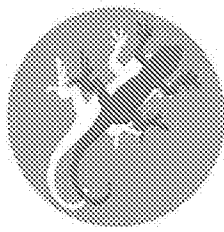


reside.

LAND AT FONTWELL AVENUE
ARBORICULTURAL IMPACT ASSESSMENT
8th NOVEMBER 2021



LIZARD

Landscape Design and Ecology

ARBORICULTURAL IMPACT ASSESSMENT AND METHOD STATEMENT

LAND AT FONTWELL AVENUE
EASTERGATE, WEST SUSSEX

Reside Developments Ltd

Prepared by	GS
Checked by	CO
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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 8 Dwellings on Land at Fontwell Avenue, Eastergate, West Sussex.
- 1.2 The Arboricultural Impact Assessment and Method Statement report provides assessment 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 8 Dwellings on Land at Fontwell Avenue has been prepared by George Sayer (MC IEE M M ArborA); Senior Ecologist 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 LLD2494-ARB-DWG-001 - Tree Constraints Plan, LLD2494-ARB-SCH-001 - Existing Tree Schedule and LLD2494-ARB-DWG-002 - Tree Retention and Protection Plan.

Existing Site Information

- 1.5 The site consists of an area of equestrian land to the west of Fontwell Avenue. The site contains a sand school, small areas of amenity grassland and several stable buildings. The site covers c. 0.38Ha.

Existing Site Vegetation

- 1.6 The site is lined to the south, east and west with mixed native treelines containing species such as oak, ash, field maple and sycamore. The western boundary is largely formed of sycamore and poplar of moderate value. Several mixed hedges are also present within the site forming minor boundary features. Just off-site to the north is a pair of beech trees which have recently been proposed for TPO protection.

Development Proposal

- 1.7 The proposals consist of the construction of 8no. dwellings on the site, with the proposed access coming from the approved development to the north-west corner (Arun District Council Ref: BN/50/20/PL).

2.0 ARBORICULTURAL IMPACT ASSESSMENT

Impacts of Development Proposals on Existing Vegetation

- 2.1 The proposed development could have an adverse impact on the existing trees by removing them to facilitate the development, or in the future, by adversely affecting their potential for retention through disturbance in Root Protection Areas (RPAs) or through post development pressures to prune or remove.
- 2.2 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;
 - ¿ Plant, vehicle and material cleaning;
 - ¿ Installation of construction elements; ground work / general site operations;
 - ¿ Construction in proximity to trees;
 - ¿ Demolition/ removal of existing structures;
 - ¿ Installation of services and underground apparatus;
 - ¿ Future maintenance;
 - ¿ Removal of protective measures.
- 2.3 The proposals have been designed to eliminate negative impacts upon trees as far as possible. The buildings have been sited to avoid RPAs and allow trees room to grow further. No tree removal is required for the proposals with a small section of ornamental hedgerow being removed. The proposals include a landscape scheme which provides new tree planting on the site.
- 2.4 The proposed measures accord with the recommendations set out within the Arun District Council Supplementary Planning Document: Open Space, Playing Pitches, Indoor And Built Sports Facilities (January 2020). As such the proposals will result in an increase in arboricultural amenity at the site.

Tree Retention and Protection

- 2.5 The existing vegetation of note is largely to the boundaries; the majority of the tree RPAs and canopies will be entirely protected through the use of tree protective barriers. Some minor RPA encroachments will be required to construct the site access, and the demolition of several outbuildings within RPAs will be required.

Disturbance to Root Protection Areas

- 2.6 Where the proposed access reaches the site, the route of the road runs slightly into the RPA of the large poplar T05 and the wooded shaw TL06. The end of the highway access also encroaches very slightly into the RPA of the eastern treeline trees. In the absence of mitigation, these works could cut significant roots and remove an area of soil to allow for subbase, causing the failure of the poplar, and a decline in this section of treeline, resulting in a small gap within this green corridor.
- 2.7 To the south-west of the site, it is proposed to extend off an existing access track to create access to a garage. This would be created using permeable paving for drainage purposes. The trees whose RPA the works would encroach upon are on the other side of the track and limited rooting is anticipated in this area. Nonetheless, in the absence of mitigation, works might harm roots and cause minor harm to the high value trees.
- 2.8 In order to avoid the above impacts, this small section of road will be constructed using a :no-dig~ methodology, with open-graded aggregate retained within a load-spreading geocellular matrix. This will spread the load of vehicles and remove the need for excavation into the soil, whilst allowing continued air and gas exchange and the continued growth of roots within the surroundings. For the extension to the southern track, wherever possible here (considering the need to tie-in to existing track levels) a :no-dig~ solution will be utilized and manually tied-back in to the existing track.

