

LIZARD

Landscape Design and Ecology

DOMUSEA DEVELOPMENTS LTD

LAND AT SPRINGFIELD, HOOK LANE, ALDINGBOURNE

LLD1680-ARB-REP-001

Arboricultural Impact Assessment and Method Statement

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Checked by	JJ
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Planning Issue

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1.0 INTRODUCTION

- 1.1 Lizard Landscape Design and Ecology has been commissioned to undertake a dendrological survey and produce arboricultural documentation for the proposed development of land at Springfield, Hook Lane, Aldingbourne.
- 1.2 The Arboricultural Impact Assessment and Method Statement report provides evaluation of the direct and indirect effects of the proposed design and where necessary recommends mitigation.
- 1.3 The Arboricultural Impact Assessment and Method Statement report for the development of land at Springfield, Hook Lane, Aldingbourne has been prepared by George Sayer (*BSc(Hons) PgDip MArborA*); Project Ecologist and reviewed by Joe Jackson (*Landscape Architect BA (Hons) LA DipLA CMLI*); Principal at Lizard Landscape Design and Ecology, Worthing
- 1.4 This written Arboricultural Impact Assessment and Method Statement should be read in conjunction with the associated tree survey documentation, including *LLD1680-ARB-DWG-001 – Tree Constraints Plan*; *LLD1680-ARB-SCH-001 – Existing Tree Schedule*; and *LLD1680-ARB-DWG-002 – Tree Retention and Protection Plan*.

2.0 EXISTING SITE INFORMATION

The Site

- 2.1 The survey area covers c. 0.46Ha and is located on Hook Lane, a country lane between the villages of Woodgate and Aldingbourne, approximately 7.0 km west of the centre of the city of Chichester. The main body of the site is roughly divided into two sections; the western section of the site consists of a residential bungalow with associated access and gardens; the eastern section consists of an improved grassland field. The site is enclosed by gappy mixed-species hedges; scrub and treelines and is bordered by Hook Lane to the west; a patch of scrubby woodland to the east; residential dwellings with extensive gardens to the north and south of the western section; and a new housing development to the north of the eastern section.

Existing Site Vegetation

- 2.2 The bulk of the vegetation consists of overgrown garden trees. These are mainly large Monterey cypresses and are of low-moderate value. Areas of shrub and scrub of low value line the boundaries, with an old remnant hedge lining the northern boundary. Small poor-quality fruit trees are also present within the garden. A small number of moderate and high-value native ash and oak trees are also present within the boundary vegetation.
- 2.3 No Trees are protected by *Tree Preservation Orders* within or adjacent to the site.

3.0 DEVELOPMENT PROPOSAL

- 3.1 The scheme proposals are for the construction of nine detached dwellings on the site; this would involve the demolition of the existing dwelling to accommodate the access road, which would run through the centre of the site. The houses would be accompanied by soft landscape gardens as well as parking areas and garages / car barns.

4.0 ARBORICULTURAL IMPACT ASSESSMENT

Effects of Development Proposals on Existing Vegetation

- 4.1 The proposals have been designed to minimise the impact upon vegetation within the site and avoid removal of existing trees unless absolutely necessary. Due to their size and respective RPAs it has been determined that retention of the large Monterey cypresses on the southern border of the site would be both unfeasible and undesirable in terms of visual amenity and ecology. The large trees along the northern boundary have been retained through careful design, to preserve the screening to the north of the site. Moderate and high value native trees have been proposed for retention wherever possible, no native trees of moderate or high value proposed for removal. The remaining vegetation would be retained as useful boundary screening and wildlife habitat; this vegetation is already part of the garden boundary and as such its function and any future pressure to remove it would not be altered.

4.2 The development proposals would involve the following site operations that could impact upon the existing trees:

- *Contractor movements; site access and operations; storage and compound;*
- *Removal of Existing Vegetation not for Retention;*
- *Construction of New Dwelling; Construction of Hard Surfaces;*
- *Ground Work / General Site Operations;*
- *Implementation of Soft Landscape Planting and Fencing;*
- *Removal of protective measures.*

Tree Retention, Protection and Removal

4.3 In total, 5 no. trees require removal due to poor condition. This vegetation is unviable for retention and is proposed for removal regardless of the proposals.

4.4 A further 7 no. trees and 2 no. sections of hedge would require removal to accommodate the design proposals. Of these trees, two are considered of moderate value. These two trees are large Monterey cypresses, whose only real value lies in their size, maturity and the visual screening they provide.

