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May 2023

STRUCTURAL FEASIBILITY REPORT

On

EXISTING STRUCTURE

At

5 ACRES, UPCHURCH

For

MR TREVOR KENNEY

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1.0 Instructions and Limitations

1.1 Instructions were received from you requesting a visual structural inspection of on the existing structure for the purposes of commenting on the structural feasibility of the proposed conversion works. It is understood that this report is proposed to form part of planning application.

1.2 Initially, our survey was to be visual only, without damage. Our report is limited to the inspection of visible elements of structure only. 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 Trevor Kenney 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 building when viewed from the front.

1.5 LHS refers to the left hand side of the building when viewed from the front.

2.0 Description and History

2.1 The property is a single storey detached timber pole barn.

2.2 Little is known about the history of the barn.

2.3 The barn consists of a large central bay with 2 smaller bays to either side.

3.0 Inspection

3.1 First inspection was made by T B Redwood on 28th of April.

3.2 All areas were visited and the walls and roof inspected from ground level internally and externally.

4.0 Observations

4.1 Roofs

4.1.1 The roof covering consists of mono pitched corrugated sheeting supported on timber purlins running from side to side. These purlins are then supported on timber beams which in turn are supported on circular timber posts.

4.1.2 The timber purlins are at approximately 1.0m centres, generally these timbers are approximately 50 x 200mm deep.

4.1.3 The timber roof beams consist of 2no. 35 x 215mm deep timbers.

4.1.4 The existing timber posts are 100mm in diameter.

4.1.5 There are no signs of excess deflection to the existing roof structure and the existing timber structure appears to be in good condition.

4.1.6 The roof currently slopes from front to back with a gutter partially present to the eaves at the rear.

4.2 Walls

4.2.1 The walls consist of vertically spanning corrugated sheeting. To the RHS end wall, several windows are present.

4.2.2 A large door is present to the front elevation centrally, with two smaller to the LHS and RHS bays on the front elevation.

4.2.3 Timber members are present running laterally between the timber posts to the external walls of the barn to break the span of the vertically spanning cladding.

4.2.4 To the rear elevation a low level brickwork wall is present. This low level wall is acting as a retaining wall to the slightly higher level ground to the rear of the barn.

4.2.5 Internal partitions between the bays are formed in a similar way to the external walls with corrugated cladding.

4.2.6 The walls are reasonably plumb and square with no obvious signs of distress.

4.3 Floors

4.3.1 The existing ground floors are a combination of ground bearing concrete floors and exposed earth floors.

4.3.2 The RHS bay has a concrete floor, the LHS bay has an exposed earth floor with the central bay having a combination of concrete and exposed earth.

4.3.3 The existing concrete floors appear to be relatively level. The exposed earth floor to the LHS bay slopes from front to back.

4.4 Foundations

4.4.1 Concrete pad foundations are present to the underside of the timber posts and are visible in some locations where the floor is exposed earth.

4.4.2 There are no visible signs of distress to the existing foundations.

5.0 Discussion

5.1 The roof structure is in good condition and there are no obvious signs of overloading present. The proposed works would create a marginal increase in loading, with the introduction of insulation/membrane, therefore there is no reason to suggest that the existing timber sections would not be capable of withstanding these proposed loads.

5.2 The roof timbers appear to be in good condition throughout.

5.3 The roof timbers are supported on several timber posts throughout the building. These timber posts are in good condition and are relatively plumb. There are no signs to suggest that these existing timber posts are overloaded. Therefore, they would be able to be re-used under the proposals. There are no signs of rot or degradation present to the base of the timber posts.

5.4 The existing wall structure could be re-used under the proposals with the existing wall cladding retained. Any new structural openings could be formed using timber studwork built off the concrete slab in the normal way. New openings are largely placed within existing openings in the proposals, this has the affect of reducing the amount of structural alterations required to the existing wall structure.

5.5 The lateral stability of the structure would be retained by the inclusion of timber studwork cross wall internally within in the proposals.

5.6 A new concrete ground floor could be installed where required. The LHS bay may required some levelling prior to the construction of this floor. This floor could consist of a ground bearing concrete slab on compacted hardcore whilst also encompassing the required insulation and membranes.