- 2.9 Several outbuildings require demolition within existing tree RPAs; these structures are not very substantial and their removal is considered feasible; however, in the absence of mitigation, improper demolition might result in debris colliding with trees, and roots surrounding the structures being crushed or cut. To minimise these risks, where possible below-ground foundations will be left in-situ. Where these need removal, demolition shall be undertaken manually in a 'top-down, pull-back' manner, with all materials being pulled away from trees and the roof structure etc. being removed first. Any foundations or concrete bases present would be minimal and could be removed manually with a manual breaker at most. Any voids left shall be backfilled with inert topsoil or aggregate to allow roots to colonise. Tree protective barriers would need to surround the rear of the structures to allow demolition, but should subsequently be moved further into the site where possible to protect more of the RPAs.
- 2.10 The routing and installation of services has been designed to avoid the RPAs of trees. Connections to existing services would be required which would result in minor incursions into RPAs. In the absence of mitigation, large incautious excavations or trenches might result in cutting of roots and loss of rooting areas, resulting in the decline of trees. To minimise the risk, any excavations for services within RPAs will be undertaken either using a specialist technique such as boring, or shall be undertaken manually under arboricultural supervision. Solutions such as air spading shall be utilised to minimise the harm to roots. Services shall be sleeved and routed around any major roots to avoid the need to cut or otherwise damage these.

Construction in Proximity to Existing Trees

- 2.11 The proposals have been designed to retain space between trees and buildings to minimize risks of construction in proximity to trees.
- 2.12 The resulting proximity of the new structure is likely to result in pressures on the existing trees. This would include:
- ¿ ongoing need to prune the canopy back to prevent damage to the building and facilitate maintenance of the building façade and glazing;
 - ¿ altered soil conditions including access to water and gas exchange, resulting from proposed surfacing and construction of foundations;
 - ¿ shading of the canopy of existing trees.

2.13 The pressures would be greatest to the east where the trees are already constrained by Fontwell Avenue, and where dwellings are proposed relatively close to trees. The trees are of moderate value, and would continue to grow in the future. The proposals allow sufficient open space for the roots to grow. There is some space for canopies to grow; however, it is likely that residents would not wish the trees to increase much beyond their current size due to shading and leaf litter concerns. The trees line the road with even domed crowns which could easily be maintained at their current size. This would not be a detrimental impact as the trees are reaching a size whereby their crowns are enclosing the road and issues of shading, leaf litter, falling deadwood are likely to increase.

2.14 Where construction of the road encroaches on or is in close proximity to RPAs, vehicular access to build said road might cause soil compaction and crushing of tree roots, resulting in a decline of the trees. To avoid this harm, an operation zone with ground protection measures will be implemented to enable access over these areas without harm.

Tree Pruning, Canopy Reduction or Lifting

2.15 No tree surgery works are currently required for the proposals; as discussed in 2.9, future works to maintain tree canopies are likely to be required but are unlikely to be detrimental to the trees or local amenity.

Removal of Trees and Vegetation

2.16 The proposals require the removal of an ornamental hedge of limited value, and a very small (2m) section of a beech hedge. Neither hedge provides significant connectivity or visual amenity.

Tree Loss Mitigation Measures

- 2.17 The very minor loss of hedges will be more than compensated for through the planting of new trees and native shrubs. The proposed landscape scheme would enhance the site's arboricultural and ecological value as well as providing visual amenity to residents, and screening the development from the road.
- 2.18 The proposals accord with the recommendations provided both within the BS:5837 and within the Arun District Council Supplementary Planning Document: Open Space, Playing Pitches, Indoor And Built Sports Facilities (January 2020) and are considered to provide a net enhancement in arboricultural terms.

