

External Roof Survey Report

**Daisy Bank
109 Duckworth Lane,
Bradford,
West Yorkshire,
BD9 6RL**

MARCH 21

**JNR Contracting Limited
Authored by: Jamie Robson MAPM AIC
Aerial Drone Footage provided by: Rotorgraph**



External Roof Survey Report

Brief;

To carry out a series of roof surveys of the various roof structures that collectively form the building known as Daisy Bank in Bradford. The building is well known locally and has many roof structures that form part of the building. This report contains information about each of the structures and details of recommendations following the survey.

Property Address;

**Daisy Bank,
109 Duckworth Lane,
Bradford,
West Yorkshire,
BD9 6RL**

Site Overview

Daisy Bank is a large building comprising of many parts. Some parts of the building date back as far as the 1700's and the building has been added to, many times. The building has large flat roof sections, and the older parts of the building has multiple pitched structures.

There is also a house within the grounds which is also documented in this report.

For the purpose of this report, the building is broken down into the parts noted below;



Roof Area 1;

Construction Summary

Roof 1 is the oldest part of the building and contains multiple pitched roofs. All the roofs within this section of the building are made up of various forms of slate. The roof is very old and has a high number of issues throughout including completely missing slates, slipped slates, holes in the roof, and the antique roll top ridges have debonded throughout. Another roofer has done some work in recent years and has removed the antique roll top ridges and replaced them with the wrong type of ridge, using clay capped concrete ridges which are for tile roofs. Whilst this is functional, it robs the roof of its historic character. Every elevation of this roof requires an overhaul of varying degree patching holes, fixing slates or repointing ridges.

The structure, because it is contained within the perimeter of the main building would require external scaffold only, which means once the roofers are on the roof, they can work on the various pitches at a lower cost due to the lack of access equipment needed for each pitch.

If this work does not take place, the roof is going to continue to deteriorate, and it is estimated within no more than 2 years, the building will need a full reroof which would be very costly.

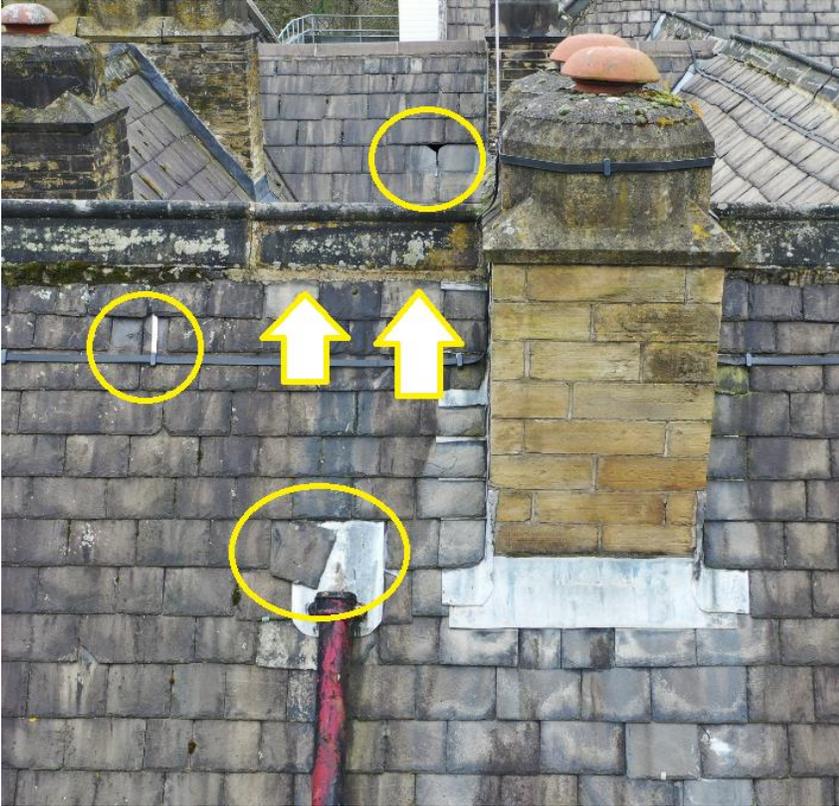
Due to the number of issues found, I have not included every photo, but a selection to give examples of the problems seen. A full suite of photos can be made available on request.

Where the roll top ridges meet, this area should have cement pointing in the crown in the middle. It has completely eroded, and there is almost no pointing holding the ridges on. This leaves them prone to leaking and blowing off in strong winds.