4.5 The following tree surgery works are proposed to enable the proposed development and site construction access:

- *T08 – Cupressus macrocarpa; Category B; Crown-reduction of 4.7 m to the south;*
- *T10 – Cupressus macrocarpa; Category B; Crown-reduction of 3.6 m to the south;*
- *T15 – Quercus robur; Category B; Crown-reduction of 4.6 m to the south;*
- *SH27 – Prunus sp.; Category C; Pruning-back of northern aspect to site boundary.*

4.6 The access road encroaches into the RPAs of several category B trees along the northern boundary. In the absence of mitigation, the construction of the access road would likely cause the decline and eventual failure of the trees through root damage. The trees are proposed for retention. No-dig cellular construction and manual excavation of the proposed access road would be utilised to ensure that tree roots within the proposed construction area are not damaged by deep foundations, and that the ground is not compacted. An operation zone would surround the construction area to ensure that the surrounding ground is not compacted by construction traffic.

- 4.7 All trees; hedges; and shrubs proposed for retention shall be protected through the installation of Tree Protection Barriers. Where possible these shall protect the entire RPAs of trees. Where this is not possible for access reasons, the areas of soft ground within RPAs shall be protected within operation zones with appropriate ground protection measures.

Impact of Loss of Existing Trees

- 4.8 The proposals do not seek to remove significant areas of boundary vegetation, with removal largely focused on ornamental species or small individual trees and trees providing screening along the northern boundary retained and protected. The loss of several large trees would alter the appearance of the site at a higher level but would not significantly open the site up to views, due to the presence of further vegetation behind.

Tree Loss Mitigation Measures

- 4.9 The tree protection measures proposed would mitigate the impact upon tree roots of moderate-value trees. The loss of trees would be compensated for through the planting of new trees, new native hedge and shrub planting along the boundaries of the site. The planting would create useful ecological corridors running east-west along the site boundaries. It would increase the diversity of native planting and enhance the ecological value of the site, in contrast to the overall low value of the existing tree species. These measures are considered to mitigate more than adequately for the loss of vegetation, and would result in a net gain in arboricultural; amenity; and ecological terms over the medium-long term.

5.0 ARBORICULTURAL METHOD STATEMENT

Protection and Retention of Existing Habitats – Scattered Trees

- 5.1 The Contractor shall exercise extreme care when performing operations beneath the canopy of existing mature trees and vegetation designated for protection and avoid at all times damage to the roots, trunk and branches. The Contractor shall train all members of the construction workforce operating within the proximity of valued habitats and make such persons aware that there shall not be the following operations undertaken within the Protected areas:

- *Dumping of spoil or rubbish, excavation or disturbance of topsoil, parking of vehicles or plant, storing of materials or placing of temporary accommodation within an area which is the larger of the branch spread of the tree or an area with a radius of half the tree's height, measured from the trunk, and within the specified Root Protection Areas;*
- *Roots exceeding 25 mm in diameter must not be severed. If unintentionally severed; notice shall be given, and specialist arboricultural advice sought;*
- *Changes to the level of the ground within the specified Root Protection Areas;*
- *Vegetation clearance should take place outside the bird nesting season (nesting season: March-September inclusive) or alternatively under a watching brief from a suitability qualified ecologist.*

Contractor Movements; Site access and operations; Storage and Compound Areas

- 5.2 The Contractor Site Compound shall be located outside of any prescribed tree Root Protection Area and shall be permitted for the storage and securement of materials only within a temporary compound. The compound shall be fenced (*2.0m minimum height Heras Weld Mesh Fencing*) and shall allow designated contractor access without obstruction for construction vehicles entering the site.

- 5.3 The compound area shall be located so as to not incur damage or injury to the root systems or canopy of any existing trees or vegetation within or adjacent to the site, in accordance with *BS 5837:2012 – 'Trees in Relation to Design, Demolition and Construction – Recommendations'*. All site operations associated with the usage of the compound area shall be undertaken with due care and attention so as to negate damage of the surrounding environment.
- 5.4 All site operations and construction procedures for the duration of the construction period shall seek to protect the existing site vegetation and root protection areas in accordance with *BS 5837:2012*.

