

Roof Inspection Report
In respect of:

For:

**Report produced by Simon
Hollis MRICS**

FOR AND ON BEHALF OF

Drone Inspection Report - Summary of Findings





Table of Contents

- 1.0 About this Report.....4
 - 1.1 Address of the Property Surveyed (The Property).....4
 - 1.2 Brief and Report.....4
 - 1.3 Date of Inspection4
 - 1.4 Client4
 - 1.5 The Surveyor4
 - 1.6 Roofing Terminology5
- 2.0 Observations and Recommendations.....6
 - 2.1 Chimneys and Flashings7
 - 2.2 Roof Covering and Detail11
 - 2.3 Guttering27
 - 2.4 Internal Details30
- 3.0 Roofing Quote34

Signature: *Junia Hollis* For and on behalf of

Date of Report:

1.0 About this Report

1.1 Address of the Property Surveyed (The Property)

[REDACTED]

1.2 Brief and Report

Instructions were received from [REDACTED] to attend the property and undertake a drone inspection of the chimneys, roof covering and guttering. This should not be considered a full building survey.

We hope that the report helps you to make a reasoned and informed decision on any required repairs and maintenance. We detail the prioritisation of works in our Observations and Recommendations section (2.0). Where works are recommended, you should obtain detailed written quotations before you enter into a legal commitment. If you decide not to act on the advice in this report, you do so at your own risk.

1.3 Date of Inspection

The property was inspected by [REDACTED] on [REDACTED].

1.4 Client

This survey report and any associated correspondence are for your personal use only and no responsibility can be or will be taken to others who may see it or wish to depend on it.

1.5 The Surveyor

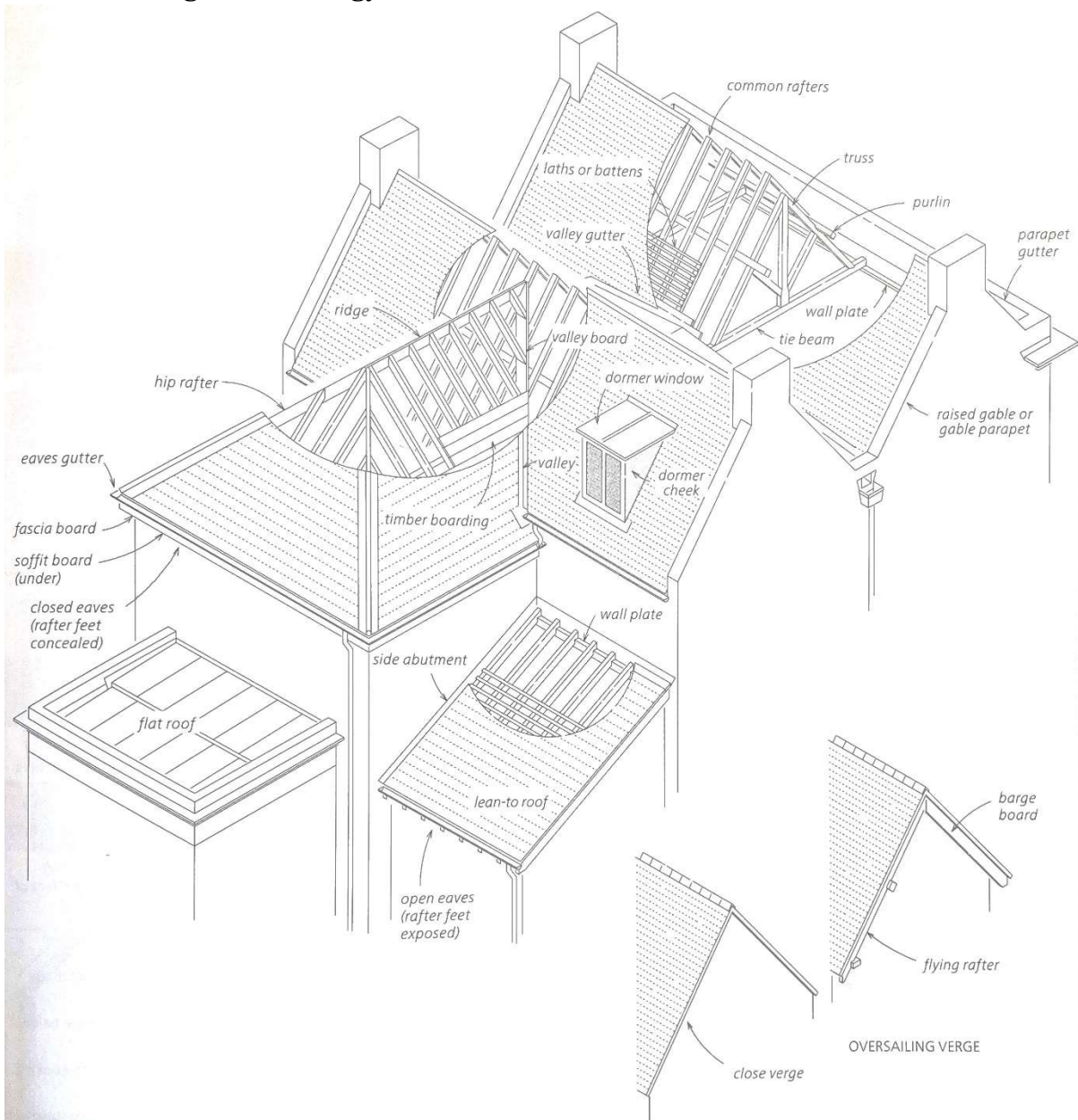
On behalf of Rotorgraph Limited, this report was written by Simon Hollis based on drone, 360° and camera photos.

