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VISUAL STRUCTURAL INSPECTION

OF

**NEWHOUSE FARM HOUSE
DRIGG
SEASCALE**



FOR

AVISON YOUNG

Reference - WDS/05/6942/REP 01

Date - 31/03/2021

1.0 BRIEF

- 1.1 WDS Limited were instructed by Avison Young to carry out a structural inspection of New House Farm, Drigg. The inspection comprised a non-disruptive visual survey where access allowed
- 1.2 The property comprises a two storey detached farmhouse constructed from rubble filled random stone masonry walls which supports a traditional timber purlin roof. To the North elevation are large stone buttresses which appear to offer lateral support to the North Gable. It is understood that the front and part of the left hand gable wall of the property have been underpinned in recent years.
- 1.3 The property is in well over 100 years old.
- 1.4 The inspection was carried out on the 26th March 2021. On the day of the inspection the weather was clear and dry.
- 1.5 It should be noted that there may be faults with the building which are masked or hidden by finishes that are not normally identified during a non disruptive visual inspection.
- 1.6 For the purposes of this report the front face of the property will be considered that which faces the main road and all areas will be referenced as if looking at this elevation.

2.0 OBSERVATIONS

- 2.1 There is a significant outward bulge in the right hand gable wall with a full height crack apparent. Localised areas of render have been removed to reveal the cracks is evident in the masonry also, in addition the masonry appears loose where exposed. Neither the bulge or cracking are evident on the internal face which suggests the outer extent of the masonry has separated from the inner. In its current condition the wall is at risk of localised collapse. See photograph 01 in the appendix.
- 2.2 There are significant full height cracks to the front elevation and left hand gable, see photographs 02 & 03 in the Appendix. There are separation cracks in the internal walls where they abut the front elevation. The extent and nature of the cracks are consistent with structural movement/subsidence. We understand that the front and left hand gable walls have been recently underpinned. Avanguard Tell Tales have been fitted across the cracks within the property. We understand that these have not been read since the property

was underpinned and therefore the effectiveness of the underpinning works cannot be confirmed.

- 2.3 The property is in need of total refurbishment and modernisation. The internal finishes have been significantly affected by both penetrative damp and high humidity levels. The ceiling plaster is debonding in various areas and mildew growth is apparent throughout. See photographs 04 & 05 in the appendix.
- 2.4 The roof structure appears structurally adequate. The timber first floor structure deflects excessively when walked upon which is common in properties of this age and type. Considering the age of the property and condition rot and infestation of the timber elements cannot be discounted, further inspection by a timber specialist would be prudent.

3.0 DISCUSSION/RECOMMENDATIONS

- 3.1 It is likely that the property has been subject to significant structural movement. It is unclear whether this movement is still ongoing however the lack of significant new cracking to the internal elevations suggests that movement may have ceased. However before a suitable repair specification can be recommended further movement must be discounted. We therefore recommend that the Avanguard 'Tell Tale' crack monitoring gauges currently fixed to the front wall within the bedroom are monitored over a 12 months period to check for further movement. Two further gauges should be fitted to the cracking to the left hand gable wall and monitored also. Readings should be recorded at three-week intervals over the period noted. If movement has ceased then the cracked masonry will need re-tied by installing 750mm long concrete Spanlite lintels into the wall (each face) across the crack location at 650mm vertical centres. The crack should then be filled with a non-shrink grout and Expamet fixed to the wall across the crack location prior to re-rendering.
- 3.2 The right hand gable wall in its current condition is at risk of localised collapse. With this, we recommend that the farm yard is cordoned off beneath the gable for a distance of at least 15m to protect personnel from potential falling masonry. Should the wall collapse then there is a potential for the floor and roof elements supported on the wall to collapse also. It would therefore be prudent to vacate the property until the gable has been repaired. In terms of repair we recommend that the gable is rebuilt. Judging by the poor condition of the masonry exposed then this may result in the majority of the gable needing rebuilt. It may be that only the outer extent of the masonry will need rebuilt however this can not be confirmed until demolition works expose the condition of the inner extent of the masonry wall. Obviously the roof and floor

element supported off the gable wall will need fitted with temporary propping while the remedial measures are carried out.

- 3.3** The house is in need of total refurbishment this should include replacement of all internal plaster finishes with a suitable insulated system, the inclusion of a DPC at ground floor level to all walls, the replacement of the ground floor stone slabs with insulated concrete slabs with integral DPM, the replacement of the windows and doors and the replacement of the external render. The new render should be a lime based system to allow the house to breathe and help combat high humidity issues. As part of any refurbishment we recommend that a timber specialist is appointed to check the property for rot and infestation to allow any affected timber elements to be repaired. It may be prudent to strengthen the first floor joists as part of any refurbishment scheme

4.0 CONCLUSION

- 4.1** The property is in a very poor condition with significant structural defects. The potential for the right hand gable to locally collapse renders the property unsafe and in our opinion should be vacated and the farm yard adjacent cordoned off until the gable wall is made good. Further crack monitoring needs carried out to confirm the underpinning works recently completed have been effective prior to any remedial/refurbishment measures being carried out. The property needs to be totally refurbished/modernised.
- 4.2** Considering the above it may be more cost effective to demolish the whole property and rebuild a new similar sized house to modern standards. With the amount of rebuild and refurbishment works necessary, combined with the risk that the recent underpinning works have not been successful requiring these works to be redone, then rebuild may prove quicker and as noted more cost effective.

For and on behalf of WDS Limited

Tom Short BEng (Hons) CEng MICE



PHOTOGRAPH 01 VIEW ON RIGHT HAND GABLE



PHOTOGRAPH 02 VIEW ON CRACK TO FRONT ELEVATION



PHOTOGRAPH 03 VIEW ON LEFT HAND GABLE CRACKS



PHOTOGRAPH 04 VIEW ON CEILING FINISH TYPICAL



PHOTOGRAPH 05 VIEW ON MILDEW AND DAMP TYPICAL.