Structural Appraisal

of

St Hilda's Colliery
South Shields

for

Tyne and Wear Building Preservation Trust

October 2014
Project Reference: Q117

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St Hilda's Colliery, South Shield

1. Introduction

The Winding House of St Hilda's Colliery is Grade II Listed and stands in an industrial estate in South Shields. It is superficially in good condition and has been fairly well maintained. However this brief structural appraisal has identified some structural issues that need addressing.

2. Inspection

The building was inspected on 9th October 2014. The interior was accessible for inspection, but the Winding House brickwork and roof were only inspected internally from floor level. There was no access to the roof of the Pump House section of the building.

3. General Description

The building structurally comprises two parts, mainly the Winding House and the attached Pump House. Both have walls of load-bearing brickwork. The Winding House is a single open space with a steel beam and concrete roof. Located on the roof is an iron framework incorporating winding machinery. There is also a steel framework supporting it internally. The shaft has evidently been capped with concrete. The floor of the main part of the Winding House, over the shaft, is now 1.75m above the floor level of the rest of it, which is at entrance level.

The Pump House has three floors and a concrete roof, which is about 4m higher than that of the Winding House. The top floor is about 900m higher than the level of the Winding House roof, to which there is access through a doorway. Whilst the Winding House has no windows, the Pump House is well lit with long windows at each level on the south elevation.

There is a vertical steel ladder giving access to the upper floors (but not the roof). The roofs are covered in felt, which is in reasonable condition, but there is standing water on part of the Winding House roof in an area where moss has built up.

The Pump House floors and roof were renewed with new concrete and new steel supporting beams in 1989.

4. Structural Condition

The external brickwork is generally in very good condition. Internally it is in good condition apart from some areas of cracking around embedded ironwork, which has

corroded and expanded. In the Pump House for instance, although a new floor and roof structure has been provided the old beam ends are still in place and may still be contributing to the cracking. It is on the other hand possible that moisture levels within the building and now drier than previously, in which case continued corrosion will be less of a problem.

There are also iron beams at Winding House roof level, in the dividing wall between the Winding House and the Pump House. Although recently painted these are signs that corrosion is continuing.

Of greatest concern however is the Winding House roof. The exposed steel beams are very corroded and large flakes of rust from the webs are lying on the flanges. The south end of one of the beams has corroded right through in places on its bottom flange.

There are also some heavily corroded beams over the entrance passageway through the Pump House. These are not of high significance structurally, but there is a risk of small pieces of rusting metal falling off.

It has not been possible to assess the steelwork supporting the winding gear at roof level. This is given additional support from the internal steel frame, which could be strengthened if necessary.

5. Conclusions and Recommendations

The Pump House is in sound structural condition, but the new steel beams should be painted, as corrosion is starting to affect the surfaces.

The Winding House roof needs urgent replacement. It is not practicable to repair it in-situ because the steel beams need to be replaced and they must be located in the same place as the existing, because the concrete planks span from one to the next. The concrete condition is more difficult to assess from ground level, but if the beams are to be replaced the concrete will have to be renewed too.

The roof should be propped with scaffolding as an interim measure and public access should not be allowed to this part of the building.

A close inspection should be made from a hydraulic access platform, which, if the cage was moved from the ground floor, could be located so as to enable an

inspection to be made of the underside of the roof and the upper steelwork. This would enable the condition of the roof support beam to be confirmed.

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Winding Gear on top of Winding House