Simon holds a HND in Estate Agency, a Bachelor's with Honours degree in Urban Land Economics, a Master's Degree in Building Surveying and is a Member of the Royal Institution of Chartered Surveyors.

Simon is Dyslexic, please excuse any spelling or grammar errors in this report. Specialist software is used, unfortunately, it is not as clever as the developers would have you believe. If anything is unclear, or if you would like to discuss the report and future maintenance of the property, please do contact Simon.

The Surveyor declares no conflict of interest in inspecting this property.

1.6 Roofing Terminology



Roofing Terminology. Credit: English Heritage



2.0 Observations and Recommendations

Our observations are made as if stood at the front of the property with the right-hand side being towards the gate.

We only see the property during the course of one day in one season, usually only in one weather condition. It, therefore, may be necessary for you to observe and monitor some items.

When we note that works are required, we will usually advise that these are required:

Straight away – works should be undertaken without delay to stop the defect from having an immediate detrimental effect on the property.

Within the next year.

The short to medium-term – end of the first year to year five.

Long-term – post-year five.

Record and monitor – photograph/measure the defect and check it with the change in seasons to see if it gets any worse. If it does get worse, further action may need to be taken.

Limitations to our Inspection

The chimneys, roof(s) and guttering have only been inspected from ground level with the use of a drone, we have been unable to physically get close to the roof coverings etc. We have detailed our findings below, however, this should not be considered a full building survey and where there are multiples of the same defect, we have included examples.

Without wishing to sound flippant, I do not think that I have ever written so much about one roof and I could probably spend another full day writing about individual defects and standards.

2.1 Chimneys and Flashings

The property has two chimney stacks.

The chimney stacks are the most exposed part of the property and these should be inspected annually and their condition recorded to ensure that any defects are tracked and repairs are arranged when required. A poorly maintained stack can allow rainwater penetration internally and debris to block the rainwater goods and drainage.

Left-Hand Stack

Pots

There is a single clay roll-top chimney pot. This is cracked in several places and the fire skin is spalling.

It should be replaced and a vented cap should be added to prevent rainwater ingress whilst ventilating the flue (if it is redundant). If it is in use, the appropriate vented cap should be used for the type of appliance in use.