3.0 ARBORICULTURAL METHOD STATEMENT

Protection and Retention of Existing Trees and Habitats

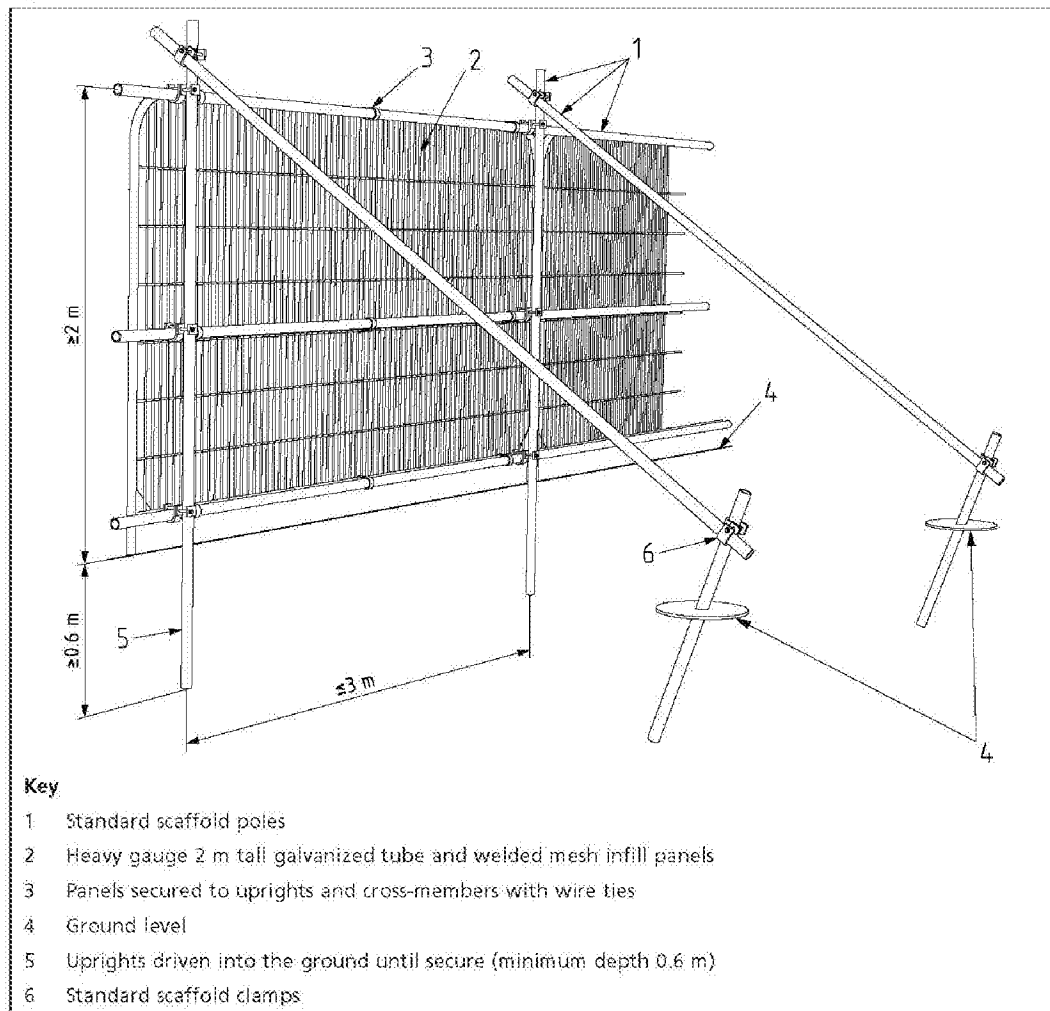
- 3.1 The Contractor shall exercise due care when performing operations beneath the canopy of existing mature trees and vegetation designated for protection and avoid at all times damage to the roots, trunk and branches.
- 3.2 The Contractor shall train all members of the construction workforce operating within the proximity of valued habitats and make such persons aware that there shall not be, without having sought prior notification, 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;
 - ¿ Severance of roots exceeding 25 mm in diameter. 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 to site boundaries during the bird nesting season (nesting season: March-September inclusive). Any clearance must be undertaken outside nesting season or alternatively under a watching brief from a suitability qualified ecologist.

Tree Protection Barriers

- 3.3 The Contractor shall exercise due 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.
- 3.4 All trees to be retained on site shall be protected with barriers erected around the area of mature vegetation in accordance with BS 5837; 2012; 'Trees in Relation to Design, Demolition and Construction - Recommendations'. The barrier 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.

