cricklade manor **crk 130**
calcutt street | cricklade

SU 102 935

BUILDING INSPECTION REPORT

[for details of South Annexe see section 4.9]



may 2023

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1.0 BRIEFING

1.1 This report has been prepared by Simon Cartlidge – Architect on behalf of Cricklade Manor Preparatory School (CMPS) in order to assess the current condition of roof coverings, gutters and roof structure of the Manor House and Rear Annex, these works having previously been identified as highest priority for essential repair. All survey work was undertaken in association with Steve Swinbank, Structural Engineer, and this report should be read in conjunction with Mann Williams *'Cricklade Manor Prep School Manor House Visual Inspection'* report, May 2023.

1.2 Background documentation was limited to: -
Allium Environmental *Asbestos Refurbishment Survey* January 2023;
Hollis *Building Survey Report* December 2021;
SeSurveying *Topographical & Measured Survey Drawings* August 2017;
Smiths Roofing *Roof Inspection Report & Proposals* June 2021.

2.0 LIMITATIONS OF SURVEY

2.1 The report is limited to the general condition of the building and its defects. The inspection did not include for any additional opening up of fabric. No inspection has been made of any woodwork or other parts of the structure that were covered, unexposed or inaccessible at time of survey and I cannot report that such areas are free from defects.

2.2 An initial site visit to the building was undertaken with Noel Bennett of CMPS and Mark Dingle & Gary Vaughan, of Wishford Schools, on 12 September 2022.

2.3 This was followed by an external inspection of high-level roof gutters and projecting eaves gutters from a mobile elevated access platform on 19 October 2022.

2.4 Internal inspection of roof voids and concealed eaves was completed on 06 February 2023, following completion of an Asbestos Refurbishment Survey of the second floor and roof space. Access ladders and additional lighting were provided by building contractor - Adam Daybell.

3.0 BACKGROUND

Cricklade Manor is a grade II listed building (NHLE: 1356093) located within the defined boundary of Cricklade Conservation Area. The building was constructed *c.*1700 and initially consisted of a 5-bay two-storey ashlar fronted house with an attic and cellar and was known as *The Hermitage.* It had mullion and transom windows; a hipped stone tile roof; dentilated eaves and dormers with alternating classical pediments, see image **02**. At this stage the simple building plan consisted of a rectangular block with an extended east wing **03**.

Towards the end of the century the building was transformed into the largest building in Cricklade and renamed *Manor House*. The building was reconstructed over several phases but by the time of the Second Edition Ordnance Survey map **04** consisted of a 7-bay L plan house with a south wing, southern bays and north entrance porch. In 1902 *Holmes* notes that the house was extruded westwards by further two bays (see image **cvr**) and a narrower west bay was added. The current footprint of the main house was fully established by the survey date of the Third Edition Ordnance Survey map **05** in 1920.



01 View down Calcutt Street with the Manor House in the foreground and tower of St Sampson's church in the distance. Henry Taunt's 1883 image shows that the original building had only five-bays and no porch. Note the hipped stone tile roof, dentilated projecting eaves, stone clad dormer windows and lead detailing to classical pediments. See also historic maps at **02-03**. © Historic England CC57/00272.

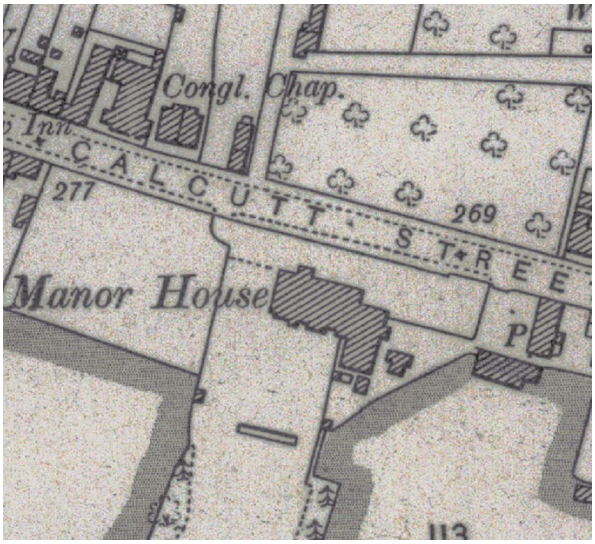
Inspection of the internal roof structure suggests that the building was substantially, if not totally, reconstructed at the end of the C19, with the only evidence of adaptation being extension of the east and west hipped roofs – recorded in the early years of the C20. The building became a boarding school in 1946 and the attic was used for dormitory accommodation, remaining in occupation until 2017. The ground floor of the building is currently in use as the principal reception area for the school, with a small number of first-floor rooms being used for offices, while many areas have been mothballed and remain unheated and subject to water ingress.



