



Timber survey for buildings at

WINGFIELD STATION, DE55 7NY



1 INTRODUCTION

Following instructions from Architect James Boon, I visited the above building on 13.07.20. The report is in the form of a schedule of observations, most accompanied by photos, which are referenced to plans of the buildings at the end of the report.

All accessible structural timber and joinery associated with wall panelling and windows/doors was assessed. All specific recommendations are shown in the observations in bold type and should be carried out in accordance with the timber replacement/repair guidelines – section 4.

2 OBSERVATIONS

MAIN BUILDING

General

Photo 535 showing the eaves detail on the E elevation. This is representative of the 'average' condition of the timberwork external to the rafter plate – some areas better some worse. It will not be possible to make a complete assessment of the level of replacement until the roof is stripped. However it is likely that at least 75% of the rafter feet and soffit joists will require replacement, along with most of the rafter plate and inner joint plate.



1
Photo 506. W04. The window surround and associated architraving is historically decayed and will require replacement. The sashes will probably be suitable for reuse.

The lintel and plate above (possibly a rafter plate or wall plate) are completely decayed above the window.



3
Window 03-the frame of which seems to be possibly a later replacement. The sashes are sound and the sill is decayed

2
Photo 507 showing timber wall panelling which is completely decayed due to historic wood borer damage and fungal decay together with the lower sections of the door architrave immediately adjacent.



4

Photos 540 and 543-The purlin bearings were inaccessible but due to appearance-**assume they are both decayed in the wall.**

The W purlin appears fractured approximately 1 – 2 metres from the wall.



5

Photo 513 showing current water ingress which has caused decay to the ends of five ceiling joists. Allow for decay to 5 rafter ends together with the associated rafter plate and sarking board.

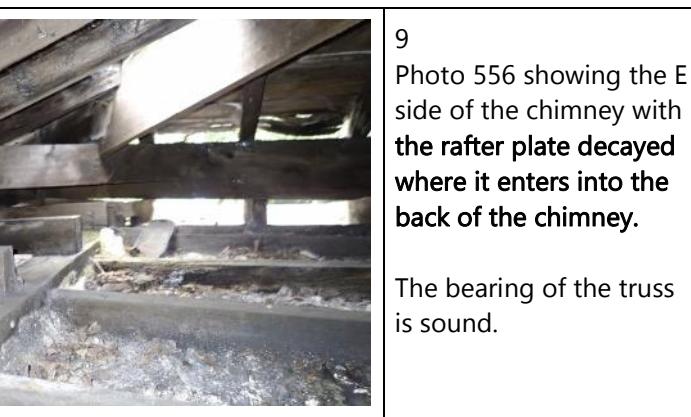
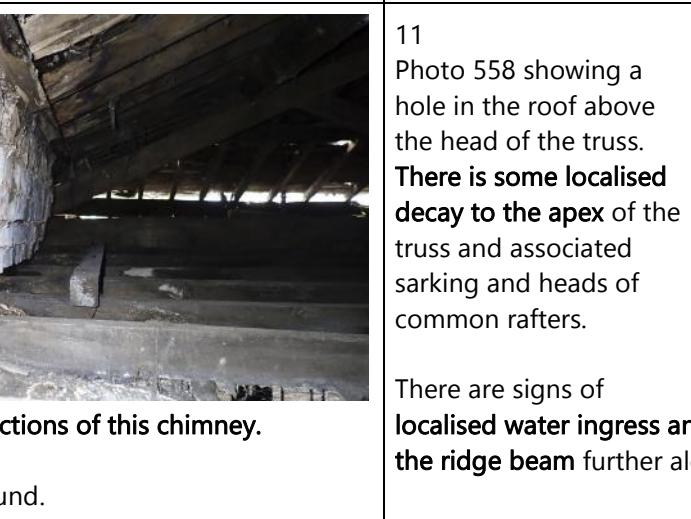
The remainder of this void looking S along this roofline appears to be generally sound.



6

Photo 515. W01 – W03. There is a concealed timber lintel above which is completely decayed in its bearing. The head and upper sections of the architrave are also historically decayed. The lower sections where in contact with the ground are also decayed locally. The decay to the architrave is most severe at the S end, for approximately 1 m radius from the upper corner – circled.



<p>7 Photos 544 and 546 showing the S and E elevations of the central section of roof. The inner plate has decayed historically together with the ends of all ceiling joists in contact with it. The soffit timbers have decayed to varying extents, although it is probable most will require complete replacement. The rafter plate is now extinct or severely decayed and will require replacement. The ends of all rafters in contact with it will require support.</p>		
<p>8 Photo 557 showing the remainder of the rafter feet, NE hip and associated dragon beam to be visually sound.</p>		<p>9 Photo 556 showing the E side of the chimney with the rafter plate decayed where it enters into the back of the chimney. The bearing of the truss is sound.</p>
<p>10 Photo 55 showing the timber adjacent to the chimney breast which is showing signs of movement. The plates against the chimney breast and those that run into it are decayed together with the ceiling joists and rafter feet. Assume all timber to be decayed within 1 m in all directions of this chimney. The bearing of the truss this side of the chimney is sound.</p>		<p>11 Photo 558 showing a hole in the roof above the head of the truss. There is some localised decay to the apex of the truss and associated sarking and heads of common rafters. There are signs of localised water ingress and probable associated damage to sarking and upper face of the ridge beam further along the roof.</p>

