Foundations within RPAs

The use of traditional strip foundations can result in excessive root loss and as such should be avoided. Foundation design should aim to minimise the adverse impacts upon trees and should include particular attention to the existing soil levels and proposed finish levels (whilst considering cross sectional details). Site specific and specialist advise should be sought from the Project Engineer and Arboriculturist.

Root damage can be minimised by using :

-- Piles combined with site investigations to determine their optimal location whilst avoiding significant roots in excess of 25mm diameter.
-- Beams laid at or above the existing soil level and cantilevered where necessary to avoid roots identified by site investigations.

Where a slab for minor structures (e.g., a shed base) is to be formed within the RPAs of retained trees, it should bear directly on the existing ground level and should not exceed an area greater than 20% of the existing unsurfaced ground.

Slabs for larger structures (e.g., dwellings) should be constructed with a ventilated air space between the underside of the slab and the existing soil surface. This is to enable gas exchange and venting through the soil surface. In such cases, a specialist irrigation system should be employed (e.g., roof run-off redirected under the slab) The design of the foundations should take into account the effect on the load bearing properties of the underlying soil from the redirected roof run-off. Approval in principle for foundations that relies on topsoil retention and roof run-off under the slab should be sought from the building control authority prior to this approach being relied upon.

Where pilling is to be installed near to trees, the smallest practical pile diameter is to be used, as this reduces the possibility of striking roots and reduces the size of the rig required to sink the piles. If a pilling mat is required, this should conform to the parameters for ground protection. Use of the smallest practical pilling rig is also important where pilling within the branch spread is proposed, as this can reduce the need for access facilitation pruning. The pile type should be selected bearing in mind the need to protect the soil and adjacent roots from the potentially toxic effects of uncured concrete, e.g., sleeved bored piles or screw piles.

Hard Surfacing

Trees can be affected by construction within the RPAs either through the direct damage caused by the removal of roots or compaction of the rooting environment; or through secondary damage such as poisoning through leaks and spills (oils, fuels, etc.,) including such activities as de-icing (road salt, etc.,)

Proposed hard surfacing within the RPAs of retained trees is therefore to be designed so that it can be constructed above the existing soil level and minimise any adverse impacts upon the trees RPAs. As the use of traditional foundations and sub-bases can result in excessive root loss through the direct removal of roots during excavations and by compaction of the soil beneath the excavation; as such the 'traditional' methodology must be avoided.

When designing hard surfacing that is to be situated within the RPAs of retained trees, the design team need to pay particular attention to the proposed usage (pedestrian, domestic traffic, delivery vans, emergency services, HGVs, etc.,) the existing and proposed levels of hard surfacing and finished floor levels, edging types and details, proximity to tree trunks and surface rooting, contamination capture and SUDs, etc.,

Possible sub-bases (foundation systems) for new hard surfacing situated within the RPAs of retained trees could include:

-- A proprietary system such as a multi-dimensional confinement system (CellWeb TRP or similar);
-- Engineered solution such as a road deck, bridge, etc.,

An engineered solution is likely to require a level of excavation for site specific investigations to locate roots to aid in foundation design so that a suitable foundation can be designed to avoid roots and for the installation of the structure.

