

**STRUCTURAL APPRAISAL**  
**OF**  
**OUTBUILDING**  
**AT**  
**RUDDA FARM, STAINTONDALE**  
**NORTH YORKSHIRE**  
**FOR**  
**MR & MRS GASCOINE**



Prepared by

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**1.0 BRIEF:-**

This report has been prepared on the instruction of Mr & Mrs Gascoine. The report is required to provide supporting information regarding a planning application to convert a redundant outbuilding into a dwelling.

A previous appraisal was carried out in August 1996. This report therefore is required to update our earlier report. Much of the text of this report has been taken from the earlier report and edited as necessary to update the information.

The objective of this report is:-

- to provide a general appraisal of the current structural status of the outbuilding.
- to comment on the structural implications, if any, of the proposed change of use.

This report is NOT a full structural specification for carrying out the works.

We have not inspected the woodwork or other parts of the structure which are covered, unexposed or inaccessible and we are, therefore, unable to report that any such part of the property is free from defect.

Dimensions noted in this report are rough visual estimates for identification purposes only. No actual measurements have been taken at the site.

**2.0 INTRODUCTION:-**

The outbuilding which is the subject of this report is located immediately to the North of the main farm house.

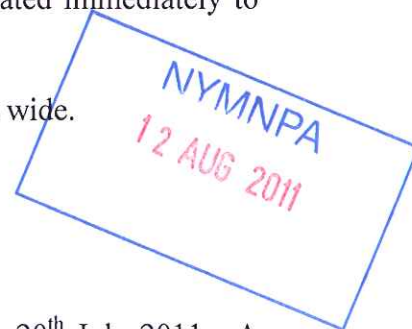
The building is approximately 17 metres long x 5.5 metres wide.

**2.1 Grid Reference:-**

The Ordnance Survey grid reference is SE 981/996

**2.2 Date of Visit:-**

The site was visited for the purpose of this report on the 20<sup>th</sup> July 2011. A previous inspection was carried out on 22nd August, 1996



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### 2.3 Weather:-

Following a very cold and damp winter, the spring was quite mild and dry locally.

On the day of our visit the weather was mild and damp. Recent weeks have been particularly damp.

### 2.4 Topography:-

The site is situated in an elevated location near the coast on the North York Moors. The building is approximately 1 km from the cliffs and 180 metres above sea level. There is a modest slope down towards the South East across the site.

Vegetation immediately adjacent to the building is minimal comprising surfaced yard or unsurfaced tracks.

### 2.5 Geology:-

The British Geological Survey sheet 44 (one inch series) indicates that the subsoil should comprise Boulder clay over shale and sandstone beds of the Lower Oolite Series. The map indicates a geological fault close to the site.

The Ordnance Survey map indicates that there are springs in the area.

At this stage no subsoil investigations have been carried out.

### 3.0 GENERAL:-

#### 3.1 Type of Building:-

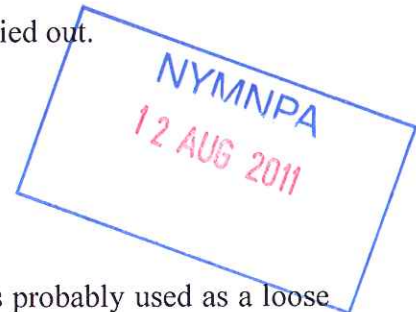
The building is a redundant farm outbuilding. It was probably used as a loose box for stock or stables in the past. The age is not known, but we anticipate that it is over 100 years old. Some first floor timbers appear to be more recent.

The building is essentially a single storey stone construction with a steeply pitched roof. Height to eaves is approximately 3.5 metres and this has provided sufficient room for a first floor within the roof space. The wall of the West elevation comprises clay brick rather than stone.

#### 3.2 Overall Stability:-

Overall stability is provided by the stocky proportions of the walls, which contain few and modest openings.

There are at least two main internal cross-walls to assist with general lateral stability of the external walls.



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The roof is a traditional timber purlin and rafter construction. This type of construction did not traditionally include any bracing and is prone to lateral spread at the eaves.

### 3.3 Past Alterations:-

Past alterations appear to have been very minimal and limited to one or two small openings that have been altered or blocked up.

