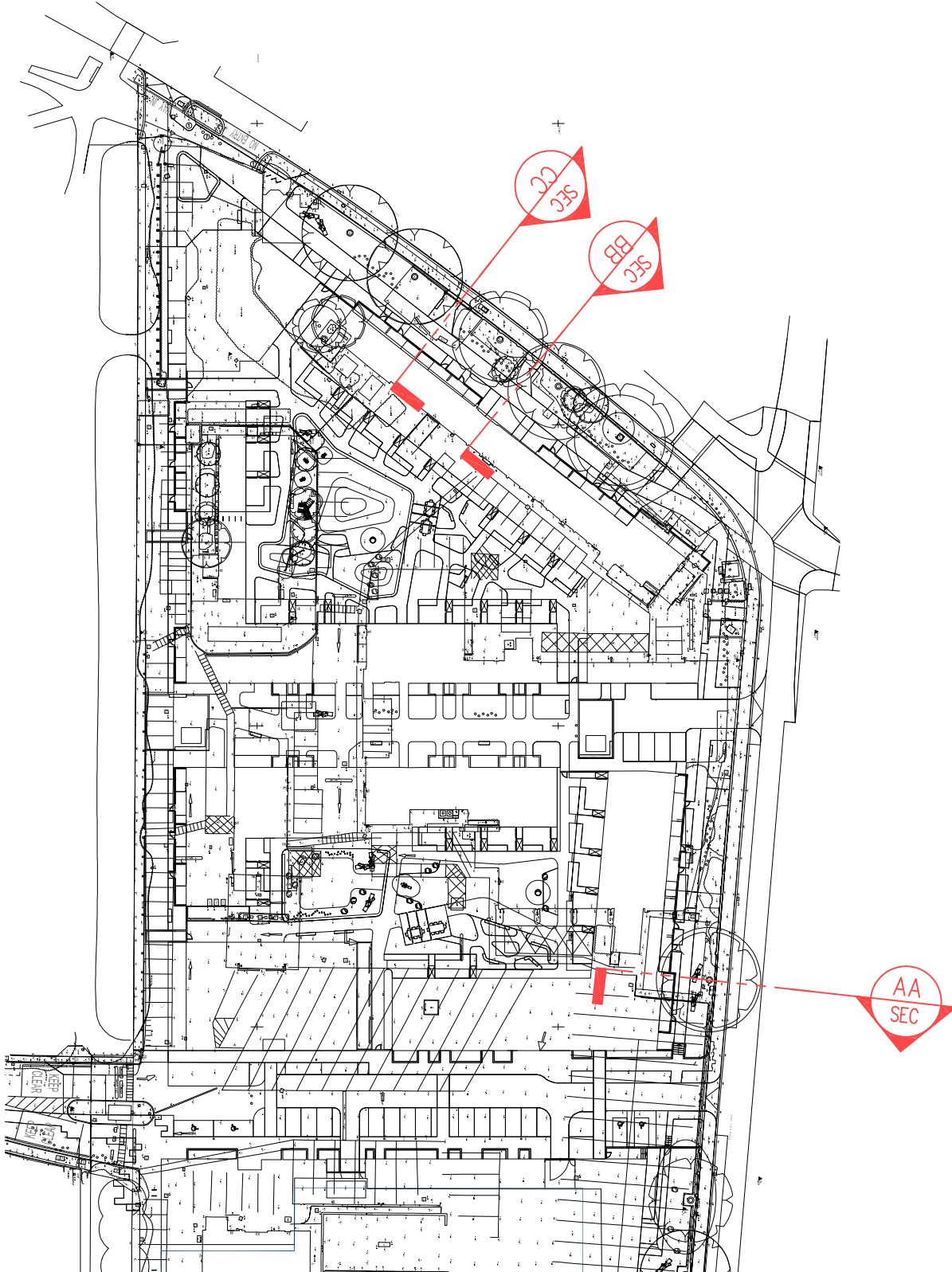
Haydens Drawing

Appendix H

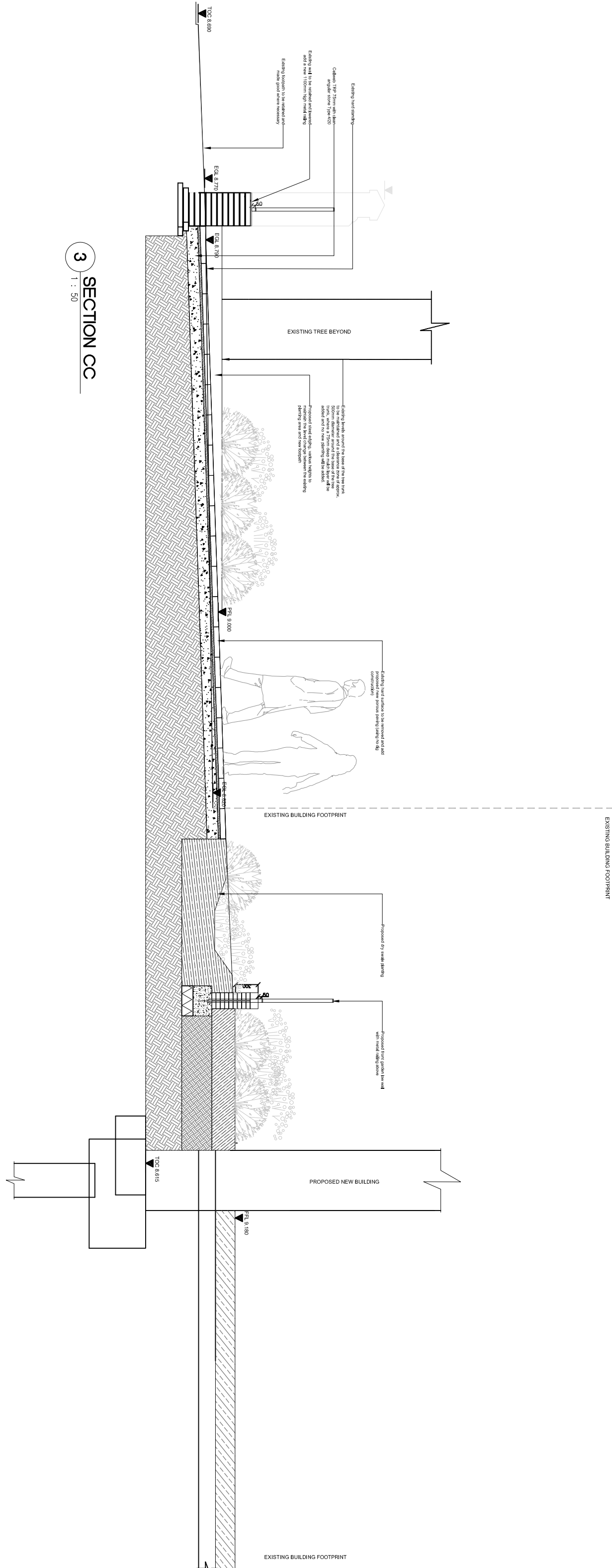
Drawing no. 3742A-LB-XX-00-DR-L-900000 rev. A



SECTION KEY PLAN
NOT TO SCALE



SECTION CC
1:50



standard notes

drawing notes

start typing drawing notes here

1. Do not scale this drawing.
2. All dimensions must be checked on site and any discrepancies verified with the architect.
3. Unless shown otherwise, all dimensions are to structural surfaces.

THIS IS NOT A CONSTRUCTION DRAWING. IT IS UNSUITABLE FOR THE PURPOSE OF CONSTRUCTION AND MUST ON NO ACCOUNT BE USED AS SUCH.

3742A
ASHLEY ROAD DEPOT

date 10/01/2023 client London Borough of Haringey
scale 1:50@A1 drawing Tree Root Protection Sections
drawn checked drawing number rev
DL LBA 3742A - LB - XX - 00 - DR - L - 900000
File location

