

215196

June 2016

STRUCTURAL REPORT

On

PROPOSED SUMMER HOUSE

At

40B HOLLYCROFT AVENUE

For

MR AND MRS BARTLETT



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1.0 Instructions and Limitations

- 1.1 Instructions were received from you requesting a structural appraisal and feasibility report on proposed new Summer House I the rear garden of 40B Hollycroft Avenue NW3 7ON. The purpose of our report is to assess the feasibility of constructing the foundations of the Summer house with minimal disturbance to the roots of existing trees.
- 1.2 Initially, our survey was to be visual only, without damage. Our report is limited to the inspection of visible elements of gutter. No inspections have been made of woodwork, damp proof membranes or other parts of the structure which were covered, unexposed or inaccessible and we are therefore unable to report that such part is free from defect.
- 1.3 This report is prepared for the information, and use of Mr and Mrs Bartlett and any liability of Ian Harban Consulting Engineers to any third party, whether in contract or in tort, is specifically excluded. Any third party finding themselves in possession of this report may not rely upon it without first obtaining the written authority of Ian Harban Consulting Engineers.
- 1.4 RHS refers to the right hand side of the particular building when viewed from the road.
- 1.5 LHS refers to the left hand side of the particular building when viewed from the road.

2.0 Description and History

- 2.1 The original house has been converted into separate living accommodation with 40B having access to the rear garden. There is an overlap to the property on the RHS and a separate but attached dwelling to the LHS. This property has a section of back garden.
- 2.2 The ground floor level is raised above street level, with the grounds to the front banked up with a path around the front and to the LHS
- 2.3 An existing Garden Building is located in the rear garden, with the ground floor cut into existing ground levels and a retaining wall to the LHS edge.

3.0 Inspection

- 3.1 First inspection was made by I G Harban on 8 March 2016 accompanied by the Architect and Mrs Bartlett.
- 3.2 The garden was visited and proposals discussed.
- 3.3 A second inspection was made on Friday 10 June 2016 when access to the front and rear garden was assessed.

4.0 Observations

4.1 Existing

- 4.1.1 The existing building is a lightweight square structure cut into the existing ground levels to the LHS.
- 4.1.2 The foundations to the building are not known, but likely to be a concrete raft.
- 4.1.3 The existing building and proposed extension site under the canopy of several trees and sit over the root protection area.
- 4.1.4 The ground in this area is likely to be shrinkable clay.

4.2 Proposed Summer House

- 4.2.1 The proposed Summer House comprises two intersecting rectangles on plan with monopitch interesting roofs. It is single storey.
- 4.2.2 It is proposed to construct the building in a lightweight form such as a framed clad building.

4.3 Site Access

- 4.3.1 Three possible routes exist to access the rear garden; around the right hand side which involves using a walkway over the garage roof, through the house and down the LHS and across the bottom of neighbour's garden.
- 4.3.2 The access steps to the front of the building are in a poor state of repair and have been severely damaged by tree growth. Temporary access could be created in this location to provide a ramp up to the higher garden level.

4.4 Arboricultural Considerations

- 4.4.1 Discussions with the Arboriculturalist indicate that a foundation and ground floor structural solution is required which imposes minimal load on the ground containing tree roots and which allows air circulation between the structure and ground.
- 4.4.2 In addition any piles or excavation within a 3m radius T2 will need to be undertaken after hand digging to ensure significant roots are not disturbed.

5.0 Solution

- 5.1 The arboricultural constraints of providing a solution which imposes minimal disturbance on roots and leaves the ground floor raised above ground level will drive the foundation solution.
- 5.2 The building is proposed to be of lightweight construction and as such foundation loads will be modest.
- 5.3 The shrinkable clays that are usually encountered in this area are prone to shrinkage and swelling and traditional foundation depths would need to be in the order of 3m deep to extend into the ground unaffected by the moisture draw from the tree roots. Such foundation would not be appropriate in these circumstances.
- 5.4 In order to achieve the objective of stable foundations with minimal impact on the ground it will be necessary to use deeper foundation types such as piles. These can be installed using various techniques, including bored concrete piles, driven steel piles or screw piles. Each of these types require equipment to be taken to site.
- 5.5 Consideration of site access relative to piling equipment reveals there are two practical options. With each in the first instance it is necessary to move the equipment from road level to the ground level at the front of the house. This should be possible by either lifting the equipment using a small crane or lifting arm on a wagon, or if this is not desirable, forming a temporary ramp from pavement level to the front garden.
- 5.6 Once at the higher level, equipment could either be taken down the LHS alley and across the back garden or if this is not possible through the property, although this is the less desirable option.
- 5.7 The necessary piling equipment for small diameter piles, as would be necessary in this location, is easily available, with small rigs with separate power packs which would not have to be taken to the back garden. These can be used to installed differing piling types including this mentioned earlier in this report.
- 5.8 Once installed the piles can be used to carry a grillage of beam, raised above ground level as recommended by the Arboriculturalist with the ground floor and superstructure supported over.
- 5.9 Hand digging to identify any significant roots will be required in a zone formed by a radius of 3m from tree T2.
- 5.10 Ground beams can be designed to allow for exact pile locations to be moved to avoid significant roots.