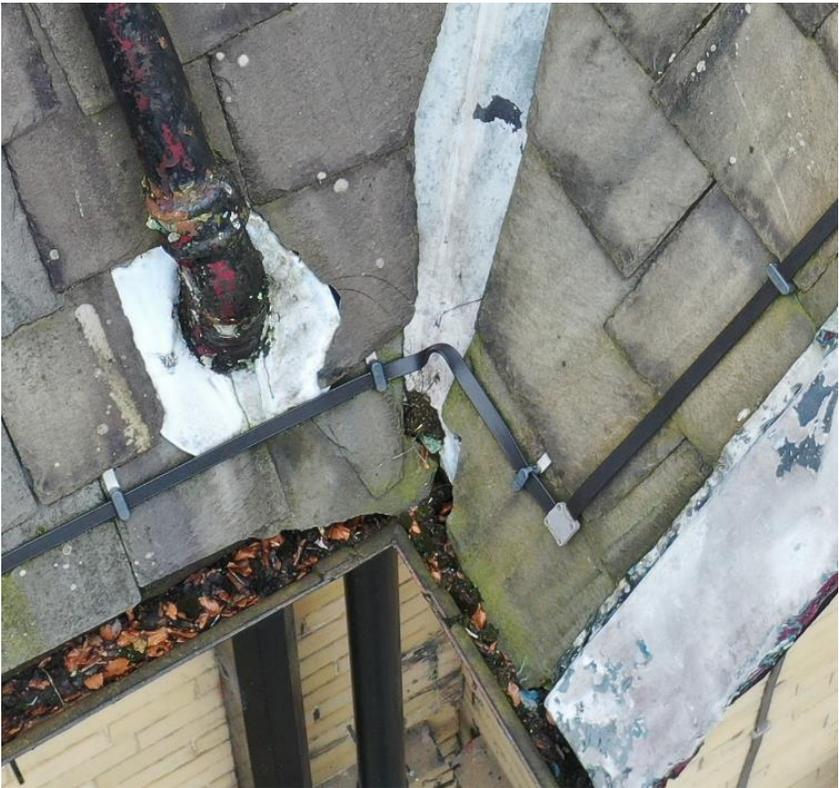


In the picture below, this highlights a typical section of the roof. A slipped slate has revealed a hole which goes straight through the roof – we would refer to this as a leaker. The ridge pointing is almost completely eroded and the ridges debonded.

A slipped slate is evident in the foreground revealing another leak. The cast iron soil stack is also severely eroded and may be barely functional.



Below, the slates are broken around the lead collar on the soil pipe revealing another leaker. Another slate has slipped into the gutter corner reducing its functionality.



Below, a further example of severely eroded ridge pointing. There should be cement lapping between the joints and below, but it almost gone.



Below, an example of a large missing slate that has caused an open hole in the roof. At the top of this peak the ridges have been replaced with the wrong ridge tile.



Below – Further examples of poor ridge pointing



Below – a broken, eroded slate that sits under the ridge line. To get to this the top ridge will need debonding, the slate replacing then rebedding.



Possibly due to works relating to the lightning conductor (the cable) the ends of the peaks have been poorly cloaked in lead. When this has been carried out, it's completely debonded the slates below which all need stripping and refixing in place.



