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DBD Architectural Consultancy

Building Fabric Condition Assessment

PLANNING APPLICATION FOR THE CONVERSION OF A REDUNDANT BRICK AGRICULTURAL BARN INTO RESIDENTIAL ACCOMMODATION AT CRESSWELL FORD FARM DILHORNE LANE



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partner LABC

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Building Fabric Condition Assessment

Planning application for the conversion of a redundant brick agricultural barn into residential accommodation
At Cresswell Ford farm, Dilhorne lane

1. INTRODUCTION / CONTEXT

It is proposed to convert the existing outbuildings to form two self contained residential dwellings for the use of the applicant

The purpose of this inspection is to report on the current condition of the building to determine the suitability for conversion.

2. INSPECTION

The property was inspected on 9th December 2015 in preparation for the planning application.

The inspection was carried out by

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On behalf of

Mrs A Wagstaff

3. LIMITATIONS

3.1 The survey was non-intrusive.

3.2 The inspection was limited to a visual inspection only, both internally and externally as necessary and subject to safe and reasonable access being available. This report is made on the findings of an inspection made from the ground and from other easily accessible points.

3.3 It is emphasised that the inspection is purely visual; we have not inspected woodwork or other parts of the structure that are covered, unexposed, or inaccessible and we are therefore unable to report that any such part of the property is free from defect.

3.4 ASBESTOS-containing materials (ACM'S) – DBD Architectural Consultancy Ltd. are not qualified to advise on the presence, or otherwise, of any asbestos-containing materials, nor insured to do so. Asbestos is a highly regulated and licensed specialist area of work controlled by the Health & Safety Executive (HSE).

3.5 DBD Architectural Consultancy Ltd are not qualified to comment upon, Electrical systems, Heating Systems and reference to more Specialist advice should be sought. However, any such items apparent during the inspection that are observed have been identified as requiring further inspection.

3.6 Toxic Mould – DBD Architectural Consultancy Ltd are not qualified to advise on the presence, or otherwise, of fungi, growth, mould, spores, mycotoxins of any kind, nor insured to do so. The building

owner is advised to consult a specialist environmental monitoring or buildings diagnostics consultancy for further advice.

3.7 The survey is restricted to the original two storey stone barn, single storey long barn and linking single storey barn between which are subject to the conversion into dwellings.

3.8 The weather was generally dry on the day of inspection, although preceding days had been wet

4. GENERAL DESCRIPTION

4.1 The range of building comprises of a two storey building, and a single storey building running parallel having a single storey building liking between with the pitched roof running perpendicularly to the other barns. There is a timber framed metal clad open fronted haybarn attached to the two storey building.

4.2 The barn is constructed using traditional vernacular materials and methods, of nominally 225mm (9 inch) brick walls and a Staffordshire Blue plain clay tiled roof.

4.3 The building is currently redundant, and generally clear of any goods or material, but historically would be been used for agricultural purposes. The concrete cubicle walls are still in-situ with feed trough and steel water feeders.

4.4 Window and door heads, are generally formed with brick arches.

4.5 The roofs are generally on a poor condition, having several tiles missing in areas, and a section of the single storey linking roof has collapsed due to the rafters failing.



5. EXTERNAL OBSERVATIONS

5.1 With a few minor exceptions the masonry is in good condition, it would appear the building were maintained during the working life of the building with evidence where wall had been re-pointed, although there are large sections where the mortar has been washed out. There is small spalling of random bricks where frost damage has blown the face of the brick away, this can be rectified by carefully replaced of reclaimed bricks matching the existing appearance and size, along with raking out the existing mortar and re-pointing with a traditional lime based mortar.





5.2 The walls appear to be generally plumb, and square although it appears the gable wall of the long barn has been re-built some time ago using different brickwork, and there has been historic damage to the corner of the building, with some bricks possibly by the tractor during farming operations.

5.3 The window heads appear to be generally in a sound condition, although a side window beneath the lean-to haybarn has a defective timber lintel which has allowed the brickwork above to displace, this should be replaced with a steel box lintel on the inner leaf, with a slender toe to support the outer leaf and the brick above rebidded and pointed with a lime based mortar.



There is evidence the brick arch lintel over a doorway on the long barn is displaced, having a movement crack from the arch to the wallplate. This could be repaired in-situ using stainless steel flat bar inserted into the mortar courses and chemical resin grouted in place, and pointed over with lime based mortar to match existing, however for such a localised area, it would make practical sense to strip out the brickwork above the doorway and rebuild it whilst the roof has been stripped off.