12

Photo 550 and 552 showing the W elevation of the central roof. The rafter plate is in good condition as are the bases of the hips and dragon beams. **The inner plate is historically decayed at its N end – circled – as is the sarking above.**

Not all of the brackets are accessible where they are embedded within wall-head and extend out – although most of them seem to be decayed where they travel beyond the outer line of the wall together with the soffit timbers.



13

Doors 02 and 03. **The original architrave is either extinct or damaged** and it seems likely the lintel has been replaced some point in the past. **The lower section of door frame is decayed** although the door should be suitable for restoration.

14

Photos 528 and 525 showing windows 07-09. There are no obvious signs of decay to the architrave. However, there are signs of active dry rot growth in the cavity or stud work immediately above the head of this tripartite window. There are signs of decay to the bases of the studs and what is possibly the lintel of the window opening. An area of plaster will have to be removed from above the window and it may be found that the window lintel and possibly other sections of the window frame and architrave are decayed in the middle of the wall.



<p>15 Photo 549. Water ingress at the foot of the valley has caused localised decay to the rafter plate and rafter feet in contact with it.</p>		<p>16 Photo 705. The damage to the rafter plate and associated feet continues to the chimney. The S bearing of the W truss is sound.</p>	
<p>17 Photo 547 shows the S bearing of the roof truss. The tie beam and principle rafter foot have been wet up locally and decayed down one side. That tie beam over the plate and below the principal rafter has lost approximately 25% of its section. If water ingress can be stopped relatively soon, decay should stop and the elements could be reused.</p>		<p>18 Window 06 is a relatively recent rebuild. The sashes were inaccessible due to the security grating. In this room there is some surviving skirting adjacent to the chimney breast on an internal wall-most of which would be suitable for retention. The rest of the original joinery in this room has been damaged by long-term wood borer damage and would probably not be suitable for retention. It is likely that wherever plaster is removed from the wall to reveal embedded timbers that they will be decayed.</p>	
<p>19 Window 05 has been partially obscured by a more recent building layout arrangement. The detail is also partially obscured by security grilling, although much of what is accessible-including the sashes, seems generally sound.</p>		<p>20 Photo 529 showing a shake which has become wet and started to decay within the outer plate.</p>	

<p>21 Photo 530. The foot of the rafter is decayed where in contact with the wall plate. The plate is decayed which supports the ends of the ceiling joists which are also decayed.</p>		<p>22 Photo 539 showing very slow surface decay to the large section outer plate. There is a similar mode of damage to some of the rafter feet also, where decay extends approximately 10 mm into the surfaces of the timber but does not travel directly through its section. As elsewhere, the inner small section wall plate has decayed together with all of the visible ceiling joists in this area.</p>
<p>23 Photos 563 and 561 show the purlin bearings-they were inaccessible - but assume they are decayed in their bearings.</p>		
<p>24 Photo 517. Window 13. All of the architrave is either extinct or decayed. The lintel is decayed in the wall. The frame will require replacement and the sashes will be suitable for reuse.</p>		<p>25 Window 12. The lintels, architraves and sill are decayed/extinct. The sashes have been damaged but have resisted most of the effects of decay and should be suitable for restoration. The grounds for the dado rails are decayed in the wall in this area.</p>

<p>26 Photo 568. Access into the roof was not good – although photos indicate the condition of the elements is good.</p>		<p>27 Door 4 All architrave and lintels associated with this opening are decayed. The door has some damage but would be suitable for reuse. Again, all embedded timber at dado is decayed along with all wainscot panelling.</p>
<p>28 Photo 518. The architrave is decayed and will require complete replacement. The lintel is historically decayed in the wall. The sashes seem to have some interesting detailing at the heads but were inaccessible due to the security mesh.</p>		<p>29 Window 10. The architrave is decayed as is the lintel, although again the sashes should be suitable for repair and restoration although were generally concealed by the security mesh.</p>
<p>30 Photo 564 showing the roof cut around the chimney. There is localised decay to the timbers and sarking where they interface with the chimney.</p>		

PARCEL OFFICE			
31 Photo 574 showing the S ends of the E trusses which are sound in the wall. There is some loss of sapwood to the lower edge of the embedded bearer plate to furniture beetle, although this is not significant. The outer rafter plate and rafter feet are sound.		32 Photo 576 showing the decayed end of the dragon beam in the SW corner that will require replacement.	
33 Photo 569 shows some form of support for the soffit timbers on the S elevation where the soffit timbers seem to be wedged in with other timbers in the wall as opposed to the arrangement on the W and E elevations (photo 570) where the soffit timbers seem simply embedded.		34 Photo 570.	