5.7 There is no reason to suggest that the existing foundations are overloaded and therefore they could easily be re-used under the proposals as the overall increase in loading would be minimal.

6.0 Conclusions

6.1 The increase in loading to the roof structure would be minimal and therefore the existing roof structure could be re-used under these proposals.

6.2 The timber posts are in good condition and would be able to be retained under the proposals. The current proposals show these posts included and built into the proposed partition walls.

6.3 The existing wall structure could be re-used under the proposals with new structural openings formed in the normal way.

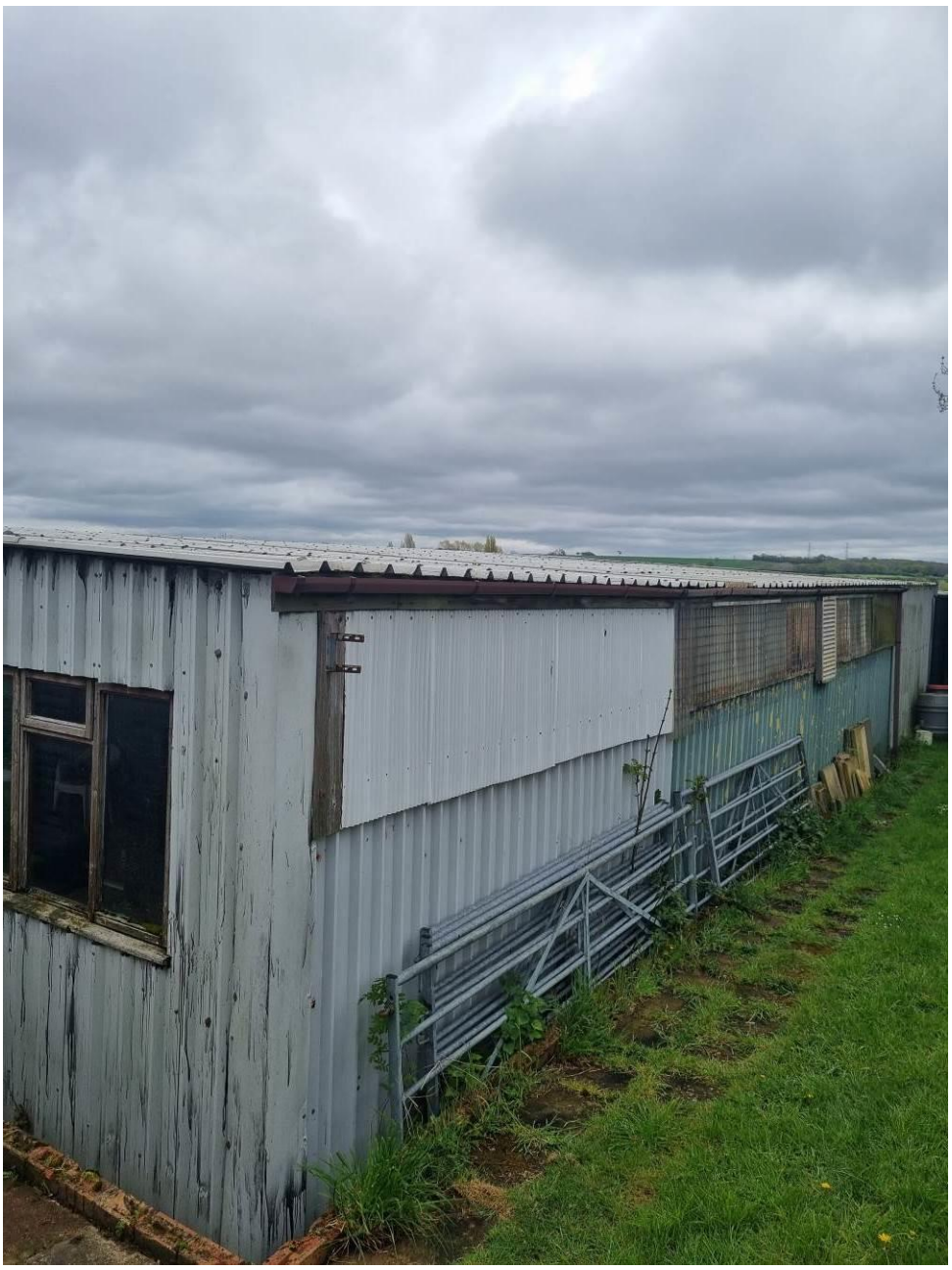
6.4 A new concrete slab could be introduced where required in the normal way with the inclusion of insulation and DPM as required.

