

3223

Woodhead Hall Farm
Structural Condition & Development Report

STRUCTURAL CONDITION & DEVELOPMENT REPORT

22ND March 2021

Document Control

Preamble

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Appendices

Appendix A

Preamble

Jameson Consulting Engineers Ltd appointed by xxxx in accordance with the development proposed as detailed on PEB drgs xxxxx

Preliminary Survey conducted 03rd November to assess the building for safe access for topographical and general survey.

Jameson Consulting Engineers conducted walk-over survey visually reviewing all safely accessible areas.

Weather (describe)

The site and complex of buildings known as Woodhead Hall Farm includes the main Wood Head Hall, adjacent Farmhouse Cottage and ancillary barn buildings. The estate formally occupied by further buildings now demolished (refer to heritage reports). Wood Head Hall is a Grade II listed building, and we list the properties as follows.

- Woodhead Hall
- Woodhead Hall (Stone Outhouse & Boundary Wall)
- Barn 1
- Barn 2
- Farmhouse Cottage
- Barn 3 (Barn 3a derelict)
- Barn 4
- *Barn 5 is a modern steel framed farm storage building. demolished under the proposal and has therefore not been surveyed.*

Woodhead Hall

Wood Head Hall is a Grade II listed building described in the formal listing below.

*“SE30SE WOMBWELL WOOD WALK (north side, off)
5/53 Wood Head Hall Farmhouse*

II

Farmhouse. Late C18. Finely-jointed sandstone ashlar, stone slate roof, renewed brick stacks. 2 storeys and attic, 5 bays, symmetrical facade. Plinth, projecting quoins. Original panelled door in architrave with plinth blocks, plain frieze and consoles to pediment. Doorway set within a round-headed shallow recess. Flanking sashes with glazing bars in plain projecting surrounds. 1st-floor sill band links 5 similar sashes, central window emphasised by moulded architrave, pulvinated frieze and cornice. Moulded eaves cornice breaks forward at each end and returns. Moulded kneelers and cyma-moulded gable copings. End stacks. Rear: central stair-window with blind opening above. Eaves cornice. Interior: contemporary fireplaces, panelled doors and shutters. A particularly well preserved house of the period.

Listing NGR: SE3720602031”

Roof

Stone Slate roof on battened rafter roof supported on purlins on queen post trusses forming attic floor.

Likely oak pegged and possibly perished. No breathable underlay and condition of battens potentially original are likely to have suffered from water ingress/damp and timber infestation (WIDTI).

Rafter (currently not inspected) likely to have suffered WIDTI to all areas of chimney and gable flashings, plus slipped or poor coverage from slates.

Oak purlins and queen post trusses evidence signs of heritage carpentry and are well constructed and can be retained. Localised repairs to an extent to repair areas of WIDTI highly likely at eaves, flashing locations weak points for water ingress/infestation.

There are very few water stains obvious within the first floor rooms and therefore the roof covering has performed well through its life-span. After 250 years it is probably that further investigations will require significant repair works to the structure.

Ceilings and finishes to attic accommodation are likely to be removed by the proposed scheme to allow for fabric thermal improvement and to replace lath and plaster wall coverings that are in poor condition.

Strip ceiling lath and plaster to allow full assessment of roof timbers.

Structural Engineer to review infestation, condition and water ingress damage to principal timber members to prepare a scheme of sympathetic timber repair and conservation. Treatment of timbers where possible to retain the maximum amount of original timber, treated with suitable preservatives and where section loss is significant use new green oak to exact the required splice repair.

Strip roof, stock-pile and re-use slates, new softwood battens and subject to condition review the replacement of existing hardwood oak rafters with new softwood rafters. It should be assumed at this stage that if 25-50% of rafters are affected in this way, that replacement rafters will be required.

Walls

The house is a load bearing masonry structure.

Outer face stonework is noted in the listing and is in good condition. Gentle power wash with minor repairs as appropriate to features or areas of high weathering.

The inner leaf of the outer wall and internal walls are likely to be locally made bricks as is evident by the construction of the chimneys.

Subject to the extent of plaster works required in wiring, plumbing and repairing de-bonded, loose or water damaged plaster we expect to see minimal issues with the load bearing masonry.

Locally we note some vertical cracking at the junction between internal and external walls and may require strapping to bond poorly constructed brickwork corners together.

Floors

Timber boarding over timber joisted floors with down-stand oak beams (oak or hardwood) appear subject to removal of finishes in good condition. Condition to be checked by survey once floor-boards lifted. Retain all boards for re-use and re-lay where possible.