3 DISCUSSION

Water is still coming into the building and much of the softwood structure is damp wet – but still not decayed. This will not last and if left unprotected, magnitude of decay will increase from this point forward – exponentially.

Even after all water ingress has been stopped – the envelope will take some considerable time to dry and decay fungi should slowly start to die. This process could be accelerated by forced drying.

4 TIMBER GUIDELINES

Exposure

1. Remove plaster to expose the full extent of any fungus or wetting, starting from the foci of the wetting points and working outwards. This will maximise drying whilst retaining as much as possible of the original fabric.
2. If possible, cut decayed timber back to sound wood. Otherwise, use a paste preservative to coat any timber to 500mm past the last sign of decay. A formulation based on boron in glycol will give the best penetration in wet timber.
3. Remove any softwood timber lintels within the zone of decay and replace with lintels made of inorganic materials. If damage is superficial it may be possible to retain hard old oak.
4. Remove all bonding timbers, grounds and embedded wood within the zone of fungus growth and decay. Brick up any cavities left by the timber removal.

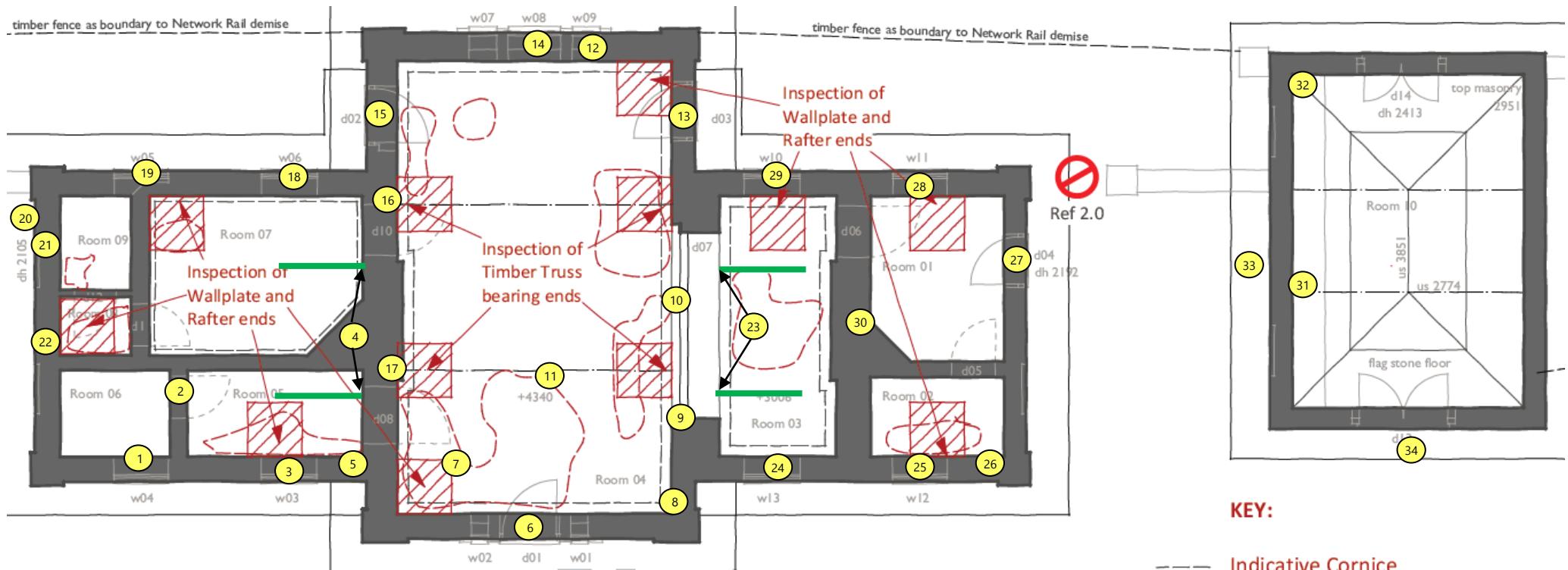
Drying

5. Remove all sources of water penetration and promote air movement if practical. Quadrupling the rate of flow across a surface doubles the rate of drying. This can be achieved with cold air blowers when natural drying of concealed or sheltered areas becomes problematic. This process would require clear openings for internal/external air exchange - occasionally generating logistical problems with security, which can be overcome with open grate security doors and windows.

Repair/replacement

6. Re-support structural timbers as necessary using pre-treated softwood timber, chemically modified timber such as Accoya, oak or inorganic materials. The cut ends of pre-treated softwood should be brush treated or dip treated with a fungicide or the end treatment fluid recommended by the timber supplier. All new softwood timber should be isolated from wet walls with an impervious membrane or some other efficient method. Damp proof membrane would be suitable for structural timbers. However, the membrane should not be allowed to form a dish under timbers in areas vulnerable to water penetration (a wall plate for example) or be able to trap water in any way.

Tim Floyd – July 2020



Numbers refer to observations in text