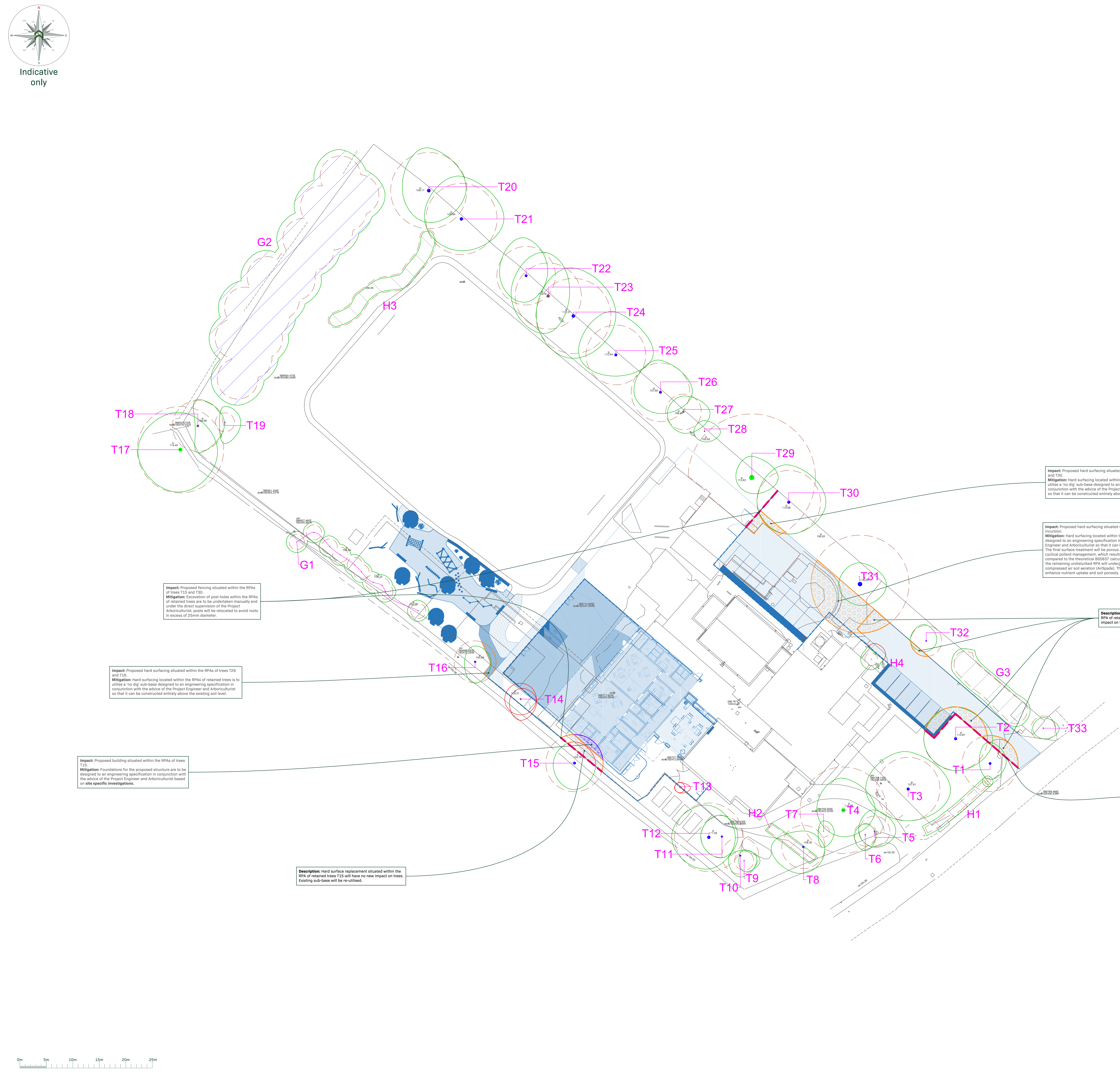
NB: The use of a multi-dimensional confinement system and or engineered solution will affect the finished levels of the hard surfacing by raising the levels and needs to be considered when designing foundations and setting the finished floor levels of adjoining buildings.

Fencing

Fence posts are to be located so that they will not damage or require the removal of roots in excess of 25mm diameter. This may require individual posts to be relocated which will increase or decrease the spacing between the bay lengths. All posts within the RPAs of retained trees are to be excavated manually under the direct supervision of the Project Arboriculturist, using handheld tools (spade, shovel, rabbiting spade, post hole digger) only. No mechanical equipment (handheld or plant mounted post borer) is to be used.

Arboricultural Method Statement

All tree works must be undertaken in accordance with British Standards. Please refer to the Tree Schedule, Arboricultural Method Statement & Tree Protection Plan, for full details of all surveyed trees and how the development maybe implemented without detriment to retained trees.



Impact: Proposed hard surfacing situated within the RPAs of trees T29 and T30.
Mitigation: Hard surfacing located within the RPAs of retained trees is to utilise a 'no dig' sub-base designed to an engineering specification in conjunction with the advice of the Project Engineer and Arboriculturist so that it can be constructed entirely above the existing soil level.

Impact: Proposed hard surfacing situated within the RPA of Tree T31 resulting in a 34% incursion.
Mitigation: Hard surfacing located within the RPA of this tree is to utilise a 'no dig' sub-base designed to an engineering specification in conjunction with the advice of the Project Engineer and Arboriculturist so that it can be constructed entirely above the existing soil level. The final surface treatment will be porous. This approach is further justified by the tree's cyclical pollard management, which results in a significantly reduced functional root volume compared to the theoretical BS5837 calculation. However, To offset the loss of open ground, the remaining undisturbed RPA will undergo soil amelioration via radial trenching or compressed air soil aeration (AirSpade). This will incorporate biochar and mycorrhizal fungi to enhance nutrient uptake and soil porosity.

Impact: Proposed fencing situated within the RPAs of trees T15 and T30.
Mitigation: Excavation of post holes within the RPAs of retained trees are to be undertaken manually and under the direct supervision of the Project Arboriculturist; posts will be relocated to avoid roots in excess of 25mm diameter.

Description: Hard surface replacement situated within the RPA of retained trees T1, T2, T31 and T32 will have no new impact on trees. Existing sub-base will be re-utilised.

Impact: Proposed hard surfacing situated within the RPAs of trees T29 and T16.
Mitigation: Hard surfacing located within the RPAs of retained trees is to utilise a 'no dig' sub-base designed to an engineering specification in conjunction with the advice of the Project Engineer and Arboriculturist so that it can be constructed entirely above the existing soil level.

