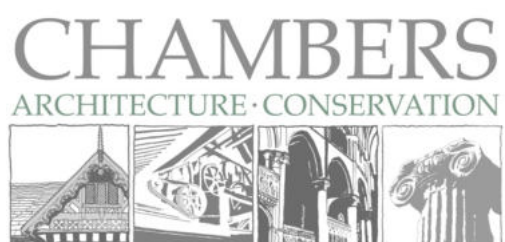




BURY FUSILIERS MUSEUM

Addendum to Condition Survey
Chambers Conservation Ltd, October 2022 ISSUE 1.



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1. Summary Overview

In August 2021 a *Summary Due Diligence Report* (essentially a condition survey) was produced by Avison Young (AY) on behalf of Bury Council (this report forms part of the wider grant application documentation). This report was used to inform the scope for the unsuccessful grant application for MEND funding via the Arts Council in October 2021.

Subsequently Chambers Conservation, specialist conservation architects, have been appointed to develop the repairs identified in 2021 to RIBA stage 3 and to support the preparation of a new application to the MEND scheme. As a part of this work Chambers have reviewed the key findings of the Due Diligence report (where they relate to building fabric issues) as well as reviewing other areas identified subsequently.

The AY report identified a number of key defects in 2021, which included the following (references from Executive Summary):

1. Water retention in service lift shaft no.2. (AY. 2.4)
2. Water ingress and retention in lift shaft no.1 with consequent damage to decorative finishes etc. (AY 2.5)
3. Flat roof covering over entrance area allowing water ingress (AY 2.6)
4. Basement Plant Room Water Ingress (AY 2.7)
5. Other areas of water ingress (AY 2.8)

Given the urgency, the Museum have installed new pump to the service lift (item 1), and undertaken pointing, which has assisted, but not entirely addressed item 2. Some works in respect of item 4 have been undertaken by Bury Council, who are responsible for this area and outside the scope of this review.

Inspections were undertaken by Chambers Conservation on 11th August and 17th August 2022, the weather was fine on both occasions. The inspections focussed on the external fabric, and roof in particular, with reference to the conclusions of the Avison Young report as well as a number of issues which have subsequently become apparent to the Museum during its operation. It did not constitute a full condition survey of the building. The inspections in August 2022 showed that there is deterioration in these areas, as well as identifying further areas of concern.

A plan is attached indicating the areas identified in this addendum, referred to below and consequently the proposed work areas. See Appendix A (drawing reference *BUFM.01-001 Work Areas and Existing Roof Plan*).

2. Update

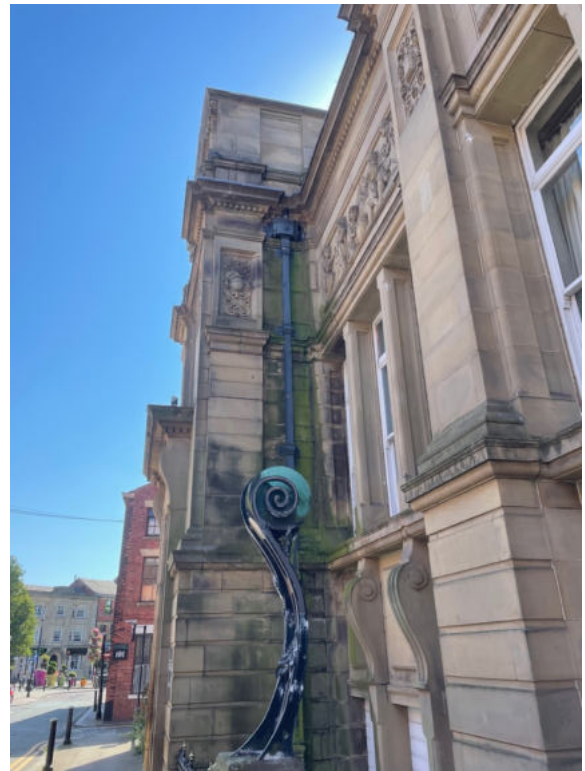
2.1 Water Ingress and Surcharging During Heavy Rain (Areas Identified in AY report).