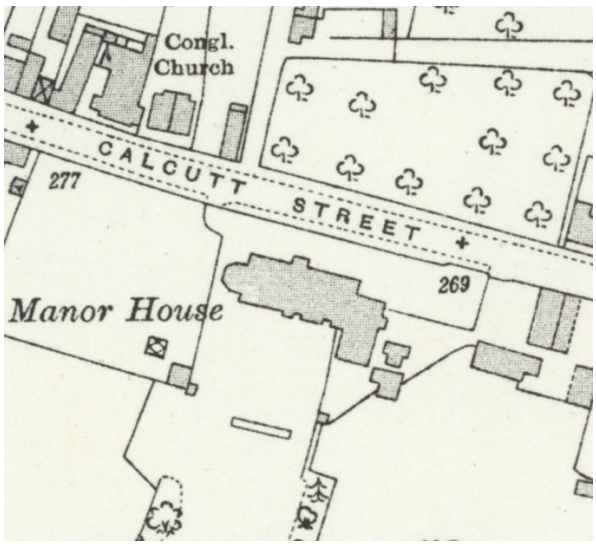
02 Wiltshire Tithe Map 1840. The original 5-bay building with extended east wing – see photo **01**. © Bristol City Council: Know Your Place West of England/Wiltshire & Swindon History Centre.



03 Ist edition Ordnance Survey Map issued 1879 (surveyed 1874). Further extended eastern wing. © Bristol City Council: Know Your Place West of England/National Library of Scotland.



04 2nd edition Ordnance Survey Map issued 1900 (surveyed 1898). Building extended east to 7-bays and southern wing and porch added. © Bristol City Council:Know Your Place West of England/National Library of Scotland.



05 3rd edition Ordnance Survey Map issued 1921 (surveyed 1920). Further extended west by 2-bays and further narrower western bay added – extant current plan. © Bristol City Council: Know Your Place West of England/National Library Scotland.

4.0 BUILDING CONDITION SURVEY

4.1 *Construction - generally*

Ashlar clad oolitic limestone walling over brick core, with raised quoins, mullion and transom windows to principal north façade; roughcast render and exposed window dressings to all other elevations and south-east annex. Hipped plain clay tile roofs to main house with wooden modillion eaves; central lead flat roof and; dormer windows, with alternating plain tiled pitched and lead capped barrel-vaulted roof coverings. South east annex has hipped plain clay tile roof with stone ridges, angled terracotta hips and cast-iron gutters. Oolitic limestone chimney stacks with moulded string and stone cappings throughout. Sawn softwood late C19 - early C20 roof structure spans north-south with 2no central Queen post trusses and additional support from cross walls. Modified hipped roof at east and west end runs from edge of lead flat roof to eaves of first floor – see also Mann Williams report. Suspended timber floors to ground, first and attic floors, with some solid floors at ground level. North entrance porch with 3-bay lead flat roof falling to south gutter and 3 areas of single-storey extensions to south elevation with bitumen covered lead roofs to falls and perimeter gutters.

4.2 *00 - Central lead flat roof*

31-bay lead flat roof with central ridge and minimal falls to north & south **06**, with timber cored intermediate rolls, all dressed over leading edge of plain tile hipped roof. Roof hatch to roof void in bay 08 towards east end and rudimentary glazed rooflight to bay 28 at west end **07**.

- Code 6 lead with nominal bay size of 675 x 2000 (just within current LSA guidelines);
- Roof is near level at 0-2° pitch due to deflection of roof structure internally but generally appears weathertight over timber boarded substrates internally (min recommended 1 in 80);
- Large number of cracked and damaged lead rolls across whole roof;
- Rudimentary rooflight needs replacement with safety glass and adequate height upstands;
- No edge protection for purpose of maintenance or repair;
- Damaged lead rolls could potentially be made good by extensive use of localised lead weld patches but given the vulnerability of the very flat pitch it would be most prudent to recover.