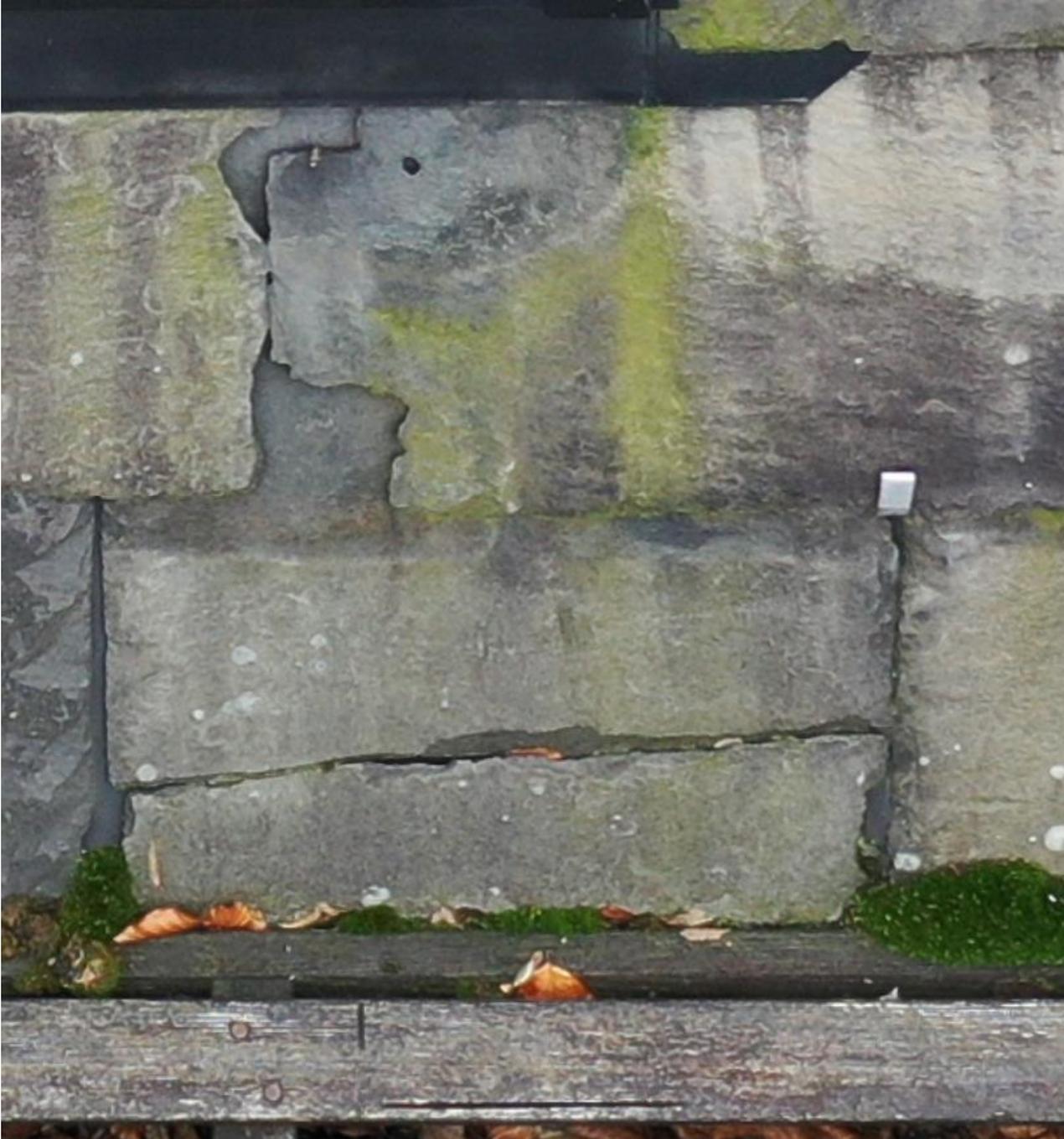
Below – The bottom slates have slipped into the gutter, a sign of nail erosion due to age. This is reducing the functionality of the gutter system