The AY report noted a number of areas where water ingress was caused by the capacity of gutters and outlets, resulting in surcharging in heavy rain and sometimes extensive water ingress as a result.

In particular the outlets to Broad Street (see Fig 01) are regularly over-flowing down the external stonework which is starting to cause significant damage to the stonework externally and finishes and joinery internally. Without address this also could result in substantial rot taking hold.

Inspection from above (see Fig 02) shows that the gutter (a fairly standard lead, stepped, parapet gutter) discharges through the blocking course into a very small channel cut into the sky-face of the cornice. Lined in lead, this only provides a very limited capacity and there is no catch-pit or sump to assist in storm conditions. The end result is water discharging over the top of the cornice. The pipes also are vulnerable to blockage, especially as pigeons can gain access to the hoppers. The general evidence of saturation to the stonework suggests the pipe is currently blocked and leaking. It needs to be removed to inspect for cracking to the rear.

There is a need to consider providing additional capacity to the area around the chute, and increased capacity into the hopper and pipe. The hopper and pipe are integrated into the stonework and façade, so increasing the pipe and hopper capacity would be very damaging to the appearance of the listed building. Improved access for maintenance is, however, required.



01 (Area A, right and B, left). Outlets and downpipes to Broad Street. Surcharging and discharging down the face of the ashlar. Causing damage to the stonework (externally) and damp internally. A combined cause of complex discharge arrangements at cornice level, lack of capacity and blockages can be identified as the causes.



02 Area A (Note, Area B same but mirrored). Lead gutter discharges onto cornice, through channel cut into stone and lined in lead. Capacity is very limited and there is in effect no catch-pit or sump.

The rainwater pipes discharge onto the surface of the concrete in the light-wells to Broad St. There are gullies in the light-wells but not in direct proximity to the pipes. It is suggested that the below-ground drainage is investigated further and a survey commissioned to ensure that the water is being effectively dealt-with.

Area C is the discharge point for Gutter 3. This outlet takes a substantial amount of water from two adjacent roof slopes. Identified in AY report, but the outlet configuration was not fully understood, (see illustration 14/15 of AY summary). Water ingress is very evident below the outlet.

Currently the gutter drops into a very small catch-pit with (blocked) overflow. The pipe is then routed internally (concealed) with an off-set to a chute and hopper below. (see Fig03). This is currently very difficult to maintain without external scaffold.



03 (Area C). View from the gutter above. View from the north-west showing the overflow and hopper (circled).

There is very limited over-flow capacity and the outlet is vulnerable to blockage. It should be possible to increase the catch-pit capacity, with some reconfiguration, and improve access for maintenance to reduce risks to the fabric.

Further areas of water ingress were identified, (above the WC corridor and mezzanine stair S06). This was identified in the AY report (item 4.15, p19), but has noticeably deteriorated subsequently. Gutter 6 and 7 are both misaligned and there is failure in the gutter joints, with consequent saturation of the walls below. A section of rainwater pipe is also missing where gutter 7 discharges into valley gutter 13.

Lead valley gutter (15) has limited capacity (it also takes water from roof 11 via a chute), and inadequate height flashings. There is also misaligned and poor quality brickwork above (this appears to be historic and resulting from the varied dates of construction in this area), this has open joints and is potentially contributing to the damp masonry and plasterwork failure below. This area is identified as Area G on drawing BUFM.01-001.

The iron gutters need dismantling, joints repairing and re-aligning properly. The lead valley gutter (15) should have increased depth flashings, which could be extended also to protect the brickwork above.



04 (Area G). General view (left). Close up of view of lead gutter, outlet from roof 11 (left).