Flaunching

The flaunching is cracked and in generally poor condition. This should be replaced and a non-hydraulic lime mortar should be used for this (a pozzolan will likely need to be gauged into the mix to attain the correct performance characteristics).

Corbelling

The corbelling is damaged and will no longer be able to effectively shed rainwater clear of the stack. The top course of stone and corbelling should be removed and replaced.

Stack

The stack is short and appears to be in acceptable condition.

Flashings

From looking at the construction photos and the finished job, it looks like soakers have been installed but no lead flashing pieces (despite there being a chase cut into the stack)?

All of the mortar should be removed and replaced with a lead flashing/soaker detail





and the chase pointed up in a non-hydraulic lime-based mortar.

The standard of the mortar is amongst the worst I have seen this year.

Close-up of cracks in the chimney pot.



Close-up of the cracked flashing.



Close-up example of the damaged corbelling.



Close-up of flashing during and post-completion.

If there is a flashing under the mortar, this could be described as a 'belt and braces' approach, however, it is likely that the belt would stop the braces from functioning correctly.



From the construction photos, it looks like there may be more than one layer of mortar at the base of the stack as this photo shows cracked mortar.



Right-Hand Stack

Pots

There are no pots, the stack has been crudely capped off.

The pot (s) should be re-instated with vented caps so that the flue (s) can be ventilated.

Flaunching

Half of the flaunching has been replaced, the other half is cracked/lifting and in generally poor condition. This should all be replaced and a non-hydraulic lime should be used for this (a pozzolan will likely need to be gauged into the mix).



Corbelling

The corbelling is damaged in places, however, can probably be repaired in situ. It is still likely easier to repair/replace it when the abovementioned work is undertaken.

Stack

Generally, in acceptable condition, however, it has been poorly re-pointed.

Flashings

See below.

Close up – cracks around the flaunching and poor pointing detail above the corbelling.



Close-up of the pointing detail on the stack.



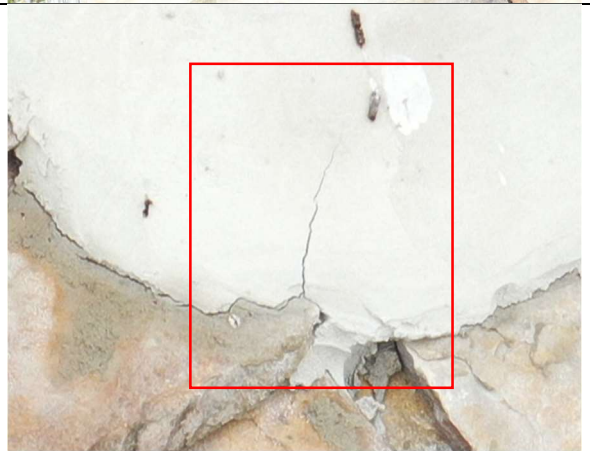
There should be a stepped lead flashing and soaker detail and a saddle piece here.



Flashings – there should be a front apron detail in lead on the fronts of the stack. Here, there just looks to be mortar.



Flashing – example of a hairline crack to the mortar on the front part of the stack.





2.2 Roof Covering and Detail

The main roof covering is stone slates with a concrete ridge tile detail. There are parapet walls on the left-hand part of the house.

In some instances, we have used example photos to illustrate defects as including examples of every defect.

We are unaware of the former and existing gauge of the slates and the pitch of the roof. There are cleaner lines on some of the slates suggesting that the margin may have been increased, which is poor practice, especially in such an exposed location. This is likely to increase the chances of rainwater penetration.

Where mortar has been used for the detail, this all looks to be a cementitious mix. The use of hard, brittle cementitious mortars is inappropriate for a traditionally constructed building and will likely always lead to problems. In general, the mortar details have been poorly finished and have started to hairline crack.