Roof has reached end of its life and needs complete reinstatement over adapted substrates.




06 Lead roof 00 looking east towards hatch 31-bay wide lead flat roof with intermediate timber core rolls to falls from central ridge over timber boarded substrates. Very low pitch due to deflection of roof beneath, hence debris build-up on roof. **07 Detail of rooflight** Roof generally weathertight but very large number of localised splits and defects to lead rolls - circled yellow (and also identified on roof plan).

4.3 *01 – Main roof to Manor House*

Pitched plain clay tiled roof with torching, terracotta hip tiles and shaped valley tiles to adjoining roof slopes 04 and 05, with cut lead lined valley to 02, all below central lead flat roof - 00. Roof drains to perimeter lead parapet gutters **08** to north and south sides with falls to 4no outlets. North and south slopes both interspersed with 7 dormer windows, with tile hung cheeks and alternating pitched plain tile and barrel-vaulted lead roof coverings. Dormer abutments to main roof are formed by cut tiles with concealed lead soakers **08**. Dormers have plain tile hung vertical cladding to cheeks over timber studs, with plaster-lath finish internally. 4no stone stacks.

- Plain tiles laid directly over rafters (*ie:* no sarking felt) on sawn softwood battens and torched with lime mortar to head of tiles **09**. Numerous areas of slipped, damaged, cracked or missing tiles, suggesting evidence of nail fatigue and/or batten failure;
- Plain tile roofing to dormers mirrors the condition of main roof, with much damage to stone ridges and open joints in pointing;
- Significant leadwork defects to ds02 & ds06, with minor defects to other lead-clad dormers;
- Principal roof abutments with dormer are defective in several areas and require renewal;
- Dormers and attic room sloping ceilings are not insulated & need to be thermally upgraded;
- Dormer casement windows, frames & cills in need of significant repair/localised replacement;






08 Dormers to south elevation with timber decay to base of cills and repeatedly repaired lead parapet gutter. **09 Roofspace below dormer ds06** with torching visible to head of tiles. **10 Dormer roofs** with damage to stone ridges & loss of pointing (red) and rips, tears and cracks in lead roof covering (yellow).





11 Parapet gutter to south elevation with much patched bitumen coated lead-lined gutter, laid to minimal falls and with inadequate step heights. Choked outfall filled with debris and further restricted by waste pipe blocking outlet. **12 South west corner of parapet** with damaged/displaced hip tiles, debris in gutter, loss of bitumen paint & ongoing patch repairs to gutter lining, still resulting in water ingress. Note: minimal height of upstand to outer edge of gutter, with water cascading over edge in storm conditions.



13 North parapet gutter with standing water in gutters, extensive moss and grass growth. Red circles denote timber decay to base of dormer reveals and damage to window cills and opening casements.







14 North east corner of parapet gutter with minimal upstand to edge of gutter and collection of fine debris where water ponds in corner. Note also slight sinking of profiled tiles within valley – timber decay? **15 North east cornice** showing timber decay and algal growth where wood constantly saturated by frequently overtopping gutter. **16 Cornice soffit below dn03** with decay to timber boarding following repeated water ingress. Wallplates are also significantly softened in this area within the roofspace.

- Code 5 (?) lead parapet gutters in nominal 2000 long bays, laid almost flat with minimal 25 step height (LSA guidance recommends 1 in 80 falls and minimum 55 height steps) **12**;
- Gutters housed on projecting dentilated eaves fabricated from basic series of profiled boards, cantilevered out from projecting joists beyond the wall head **19**;
- Not confirmed if timber dentils are structural or decorative – thought to be decorative but recommend provision of additional support brackets for projecting cornice within repairs;
- Standing water in parapet gutters resulting moss and vegetation growth **13**;
- Minimal height upstand to outer edge of gutters (especially at high points) **14** resulting in water cascading over edge and saturating timber cornice and lime render to walling beneath in storm conditions;
- Extensive penetration of water to projecting timberwork and adjacent wallplates to base of roof, especially at low points adjacent to outfalls **18** – see also Mann Williams report;
- Parapet gutters have inadequate falls and step heights and impossible to achieve in lead given current configuration. Were gutters previously fabricated in copper, or just poorly detailed in lead from the outset?
- Overhaul existing corroding cast iron rainwater downpipes from base of new outfalls.







