STRUCTURAL STATEMENT DESIGN PRINCIPLES & METHODOLOGY & ACCESS STATEMENT

PROPOSED CHANGE OF USE TO RESIDENTIAL, BOVILL'S HALL FARM, LITTLE CLACTON, ESSEX

August 2014

David Fenton FRICS MB Eng.
Farthings,
49 First Avenue,
Chelmsford,
Essex
CM1 1RX

Structural Statement, Bovill's Farm, Little Clacton

1.0 The buildings were inspected by David Fenton FRICS MB Eng. A Chartered Building Surveyor and a Member of the Association of Building Engineers.

2.0 The buildings occupy a relatively level site to the east of St Osyth Road and the west of Bovill's Hall.

3.0 The buildings comprise a range of traditional buildings that have not been used for any meaningful agricultural use for a number of years except for limited storage and as a result, have not been fully maintained but nevertheless remain in a reasonably sound condition.

4.0 The buildings are numbered for ease of reference on the block plan appended to this Structural Statement.

BUILDING A – MAIN BARN

5.0 The main barn comprises an eight bay traditional, aisled timber framed barn, formed off a brick plinth and clad externally with weather boarding. Modern grain storage bins have been constructed internally to the main span together with an overhead elevator etc.

6.0 The barn has generally not been altered since original construction and retains the majority of the original wall and roof framing members, although the intermediate studs have been removed to one bay where abutting Building B and the timber framing has been replaced to part of the south elevation with masonry construction.

7.0 The roof structure is traditional with squared and un-squared rafters to each slope supported by purlins with collars between, on bay lines and at mid bay. The roof is covered with corrugated asbestos cement sheeting but would originally have had a tiled or slated finish. The rafters extend down over the two aisles. The southern midstrey has

a gabled roof and there is a cat-slide roof above the main doors to the north elevation. The main door opening in the midstrey has been in-filled.

8.0 There are large section tie beams spanning between the main walls at main post positions, with braces at the tie beam / main post joint. There are further tie beams spanning between the main and aisle posts. Some of these, together braces, are missing to the southern aisle

9.0 The roof structure is incomplete with rafters generally situated at approximately 900mm c/cs and whilst what exists is generally in a satisfactory condition, additional rafters will be required between the existing, to both the main roof and aisle in order to support a tiled or slated finish. Some repairs are also required to rafters of the southern slope where subject to wet rot following lengthy water entry.

10.0 The wall structure is formed with approximately 200mm x 200mm section main posts off a 200mm x 150mm sole plate immediately above the brick plinth which is 225mm / 330mm in thickness. There are 150mm deep eaves beams at the head from which the roof is pitched.

11.0 There are braces at the main post / tie junction and to the eaves beam / tie junction. A number of these are missing.

12.0 The eaves beam is fractured to Bay 2 and additional posts have been provided to support the beam across the midstrey. Repair / replacement will be required.

13.0 Intermediate studs are of varying section, mainly squared timber but with some un-squared and incorporating limited diagonal bracing. To some sections the base plate and lower studs are encased in concrete and to the southern elevation part of the wall is now of masonry construction with further masonry walling internally at the eastern end. A former door opening has been blocked to the eastern gable end.

14.0 The timber framed wall structure is virtually complete except where replaced in

masonry and generally in a sound condition, although some local deterioration due to water entry will necessitate minor scarf repairs. Further repairs may also be required at low level to sections encased in concrete.

15.0 The timbers requiring repair, replacement or re-instating are identified on the marked up copies of the frame survey drawings forming part of the Outline Schedule of Works

16.0 The brickwork plinth generally appears to be in a poor condition, particularly to the north elevation and western gable and some rebuilding will be required.

17.0 External weather boarding is generally in a reasonable condition but will require removal and replacement with matching boarding as part of the conversion proposal.

BUILDING B – CART LODGE

18.0 Building B is a four bay, open fronted Cart Lodge to the south of Building A. The building is of masonry construction under a timber framed mono-pitched roof covered with corrugated asbestos cement sheeting.

19.0 The roof structure is relatively modern being a replacement for the original duo-pitch roof.

20.0 The walls are of 225mm solid red brickwork with 330mm piers with 200mm x 200mm timber posts to the open front supporting the eaves beam and ties. Lower sections of the posts have deteriorated and are now supported on concrete bases.

21.0 The wall structure is generally in a sound condition with only isolated repairs being required to pointing where poor and in replacing bricks where subject to spalling. There is some outward leaning of the western wall due to the lateral thrust of the mono-pitch roof, but no resultant cracking and it should therefore be possible to prevent further movement when reforming the duo-pitched roof proposed, which will provide lateral restraint at plate level.