Impact: Proposed building situated within the RPAs of trees T15.
Mitigation: Foundations for the proposed structure are to be designed to an engineering specification in conjunction with the advice of the Project Engineer and Arboriculturist based on **site specific investigations.**

Impact: Proposed fencing situated within the RPAs of trees T1 and T2.
Mitigation: Excavation of post holes within the RPAs of retained trees are to be undertaken manually and under the direct supervision of the Project Arboriculturist; posts will be relocated to avoid roots in excess of 25mm diameter.

Description: Hard surface replacement situated within the RPA of retained trees T15 will have no new impact on trees. Existing sub-base will be re-utilised.

Arboricultural Impacts

Impacts	No. of Trees
Trees to be removed	3
Groups / Hedges to be removed (Partial removal)	0 (0)
Trees with proposed incursions into the RPAs	7
Groups / Hedges with proposed incursions into the RPAs	0
Trees that require pruning	3
Groups / Hedges that require pruning	1
Trees to be transplanted	0
Groups / Hedges to be transplanted	0

Arboricultural Impacts

Ref.	Species	Proposed Structure	Incursion (%)
T1	Western red cedar	Fence	Insignificant
T2	Elm	Fence	Insignificant
T15	Common hawthorn	Building	7.9
T15	Common hawthorn	Fence	3.4
T16	Common whitebeam	Hard surfacing	16.9
T29	White willow	Fence	Insignificant
T29	White willow	hard surfacing	3.4
T30	Norway maple	Fence	Insignificant
T30	Norway maple	hard surfacing	5.9
T31	Weeping willow	hard surfacing	34.0

Tree Work Schedule

Ref.	Species	Works	Category
T13	Silver birch	Fell: Remove tree and remove stump	C1
T14	Common whitebeam	Fell: Remove tree and remove stump	C1
T15	Common hawthorn	Prune: Selective branch reduction pruning to the boundary line.	B1
T30	Norway maple	Prune: Crown lift to 3 m for fence line clearance	B1
T31	Weeping willow	Prune: Re-pollard	B1
H4	Privet	Prune: Reduce back to proposed fence line	C2

All tree work is to be undertaken in accordance with British Standards (BS)3998:2010 Tree Work - Recommendations. All arisings are to be removed and the site left as it was found. Care is to be taken to ensure that the ground around retained trees does not become compacted as a result of tree surgery operations. No equipment or vehicles such as (but not limited to) timber lorries, tractors, excavators, or cranes are to be parked or driven beneath the crowns of any retained trees to prevent subsequent compaction and root death.

No. Individual Trees Removed

U	A	B	C	V
0	0	0	2	0

No. Groups/Hedges/Woodlands Removed *( ) = Partial

U	A	B	C	V
0 (0)	0 (0)	0 (0)	0 (0)	0 (0)

Referenced Documents

Title:	Originator:	Drawing Number:	Key
Existing Ground Floor Plan	Footprint Architects	2425-FTP-XX-HS00-DR-A-1004	―
Proposed Site Plan	Footprint Architects	2425-FTP-ZZ-HS00-DR-A-1005	―

Rev:	Date:	Notes:
01	24/04/2026	Initial assessment.

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Client:
Stepnell

Drawing:
Arboricultural Impact Assessment

Project No.:	Drawing No.:	Revision No.:
43495563	AIA01	01
Date:	**Scale:**	**Drawn:**
Apr 2026	1:250@ A0	AOJ

Tree Key:

Tree/Group number:	1T	Tree Canopies:	◯	Trunks:	○
Root Protection Area:	◌	Ancient / Veteran Tree Buffer Zone:	●	Ancient woodland Extent (DEFRA):	◯
Category 'U' Tree Stems (BS5837):	●	Category 'U' Tree Groups (BS5837):	▨	Category 'A' Tree Stems (BS5837):	●
Category 'A' Tree Groups (BS5837):	▨	Category 'B' Tree Stems (BS5837):	●	Category 'B' Tree Groups (BS5837):	▨
Category 'C' Tree Stems (BS5837):	●	Category 'C' Tree Groups (BS5837):	▨	Category 'V' Tree Stems:	●
Category 'V' Groups:	▨	Basic Shading Arc:	◠	Trees to be Removed:	◌
Proposed Pruning:	- - - -				

All dimensions should be checked on site. No dimensions are to be scaled from this drawing.
Please notify us of any discrepancies found. Arbtech Consulting Ltd. cannot be held responsible for inaccuracies in the base drawing in which this plan is based.
This drawing is designed to reflect the principles of the layout or design only, and relates only to the protection of retained trees.
This drawing is not to be read as a definitive part of the engineering or construction designs or method statement. An architect or structural engineer should be contacted over any matters of construction, detailing or specification and for any standards or regulatory requirements relating to proposed structures, hard surfacing or underground services.
This drawing was produced in colour - a monochrome copy should not be relied upon.

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