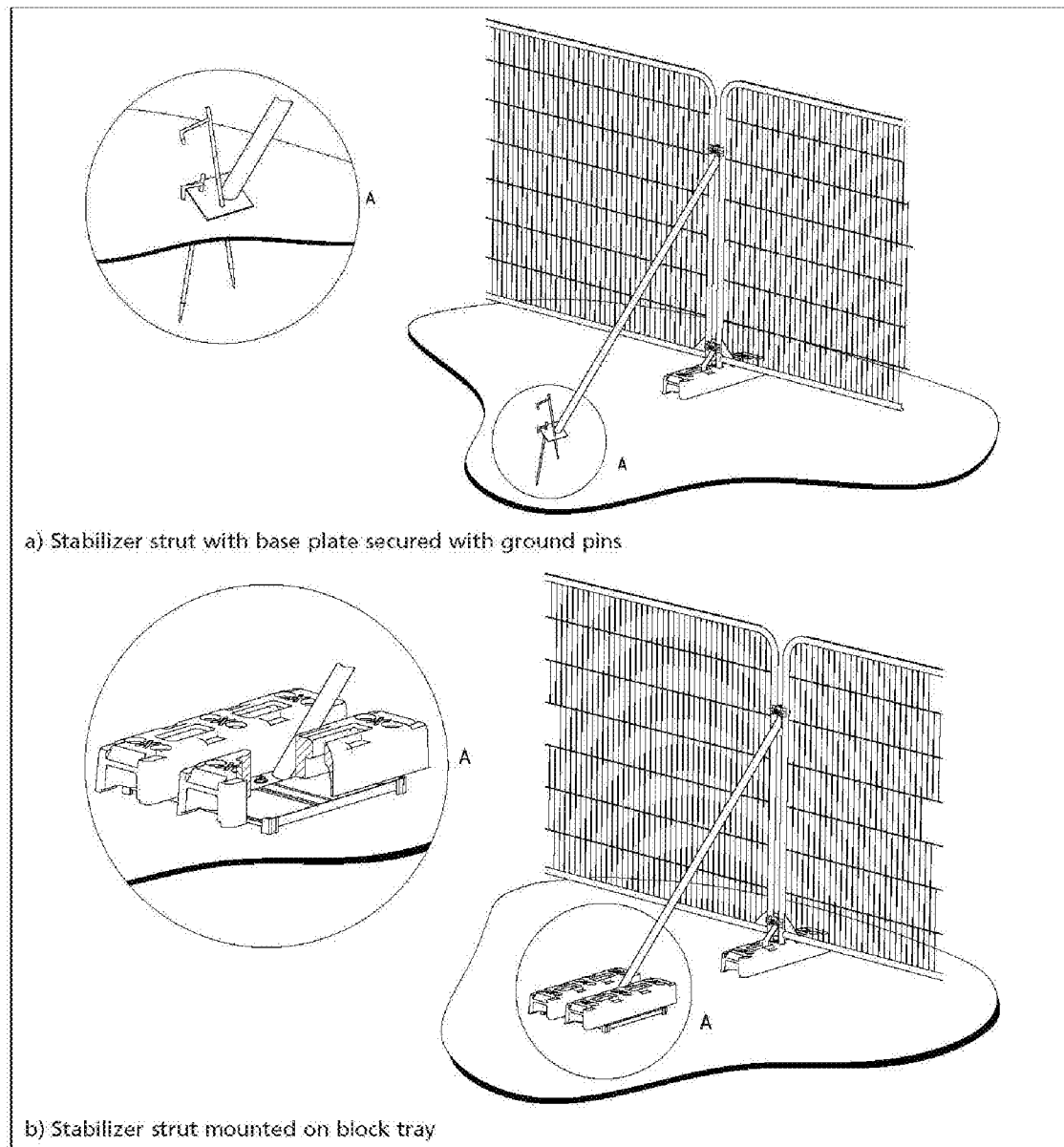
- 3.5 The installed protective barrier shall be 2.0 metres minimum height 'Heras' Welded Wire Mesh Fencing secured to a scaffolding framework, set into the existing ground, and positioned to the outside edge of the existing Tree Root Protection Area. Where existing ground conditions do not allow for 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 barrier 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; Ø 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 drawings LLD2494-ARB-DWG-002 - Tree Retention and Protection Plan.