BUILDING C

22.0 Building C is a six bay, originally open fronted building of similar construction to Building B, but with a central dividing wall. Part of the eastern side has been in-filled in timber framed construction.

23.0 The roof structure comprises timber trusses supporting 150mm x 100mm purlins to each slope which in turn support the intermediate rafters. The roof structure is complete and is covered with natural slates.

24.0 There are 175mm x 175mm timber posts on the bay lines to the open fronts, which support the eaves beams and trusses. There are diagonal braces at the beam / truss junctions. Lower sections of posts have deteriorated and are now supported on concrete / masonry bases.

25.0 The walls are of 330mm solid red brickwork with timber framed infill to part of the eastern side clad externally in boarding. The walls appear in a reasonable condition with only local and isolated repairs being required to pointing where defective and to bricks where subject to spalling.

26.0 An original opening at high level to the southern gable end has been blocked.

BUILDING D

27.0 Building D is a further open fronted building with a mono-pitched timber framed roof.

28.0 The roof structure is of modern timber trusses spanning between the masonry rear wall and timber posts. A new duo-pitched roof is proposed as part of the conversion scheme.

29.0 The walls are of 225 / 330mm solid red brickwork with 450mm piers and generally appear in a sound condition. Some repairs in replacing isolated bricks where subject to spalling will be required.

BUILDING E

30.0 Building E is a small, masonry constructed, pig sty attached to Building B and will be removed as part of the conversion scheme.

GENERAL

31.0 No trial holes have been undertaken to determine the depth of foundations that exist to any of the buildings. The masonry structures appear in a sound condition with little evidence of any serious movement or cracking and it may therefore be possible, subject to a detailed inspection and agreement with building control, to avoid the need for underpinning in accordance with the guidance from English Heritage. The masonry plinths to the timber framed barn are generally poor and will require rebuilding, in all probability above a new foundation.

CONCLUSION

32.0 Building A is generally in a sound structural condition with only local repairs being required as identified in the Outline Schedule or Repairs. The building could be converted to an alternative use without the need for any substantial rebuilding.

33.0 Buildings B, C & D are all of substantial masonry construction and in a sound condition generally. The roof structures to Building B & D will require strengthening / altering if anything other than the current finish is proposed and new, duo-pitched roofs are therefore proposed

34.0 It is therefore my opinion that the buildings are capable of conversion to an alternative use without the need for any substantial rebuilding or replacement.

DESIGN PRINCIPLES / METHODOLOGY

35.0 The conversion scheme should have the least affect on the historic structure of the buildings as is possible having regard to the repairs that are required.

36.0 Where ever possible new window openings are too be avoided, with light and ventilation being provided by utilising existing door and window openings. The internal layout is therefore required to make the best use of the available openings with secondary accommodation, such as Toilets and Kitchens being situated within the open fronted sections where windows can be provided within the new infill.

37.0 Where repairs are required to timber framing members these are to be in green, date stamped oak, with replacement limited to the absolute minimum that is consistent with being able to achieve a satisfactory repair. Replacement timbers to be jointed to existing using traditional scarf joints. Any failed mortise joints are to be strapped rather than the timbers being replaced.

38.0 Building A is to be split into two dwellings, with each then retained largely as one open space in order to reflect its open spatial character with the insertion of first floor accommodation to provide a Bedroom & En-Suite and a Mezzanine only to one bay at the each end of the dwelling. Buildings B, C & D will be sub-divided to provide further Bedrooms.

39.0 Glazing to the main door openings will be set back from the structural opening in order to visually reinforce the shape of the opening.

40.0 New windows will only be required to the two gable ends at high level to provide light and ventilation to the first floor office area. Further light to the first floor accommodation will be provided by 4 No conservation range roof lights to the northern roof slope.

41.0 The roof to Building A will be insulated using a modern, multi-layer insulation material, Tri-Iso Super 9 or Super 10, which can be inserted between the rafters whilst still allowing the rafters to be retained on view internally. Wall insulation will be part between the studs and part externally below the replacement weather boarding.

42.0 The existing floors will be replaced in solid construction incorporating a damp proof membrane and insulation.

43.0 The roof of Building A will be covered with second hand natural slates and the original duo-pitched roof re-instated to Building B. The existing slating will be retained to Building C with a new duo pitched roof provided to Building D.