Removal of Existing Vegetation

- 5.5 All existing trees to be designated for removal are to be removed in accordance with the *LLD1680-ARB-DWG-002 – Tree Retention and Protection Plan*. All tree work and removal shall be carried out in accordance with *BS 5837:2012*. Trees designated for removal and felling shall be clearly marked on site with white paint. Prior to the removal and felling of trees, the required work and tree positions shall be agreed on site with the Landscape Architect / Arboricultural Consultant. Trees shall be felled prior to the erection of the Tree Protective Fencing. Care should be taken during the tree removal process to avoid any damage to any trees which are designated to be retained.
- 5.6 Stumps shall be removed and cut away so that the top of the stump shall be at least 450 mm below the final topsoil level in order that the site can be reinstated in accordance with the existing site levels. Stumps are to be treated with an approved herbicide to be agreed with the Landscape Architect. Where the depth is greater than 450 mm the areas shall be backfilled with topsoil to the required level.
- 5.7 The removal of shrub or scrub material within the Root Protection Area of any tree to be retained shall employ a Manual Removal method; the use of hand tools shall be used in order to maintain the ground surface of the Root Protection Area and reduce any damage to existing tree roots within the protected root zone. Adjacent trees shall not be utilised as anchors or levers to facilitate the removal of adjacent vegetation.
- 5.8 Vegetation clearance to site boundaries should take place outside the bird nesting season (*nesting season: March-September inclusive*) or alternatively under a watching brief from a suitability qualified ecologist.

Tree Surgery

- 5.9 Tree surgery works are proposed and detailed within the *LLD1680-ARB-SCH-001 – Existing Tree Schedule*. Any significant defects found in the trees during the course of the scheduled work shall be reported to the Landscape Architect / Arboricultural Consultant. All scheduled and arising tree work shall be undertaken by an approved and qualified tree surgeon in accordance with *BS 3998: 2010 'Tree Work: Recommendations'*. Care should be taken to avoid damage to neighbouring trees to be retained. Branches in confined spaces shall be removed and taken down in sections. All arisings shall be transported and disposed of away from site to the Contractor's tip

Tree and Vegetation Management

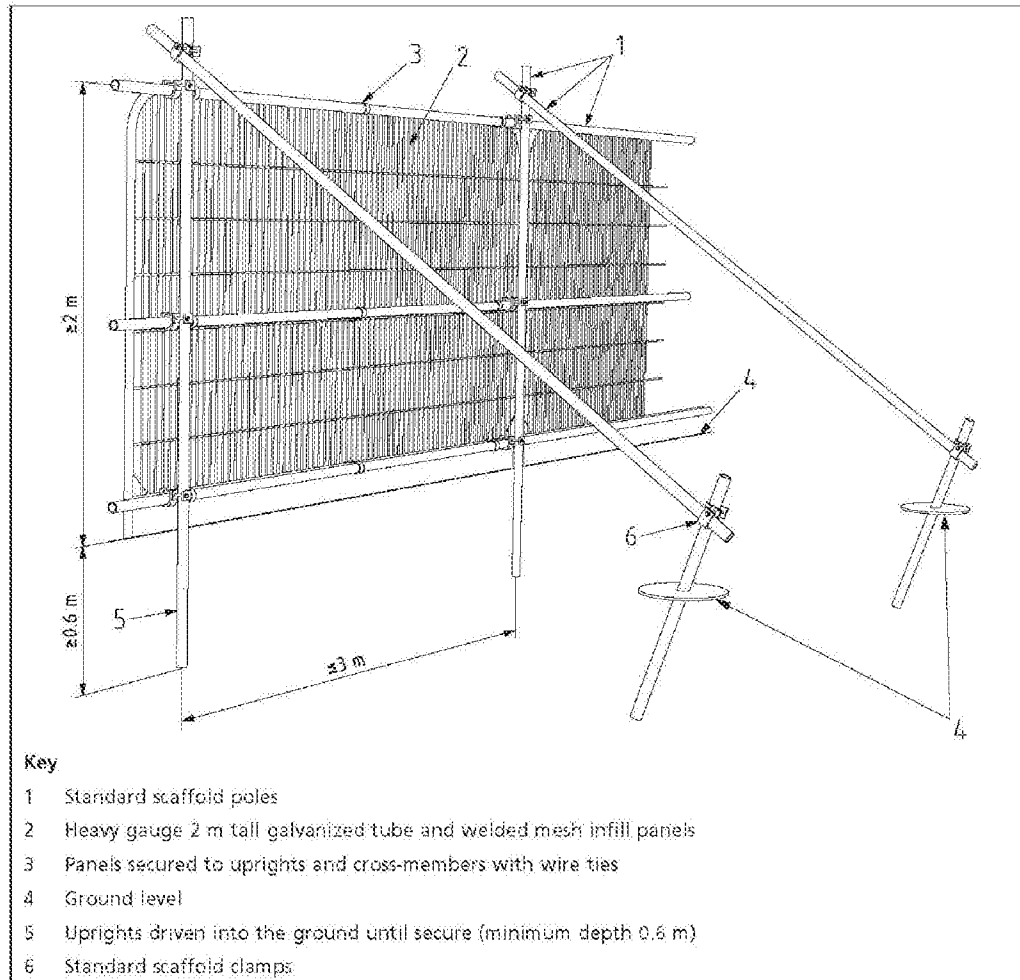
- 5.10 For Tree and Vegetation Retention and Removal Proposals refer to the accompanying *LLD1680-ARB-SCH-001 - Existing Tree Schedule*.