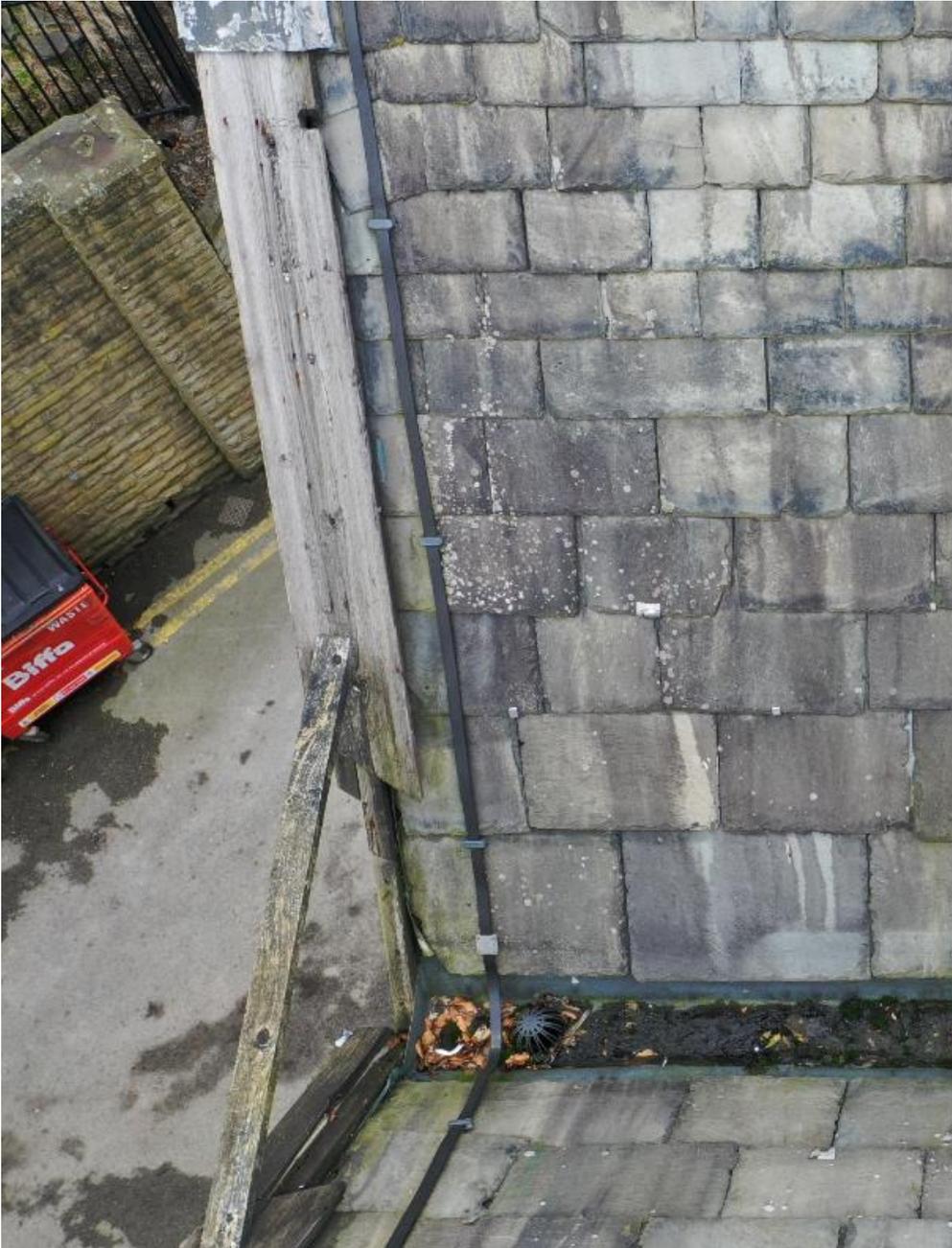
Below – Another poor lead cloak that is ill fitting to the roll top ridge. Water is getting behind it and loosening all the nails holding the slates underneath



Below – further examples of slate erosion on site. Slate is thought to last 100 years, which gives an indication of the life of some of the slate on site when it is in this poor condition.



On the verge, timber verge capping has been cloaked in leadwork. This is rotten in this section and it's left a section without a verge. It is highly likely water is entering the roof in this section as there is nothing to stop it getting in or direct the water flow away from it. The timber here is completely rotten.



Some repair work has been undertaken by another party. The workmanship is extremely poor, and it is not known what purpose this repair has been done for.



A further example of extremely poor workmanship, where someone has cut and spliced a small piece of modern ridge into the centre of the antique ridges.



Some of the older ridges have reached their end of life and will require replacing.



Further example of a ridge reaching its end of life. Someone has cemented this one back together poorly.



Further example of slate slippage creating a leak



The chimney in this area also needs an overhaul. There are two trees that are disrupting the chimneys' structure and will need removing.



Roof Area 2;

Construction Summary

This area of the property comprises of two flat roof sections. Flat roofs like this are not often just made of what you can see, as flat roofers tend to go over the top of other people's roofs as the amount of skips you need to fully strip a roof often adds huge costs to the work. Also some forms of flat roofing involved asbestos for fireproofing so without a core sample of the roof done by an asbestos testing company it is difficult to comment on the structure.

However, what is evident is one of the roof's is more modern than the other and has been given a mineral felt covering. There are signs of deterioration on this roof, but it is a fairly straightforward fix as its pieced together in sections. These sections can have the felt overlaps relined at relatively low cost which will make the lifespan of this roof longer. This roof also has a series of handrails, so no scaffold is required for this roof and it can be maintained at relatively low cost due to this.