Re-using slates by turning them over is not best practice as it can leave their soft underside exposed to the weather and has left a mottled appearance to the covering. Sandstone slates can settle curve from head to toe.

Front Elevation



Ridge tiles – the moss should have been cleaned off these before they were re-used.

The moss will trap rainwater against the tiles and when this freezes, the tiles will continue to spall.



Where the roof steps, we can see two different strengths of mortar have been used.

There is already a hairline crack in the front section.



To prevent problems with wind-driven rain (which is likely going to be a problem due to the exposed location of the property), the slate courses need to be laid as flat to each other as possible. In the photo below, we can see some examples of where the slates are not laid flat against each other. This is likely to increase the chances of problems occurring from wind-driven rain.



The detailing on the parapet wall is poor. There is no projection on the stones which are acting more as capping stones as opposed to coping stones. I would have expected a contractor to make the client aware of this and provide the option of fitting a wider stone so that sufficient projection (>50 mm) could be achieved.

The finish on the mortar is poor, particularly towards the bottom of the pitch. Detailing this in lead would have been superior.



Parapet – example of hairline cracking in the mortar.



Eaves – the eaves handle the most amount of rainwater so it is important that the area is detailed correctly.

Here is an example of a large gap in between the slates which is not acceptable.



In this photo, the gap has been pointed.

There is a hairline crack in the pointing.



Several sections should be monitored during heavy rain to ensure that the eaves trays deflect rainwater into the guttering and not onto the wall head.

This could also be tested with a hosepipe.



Rear Elevation



Ridge – example of a hairline crack to the pointing detail.



Parapet detailing – example of a hairline crack that has formed in the mortar fillet.



At the foot of the parapet wall, a strap band looks to have been used to hold the stone in place.

On the front pitch, a hip iron has been used.

The pointing detail is not the best.



From the ridge down the cat-slide to the eaves, there is no projection on the slates. There should be at least a 50 mm projection on the slates so rainwater can be shed clear of the wallhead.



The finish to the pointing is inconsistent in places and there are hairline cracks appearing.



Where there is a step in the roof coverings, there is no pointing in the top of the verge (black line) and we are unsure how this has been designed to manage wind-driven rain.

Note that the mortar is holding in rainwater where the slates lap.



The chipped slates should have been re-tooled to make smaller slates, not put back on the roof already damaged.

This photo is an example, there are several other areas like this across the pitch.



An example area of where the bonding of the slates is not the best, particularly in the red box area.



Example of where smaller slates have been used along the verge.

We have not included a photo of every slate that is too small.



It looks like the eaves tray may not deflect rainwater into the gutter properly.

This should be tested with a hosepipe.



Off-shot

There look to be several problems with this roof.

Pitch – the roof looks like it has a very shallow pitch – this means that it will be more susceptible to the problems caused by wind-driven rain and it is therefore important that the slates sit as flat on top of each other as possible and that the head lap is reduced.



In an exposed location, the lead flashing should be clipped into place, it has not been.

We are unsure how wide this section is, however, the two strips of lead look like they are longer than the 1500 mm recommended.



Un-necessarily large gaps between slates.



Poor bonding detail and inconsistent tooling of the side of the slate.

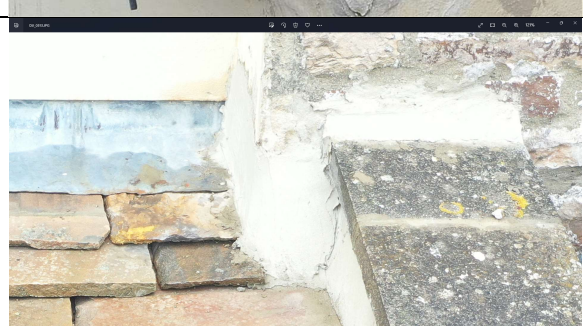


Parapet Wall – the mortar detailing in the inside and outside of the parapet wall looks poor.



We are not sure what this detailing around the abutments is.