44.0 All external joinery will have a dark stained finish.

ACCESS STATEMENT

45.0 The existing northern vehicular access to the site is to be re-used and car parking provided to the north of Building A. A designated disabled parking space is to be provided for each unit with suitable hard surfacing leading to the main entrance door.

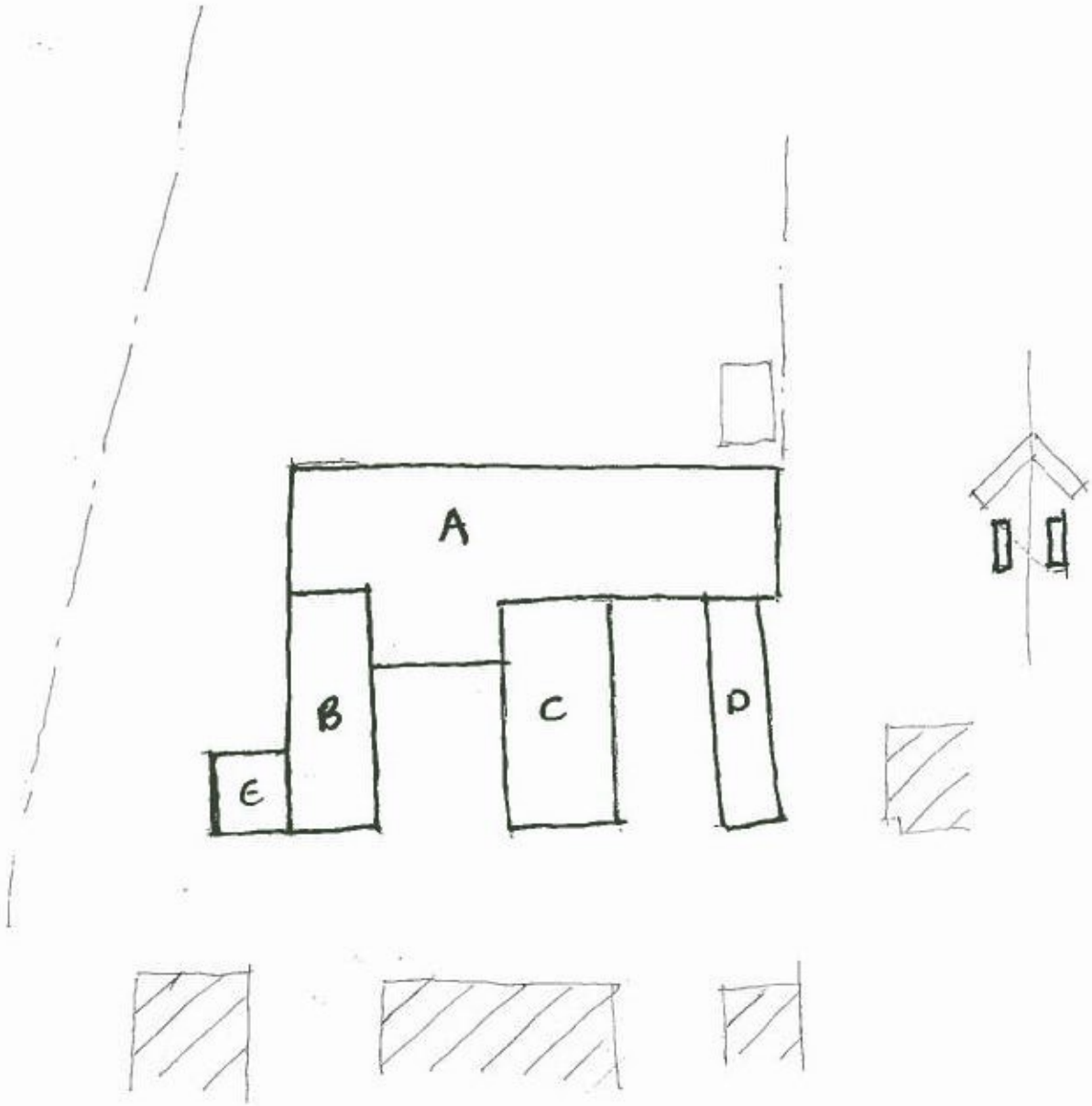
46.0 A ramped access will be provided to the main entrances with a mobility threshold to the door which will be a minimum clear opening width of 900mm to allow wheelchair access.

47.0 Ground floor internal door openings will all permit wheelchair access. Access and facilities for the disabled will comply with Part M of the Building Regulations.

David Fenton FRICS MB Eng.

15th January 2012

DF/DF/Bovill's/1- 12/Rev A/Jan'12



BOVILL'S HALL