Engineering and practical judgement to be exercised in the routing of services throughout the property to minimise notching and unnecessary removal of building fabric. In general notching will not be permitted in smaller section members and notches in large members need to be checked by calculation and inspection on site such that a weak point is not created adjacent large shakes, splits or original carpentry joints.

Basement

Basement to north-western half of the building footprint. Vaulted brick arches form stone floor to ground floor.

Well or deep structure noted in hallway to basement Low head height.

Use of the basement important to understand scope or works required. Sump pump, new floor, tanking, insulation all considerations that will affect the structure.

Timbers in the ancillary floor structure, stairs and internal carpentry are likely to be heavily affected by WIDTI.

Foundations

Outside of basement, expect timber floors. Extent and depth of floor void unknown, ventilation likely to be inadequate and require additional air-flow to sustain natural ventilation. Condition of ground floor likely to have been affected by WIDTI here, further survey required*

External

Tight jointed ashlar stone face to front elevation in good condition.

Gables, varying course 10mm joints appear badly pointed with cement mortar. Rake out and replace with a heritage lime mortar.

Rear wall similar to gables, cement render provides partial coverage between ashlar stone window settings. Render in poor condition but may cover heavily weathered stone facing. Suitable lime or breathable render covering may be necessary to address this elevation once the cement render has been removed.

Subject to repairs to fenestration, flashing and chimney benching as determined by trades.

Guttering either cast-iron or timber gutter supported on cast or wrought iron brackets fixed back to stone dentil course. Bracketry lost through corrosion has caused front elevation gutter to deflect away from eaves. New bracketry and cast iron gutters required.

Dentil course to rear (north-west) elevation deviates outwards and vertically in line, suggesting a loss of bond, tie or indicative of eaves spread. Stonework beneath the dentil course is in poor condition and weathering prior to the application of render may have caused movement of the dentil course. Localised re-building and re-setting of the dentil course may be required in conjunction with the guttering works.

Tree to eastern corner to be removed to prevent issue with wall foundations.

Wood Hall Farm Outbuilding

Roof

Slate roof (not original – origin unknown) with stone slate eaves course on battened rafter roof supported on purlins. Roof not fully seen*

Roof covering in very poor condition. Slipped slates, missing slates, cement pointing/flushing at ridge with boundary walls 75% missing/slipped. Expect full new roof.

Note works to use this building as part of an extended garage building may require a section of the boundary wall to be removed or retained within new building.

Walls

The outbuilding is a load bearing masonry structure.

Outer face stonework is randomly coursed with original openings infilled Two door openings, RHS likely original, LHS formed later. Areas of missing stonework and north west wall has been badly pointed with cement. The extent of new openings in this building will dictate whether the building should be re-built.

It is likely on shallow footings and may have been built around the section of boundary wall running due north. If the external wall is largely kept then new foundations and structural blockwork inner skin will likely be needed to provide ongoing stability to the structure.

Floors

Ground floor not seen* expect stone flag, earth or thin modern concrete floor. All to be replaced.

Foundations

Likely to be very shallow and founded on natural strata below original topsoil level.

Trial pit required to ascertain wall depth to review in relation to proposed building use, extension and scope of demolition.

External

Boundary wall – condition to be further review*. Structural works may be required if buttressing walls are lost by the development.

Barn 1 (Forming Workshop to Woodhead Farm & rear Annex to House 2)

Southern section of Barn 1 appears to be a later addition. Full height joint half-way along indicates separate building dates.

Roof

Slate roof (not original – origin unknown) to 65% with stone slate original covering to remaining east and west roof faces of the southern section. Roof not fully seen*

Roof covering in very poor condition.

Slate roof has slipped slates, missing slates, cement pointing at ridge poor. Valley with Barn 2 and Cottage poorly formed. Sag to ridge line identifies a central load bearing wall and intermediate trusses.

Stone slate roof to east slope is in a very poor condition likely due to batten and rafter loss. Stone slate roof to west slope in similar condition, but with more missing and slipped slates.

Stone slates likely oak pegged and possibly perished. No breathable underlay and condition of battens potentially original are likely to have suffered from water ingress/damp and timber infestation (WIDTI).

Rafters (currently not inspected) likely to have suffered WIDTI to all areas, flashings, plus slipped or poor coverage from slates.