6.5 There is no evidence to suggest that the existing footings are overloaded and therefore these could be re-used under the proposals as the overall increase in loading would be minimal.

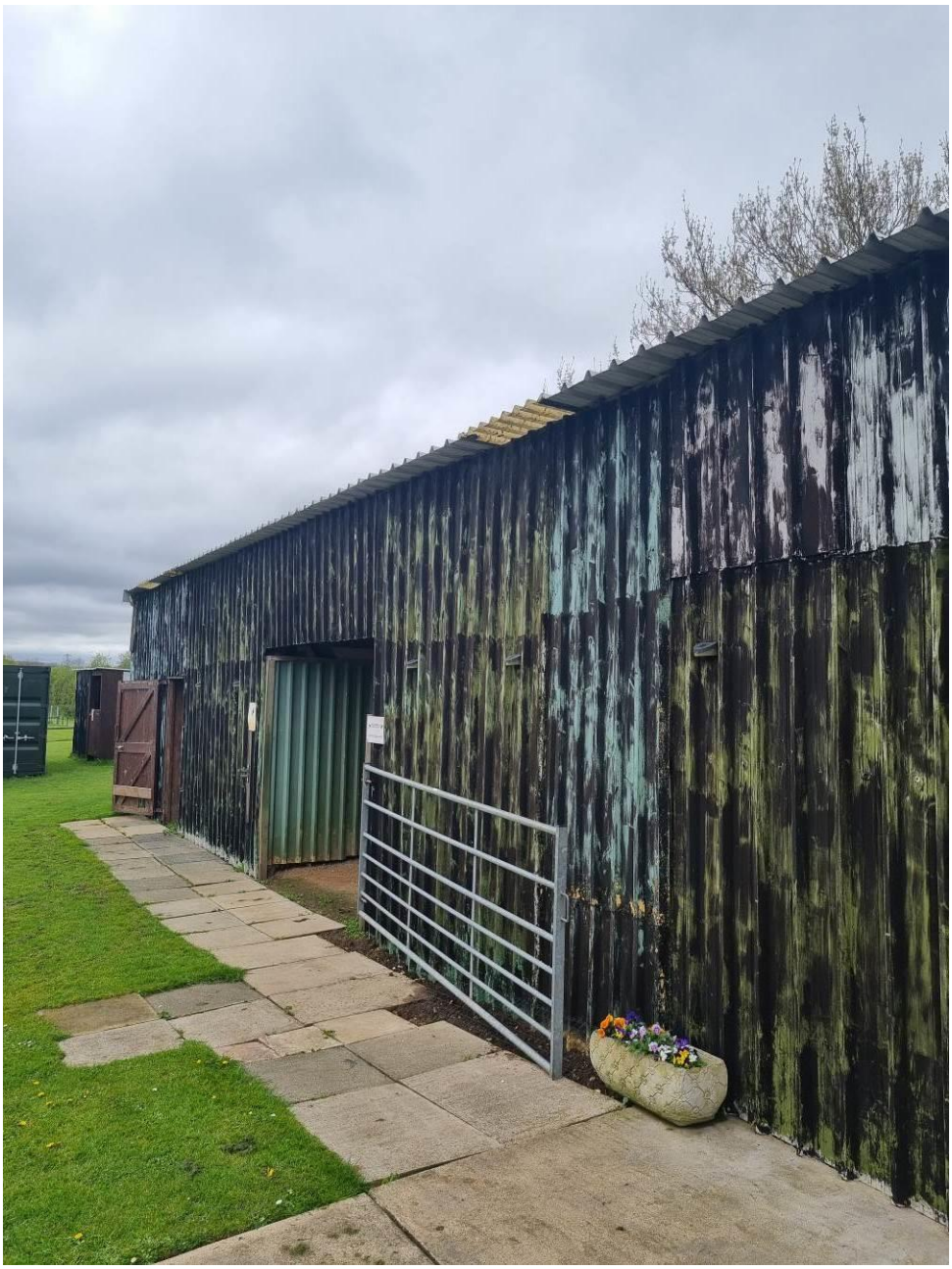
6.6 Generally, the structure is in a good condition. The proposed works would not drastically change the load paths or significantly increase the overall loading on the structure and therefore there is no reason to suggest that the existing structure could not be re-used under these proposals.