We recommend it is removed and replaced in the appropriate lead detail.



The coping stones do not look to have been put back on square.





Gaps between and under the slates.



Chipped slates should be tooled to a smaller size.





Comments on the Clients photos (we have used the names used at the tops of the documents)

Back Roof - 1

Step detail – we are not aware of how this has been designed, however, the cementitious fillet that has been used will crack and fail.

An appropriate projection detail and secret gutter would have been a more appropriate solution.



Several slates that are more like off-cuts have been used in the covering.





The slates should be squared up prior to being laid so that the bond is close.



The gaps created by the shoulders on the slates illustrate why it is important for the slates to be well bonded and square.



Back Roof - 2

The photos below show the inconsistent edge profile of some of the slates. In places, this is causing a gap in the bond of up to 40 mm.



In some areas, there are gaps between the slates where the slates look square. There is no need for this and the bond should be closer.



This slate is not of an appropriate shape to use. It looks like it only has one fixing hole right near the edge.

We do not consider this to be appropriate, especially on the eave's under-course.



At the foot of the roof, it does not look like an eaves tray has been used, nor has the felt been lapped into the gutter (which is an inferior option).

The gap between some of the slates is c. 60 mm. This is likely to cause problems with wind-driven rain getting into the wall head which is about the worst place it can get.



Extension Roof (some of the photos that show the chimney detail are covered in section 2.1).

As detailed above, the slates are not square/do not sit square with each other.

This would be less of a problem if we were certain that all of the slates had square heads, however, as we have seen, many have shoulders/large areas of their top sections missing.





Main Roof

Having lots of small slates on the verge of the roof is far from ideal due to problems with wind lift.



As detailed above, the slates are not square/do not sit square with each other.



Gaps on the under course at the eaves.



An eaves tray has been used along this section. This looks to have been incorrectly fitted as it looks like it has been squashed into place and the edge is now kicking up and forming a trough.

There also looks to be no projection on the verge. There should be a projection of at least 50 mm.



2.3 Guttering

Limitations to our Inspection

We do not perform or comment on rainwater goods design calculations or test installations. At the time of our inspection, the weather was dry and we were unable to observe the functionality of the rainwater goods. You should observe the fittings during heavy rainfall and repair any leaks as soon as possible. It is also possible that due to climate change, and more persistent heavy rain that the capacity of the guttering, fall pipes and drainage will need to be increased.

The rainwater goods and drainage are vitally important to the effective management of rainwater around the property. If repairs are not actioned promptly, faults could quickly lead to problems with penetrating dampness internally and further deterioration of the building fabric.

The property has uPVC guttering and fall pipes on rise and fall brackets.

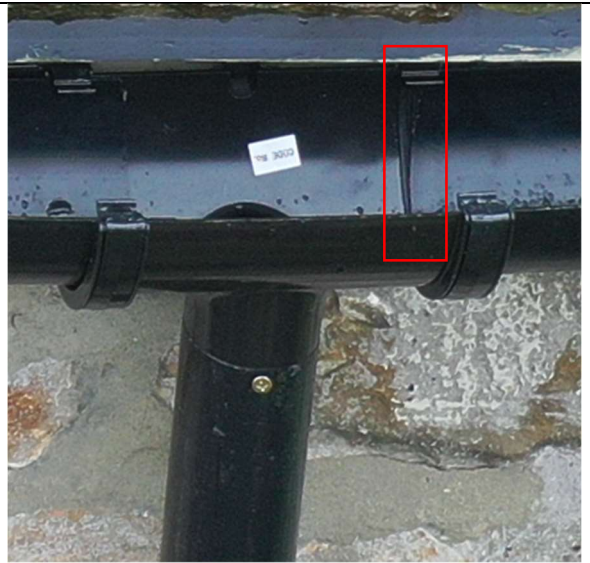
Front and rear elevations – the guttering is warped in places and does not sit square in all of the unions and outlets.