### 4.0 OBSERVATIONS:-

Where appropriate we have classified the visible signs of damage/movement to the building in accordance with Building Research Establishment digest no. 251 (BRE 251) "Assessment of damage to low-rise buildings". The digest has six categories '0' (negligible) to '5' (very severe).

All dimensions quoted in this report are approximate for identification purposes only.

### 4.1 West Elevation:-

This elevation faces the yard to the rear of the main farm house. The wall is approximately 17 metres long x 3.5 metres to eaves. Adjacent buildings provide a modest amount of shelter from the weather.

The wall generally comprises clay brickwork of solid 225mm thick construction. There are small piers adjacent to main openings. There are sandstone quoins at the Southern gable.

The stone ridge undulates modestly indicating some deterioration of the roof structure. The deflections are less than many other similar buildings that we have inspected.

A significant number of clay pantiles to the roof have been pointed with cement indicating problems with water ingress and general deterioration of the tile fixings. An approx 4m length to the south end has been recovered with tiles.

The eaves masonry is local sandstone on top of the clay brickwork.

Rainwater goods comprise plastic guttering and down pipes which are in need of an overhaul.

Timberwork built into the masonry, such as window frames etc., has been affected by damp and old age and is in need of replacing.

Lintels over the openings vary from timber to stone to concrete and possibly steel. Timber lintels have rotted with damp and age and should be replaced with stone or concrete depending on the actual location.

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A lean-to over the yard has steel angles built into the masonry. Corrosion of the steelwork could lead to cracking of the masonry in the future. We assume that this lean-to roof will probably be removed as part of the conversion works. There is some green mould staining locally.

There are visually some minor undulations in the line and level of the wall. The amount of past movement appears to be reasonably minor and probably quite old. The masonry would benefit from some general re-pointing.

Generally observations as previous inspection carried out in 1996.

#### 4.2 South Gable:-

This wall faces the garden of the main farmhouse and is reasonably exposed to the weather.

The wall is approximately 5.5 metres long x 3.5 metres to eaves. Height to apex of the spandrel panel is approximately 2.0 metres above the eaves. The wall comprises solid sandstone blocks and is probably approximately 400mm thick. There is one small window opening at ground floor level.

Re-pointing in the past appears to have been with an excessively strong mortar. It is important that pointing is with a weak mix in order to avoid damage to the relatively weak sandstone masonry.

Past pointing may have covered old cracking. There appeared to be one vertical crack above the small window. The cracking was generally contained within the jointing and limited to approximately 1mm width. There is also similar evidence of cracking towards the western end (over the oil tank).

The vertical nature of the cracking suggested to us there could have been some slight horizontal movement of the roof at the eaves. A modest rotation of the timber purlin combined with some water ingress is the most likely cause of this damage.

Observations and degree of damage appeared very much as our notes taken in 1996.

In accordance with BRE digest 251 we would classify the damage on this elevation as category 2 (Slight) for which the digest states "some external re-pointing required to ensure weather tightness"..

We will be recommending re-pointing to the masonry and replacement of the roof timber work.

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#### 4.3 East Elevation:-

This elevation faces East and is quite exposed to weather from the North Sea.

Generally proportions are similar to the West elevation.

The wall appears to be of solid sandstone construction. Openings are of generally modest proportions and evenly spread along the length of the wall.

The stone ridge dips occasionally as noted for the West elevation. Small areas of times are missing or loose. A small section of roof at the southern end has been rcovered.

There are a number of vertical cracks of minor width along the length of the wall. There is also evidence that tie rods have been installed in the past. There were also modest undulations in the line and level of the wall generally.

Noting the age and construction of the building, we felt that the general cracking was probably a result of a deteriorating roof structure combined with water ingress and weathering. The damage did not give us cause for very serious concern, but remedial works as noted later will be required to reduce the likelihood of further damage.

There is only one rainwater down pipe for the reasonably long length of the wall. In view of the exposed location, two would be a more appropriate minimum.

At the Northern end, an old timber lintel was rotting seriously due to damp and age. There was some localised cracking and displacement to the masonry over this lintel.