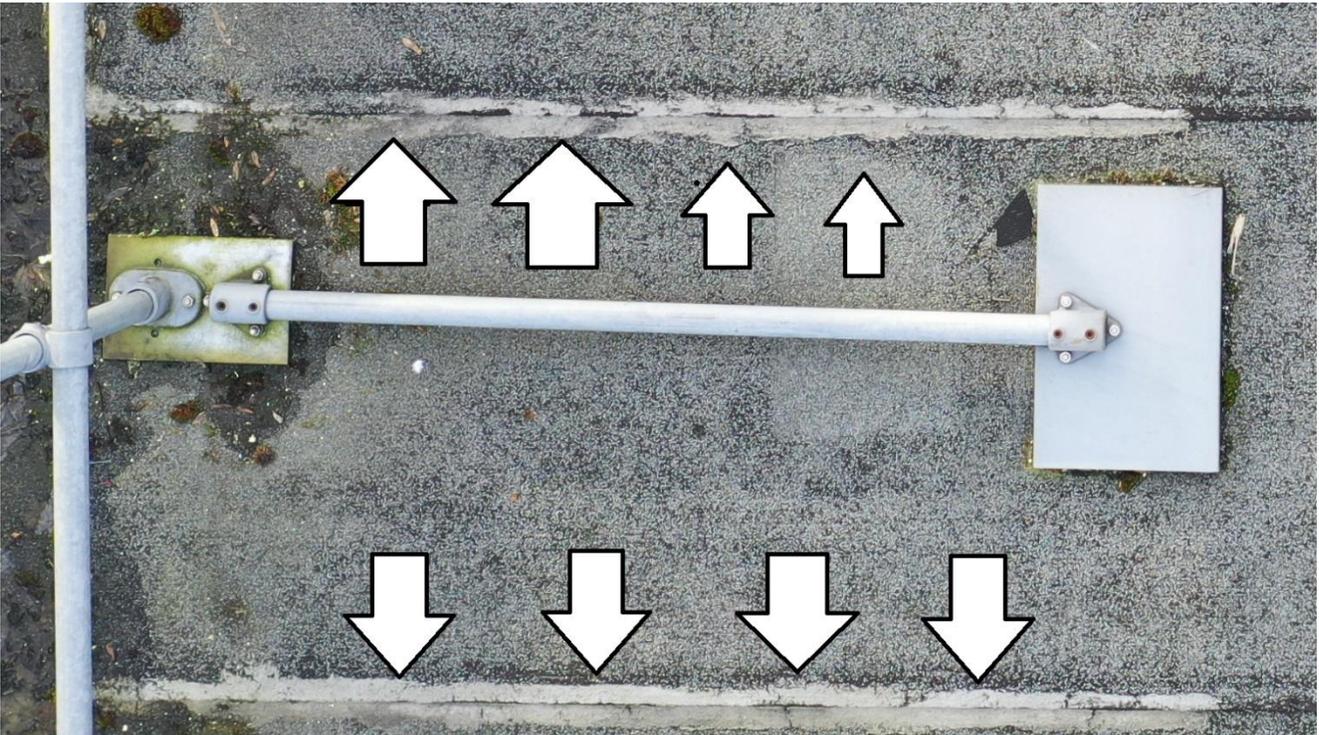
The second roof is older and is comprised of a sweep on fiberglass type roof system. This roof is showing more signs of deterioration and there are splits in the outer roof membrane, but it looks like the roofers have gone over the top of another roof. As long as the splits do not marry up with what is below it should be watertight. Again, this is a fairly easy job to maintain, and the roof could be patched where splits occur using a relatively cheap liquid system.

This roof does not have any handrails, and due to this, scaffolding would be required, although it may also be worth investing in a handrail system due to future maintenance requirements which would do away with the cost of future scaffolds.

Examples of the mineral felt roof shown below



An example of where the mineral felt overlaps have deteriorated, and where a previous repair has also deteriorated. This requires immediate attention before the roof felt rots making it irreparable.





Below, an example of the other roof type.



On closer inspection small tears are visible – At this stage they are repairable using a paint on compound.



Roof Area 3; Construction Summary

Roof 3 comprises of two large hipped roof structures, a flat roof area and a glass pitched roof.

Roof area 3, like roof area 1 needs repair work throughout. There are a number of missing slates which have caused holes and the ridge pointing is completely missing. On this roof, a large section of the roof has been replaced using new slate, but the wrong sized slate has been used. This has caused an issue which we call insufficient headlap, but it is hard to tell whether this has caused any leaks.