17 South west corner of parapet gutter with much patched defective lead lined gutter/blocked outlet. **18 Internal soffit of cornice** showing timber decay to gutter/adjacent timberwork and rusting downpipe requiring inspection, overhaul/repair and decoration. **19 South west cornice to roof 01** with decay to exposed timber mouldings following repeated water penetration from above and behind the cornice.







20 Chimney ch04 to NE corner of roof. Oolitic limestone stack with moulded string & stone cappings. **21 Chimney ch08** identical stack to SE corner of roof. **22 Chimneys ch05 & ch07** at west end of roof. Note that ch07 has restraining ferrous tie at head of stonework - to base of flaunching.

- Roof has 4no oolitic limestone chimney stacks with moulded string and stone cappings. Stack ch07 is restrained at head level by an iron clamp following previous concerns about stability. Any masonry defects should be addressed as part of the roofing works.

Plain clay tiled roof and dormer roof coverings (tile and lead) have reached the end of their useful life and require complete replacement. This will also provide opportunity to relay over sarking felt and provide proper thermal insulation to dormers, pitched ceilings, dwarf walls throughout attic. Provision of localised remedial timber repairs to decayed parapet gutter substrates, joist and rafter ends and isolated sections of wallplate following opening up of gutters and roof structure.

Lead parapets gutters leak and substrates are significantly decayed and require reconstruction to new falls to modified outfalls (and ideally additional outlets). Gutters will also need to be made deeper to prevent damaging walls/cornice beneath and refurbishment of cast iron rainwater downpipes. Works will also include localised replacement, or partnering, of structural timberwork and decoration/repair of decayed profiled timber mouldings to cornice.

Localised cross tying to head of stack/s with stainless steel threaded bars or spiraties to restrain any historic movement and to allow removal of ferrous restraint fixings.

4.4 *02 – West hipped roof to Manor House*

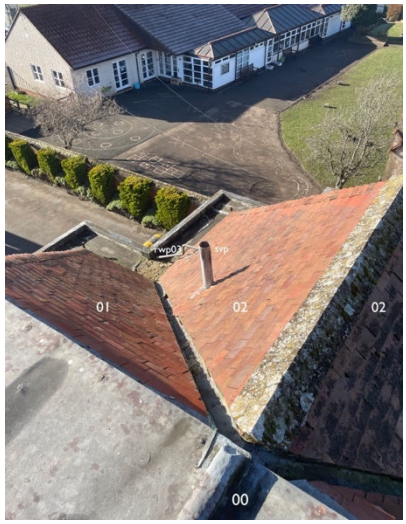
Pitched plain clay tiled roof with torching and lime bedded stone ridge and terracotta hip tiles and cut lead lined valleys to adjacent roofs 01 & 03. Pitched flush rooflight rl02 with perimeter timber frame to west slope. Roof drains to perimeter lead parapet gutters, all as noted at 4.2.

- Damage to plain clay tiles to south side of roof **17**, particularly around valley gutter;
- Edge of valley gutter subject to loss of mortar pointing and requires repair;
- Debris from valley blocking outlet to rwp03. Outlet further restricted by soil pipe partially obstructing outlet – see also **11.** Requires reconfiguration with proper catch pit;
- Replacement of decayed timber perimeter frame to rooflight and upgrading to thermally insulated double glazed units with safety glass.
- Check electrical continuity of lightning conductor and review location along valley gutter to roof 00. Ensure proper reinstatement on repair.

Plain clay tiled roof, rooflight rl02 and valley gutters have reached the end of their useful life and require complete replacement. This will also provide opportunity to relay tiles over sarking felt and provide proper thermal insulation to west room of attic.

Review lightning conductor installation, condition of downtape, route and fixings to lead roof 00.







23 South valley between 01 and 02, with loss of mortar to valley gutter, numerous damaged tiles and debris blocking outlet to rwp03. Note lightning conductor running along length of valley. **24 South valley from above** with loose mortar in valley and collection of debris at rwp03. **25 North slope of roof** which generally remains in reasonable condition. Note vegetation/debris blocking outlet to rwp02.