Oak purlins and braced trusses are well constructed and can in principle be retained. Localised repairs to an extent to repair areas of WIDTI highly likely at eaves, flashing locations weak points for water ingress/infestation. Missing internal members and strengthening of joints to the trusses is likely.

Assume completely new roof covering, battens, rafters and major repairs to purlin and trusses.

Walls

The barn is a load bearing masonry structure.

Outer face stonework is irregular but evenly coursed with stone quoins to corners. Openings with stone heads and main gated entrance to the barn has a stone arch. Stone kneelers to original gutter line. Cast-iron guttering present to 15% of eaves length.

Wall thickness two skins of stonework.

Stone arch to east elevation main entrance has slipped, movement evident above. Re-set arch with remedial tie bars. Stonework at eaves heavily weathered and lost, re-build with appropriate guttering support. Cement pointing evident, rake-out and re-point with lime mortar. Areas of lost stonework to west elevation, requires full depth repair and stonework re-setting.

Internal gable walls have suffered from roof defects and lack of mortar bonding. Significant works required to bed, bond and tie all internal walls together. This includes the inner leaf of the external walls. Remedial ties, resin anchoring possible.

Stability of walls needs to be considered when floor plate removed.

Floors

Timber boarding over timber joisted floors with down-stand oak beams (oak or hardwood) appear in poor condition. Significant section loss due to infestation. Floor already partially replaced with new softwood. Caution – Floor not safe for access in its present condition.

First floor to be replaced with new. Reclamation of some larger section size timbers may be possible subject to WIDTI condition.

Ground Floor

Ground floor not seen* expect stone flag, earth or thin modern concrete floor. All to be replaced.

Foundations

Likely to be very shallow and founded on natural strata below original topsoil level.

Trial pit required to ascertain wall depth to review in relation to proposed building use, extension and scope of demolition.

Tanking to west elevation required.

External

Stone steps to east elevation heavily weathered and laid loose.

Earth mound to west elevation to be removed will be causing moisture to sit in the stone-work. The ground level is higher than ground floor level.

Vegetation to be removed.

Large trees have recently been removed in the vicinity of the building this may affect ground conditions local to the building.*

Farmhouse Cottage

Originally two or three dwellings* for estate workers.

Layout adapted to one property likely mid C20th.

Roof

Slate roof (not original – origin unknown). Roof not fully seen*

Roof covering in poor condition.

Slate roof has slipped slates, missing slates, cement pointing at ridge poor. Valley with Barn 2 and Cottage poorly formed. Sag to ridge line identifies a central load bearing wall and intermediate trusses.

Slates likely nailed and nails perished to percentage of roof. No breathable underlay and condition of battens potentially original are likely to have suffered from water ingress/damp and timber infestation (WIDTI).

Rafters (currently not inspected) likely to have suffered WIDTI to all areas, flashings, plus slipped or poor coverage from slates.

Load bearing wall to LHS of main stairwell.

Oak purlins and supporting trusses are well constructed and can in principle be retained. Localised repairs to an extent to repair areas of WIDTI highly likely at eaves, flashing locations weak points for water ingress/infestation. Missing internal members and strengthening of joints to the trusses is likely.

Assume completely new roof covering, battens, rafters and repairs to oak purlins and trusses.

Chimney benching missing. Top of eastern stack previously re-built and look in poor condition. Western stack similar.

Walls

The barn is a load bearing masonry structure.

Outer face stonework is coursed with irregular but evenly coursed stones with stone quoins to corners. Openings with stone heads and jambs appear stable. Stone kneelers to original gutter line. Guttering in poor state of repair.

Wall thickness two skins of stonework.

Stonework to south elevation has suffered heavily from weathering and the facing of stonework has been lost. Structural repair required including new stones where required* - detail scope of works required.

Floors

Timber boarding over timber joisted floors with down-stand oak beams (oak or hardwood) appear in poor condition. Significant section loss due to infestation and damp ingress likely. Floor sag noted in places – floor plate likely needs complete replacement. Head-height at ground floor too low. Roof structure may prevent sensible head-height at first floor if floor level raised.

First floor to be replaced with new. Reclamation of some larger section size timbers may be possible subject to WIDTI condition.

Ground Floor

Ground floor not seen* under finishes. Expect stone flag, earth or thin modern (mid C20th) concrete floor. All to be replaced with new.

Foundations

Likely to be very shallow and founded on natural strata below original topsoil level.

Trial pit required to ascertain wall depth to review in relation to proposed building use, extension and scope of demolition.