Unlike roof area 1, this area has coping stones instead of verges. The pointing between the coping stones has broken down which will allow water through. The building regulations with regards to coping stones have changed significantly in recent years, and they require lead lining now, which will form part of our recommendations.

The flat roof section in this area looks tired, but functional. There is a large amount of foliage and debris on this roof. It should be swept periodically and inspected for cracks or splits.

There is a large glass/flexiplas skylight in this roof area. The overall appearance of this construction looks OK, and the most important part, the lead flashing appears to be in tact.

Below – The ridge pointing is badly deteriorated both between the joints of the ridges and underneath making them loose. Some broken slates are also evident under the ridges.



Below, Two cracked ridge tiles are evident, as well as missing pointing. Two broken slates are evident, one of which has been replaced with lead.



The below picture gives examples of issues on a sample of the roof. Broken slates, missing pointing, cracked ridges and poor repairs.



House Roof; Construction Summary

Within the property boundaries is a building which is an independent house structure. This building has a lean too roof which sits adjacent to the street facing wall, and a steep pitched roof on the main building itself.

The lean too roof is in very poor condition, likely due to its age. From observing the photos these slates look beyond saving and it would be best to renew this roof completley.

The main pitched roof is roofed in a heritage dressed slate and requires only minor repairs. Due to the nature of the steep pitch, these roofs are very difficiult to work off, and tiered scaffold would be required to provide support for the roofers.

Below, one small section of roof showing over 20 repairs. It would be uneconomical to repair this part of the roof and it should be replaced. An exposed lath is shown in the bottom left corner which is rotten and all the wall pointing is eroding due to water penetration.



The main property is largely in great shape despite its age. The timber work is rotten and needs replacing, but apart from that there are only minor slate repairs, and repairs to lead flashing. In the picture below, the timber verge needs repairing. The gutters clearing, and the lead flashing on the porch putting back in. Although it is not visible in this picture, the chimney also needs pointing.



Summary

Overall the site requires a lot of work, with most of it being required with some efficiency to preserve the life of the roof. The main roof structures across all roofs are in danger of needing fully reroofing if not seen to. At the moment, this is effectively a large repair job which would be financially far better than stripping and reslating the full site. It is estimated at least 40% of the slate on some of the roofs is beyond use should it be left to reroof stage.

One of the good items noted is because the building is inclusive in structure, savings can be made on the scaffold by using a perimeter scaffold in some large areas.

Recommendations

The following recommendations are made by roof Area;

Roof Area 1;

- Repoint all ridges throughout the roof structures
- Rebed ridges where required
- Replace ridges where required
- It is questionable whether the incorrect concrete ridges should be replaced, they are not correct for this building but that is more a matter of heritage and preservation.
- All loose slates should be refitted
- Any broken slates should be replaced
- The lead verges should be removed and replaced with appropriate heritage roll top ridges.
- The lightning conductor will have to be temporarily moved to allow these works
- Any timber sections of verge should be replaced where rotten and recapped in lead to match the rest of the site.

Roof Area 2;

- Every seal on both roofs should be checked for splitting, and any splits identified should be rake out, and refilled in with a Flexacryl sealing compound in two coats.
- Any cracks on the second roof should be coated in flexacryl.
- This roof requires annual checking due to its nature of construction.

Roof Area 3;

- The actions for this roof are largely the same as roof area 1, however there are more slates to replace.
- Repoint all ridges throughout the roof structures
- Rebed ridges where required
- Replace ridges where required
- It is questionable whether the incorrect concrete ridges should be replaced, they are not correct for this building but that is more a matter of heritage and preservation.
- All loose slates should be refitted
- Any broken slates should be replaced
- The lead verges should be removed and replaced with appropriate heritage roll top ridges.
- The lightning conductor will have to be temporarily moved to allow these works
- Any timber sections of verge should be replaced where rotten and recapped in lead to match the rest of the site.
- The coping stones require removing and rebedding with lead lining and a secret lead gutter to comply with modern building regulations.

House Roof;

- The lean too structure requires completely reroofing, with new slate, new laths, felt and leadwork
- The main house requires some slate repairs, which will require a heritage roofer to dress slate and cut it to shape for replacements
- This roof requires the replacement of its timber verges which the client may want to paint in heritage colors.
- The chimney requires repointing
- The ridges require repointing
- The gutters require clearing.
- Some leadwork requires doing underneath the new timber verges, in order to make it comply with building regulations but also seal holes that have formed.