4.5 *03 – West gable roof to Manor House*

Pitched plain clay tiled roof with torching and lime bedded stone ridge **26** and cut lead lined valleys to adjacent roof 02. Limestone chimney stack ch02 with lightning conductor and air terminal **28.** Roof drains to perimeter lead parapet gutters, all as noted at 4.2 above.

- Damage to plain clay tiles to south side of roof **26** around lightning conductor downtape;
- Edge of south valley gutter subject to loss of mortar pointing and requires repair;
- North slope and valley in reasonable condition;
- Stack in reasonable condition but ferrous restraint straps to head should be removed following consolidation of any defects to head of masonry using stainless steel fixings;
- Check electrical continuity of lightning conductor air terminal & downtape. Review location, draped along sole of gutter towards lead roof 00. Ensure proper reinstatement on repair.

Plain clay tiled roof and south valley gutter has reached the end of their useful life and whole of roof coverings to 03 now require complete replacement. This will also provide opportunity to relay tiles over sarking felt and provide full thermal insulation of ceilings above first floor rooms.

Localised cross tying to head of stack ch06 with stainless steel threaded bars or spiraties to restrain any historic movement and to allow removal of ferrous restraint fixings.

Review lightning conductor installation, condition of downtape, route & fixings to gutter & render.







26 South slope with damaged tiles, lightning conductor in sole of gutter sole & need for repointing of ridge. **27 North slope** parapet gutter is poor but tiles & valley in reasonable condition. **28 View of south west roof** including chimney ch06, lightning conductor air terminal & ferrous restraint fixing strap.

4.6 *04 – North east hipped roof to Manor House*

Pitched plain clay tiled roof with torching, terracotta hip & profiled valley tiles to adjacent roofs 01 and 05, with swept eaves. Roof drains to perimeter ogee cast iron gutters and downpipes rwp06 and 07. Limestone chimney stack ch03 with lightning conductor and air terminal to north slope **29** and timber rooflight rl01 to east slope **30**.

- Limited damage to plain clay tiles to east slope of roof **30** and to terracotta hip;
- Both profiled valley gutters at abutments with 01 and 05 appear to be slightly sinking - misalignment of timbers or localised decay;
- North slope tiles in reasonable condition;
- Rooflight rl01 in serviceable condition but extensive condensation internally and would benefit from thermally broken double glazing with safety glass in school environment;
- Masonry to stack ch03 in reasonable condition but ferrous restraint straps to head should be removed following consolidation of defects to head of masonry using stainless steel fixings;
- Check electrical continuity of lightning conductor air terminal & downtape from ch03. Review downtape route, draped across east slope of roof. Ensure proper reinstatement.
- Cast iron ogee gutters leak and are corroding, resulting in water ingress to projecting eaves;
- Cast iron rainwater downpipes are in serviceable condition but have back inlet gullies and would benefit from installation of shoe outlets and gullies (for more efficient maintenance);
- Check also condition of below ground drainage via cctv survey – see also **.

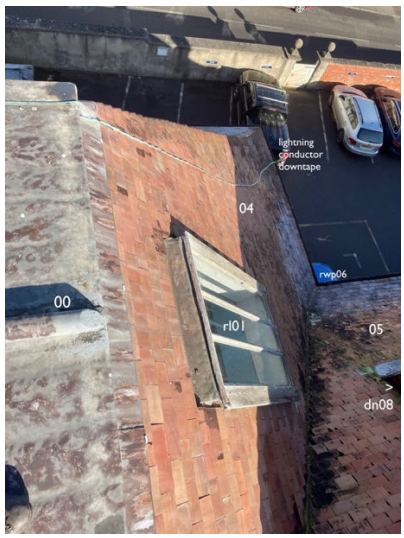
Plain clay tiled roof is reaching the end of its useful life and all roof coverings to 04 now require replacement. This will provide opportunity to relay tiles over sarking felt and provide full thermal insulation of east end attic rooms and execute localised remedial repairs to decayed roof timbers.