2.2 Entrance Area Water Ingress

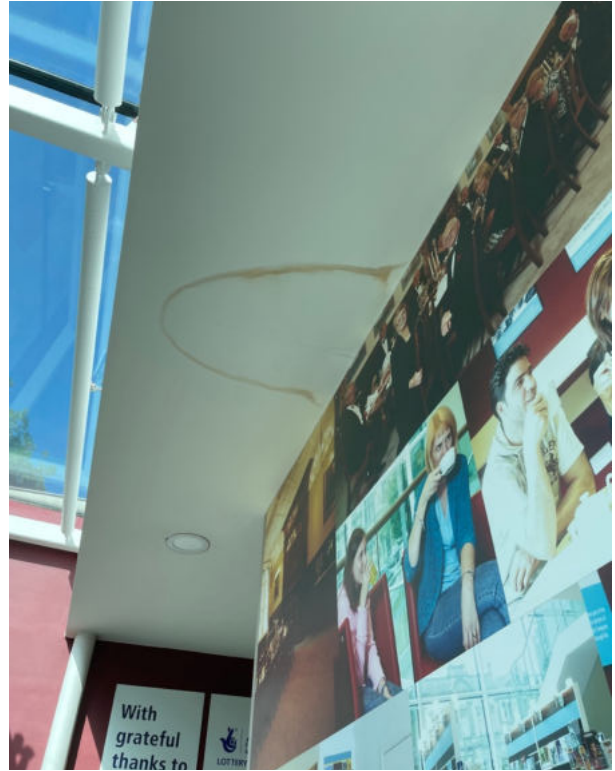
The AY report noted the failure of the modern roofing over the entrance and café. On inspection in August 2022, the roof covering has further failed, and there was widespread evidence of ponding to the surface (through staining as conditions were dry). Water ingress was also evident internally and consequently there is failure in the internal finishes.

The ponding suggests that the roof is not falling properly to the outlets (see Fig 05). The original specification and drawings show a decothane liquid membrane on cut-to-falls insulation. There is widespread evidence of failure in the coating and it is consequently possible the insulation has become wet below, therefore potentially affecting both performance and the falls to the outlets. Patching has been undertaken in a number of locations.

There is also cracking where the liquid extends over the coping to the south-western corner. This isn't currently protected by a flashing, which would significantly improve the detail.

The whole roof is now in need of renewal before significant internal damage occurs. This should preferably be in a membrane rather than liquid applied system, which should offer improved longevity and a more robust finish. Flashings would provide a more robust detail to the south-western parapet.

Refer to Area F on drawing BUFM.01-001.



05 (Area F). Evidence of ponding to the flat roof, extensive coating failure and patching. Right, internal water ingress and damage to finishes.

2.3 Lift Shaft

At the time of inspection it was not possible to safely access the interior of the lift shaft to determine the extent of water in the shaft (lift 1), but there remains evidence of some on-going water ingress which is causing damage to finishes (see Fig 06).



06 & 07 (Area D). Damage to finishes from water ingress above lift shaft (lift 1) and recent repointing works, which have made an improvement to the water ingress.

The lift is within a historic ventilation shaft, Some repointing work has been undertaken (see Fig 06), which has (anecdotally) made a difference to the water ingress. It is however evident that the problem remains, and in order to properly determine the cause, a proper high-level inspection, probably using rope access is required, together with a lift-engineer to facilitate the internal inspection. This may determine further high-level works or additional pointing requirements.

2.4 Other Works

The inspection also noted that there remain issues with water ingress and migrating salt damage to the plasterwork within the bar off the Minden Suite. This would seem to be associated with the on-going issues with the flashings to the chimney above.

It is recommended that the plaster is removed to aid drying out, the flashing is renewed above to address the on-going issues and the plaster (traditional 3-coat lime-hair plaster) reinstated once the wall has dried sufficiently. A suitable breathable paint finish should then be applied.