Protection and Retention of Existing Vegetation

- 5.11 The Contractor shall exercise extreme care when performing operations beneath the canopy of existing mature trees and vegetation and within the specified Root Protection Areas designated for protection and avoid at all times damage to the roots, trunk and branches of existing trees proposed to be retained.
- 5.12 All excavations, cultivation and grading beneath the canopy of existing mature trees and within the specified Root Protection Areas of the existing trees and vegetation shall be carried out using hand tools, taking care not to damage or disturb any existing tree roots.
- 5.13 All trees to be retained on site shall be protected with Tree Protective Barriers, consisting of fencing erected around the area of mature vegetation in accordance with *BS 5837: 2012 'Trees in Relation to Design, Demolition and Construction - Recommendations'*. The fencing shall be installed, protected and maintained during the main works by the Contractor who shall be responsible for protecting any area beneath the canopy of the existing trees and within the specified Root Protection Areas.

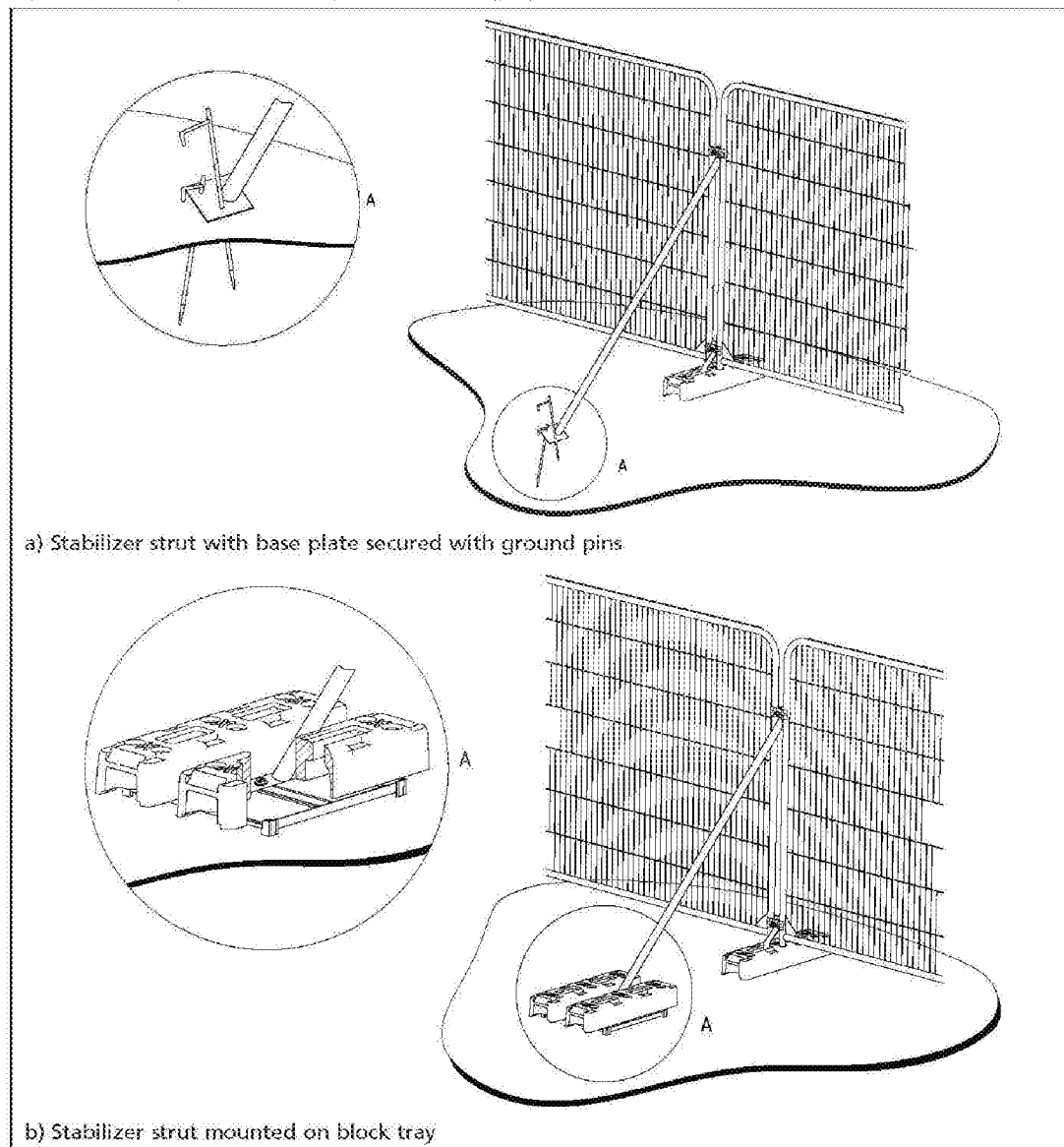
- 5.14 The installed protective barriers shall be 2.0 metres minimum height 'Heras' Welded Wire Mesh Fencing secured to a scaffolding framework, set into the existing ground, and positioned to the outside edge of the existing Tree Root Protection Area. Where existing ground conditions do not allow for the above method, the Welded Wire Mesh Fencing Panels may be mounted on concrete or rubber feet, supported on the inner side with stabilizer struts fixed on a block tray or secured with ground pins; and positioned as specified. The fencing should be strained, and fixed to fences, walls, knee rails where possible to provide a complete protected area (*refer to Figure 2 and Figure 3 below; © British Standards Institute 2012*). All tree protection to be in accordance with BS 5837; 2012; '*Trees in Relation to Design, Demolition and Construction - Recommendations*' set out as specified within drawing LLD1680-ARB-DWG-002 – *Tree Retention and Protection Plan*.

