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For the attention of Simon Allchurch

02 December 2011

Dear Simon

Sidmouth Drill Hall: Pre-Demolition Inspection

I am writing following this morning's general structural inspection of the Drill Hall, which you requested in advance of intended demolition.

Your brief in particular was to advise on the protection/safe retention of the adjacent Sailing Club building, together with any special considerations needed due to the presence of the basement in the Drill Hall. I understand that the intention is to demolish the Drill Hall superstructure down to pavement level, and to infill the basement with arisings to allow use as of the site as an external boat storage area – at least for the immediate future.

We were provided with copies of floor plans of the Drill Hall and available drawings of the Sailing Club. The weather at the time of the visit was fine and dry. The inspection was purely a visual walk-over, with no opening up work carried out.

The main part of the building is an open assembly hall at ground floor level, which has external brick walls supporting a series of timber roof trusses (photos 1-3). The trusses are slightly unusual in that they have hammer-beam style ends and raised collar ties, but also have a horizontal steel tie bar, supported at midspan by a central vertical steel hanger rod. There is a timber boarded ceiling at collar beam level, with hatches to gain access to the triangular roof space above the ceiling. (These were inaccessible at the time of the inspection as scaffolding or a tower would be necessary.) The main pitched roof is slated.

There are two smaller ground floor rooms at each side of the entrance, and a timber staircase which provides access to a first floor room above the entrance area. The ceiling is missing in the first floor room, and the roof structure here is of rafters and purlins strutted down to joists. A number of props

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have been installed at the centre (photo 4), with further propping at ground floor in the entrance area directly below. The propping at first floor aligns with the purlin struts and, although there were no particular signs of current movement or distress, it is possible that a central partition which originally supported the ceiling joists and struts, has at some time been removed and the props were put in as a result of the roof starting to sag.

At the rear of the Hall, there is a small single-storey extension with a flat roof (photo 10), which houses the ladies and gents toilets.

The building has a basement area under the entire main footprint, but the ground on the front, east side, and rear of the building is at the same level as the basement floor – i.e. the basement walls on these three sides are not retaining walls. The drawings of the Sailing Club do not indicate a basement immediately adjacent to the Drill Hall, therefore the Drill Hall basement wall on this side must be assumed to be a retaining wall. There are external retaining walls along the front of the building at the back of pavement, and along the east side adjacent to the public toilets (photo 7). These retaining walls are structurally independent of the building.

Access to the basement is intended to be through a door at the back of the Hall leading to a staircase built externally. However, we were unable to open the door and had to access the basement void via a hatchway in the Hall floor by means of a surveyor's ladder.

The ground floor of the main Hall, which is directly above the basement, has timber floorboards on timber joists. The joists span transversely between the external walls and an internal brick spine wall (photo 18), and a steel beam running from front to rear which is supported on concrete padstones on top of brick columns (photo 19). The basement wall next to the Sailing Club is formed of a series of elliptical arches between buttresses (photo 20).

The Sailing Club has been built very close to the Drill Hall and, at the front, where the Drill Hall masonry projects towards the Sailing Club, the gap is only about 80mm (photos 6 and 17). Behind this, there is a gap of about 450mm between the superstructures of the two buildings, and this is closed off with a valley gutter which is currently silted up and overgrown (photo 16).

The general structural condition of the building appears reasonably sound and it should be possible to demolish the superstructure in a sequential fashion. The main practical problems will be a lack of suitable access for large plant because of the timbered ground floor and poor external standing space, and a need for the work to be done in a careful manner because of the proximity of the Sailing Club and public highway and toilets. Proposals will need to be sought from competent demolition contractors, but it is likely that the work will need to be done principally by hand, working from a combination of temporary access scaffold and long-reach cherry picker.

In particular, it is unlikely that it will be practicable to lift off the main timber roof trusses in one piece, and they will need to be cut into manageable sections, using temporary scaffolding as propping. The ends of the trusses are carried directly on the external walls, and will be providing lateral support to these. Thus, removal of the trusses will potentially destabilise the side walls and the temporary propping system will need to take account of this until the walls can be safely brought down.

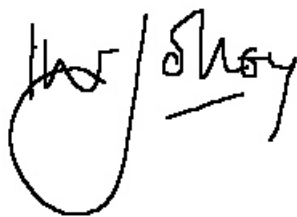
It is not possible to be certain of the structural action of the basement wall which forms the retaining wall alongside the Sailing Club. Whilst it is possible that the basement wall is structurally adequate as an independent retaining wall in its own right, it may - either intentionally or over time - be that the existing timber floor in the Hall is providing propping restraint at ground floor level. The vertical loads from the masonry superstructure and the roof above will certainly be providing additional assistance. In order to ensure stability of the retaining wall, it will therefore be prudent for infill material to be placed against the basement wall before the ground floor is removed in its entirety. The basement void immediately adjacent to the Sailing Club should therefore be progressively infilled to at least half its height, in advance of removal of the adjoining section of ground floor.

The amount of masonry arising from the demolition is likely to be substantially less than the volume required to completely infill the basement void – which in practice includes the present external areas between the basement walls and the front and east retaining walls. Similarly at the rear of the building, the external ground is at basement floor level for some considerable distance, extending into the yard area behind the present boat storage areas. Infill material which is to be brought up to ground floor level in the basement will need to be graded down at a safe angle of about 1:1½. Any shortfall of infill from the masonry arisings will need to be made up by suitable imported material from elsewhere.

Removal of the valley gutter between the Drill Hall and the Sailing Club will need to be done carefully in order to minimise damage to the Sailing Club wall. Any waterproofing flashings that have been fitted between the gutter and the Sailing Club will need to be removed, and the masonry and/or finishes made good.

I trust that the above adequately covers the main points you are interested in. If there is anything that is unclear or you would like to discuss in more detail, please do not hesitate to get in touch.

Yours sincerely



I W Jolley
Director
for BSW Consulting (Exeter) Ltd



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