There is also evidence of a failed timber lintel over a window head again under the lean to haybarn, which would need to be replaced with a steel lintel. The masonry joints could be strengthened using stainless steel helical rods approximately 600mm long inserted into the bed joints every 3rd course vertically before repointing with Lime based mortar.



5.4 Windows and doors appear to be generally rotten through water damage, or generally damaged and would be replaced.

5.5 The roof is on the lower barn roofs are generally in poor condition. The link building rafters have collapsed blocking the doorway and it was considered to be unsafe to enter this part of the building. It is generally assumed the entire roof would be stripped off as part of conversion works. Defective timbers would be replaced on a like for like basis, before re-tiling with new or reclaimed.





5.6 The roof over the two storey barn appears to be in a reasonable condition, however it would be stripped off and fitted with a roofing membrane as part of the conversion process.

5.7 There are no signs of foundation settlement or subsidence

5.8 There is no damp proof course in the wall construction, which is typical of this type of building

6. INTERNAL OBSERVATIONS

6.1 The existing slab level is raised above the external ground level a minimum of 200mm generally; the two storey barn is raised much higher, approximately 500mm as the ground level slopes away. The existing floors are generally a concrete slab with slight slopes towards a central aisle for any muck to drain towards for cleaning out. The concrete cubicles are still in place in the cattle barn.



6.2 The floor would need to be broken out for the conversion work to be carried out and a new floor would be formed. The raised level of the slab above the external ground level and the overall height within the buildings suggest that there is sufficient space to provide a modern insulated floor without the need to excavate deep below foundations and hence underpinning of the walls would not be necessary.

6.3 The damage/decay of the timber roof structure of the single storey barns is evident inside the building. A scaffold structure has been formed some time ago it would seem judging by the condition of the scaffold poles, there is a number of holes within the roof structure, with tiles missing, and damaged sections of timber. It was difficult to determine the condition of the timber truss and the extent of joists that could be retained or replaced, due to the condition of the roof making it unsafe to access it.









6.4 The existing roof structure over the two storey barn is in a much better condition, all the tiles appear to be intact with no large gaps evident. The roof space has been used as a roost for white doves, and whilst the roof appeared to be in good condition the first floor had rotted in several places, mainly due to concentrations of bird droppings





6.5 The walls internally are generally white wash finished with a lime based slurry, the brick structure is bonded together with a lime based mortar, holes in the roof have allow localised rainwater to enter the building, which has washed the lime/sand mortar out to the joints and thereby weakening the wall in places as the image below.



6.6 Elsewhere damaged roof timbers have allow the rafters to slip and spread allowing movement in the timber wall plate and thereby opening the joints in the internal brickwork.





6.7 Internal timber lintels have settled over the years possibly due to shrinkage, rot, insect damage allowing some cracking in the brickwork above. There is also evidence of historic repairs of such cracks





6.8 It appears the upper gable walls of the two storey building have been re built



7. CONCLUSION

The building has fallen into disrepair over the years, mainly due to the roof. Broken tiles allow rainwater onto the timbers and masonry causing decay and washing out mortar from brick joints, allowing slight movement in the structure and causing further cracks in the walls.

Whilst the cracked brick appear to weaken the structure, the joints can be repaired using a fairly simple metal stitching process such as the Helifix or Twistfix kits, comprising of stainless steel bar having a helical twist / slow spiral running along the length which are inserted into the mortar courses spanning across the cracked brickwork approximately 30mm deep and secured with special chemical resin which bonded the brickwork to the steel bar. The joints are pointed with lime/sand mortar as elsewhere.





The damage to the roof although excessive is easily repaired. The roof tiles would be stripped off and set aside for re-use. With safe access the roof timbers, rafters, trusses and purlins would be examined individually for rot, insect damage and structural integrity and overall quality. Defective joists would be replaced on a like for like basis to carry out an economical repair.

It is quite common with buildings of this type to have shallow foundations. The conversion process generally requires the replacement of the concrete slab with a new concrete slab formed over rigid insulation, nominally 200mm overall thickness, over 100mm of compacted hardcore. The raised floor slab above the external ground level suggest that there is little possibility of undermining the shallow foundations during this process therefore underpinning of the foundations would not be required.

Internally the solid brick walls would be tanked with a breathable tanking slurry to ensure moisture cannot pass through the walls into the habitable space in lieu of the damp proof course, or a Newton lath type tanking membrane.

Providing that some remedial work is carried out to consolidate the cracked masonry and tie the roof structure to the brick walls, following common modern building practise the structure can easily be converted into the proposed dwelling without the need for rebuilding. The external walls would need to be pointed externally to ensure the rainwater cannot enter the structure.

There are no structural issues that would make the building unsuitable for the proposed conversion.