Figure 2 Default specification for protective barrier



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Figure 3 Examples of above-ground stabilizing systems



- 5.15 Day-glo ribbons shall be maintained during the main works by the Main Contractor attached to the top of the fencing to ensure that the fencing is clearly visible during the works. The tree protection fencing shall display all-weather notices stating '*Construction Exclusion Zone – NO ACCESS*'.
- 5.16 All such barriers shall be maintained for the full contract period. All necessary excavations, earthworks and cultivation beneath the canopy spread of any existing tree; shrub or hedge shall be undertaken by hand. *No commencement of construction operations should occur prior to the inspection of the installed tree and ground protection by the Landscape Architect / Arboricultural Consultant.* Repositioning of the protective barriers during the course of the contract as the contract works progress shall need prior agreement with the Landscape Architect / Arboricultural Consultant.
- 5.17 Within the protected areas the following activities must not take place;
- ***No vehicles are to be used in the fenced off areas;***
 - ***No materials are to be stockpiled or stored;***
 - ***No chemicals are to be stored;***
 - ***No excavation or increase in the soil level shall occur;***
 - ***No fires shall be lit on site.***
- 5.18 Existing service runs should always be used wherever possible. Where the proposed routing of services impinges upon the root protection area of any existing tree to be retained, the routing shall be undertaken in accordance with a manual excavation method; to be carefully hand dug and routed most directly to and from the exterior of the tree root protection area radius. Services are to be trenched and routed together wherever possible to create the minimum impact upon the tree roots of the existing trees to be retained. Trench excavation across the tree root protection area radius beside an existing tree shall be avoided, whereby tree roots will become severed. Where services are to cross the edge of an existing tree root protection area, they should be routed through existing tree roots, via a hand dug ducting sleeve, avoiding damage to existing tree roots within the root protection zone.
- 5.19 Phasing of the construction works should be considered to minimise the requirement for ground protection and avoid vehicular movements over unmade ground.

5.20 Arboricultural supervision is recommended at the following stages of work;

- *Installation / checking of tree protection measures;*
- *Method statement briefing for site staff;*
- *Checking of ground protection measures prior to first use;*
- *Specification and Installation of No-dig Raft Construction;*
- *Removal of tree protection measures.*

Ground Protection Measures – Operation Zone During Construction

5.21 While construction work is commencing on the proposed highway access and pedestrian footpath within retained tree RPAs, the existing ground levels within the RPAs of trees to be retained are to be protected.