Figure 2 Default specification for protective barrier



© The British Standards Institution 2012

Figure 3 Examples of above-ground stabilizing systems



- 3.6 Day-glo ribbons shall be maintained during the main works by the Main Contractor attached to the top of the barrier to ensure that the fencing is clearly visible during the works. The tree protection barrier shall display all-weather notices starting :Construction Exclusion Zone - NO ACCESS :
- 3.7 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 / Arboricultural Consultant. Repositioning of the protective barrier during the course of the contract as the contract works progress shall need prior consultation with the Landscape / Arboricultural Consultant.
- 3.8 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.

Ground Protection Measures

- 3.9 Where construction operations require activity within the exposed unmade ground of any existing tree Root Protection Area, a temporary ground protection measures should be implemented allowing for access, limited traffic and operations during the construction period.
- 3.10 A temporary 'Ground Protection Zone' shall allow for the passage of construction vehicles to the site and should be implemented without intrusion or change of existing ground levels within the defined tree Root Protection Areas of existing trees. The ground protection measures should be implemented prior to the main construction works.
- 3.11 The temporary ground protection measures should remain in place for the duration of the construction period.
- 3.12 Ground protection must be fit for the purpose of supporting the level of traffic entering or using the site within RPAs without being distorted or causing compaction of underlying soil. The appropriate solutions include:

- ¿ For pedestrian movements or the erection of scaffolding within the RPA – single layer of scaffold boards either on top of a driven scaffold frame, to form a suspended walkway, or on top of a compression-resistant layer, e.g. 100 mm depth of woodchip laid onto a geotextile;
- ¿ For pedestrian-operated plant (up to a gross weight of 2 t) – proprietary, inter-linked ground protection boards or panels laid on top of a compression-resistant layer, e.g. 150 mm depth of woodchip laid onto a geotextile membrane;
- ¿ For vehicular access (exceeding a gross weight of 2 t) – an alternative system subject to engineer's specification appropriate for expected loads, designed in consultation with the project Landscape/ Arboricultural Architect.

3.13 The surface material should be contained with edging type requiring no excavation. Where proposed levels of any new access routes do not ascertain minimum required depth for installation of traditional kerbs, other solutions should be sought:

- ¿ Timber edging boards and spikes would be considered appropriate for pathways;
- ¿ Timber sleepers should be used as a kerb edge restraint for vehicular areas and anchored with non-intrusive pinning (such as road pins) in order to maintain the existing levels within the specified Root Protection Areas.

Manual Excavation

3.14 Where the development proposals necessitate the removal of buildings and structures or the routing of services within RPAs, 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.

- 3.15 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.
- 3.16 Where possible below-ground foundations will be left in-situ. Where these need removal, demolition shall be undertaken manually in a 'top-down, pull-back' manner, with all materials being pulled away from trees and the roof structure etc. being removed first. Any foundations or concrete bases present would be minimal and could be removed manually with a manual breaker at most. Any voids left shall be backfilled with inert topsoil or aggregate to allow roots to colonise.

New Surfacing and Means of Access within Root Protection Areas

- 3.17 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.
- 3.18 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.
- 3.19 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.
- 3.20 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.

- 3.21 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.
- 3.22 All retaining kerb restraints / edge supports are to be secured above ground and no general excavation within existing tree RPAs should be permitted.
- 3.23 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

- 3.24 The location and direction of new services shall 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.
- 3.25 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 NJ UG Volume 4, issue 2: 'Guidelines for the Planning, Installation and Maintenance of Utility Apparatus in Proximity to Trees'.
- 3.26 A 'Manual Excavation Method' to be followed to carefully hand dig or air spade and route the apparatus most directly to and from the exterior of the RPA radius. Services shall be sleeved and routed around any major roots to avoid the need to cut or otherwise damage these.
- 3.27 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 or air spaded ducting sleeve, avoiding damage to roots.

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

- 3.28 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.
- 3.29 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.
- 3.30 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.

Tree Surgery

- 3.31 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.

Removal of Existing Vegetation

- 3.32 All existing trees to be designated for removal are to be removed in accordance with the LLD2494-ARB-DWG-001 - 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.
- 3.33 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.
- 3.34 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.
- 3.35 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.

Report Presented by:

Lizard Landscape Design and Ecology



Reside Developments Ltd