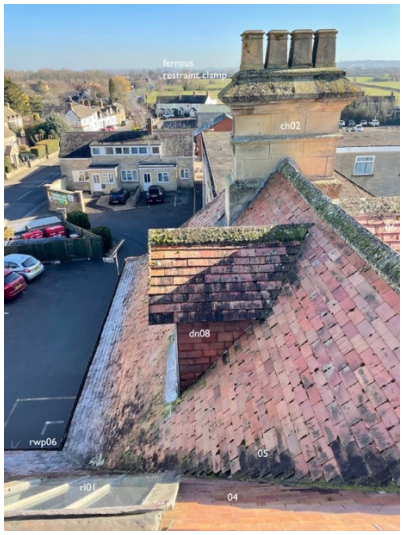
Localised cross tying to head of stack ch03 with stainless steel threaded bars or spiraties to restrain any historic movement and to allow removal of ferrous restraint fixings.

Review lightning conductor installation to air terminal, condition of downtape, route and fixings to roof coverings, gutter & ashlar walling.

Inspect, repair, replace and overhaul cast iron ogee gutters and downpipes and provide new shoe outlets into open drainage gullies.







29 North slope with corroding, leaking cast iron ogee gutters and downpipe above dentilated eaves. Chimney ch03 with ferrous restraint tie and lightning conductor air terminal. **30 East slope** timber rooflight rl01 and lightning conductor downtape draped over tiles. **31 Looking east towards roof 05** with sunken profiled tiles in valley 04-05. Note also swept eaves to contemporary east roofs of 04 & 05 and that valley to dn08 is cut tiles (not profiled valley tiles).

4.7 *05 – East hipped roof to Manor House*

Torched plain clay tiled roof with swept eaves and pitched tiled dormers dn08 to north slope **31** & ds08 to south slope **32**. Bedded stone ridge, terracotta hips & profiled valley tiles to adjacent roofs 01, 04 and 06. Roof drains to perimeter ogee cast iron gutters and downpipes rwp05 and 06. South (east) slope falls from eaves to adjacent mineral felt roof flat roof. Limestone chimney stacks ch01 and 02, to west end of roof and ridge respectively. Timber framed 3-light rooflight rl03 to south slope **35**.

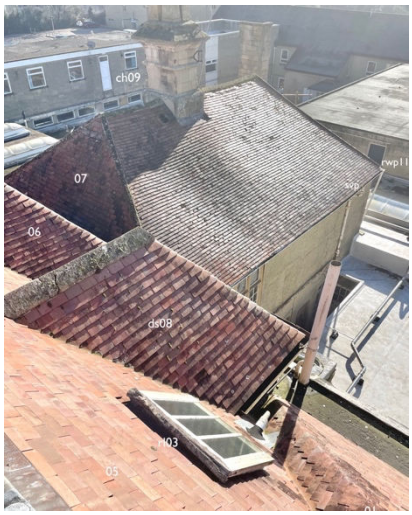
- Limited isolated damage/defects to plain clay tiles to south slope of roof and terracotta hip;
- Water ingress at base of valley with 06 where swept eaves transitions into non-swept eaves;
- Both profiled valley gutters at abutments with 01 and 04 (and valleys to ds08) appear to be dropping in relation to plane adjacent of tiles - misalignment of timbers or localised decay;
- North slope plain clay tiles in reasonable condition;
- Roof coverings to dormer dn08 in fair condition but decayed window and cill need repair;
- Localised hip defects to dormer ds08 but cast iron gutters and downpipes are corroding **32**, leak and require extensive overhaul, repair and redecoration;
- Rooflight rl03 has poor perimeter lead flashings **35** (but generally weathertight at present) and suffers from significant condensation internally and would benefit from thermally broken double glazing with safety glass;
- Masonry to stacks ch01 and ch02 in reasonable condition but ferrous restraint straps to head of both should be removed **34** following consolidation of defects to head of masonry using remedial stainless steel skew fixings;
- Cast iron ogee gutters to north and east slopes of roof are corroding and leak at joints. Require inspection, repair/replacement and redecoration;
- Cast iron rainwater downpipes rwp05 and 06 are in serviceable condition but have back inlet gullies and would benefit from installation of shoe outlets and gullies (for efficient ongoing maintenance)