- *For pedestrian access only, protection should consist of a single thickness of scaffold boards placed either on top of a driven scaffold frame, so as to form a suspended walkway, or on top of a compression-resistant layer (100 mm depth of woodchip), laid onto a geotextile membrane;*
- *For pedestrian-operated plant up to a gross weight of 2 t, proprietary, inter-linked ground protection boards placed on top of a compression-resistant layer (150 mm depth of woodchip), laid onto a geotextile membrane should be used;*
- *For wheeled or tracked construction traffic exceeding 2 t gross weight, an alternative system (e.g. proprietary systems or pre-cast reinforced concrete slabs) to an engineering specification designed in conjunction with arboricultural advice, to accommodate the likely loading to which it will be subjected.*

5.22 The ground protection should be in place for the duration of the construction period in accordance with *BS 5837:2012 - 'Trees in Relation to Design, Demolition and Construction - Recommendations'*. When construction work is completed the ground protection can be removed.

Manual Excavation

- 5.23 Where the development proposals necessitate the tying in and re-grading of existing and proposed levels for vehicular access or include the implementation of underground services such as services, cables, pipe work; a '*Manual Excavation Method*' must be assumed using hand held tools to minimise the impact on existing trees. The excavation should be executed with due care and attention not to disturb exposed unmade ground and any existing tree roots present within it.
- 5.24 Roots over 25mm diameter or those occurring in clumps must not be severed without Arboricultural advice. Tree roots below such size should be cut cleanly using specialised hand tools only and to the minimum extent to allow provision. All exposed roots should be immediately wrapped in dry Hessian to avoid drying. On completion of the excavation and at the earliest opportunity the wrapping should be removed, and the roots surrounded and protected with a loose granular fill (clean washed sharp sand or topsoil free of contaminants or matter injurious to rooting systems) prior to backfilling the excavation to the desired levels.

New Surfacing and Means of Access within Root Protection Areas

- 5.25 Where new surfacing and means of access within Root Protection Areas have been proposed, the construction method should be implemented to avoid intrusion into or change of existing ground levels within the tree Root Protection Areas of existing trees.
- 5.26 A 'No Dig' Construction should allow for the paving of specified areas within or adjacent to tree Root Protection Areas to be constructed without disturbance to root systems.
- 5.27 Ground levels should not be raised or lowered within the existing tree Root Protection Areas. A permeable surface treatment should be laid over the existing ground allowing water to permeate, and allow for nutrient access and gaseous exchange.
- 5.28 The construction area / existing ground within the existing tree RPA is to be overlain with a geo-membrane and covered with a granular fill of no fines - open graded aggregate Type 3 incorporated within a 3-dimensional cellular confinement system. This should ensure a minimum supportive depth of 200mm for vehicular access / 100mm for pedestrian footpaths, above which a permeable surface treatment should be laid. The pH of the aggregate must be near neutral to avoid damage to pH-sensitive tree species.

- 5.29 Existing paving material overlying the RPA of existing trees should be left undisturbed during the construction period in order to protect the Root Protection Area of the tree to be retained. The existing paving/ hard standing can then be reused as a base for the proposed surfacing, subject to Engineer's specification.
- 5.30 All retaining kerb restraints / edge supports are to be secured above ground and no general excavation within existing tree RPAs should be permitted.
- 5.31 Where stepped or ramped access have been proposed within the RPAs of existing trees, this should be constructed with limited disturbance to the existing ground. A raised frame supported upon posts concreted in the ground is recommended. The holes for footing to posts should be dug out using handheld tools. The sides of the holes should be lined with an impermeable membrane to prevent the caustic and toxic effects of wet cement in the concrete from damaging tree roots.

Services in Proximity to Existing Trees

- 5.32 The location and direction of new services should be designed to allow for services to be routed away from the RPAs of existing trees. Existing service runs should always be used wherever possible.
- 5.33 Where the proposed routing of services impinges upon the tree RPA of any existing tree to be retained; the routing should be undertaken as a minimum standard in accordance with *NJUG Volume 4, issue 2: 'Guidelines for the Planning, Installation and Maintenance of Utility Apparatus in Proximity to Trees'*.
- 5.34 A 'Manual Excavation Method' to be followed to carefully hand dug and route the apparatus most directly to and from the exterior of the RPA radius.
- 5.35 Services are to be routed together wherever possible to create the minimum impact upon the roots of the existing trees to be retained. Trench excavation across the tree Root Protection Area radius beside an existing tree should be avoided, whereby tree roots would become severed. Where services are to cross the edge of an existing RPA, they should be routed via a hand dug ducting sleeve, avoiding damage to roots.



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