Job No. 221282
Ref No. 221282 DOC LET 01
22nd October 2021

Structural Design Studio Ltd
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Structural Design Studio is a limited company registered in England and Wales no. 10727757

Khateja Malik,
27 Fairfield Way,
Epsom,
KT19 0EF

27 Fairfield Way, KT19 0EF –Foundation Solution Near Yew Tree

Structural Design Studio Ltd (SDS) were appointed by Khateja Malik - the building owner, to advise on a potential structural solution for the new extension slab and foundations in close proximity to an existing Yew tree. This letter is for the sole use of the client and the Local Planning Authority and should not be relied upon by any third parties and is only related to the structural items noted above.

The existing building is a two-storey detached residential property in Epsom. There is an existing single storey extension to both sides of the property –the extension to the west houses the living room and the extension to the east the kitchen. There are a number of trees around the perimeter of the site including a large Yew tree to the east of the site which is within the garden. According to the geological maps the underlying ground conditions are likely to be London Clay. A full site investigation including trial pits and boreholes has been completed at the site and this has shown that the underlying ground has cohesive soils present at shallow depths and as such a piled solution will be required. The existing kitchen extension is currently on constructed on a 130mm deep concrete raft which is not fit for purpose and there are a number of cracks present within this extension.

The proposed alterations include the demolition of the existing kitchen extension and the construction of a two storey side extension in its place. The new extension is proposed to extend slightly further to the east than the existing extension.

An Arboricultural Impact Assessment has been completed by Trevor Heaps Arboricultural Consultancy which highlights that part of the new extension will be extending within the RPA of the category Yew tree. Currently the existing extension covers approximately 5% of the Yew trees RPA and the proposed extension will cover a further 2.7% taking the combined RPA incursion to 7.7%. They have noted that only a piled solution would be acceptable within the RPA and no other excavation works should be undertaken in this area for strip footings or ground beams.

Due to the levels on the site, the Architect has designed the new extension such that it is above the existing extension slab formation level. The existing concrete slab will be demolished to allow for a new suspended slab. The proposal is for helical piles to be used to support a galvanised steel grillage above ground level. The steel grillage will support a suspended concrete superib slab. This method of construction will mean that no additional excavation should be required within the RPA except in the pile locations and no loads will be placed on the ground surface.

The attached plan and section shows the proposed structural solution. The pile positions can be adapted on site to avoid the main tree roots if required. The arboriculturalist should confirm whether or not this scheme will have an adverse impact on the tree. However, structurally we do not foresee any issues with supporting the extension building as proposed.

Should you have any questions regarding the above please do not hesitate to contact us directly.

Yours faithfully,

Sarah Wadley
MEng CEng MIstructE

Director I **Structural Design Studio**

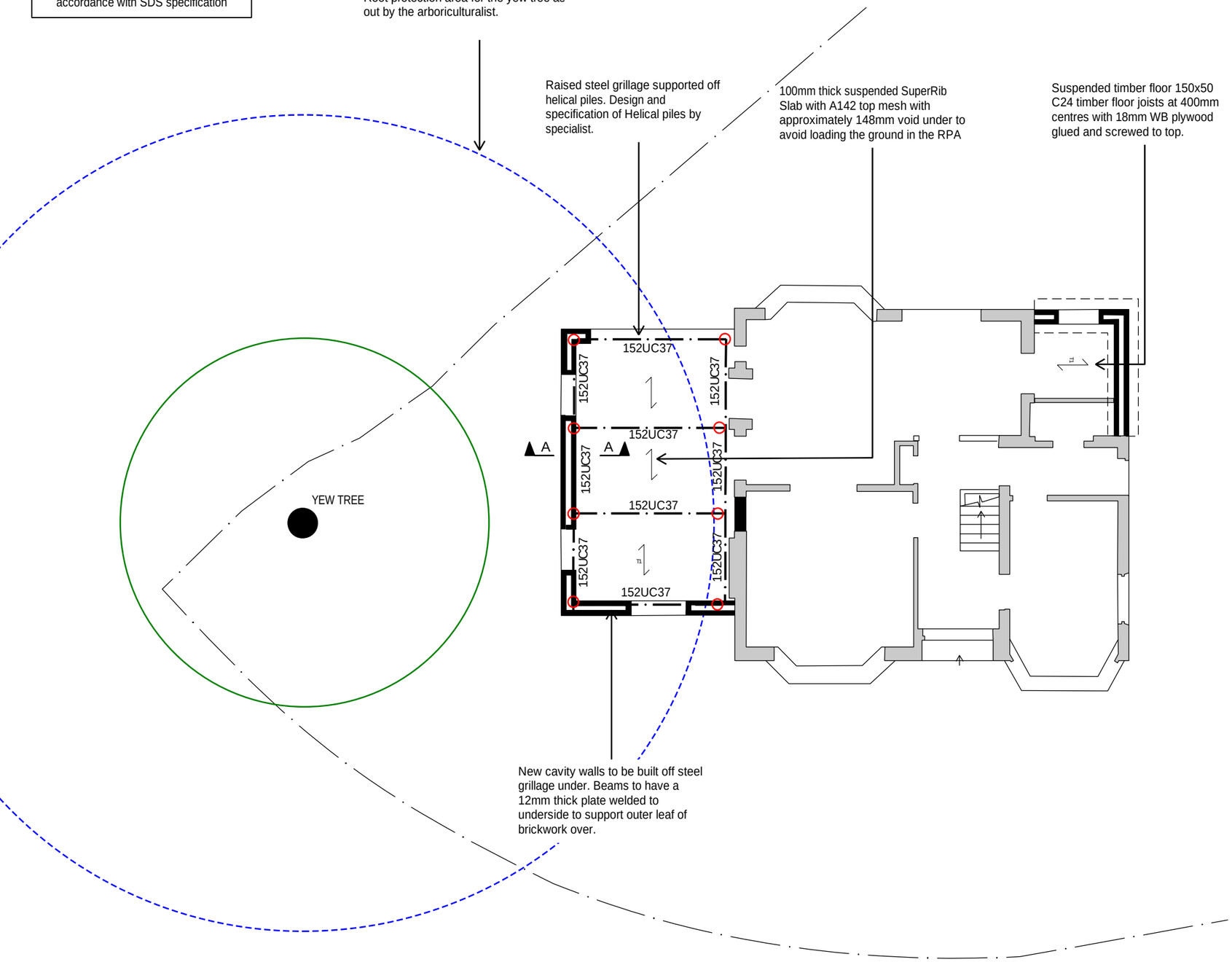
All Steelwork to be galvanised in accordance with SDS specification