Top Floor of Pump House

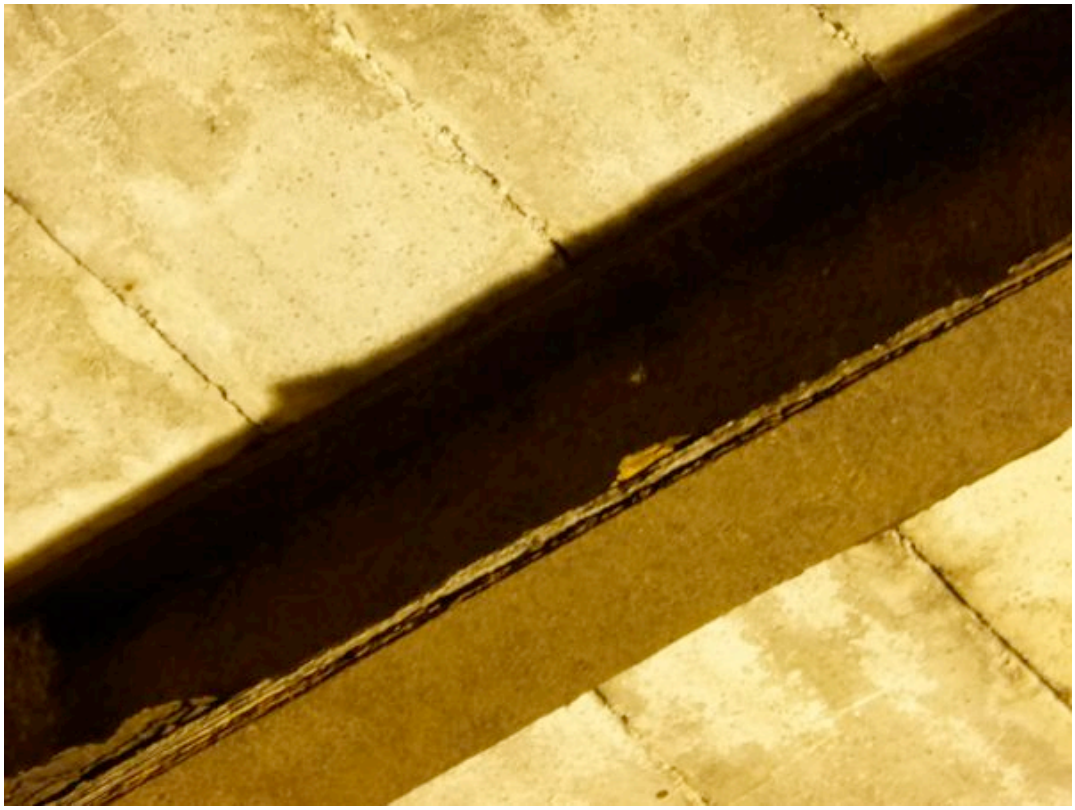
Embedded Beam between Pump House and Winding House

Beams over Entrance Passageway

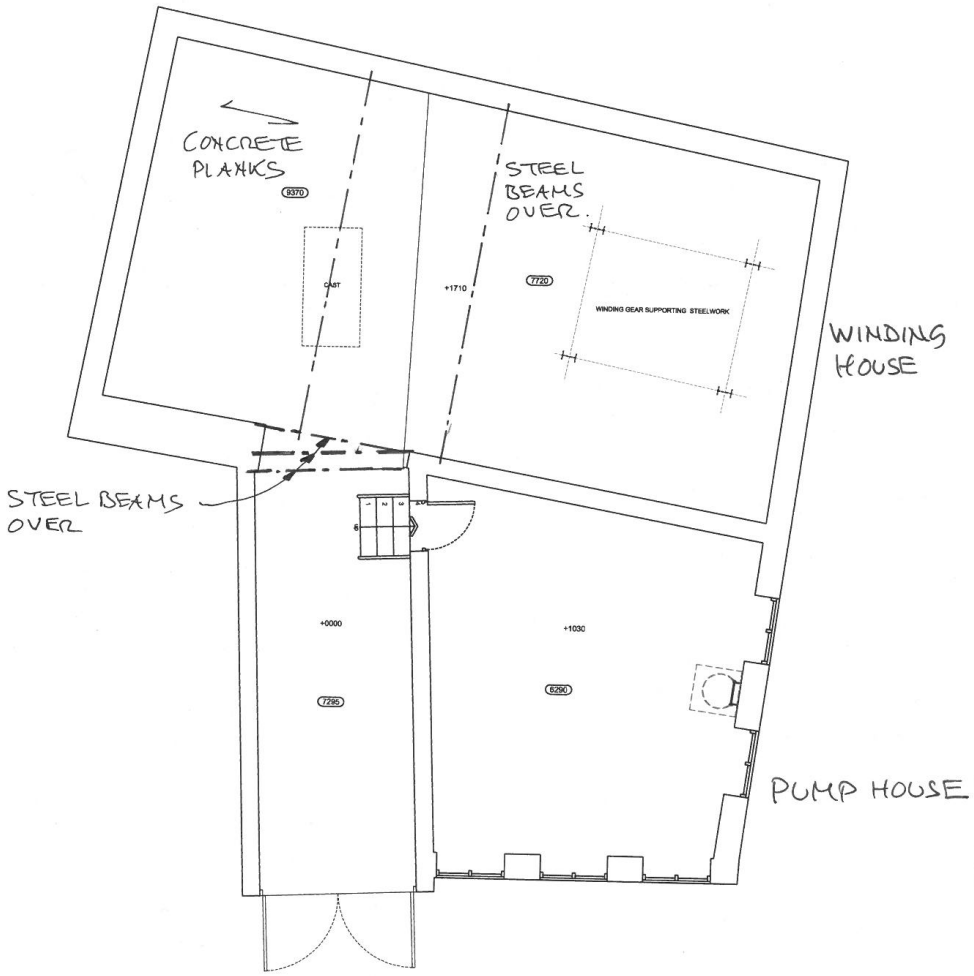
Corrosion in Beams over Entrance

Steel Framework under Winding Gear

Corroding Roof Support Beam



Corroding Roof Support Beam



Ground Floor

ST HILDA'S COLLIERY
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