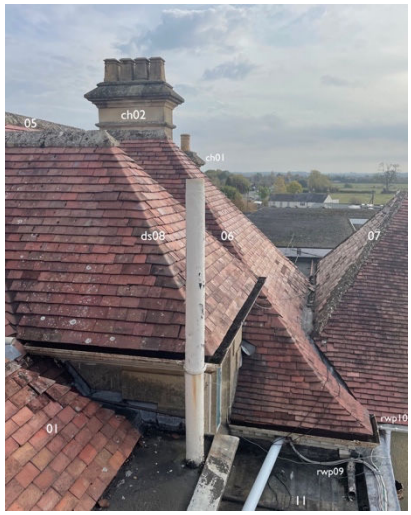






32 Dormer ds08 with corroding, leaking cast iron ogee gutters and downpipe. **33 Looking over ds08** with sinking valley gutters to dormer and adjacent profiled gutters to 01 & 06. Poor perimeter flashings to edge of rooflight rl03. **34 Looking east over 05 and 06** with limestone stacks ch02 to ridge & ch01 to eaves. Both have iron restraint straps at head of capping to stabilise historic defects.







35 Looking south east over defective flashings to rooflight rl03 and sinking profiled valley gutter with 01. Note also shadows cast over undulating west roof of south east annex 07. **36 Looking west to 06** with defective valley gutter and numerous slipped tiles between 06 and 07. Note at ogee gutter at low level to south west corner of roof 06 with corroded gutter outlet spigot rwp09 separated from downpipe. **37 Looking west** across lead valley gutter between 06 & 07. Corroded south east ogee gutter to ds08 and poor detailing stone hip over lead at base of image and large number of slipped adjacent tiles – **38**. Note also patches over leadwork to roof 11.

Plain clay tiled roof, hips and profiled valley tiles & rooflight rl03 to roof 05 now require replacement. This will provide opportunity to relay tiles over sarking felt and provide full thermal insulation to east end attic rooms and first floor ceilings.

Local remedial timber repairs to decayed valley gutter substrates and isolated sections of wallplate and rafter feet.

Inspect, repair, replace and overhaul cast iron ogee gutters to north and south edge of roof and install downpipes rwp05 & 06 with new shoe outlets draining to open gullies for improved maintenance.

Localised remedial repairs to timber window frames, cills, opening casements and dormer cheeks of dn08 and ds08.

Localised cross tying to head of stacks ch01 and ch02 with stainless steel threaded bars or spiraties to restrain historic movement and to allow removal of ferrous restraint clamps.

4.8 *06 – South east hipped roof to Manor House*

Torched plain clay tile hipped roof with lead intermediate gutter **36** to roof 07 and concealed side gutter **32** to ds08. Bedded stone ridge, terracotta hips & profiled valley tiles **38** to adjacent roof 05. Roof drains onto mineral felt roof in SE corner and to perimeter ogee cast iron gutters and downpipe rwp09 at SE corner **36**.

- Isolated damage and defects to plain clay tiles and terracotta hip and profiled valley tiles;
- Evidence of historic water ingress at base of valley with 05 where swept eaves transitions in to non-swept eaves and holding repairs in cement slurry mortar;
- East valley gutter at abutment with roof 05 appears to be dropping in relation to plane of adjacent plain tiles - misalignment of profiled valley tiles and/or localised decay;
- West valley appears to be in reasonable condition;
- Lead abutment to dormer dn08 in fair condition but outfall impeded by downpipe rwp08;
- Intermediate lead valley gutter to 07 in poor condition with overly long lead bays **38**;
- South east corner of roof discharges direct on to mineral felt flat roof [consider repair or replacement in parallel with adjacent roofing works];






38 Looking west with sunken profiled valley tiles at intersection between 05 and 06. Numerous slipped tiles and debris blocking gutter, damage to hip tiles and mitred hips at low level. Note existing mineral felt clad flat roof between roof 05 and 07. **39 South west corner of roofspace 06** showing torched tiles and incorrectly positioned sarking felt below level of rafters. **40 Bottom of valley between 05 and 06** with cement slurry repairs over mitred valley attempting to prevent water ingress at transition between swept & plain eaves.

- Cast iron ogee gutter to south west corner of roof is corroding, suffers from leaks at joints and downpipe rwp09 is currently not physically connected to outlet spigot **36**;
- Historic water ingress within roofspace has resulted in inappropriate installation of sarking felt below level of rafters **39**. To be removed as part of roofing and tile repairs.