Root protection area for the yew tree as out by the arboriculturalist.

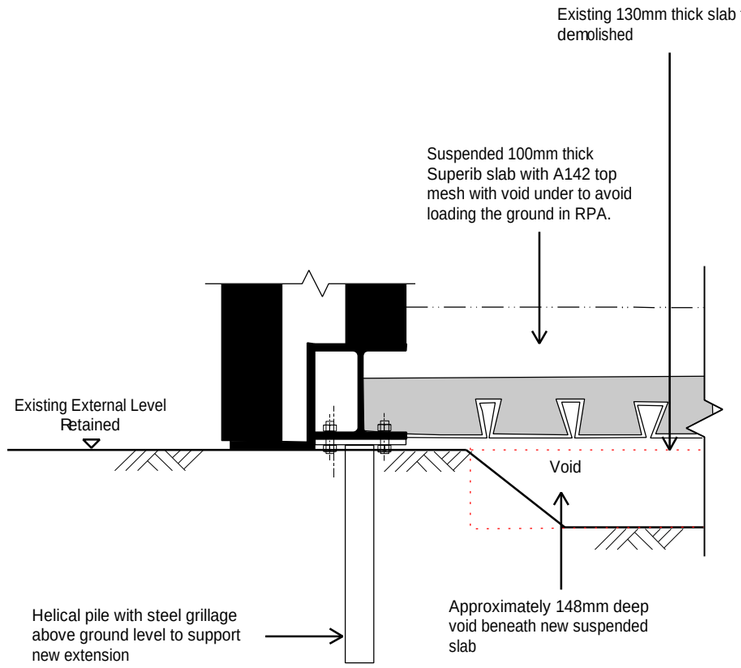
Raised steel grillage supported off helical piles. Design and specification of Helical piles by specialist.

100mm thick suspended SuperRib Slab with A142 top mesh with approximately 148mm void under to avoid loading the ground in the RPA

Suspended timber floor 150x50 C24 timber floor joists at 400mm centres with 18mm WB plywood glued and screwed to top.



New cavity walls to be built off steel grillage under. Beams to have a 12mm thick plate welded to underside to support outer leaf of brickwork over.



Detail A-A
1:10 @ A3

General notes:

1. Do not scale from this drawing
2. To be read in conjunction with all other structural drawings and the structural specification
3. To be read in conjunction with all other relevant disciplines drawings and specifications
4. All levels, setting out, waterproofing and fireproofing to be confirmed with the Architect
5. The Contractor is responsible for the temporary stability of the existing and proposed structure throughout the works. The sequencing and method of installation should be carefully considered and the temporary works should be designed and detailed by a suitably qualified person (appointed by the Contractor) prior to commencing the works
6. Contractor to request splices if required for handling purposes

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Project
27 Fairfield Way, KT19 0EF

Drawing Title:
Proposed Foundation Details

Job. No.	Drawing no.	Revision
221282	S100	Preliminary

Scale	Date	Drawn by	Rev. no:
1:100@A3	Feb 20	SW	P1