Tanking to west elevation required, subject to relative floor level of Barn 2.

External

Ground level to rear needs further consideration within the development proposal. Tanking may be required and/or suitable external retaining walls to deal with level changes.

Barn 2 (Forms House 2 with northern end of Barn 1)

Long barn

Roof

Original stone slate covering. Roof not fully seen*

Roof covering in very poor condition.

Stone slate roof has slipped slates, missing slates, cement pointing at ridge poor. Valley with Barn 2 and Cottage poorly formed. Ridge line reasonably true, probably due to repairs and modern timber replacement.

Stone slates likely oak pegged, or iron nailed and possibly largely perished or diminished. No breathable underlay and condition of battens unknown but likely to have suffered from water ingress/damp and timber infestation (WIDTI).

Rafters (currently not inspected) are C20th softwood square sawn sections, laid on C20th softwood purlins. Purlins appear noted over repaired original oak truss, but principal members are largely replaced with square sawn sections and wrought iron/cast iron straps.

Although repaired and the roof generally not original the form and layout of the purlins and trusses could be retained. Localised repairs to an extent to repair areas of WIDTI highly likely at eaves, flashing locations weak points for water ingress/infestation.

Assume completely new roof covering, battens, rafters and localised repairs.

Walls

The barn is a load bearing masonry structure.

Outer face stonework is irregular in bond and coursing but generally evenly coursed with stone quoins to corners.

Openings appear C19th C20th with timber lintels, steel beams over the larger door openings and stone head to upper window in the north elevation. The barn appears to have been adapted over the years to the detriment of the stability of the stone masonry. The north elevation is continuous with that of the farmhouse cottage which creates a 30m run of stone wall. This wall will expand and contract with thermal changes and this has led to the formation of a larger vertical crack over the head of the LHS barn door opening. In addition, the corrosion of the steel beam over the door head may also be a contributing factor.

Stone kneelers to original gutter line. Cast-iron/ uPVC guttering present, both unlikely to be original.

Wall thickness two skins of stonework.

Internal gable walls have suffered from roof defects and lack of mortar bonding. Significant works required to bed, bond and tie all internal walls together. This includes the inner leaf of the external walls. Remedial ties, resin anchoring possible.

Stability of walls needs to be considered when floor plate removed.

Floors

Timber boarding over timber joisted floors (softwood) appear in poor condition, albeit areas of boarding do not appear sound due to water ingress. Softwood joists support on steel beams between eaves walls.

Floor plates will need to be replaced to necessitate domestic ceiling heights.

Ground Floor

Ground floor currently capped with a concrete slab. All to be replaced to allow building fabric to current regulations.

Foundations

Likely to be very shallow and founded on natural strata below original topsoil level.

Trial pit required to ascertain wall depth to review in relation to proposed building use, extension and scope of demolition.

Tanking to south and west elevations required subject to agreed floor levels.

External

Ground level to rear needs further consideration within the development proposal. Tanking may be required and/or suitable external retaining walls to deal with level changes.

Large trees have recently been removed in the vicinity of the building this may affect ground conditions local to the building.*

Barn 3

Isolated Cottage/Barn, formally part of a longer run of buildings. Evidence of 3 original entrances.

Roof

Slate roof (not original – origin unknown) with stone slate eaves course on battened rafter roof supported on purlins. Roof not fully seen*

Roof covering in very poor condition. Slipped slates, missing slates, cement pointing/flashing at ridge and eaves missing.

Stone slates likely oak pegged, or iron nailed and possibly largely perished or diminished. No breathable underlay and condition of battens unknown but likely to have suffered from water ingress/damp and timber infestation (WIDTI).

Rafters (currently not inspected) are expected to be similar to Barn 1, or if replaced similar to Barn 2.

Assume completely new roof covering, battens, rafters and major repairs to principal roof members.

Walls

The barn is a load bearing masonry structure.

Outer face stonework is irregular in bond and coursing but generally evenly coursed with stone quoins to corners.

Openings to the south elevation. Three original door openings have stone heads in good condition. Later additions of ground floor windows with timber heads will need to be replaced with new timber or stone as appropriate. Upper floor windows with stone heads, cills and jambs are original and are present in a condition that can be repaired or locally replaced.

Original gutter brackets are lost, and new guttering requires sympathetic replacement to match original heritage detail.

Wall thickness two skins of stonework.