6.0 Conclusions

- 6.1 It would be feasible to design a structure for the building where the roof, walls and ground floor are supported on a raised grillage of steel beams, leaving the ground under the building unloaded.
- 6.2 This grillage could be supported on a number of piles, around 11 in number, which could be installed to a depth beyond the influence of any clay drying shrinkage.
- 6.3 The piling equipment could be taken to site either across the bottom of the garden using the pathway to the LHS or if this proves less desirable, through the house.
- 6.4 Structural solutions therefore exist to allow the building to be founded stably and achieve the arboricultural objectives of minimising impact on the roots and leaving the building raised above the surrounding ground level.

APPENDIX A

Proposed Layout Sketch

NOTE:-

MANU DIG

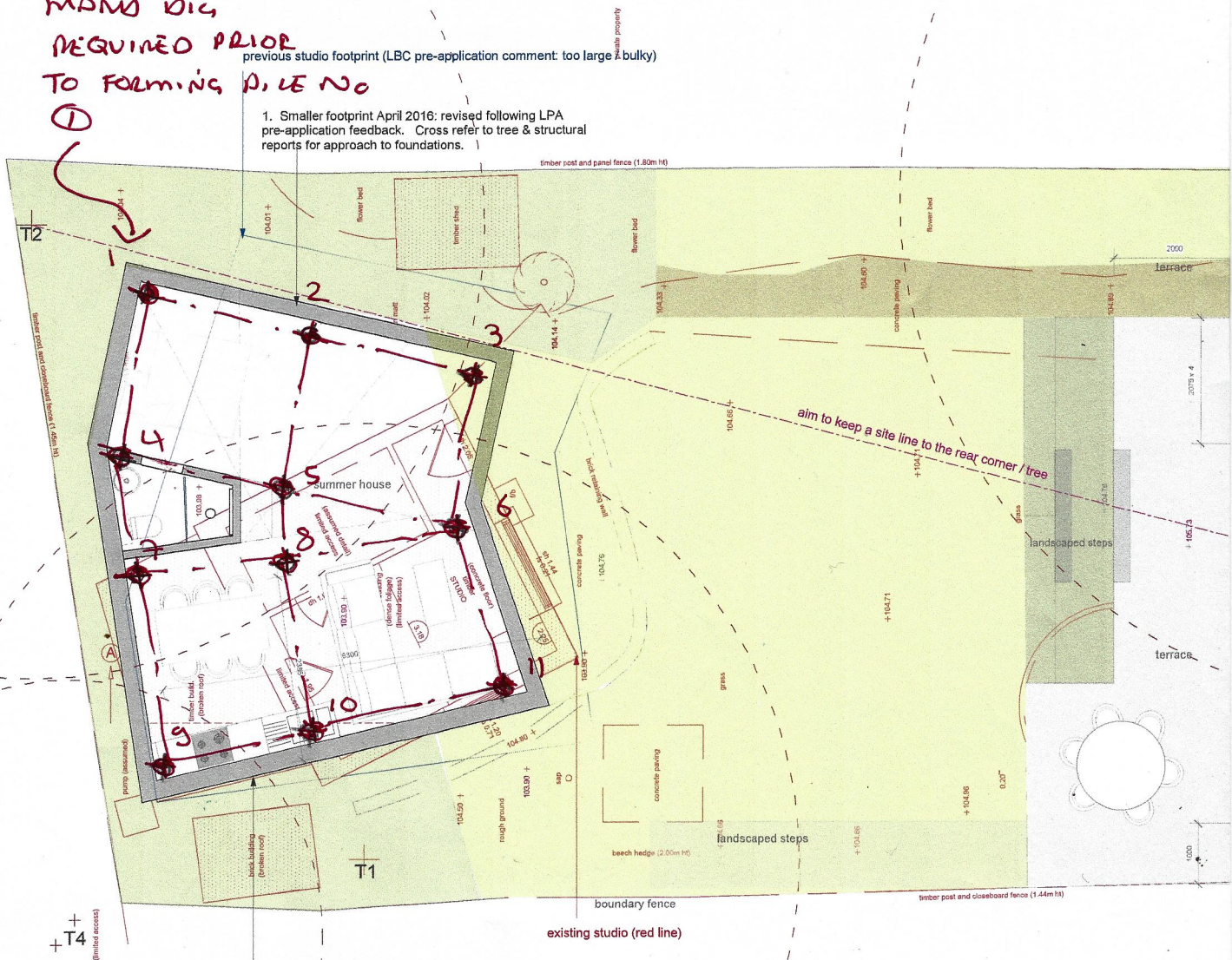
REQUIRED PRIOR

TO FORMING PILE NO

①

1. Smaller footprint April 2016: revised following LPA pre-application feedback. Cross refer to tree & structural reports for approach to foundations.

previous studio footprint (LBC pre-application comment: too large & bulky)



1. Smaller footprint April 2016: revised following LPA pre-application feedback. Cross refer to tree & structural reports for approach to foundations.

~~PILE~~ PILE LOCATIONS.

--- GROUND BEAMS (ABOVE GROUND).

I A N H A R B A N

CONSULTING ENGINEERS