In accordance with BRE 251, we would classify the visible damage on this elevation as category 2 to 3 (slight to moderate) for which the digest states "...cracks require some opening up and can be patched by a mason. Re-pointing of external masonry and a small amount of masonry to be replaced".

#### 4.4 North Gable:-

This elevation is predominantly open for access to adjacent sheds. Masonry piers to the sides of the opening are relatively modern concrete blockwork.

#### 4.5 Internal:-

Internal walls appear to be of clay brickwork. Minor hairline cracks at junctions indicate that lateral movement of external walls has been minimal.

Ground floors generally comprise rough concrete slabs which did not indicate to us that there had been any recent significant movement.

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Timber joists to the first floor were typically 75 or 100mm depth x 50mm at 400mm spacings. Ends were built into the solid masonry walls. Although the timbers appeared newer than much of the construction, they are flimsy and have been affected by damp at ends and also in other locations where the roof leaks.

Two timber beams (approximately 225 x 75mm) support the floor over the central loose box. The flimsy and insecure timber staircase noted in 1996 has been removed.

There was not any first floor construction to the Northern loose box. In our view the first floor construction should be replaced and improved.

The roof construction generally comprised clay pantiles on timber lathes on common rafters (75 x 75 @ 400mm c/crs) supported by purlins (vary typ 150 x 75) supported by tied principal rafters at 3.0m c/crs.

The ties to the principal rafters were slightly raised above the eaves. There is a modest tendency for this construction to spread horizontally at the eaves.

Over the northern half it is possible to see daylight in several locations through the roof.

In locations inspected, the ends of the rafters were built directly into the masonry.

Although there has been a significant amount of water penetration, the general structure is reasonably ventilated and many timbers could be salvageable. The size of the existing timbers may, however, be too small to incorporate new works with insulation and proper ventilation.

Replacing the roof timbers with a slightly deeper section rafters is recommended.

## 5.0 CONCLUSIONS:-

The building is effectively complete. Taking into account the age and past use of the building, we would describe the essential structure as being in good condition.

Signs of significant structural movement or distress appear to be quite minor.

The building has stocky proportions with few openings and, therefore, overall stability characteristics may be described as inherently good.

The proposed domestic use of the building is unlikely to produce loadings in excess of those that the building has already been subjected to.

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While the walls show little signs of lateral movement due to the deteriorating roof, we would advise that measures to improve the stability of the roof and walls should be incorporated into the new works.

This type of existing construction usually is based on shallow foundations. The stone units in a weak mortar provide a wall that is able to accommodate movements due to seasonal variations without resulting in serious structural distress. New works should allow for continued seasonal movements of the foundations.

We note that the proposals shown on the proposed drawings by Denton & Denton indicate an increased number of masonry cross-walls and we feel this should assist in restoring and improving the general stability of the building.

## 6.0 RECOMMENDATIONS:-

Generally all our observations were very similar to our 1996 notes. There does not appear to have been any significant deterioration of this outbuilding since our previous inspection in 1996. Recommendations remain as our previous report.

### 6.1 Roof:-

- Generally replace roof structure with new timbers of deeper section to accommodate insulation, ventilation etc.
- Replace tiles on new tanalised battens and roofing felt.
- Lead flashings to verge etc.
- Ends of all timbers to be protected from damp.
- Generally replace and improve rainwater goods.

### 6.2 Walls:-

- Externally rake out all joints to a depth of at least 15mm and re-point with a mortar no stronger than 1:2:9 cement:lime:sand.
- Install suitable dpc course e.g. chemical injection system by specialist contractor.
- New internal cross-walls to be masonry and to be fixed/bonded to existing walls using stainless steel 'crocodile' strip or other suitable fixings. New cross-walls to extend into roof space to support purlins
- Replace timber lintels with more appropriate stone or concrete type.
- Re-build small area of masonry (approximately 2 sq.metres) over existing timber lintel on West elevation.
- Provide new steel tie rods at first floor level and adjacent to each cross-wall and gables (i.e. 6 nr.)

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6.3 Floors:-

- Replace first floor timber construction with more appropriate deeper sections.
- Protect ends of joists from damp.
- Replace existing rough floor with new concrete slab on dpm on hardcore bed.

Signed for  
**Richard Agar Associates Limited,**

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