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Appendix I

Drawing no. 3742A-LB-XX-00-DR-L-200004 rev. P2



Soft Landscape Plan

Key

- Site Boundary
- Root protection area
Hand dig or other root sensitive construction to this area to protect and minimise impact to the existing tree root
- Street Mix 01
 - Pachysandra terminalis*
 - Liriodendron muscari*
 - Euphorbia amygdaloides* var. *robiae*
 - Geranium nodosum*
 - Fanella 'Spring Symphony'*
 - Pulmonaria 'Sissinghurst White'*
 - Prunella divaricata* 'Clouds of Perfume'
 - Sarcocolla spp.*
 - Pittosporum tobira 'Nanum'*
 - Chimonanthus praecox*
 - Hebebois niger*
 - Carex morrowii* 'Everglow'
- Street Mix 02
 - Geranium rosae*
 - Hebebois niger*
 - Luzula nivea*
 - Prunella divaricata* 'Clouds of Perfume'
 - Asplenium 'Burgundy Manor'*
 - Stachys byzantina*
 - Arenaria montana*
 - Pittosporum tobira 'Nanum'*
- Vegetated Ssile Mix (Shade)
 - Digitalis x mertonensis*
 - Epimedium x rubrum*
 - Liriodendron muscari*
 - Deschampsia cespitosa*
 - Sarcocolla spp.*
 - Eurybia divaricata*
 - Carex morrowii* 'Everglow'
 - Sesleria autumnalis*
- Edible Plant Mix
 - Tomato 'Principe Borghese'*
 - Chilli 'Pecante di Cayenne'*
 - Violet faba 'Rhapsodie Claude'*
 - Celery 'Golden Self Blanching'*
 - Leaf beet 'Rainbow Chard'*
 - Rhubarb 'Raspberry Red'*
 - Horseradish*
 - Shallot 'Longor'*
 - Phacelia vulgaris 'Blue Lake'*
 - Pea 'Blauweschokker'*
 - Salvia officinalis*
 - Mentha spicata* var. *crispa Moroccan'*
- Rainwater Mix 01
 - Campanula glomerata 'Superba'*
 - Rudbeckia hirta 'Prairie Sun'*
 - Alcea rosea*
 - Centauria nigra*
 - Echinops ritro*
 - Sesleria autumnalis*
 - Eutrochium canabium*
 - Hebebois foetidus*
 - Isis glauca*
 - Panicum virgatum*
 - Lobelia grandiflora*
 - Daphne x transatlantica 'Pink Fragrance'*
 - Philadelphus 'Manteau d'Hermine'*
- Rainwater Mix 02
 - Amorpha canescens 'Storm Cloud'*
 - Geranium macranthum White-Ness*
 - Geranium phaeum*
 - Isis bolandiana*
 - Lobelia grandiflora*
 - Astilbe chinensis* var. *laquei 'Purpurante'*
 - Hakonechloa macrocha*
 - Carex elata 'Aurea'*
 - Cenolophium denudatum*
 - Malva aquilum*
 - Sarcocolla confusa*
 - Skimmia japonica 'Kew Green'*
- Herb/Herbaceous Mix
 - Agapanthus campanulatus albidus*
 - Allium sphaerocephalon*
 - Echinacea purpurea*
 - Lobelia grandiflora*
 - Salvia officinalis*
 - Mentha x piperita 'Strawberry'*
 - Ort Dukat'*
 - Thymus 'Lemon Variegated'*
 - Rosmarinus officinalis 'Miss Jessop's Upright'*
- Woodland Planting Mix
 - Blechnum spicatum*
 - Dryopteris affinis 'Cristata'*
 - Galium nigrum*
 - Geranium robertianum*
 - Hakonechloa macrocha*
 - Hyacinthoides non-scripta*
 - Luzula nivea*
 - Primula vulgaris*
 - Stellaria holostea*
 - Teucrium scorodonia*
- Turf Mix 01
 - Mixed species turf mix
 - High quality and hard wearing turf suitable for high foot traffic
 - Diverse species tolerant of full sun and partial shade
- Turf Mix 02
 - Mixed species shade tolerant native turf
 - High quality, hard wearing, shade tolerant and heavy foot traffic tolerant turf for play and woodland areas
- Wildflower Mix 01
 - Native Enriched Wildflower Turf
- Wildflower Mix 02
 - Shade Tolerant Wildflower Turf-1-2 cut annually
- Flowering shrub/hedge Mix
 - Crataegus monogyna*
 - Prunus spinosa*
 - Viburnum opulus*

SCALE BAR

0 5m 10m 20m

Notes

- Do not scale this drawing.
- All dimensions must be checked on site and any discrepancies verified with the architect.
- Unless shown otherwise, all dimensions are to structural surfaces.
- Drawing to be read with all other issued information. Any discrepancies to be brought to the attention of the architect.
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Note:

The proposal has been developed in consultation with Haringey Highways and Regeneration officers, Down Lane Park team, SBD officers and Homes for Haringey maintenance team.