APPENDIX A

Photographs showing typical condition of barn



Photograph No. One



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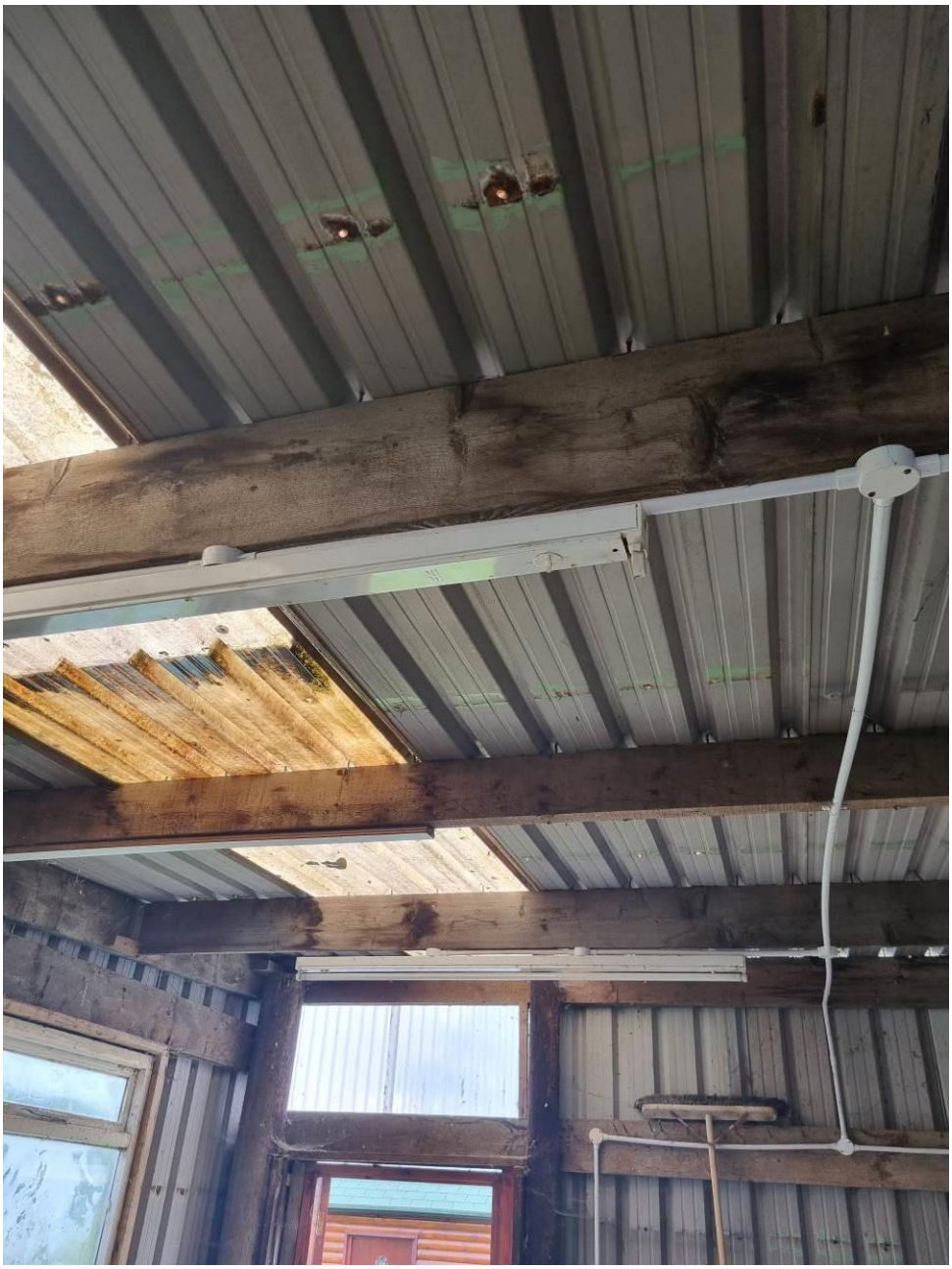