Internal gable walls have suffered from roof defects and lack of mortar bonding. Significant works required to bed, bond and tie all internal walls together. This includes the inner leaf of the external walls. Remedial ties, resin anchoring possible.

Stability of walls needs to be considered when floor plate removed.

Floors

Timber boarding over timber joisted floors (oak) appear in poor condition. Boards and joists are likely to be not practical to repair. Large section floor timbers could be repaired and re-used subject to detailed proposals for the properties.

Floor plates will need to be set at the correct height to necessitate domestic ceiling heights.

Ground Floor

Ground floor not seen* under finishes. Expect stone flag, earth or thin modern (mid C20th) concrete floor. All to be replaced with new.

Foundations

Likely to be very shallow and founded on natural strata below original topsoil level.

Trial pit required to ascertain wall depth to review in relation to proposed building use, extension and scope of demolition.

External

Ground level to rear needs further consideration within the development proposal. Tanking may be required and/or suitable external retaining walls to deal with level changes.

Adjoining Structures

Note adjoining structures were previously present to the west and are now derelict (Barn 3a). new buildings to be formed on this footprint.

Barn 4

Isolated Barn, formally part of a longer run of buildings forming a northern courtyard of barns, stables and cottages*

Roof

Corrugated steel sheeting. Heavily corroded offering little protection on the western slope. Roof not fully seen*

Roof covering in a perilous condition. Evidence of fire damage and significant decay caused by water damage. Purlins and principal trusses appear charred and eroded. We consider this a dangerous roof structure that needs to be removed in the short term.

Walls

The barn is a load bearing masonry structure and appears to be the last surviving section of the northern courtyard.

Outer face stonework is irregular in bond and coursing height but generally evenly coursed with stone quoins to corners.

West Elevation. Heavily weathered at the southern end, where softer red sandstone blocks have been used. Heavy pointing loss requires extensive repair.

Buttressing to the North gables, hints at the building that continued to the north. These now brace the northern gable, which appears to have a truss built into the apex of the wall and again constructed from red sandstone.

The eastern elevation facing the original courtyard requires significant repairs to the door heads, jambs and masonry bonding should the original openings be retained. Stone kneelers are present to this elevation, whereas they are not present on the west.

New guttering requires sympathetic replacement to match original heritage detail.

Wall thickness two skins of stonework.

Internal gable walls have suffered from roof defects and lack of mortar bonding. Significant works required to bed, bond and tie all internal walls together. This includes the inner leaf of the external walls. Remedial ties, resin anchoring possible.

Gable walls are not fully bonded to eaves walls – significant gap and crack suggesting outwards rotation of the eaves walls under roof spread.

Weathering to the apex of the gable walls (north and south) is severe and these sections may need to be re-built.

Stability of walls needs to be considered when floor plate removed.

Subject to the architectural proposal here and proposed elevational treatment, it may be prudent to consider the demolition of this Barn as part of the construction of the re-built Northern Courtyard.

Floors

Timber boarding over timber joisted floors (oak) appear in very poor condition. Boards and joists are likely to be not practical to repair. Large section floor timbers could be repaired and re-used subject to detailed proposals for the properties.

Floor plates will need to be set at the correct height to necessitate domestic ceiling heights.

Ground Floor

Ground floor not seen* under debris. Expect stone flag, earth or thin modern (mid C20th) concrete floor. All to be replaced with new.

Foundations

Likely to be very shallow and founded on natural strata below original topsoil level.

Trial pit required to ascertain wall depth to review in relation to proposed building use, extension and scope of demolition.

External

Ground level to rear needs further consideration within the development proposal. Tanking may be required and/or suitable external retaining walls to deal with level changes.

Adjoining Structures

Note adjoining structures were previously present to the north and south and are now derelict with foundation wall courses evident in the undergrowth.

General comments

- Phase 2 SI – contamination report on historic farm buildings – methane likely to be an issue from farm animal deposits.
- Site drainage archive information – CCTV of surveyed MH's.
- Site drainage surface water – soakaways or discharge to water course/ditch needs to be proven. Part of Phase 2 SI works.
- Site drainage foul water – individual septic tanks or packaged treatment tanks discharging to ditch.
- Tanking DPC issues
- Levels – ground floor, external levels.
- Elevational changes – fenestration/door openings.
- Clear head heights
- Foundation depths
- *Report requires detailed scope of works following full structural survey (yet to be carried out)
- *Verticality of walls – needs to be checked.
- *Timber condition report - unlikely to be viable or useful until full access is made to the roof structures.