There are no pipes clips at the head of the fall pipes. The wood screw that has been fitted to hold the fall pipe to the outlet is inappropriate and will place additional pressure on the rise and fall brackets, outlets and guttering runs.



Front, right-hand side – the right-hand section of guttering has been cut too short and is not correctly seated in the outlet clamp.

Also, as noted above, there is no pipe clip at the head of the fall pipe.



Close-up of this area – note the distance from the left-hand section to the outlet compared with the right-hand section. The left-hand section has been pushed into the built-in stop ends, the right-hand section has not. The seal is visible between the orange lines.



The two sections of guttering do not sit square in the elbow.



The sections of guttering do not look to sit square in the union. The bracket should likely also be closer to the union (although we would need to check the manufacturer's installation instructions to confirm this).



Extension – the guttering is warped.

From the collection of debris at the stop end, which is at the opposite end to the outlet, it looks like the guttering has been laid to the incorrect fall (although we would need to check the manufacturer's installation instructions to confirm this).





2.4 Internal Details

We have undertaken a photographic inspection of the roofspace.

We are unaware of what is proposed in terms of insulation of the roof. As over 50% of the covering is being replaced, a building control application/self-certification scheme is required and the property should be brought up to current thermal standards unless an exemption has specifically been agreed upon. Not having the correct documentation in place is likely to cause problems should you come to sell the property and retro-compliance may be challenging to achieve.

If there is a plan to use a glass/mineral wool type insulation product, careful selection and an adequate ventilation gap on the external side must be maintained.

<p>Client's photo of the ridge beam – this is decayed where it is bearing on the gable end.</p> <p>Repair work will be required.</p>	
<p>Photo of the other side of the ridge beam</p>	

We are not sure what this is a photo of (client's photo), however, the timber will likely need additional support as it looks to be decayed where it bears into the wall.



Decayed timber should be carefully removed from the rafters in an effort to see how much sound timber is left. Bracing/sistering may be required.



If the end of this purlin is decayed, this is not an appropriate repair. It needs a proper brace or a boot, depending on the extent of the damage.



Where we can see the membrane, this looks to be pulled tight between the rafters.

There should be a slight sag to the membrane to allow moisture run off to the foot of the roof and onto the eaves board and into the guttering.

If water cannot run down the membrane, it will collect and eventually penetrate the membrane and cause the roofing timbers to decay.



Where some of the rafters have been replaced, it does not look like treated timber has been used.

This may not be necessary depending on their natural resilience to decay/coniferous strength.



Batten screws have penetrated the membrane in several places. We have included some examples of this.

Each penetration creates a weakness in the membrane which is acting as a second line of defence.

As the covering has been laid, this is going to be problematic to remedy.



We assume that this water ingress has been dealt with as part of the works?

A lime-based plaster should be used on all of the internal walls.



This truss/trench purlin detail is somewhat unusual and likely putting a lot of pressure on the fixings.

We assume it has been designed by a suitably qualified engineer.



In our opinion, these timber elements should fit together with a better tolerance than this and the purlins should be trenched deeper into the truss [however, we have not seen the designs].