All proposed works outside the redline boundary are design intent only.

Detailed design will be developed post planning and will form part of the S278 works or S106 agreement.

P2 15.03.22	Planning issue	VS/DL
P1 25.02.22	First issue	VS/DL
Rev	Date	Description
		Drawn / Checked

Project name

Ashley Road Depot
London Borough of Haringey

Drawing number	Rev
3742A - LB-XX-00-DP-L-200004	P2

Drawing

Soft Landscape Plan

Purpose of issue

Planning

Scale	Date
1 : 400 @ A1	25/02/2022

Client

LBH

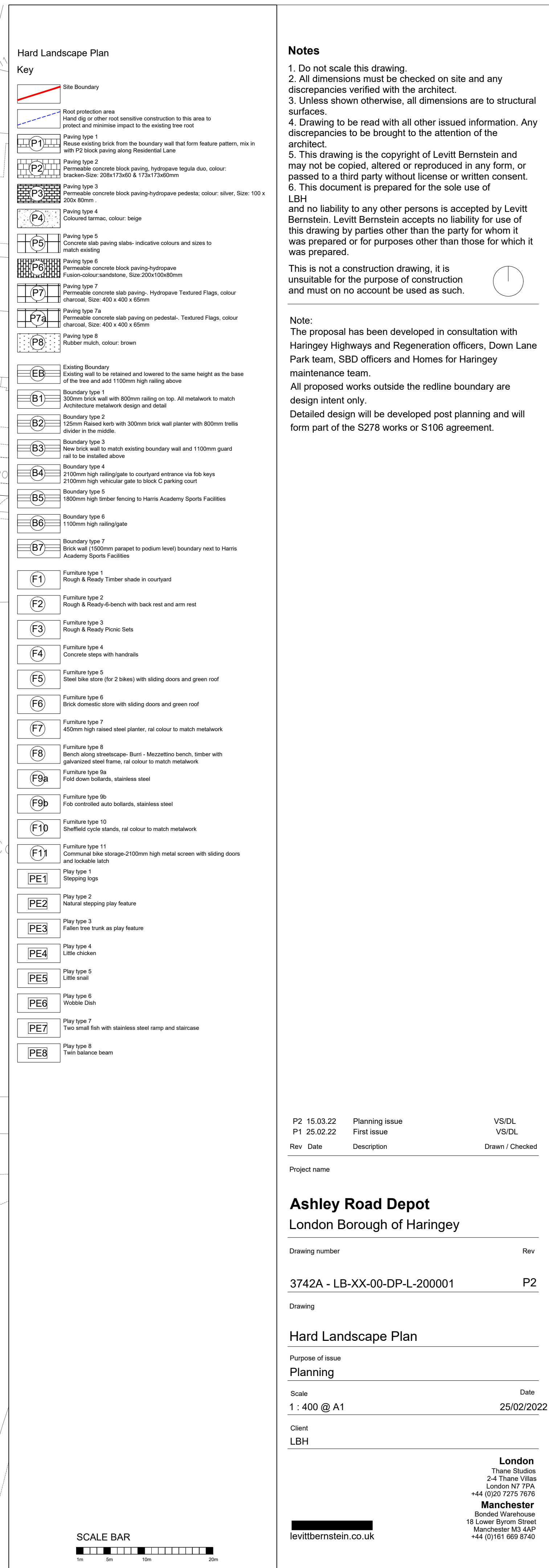
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Appendix I

Drawing no. 3742A-LB-XX-00-DP-L-200001 rev. P2



Arboricultural Impact Assessments ●
Arboricultural Method Statements ●
Tree Constraints Plans ●
Arboricultural Feasibility Studies ●
Shade Analysis ●
Picus Tomography ●
Arboricultural Consultancy for Local Planning Authority ●
Quantified Tree Risk Assessment ●
Health & Safety Audits for Tree Stocks ●
Tree Stock Survey and Management ●
Mortgage and Insurance Reports ●
Subsidence Reports ●
Woodland Management Plans ●
Project Management ●
Ecological Surveys ●



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