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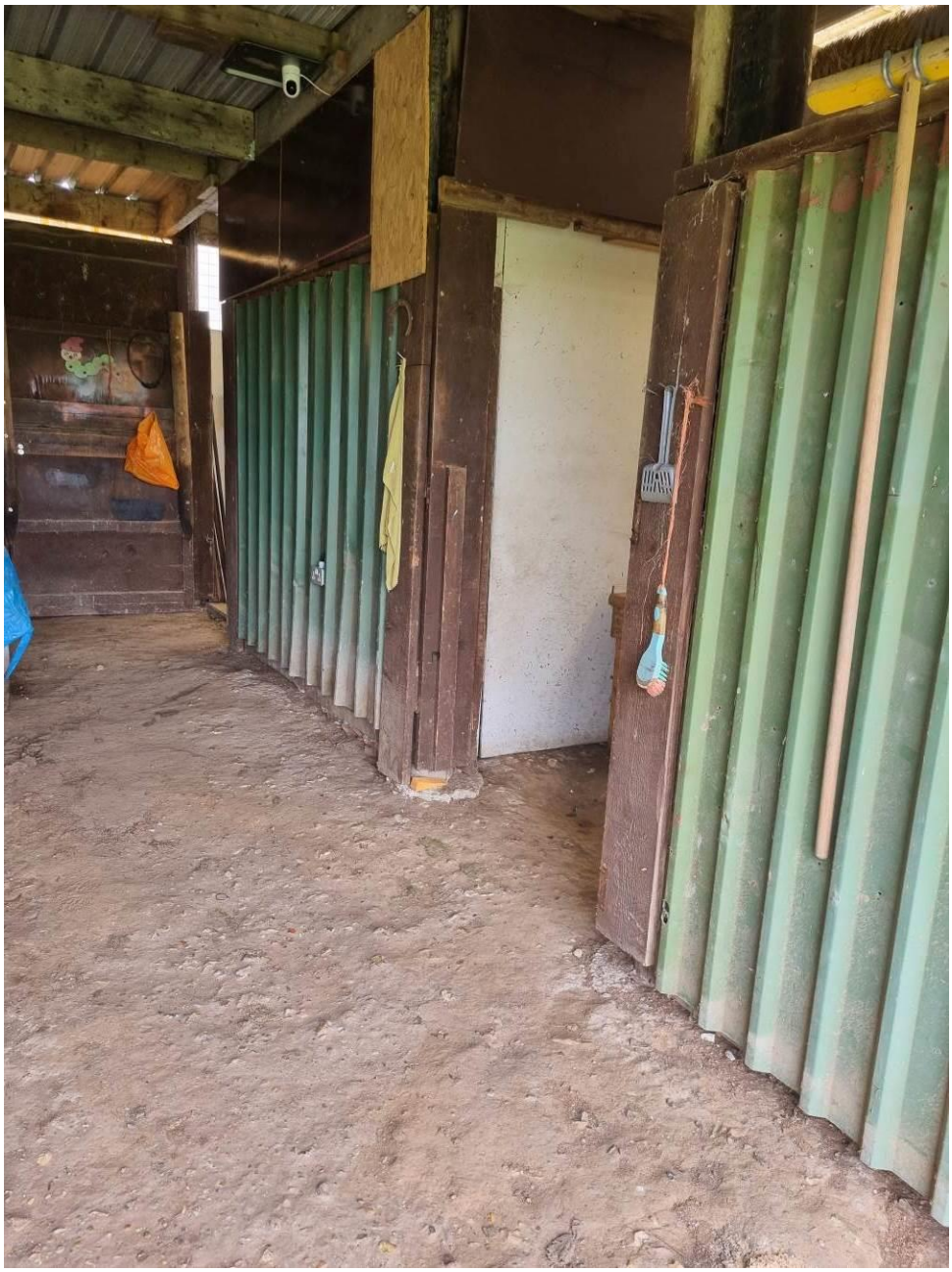

Photograph No. Four

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