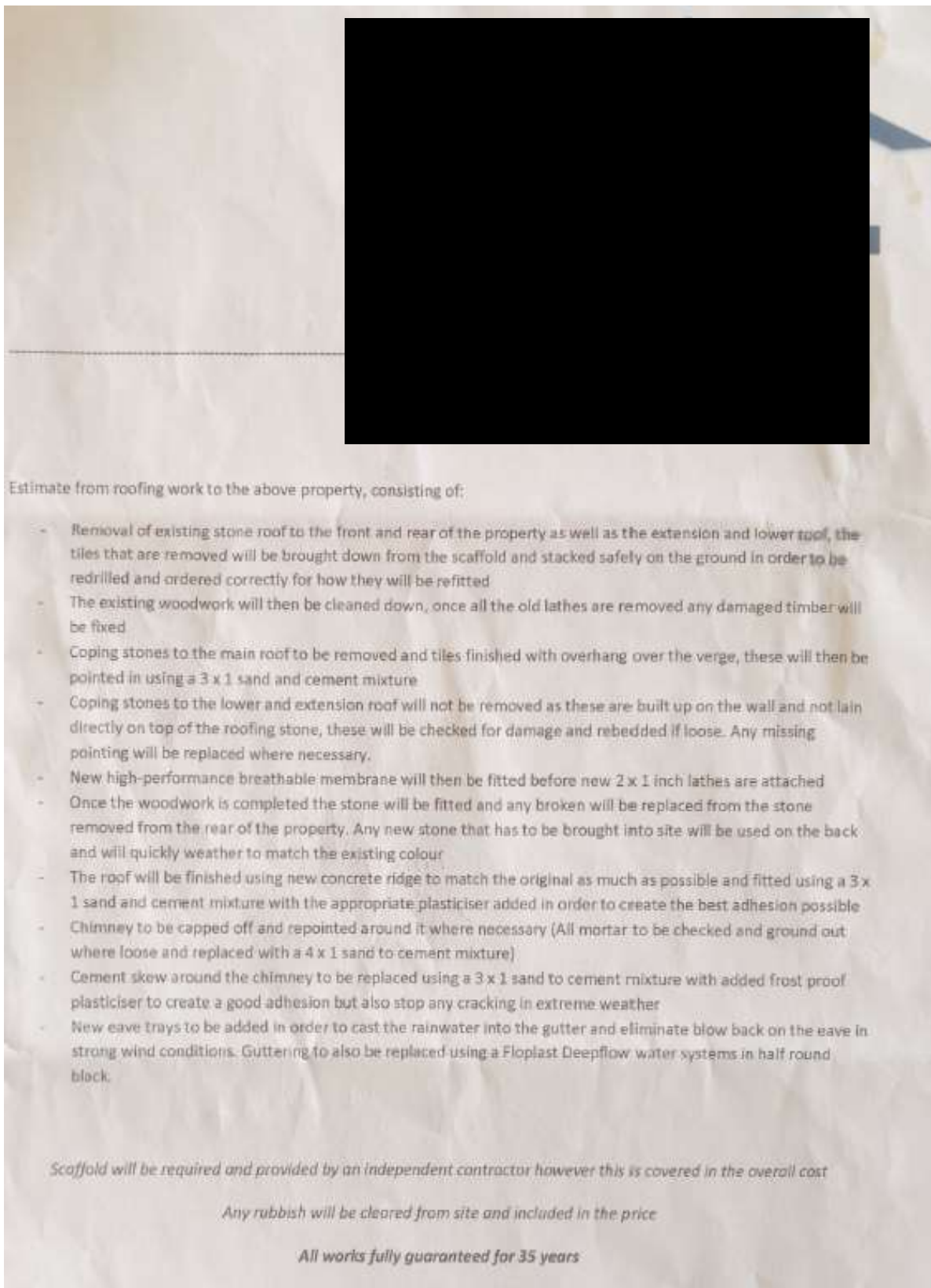
Whilst this is not related to the roof covering, we observed plastic sheeting and fiberglass insulation up against the internal leaf of the external wall.

This is not appropriate and will likely cause moisture-related problems.



3.0 Roofing Quote

A copy of the contractor's quote is below.



A FEW QUESTIONS

Doubling up latts No need

All new lead Where necessary. All other parts would be cement fillets

All tiles right side up Yes

Concrete ridge tiles Use existing and reclaimed stone. No concrete

Repointing all around chimney 4 sides

You will be onsite Yes

Should lower extension copings be reinstalled Not necessary. But will be left overhanging both sides will overhang

Brand of breathable membrane

Membrane not pulled tight, but 20mm loose for water drainage Approx

Guttering right up to tiles Yes

How many sqm's 220 approx