Plain clay tiled roof, hips and profiled valley tiles to roof 06 now require complete replacement, providing the opportunity to relay tiles over (correctly positioned) sarking felt and provide full thermal insulation to east end attic rooms and first floor ceilings.

Local remedial timber repairs to decayed valley gutter layboards and isolated sections of wallplate and rafter feet.

Inspect, repair, replace and overhaul cast iron ogee gutters and downpipe rwp09 with new shoe outlet correctly located at head of lead gutter to east of ds08.





41 East slope of 07 with defective cast iron gutters and structural problems to projecting bay window. **42 West slope** showing excessively undulating roof slope - see also **35**. Replacement upvc rainwater goods and ferrous restraint straps to head of chimney stack ch09. Note also modern south stack ch10 - from adjacent [lower] boiler house.







43 East slope of 07 from 00 with sunlight casting long shadows over the undulating roof. Failed purlin has cracked mid-point between cross wall (in line of axial stack) and north end of roof. **44 North east corner of 07** with tiles separating over defecting hip rafters. Note cast iron soil pipe leading in to roof. **45 Exposed projecting verge** to north east corner, viewed from north. Inadequate torched-on roofing upstand, missing end-stop to gutter and saturated brickwork. Repeated water ingress in this area has led to beetle holes in adjacent wallplate - visible just below line of gutter.

4.9 *07 – Hipped roof to Manor House: South East Annex*

Pitched plain tile hipped roof with lead intermediate lead valley gutter **38** to roof 06. Bedded stone ridge and hips **41** with projecting east roof over bay window. Axial stone stack ch09 and south stack ch10, from adjacent boiler house. Cast iron ogee gutter to east elevation and south return, with cast downpipes to rwp12 and 13. Half round white upvc gutters to west elevation and south return, with upvc downpipes at rwp10 and 11.

- Roof timbers are 'substantially understructured', see Mann Williams report: paragraph 3.2;
- Extensive damage to plain clay tiles across whole roof, especially adjacent to hips and ridge, resulting in much water ingress internally as a consequence poor seating of adjacent tiles;
- Ongoing water ingress between roof tiles is resulting in decay of timber battens and defects to upper surface of rafters;
- Excessive undulation/deflection of west slope of roof **35** due to failed (north) purlin **46** and undersized south purlin **48**. Much daylight visible from within roofspace due to;
- North slope of roof has been relaid over sarking felt but this area of roof does not have any intermediate purlins (*cf.* all other slopes);



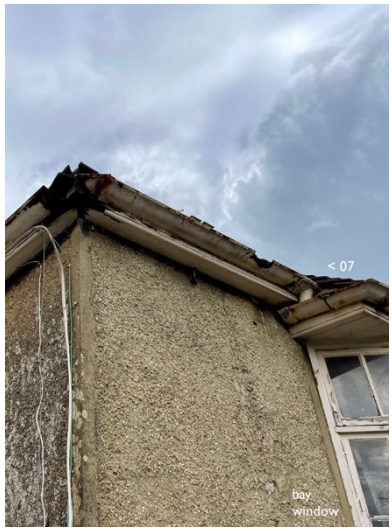




46 Broken purlin to north end of west slope, resulting in undulation of roof visible externally as **43**. **47 Propping** of north end of west purlin off existing ceiling joists. Water penetration to north end intermediate valley gutter visible as white staining of timber. Lack of purlin to north side beneath relaid section of roof (tiles laid over sarking felt). **48 Undersized purlin** to south end of west slope with excessive deflection of roof structure above. Note: roof 07 has lost torching & subject to water ingress.







49 West slope with plain tile roof covering extending over projecting bay window. **50 Projecting bay** with cracked render and defective timber corbel brackets below cill level. **51 Defective corner gutter** with missing section and fractured corroded gutter with leaking joints throughout.

- Water ingress to north east corner of roof due to missing stop-end to gutter **44**, inadequate abutment flashings and saturated brickwork **45**;
- Periodic water ingress to intermediate lead gutter with roof 06 visible as white staining to timber gutter linings, visible internally as staining **47**;
- Corroding cast iron gutters to east elevation, with leaking joints & cracked/missing elements **50** and missing corner section saturating adjacent south wall **51**;
- West elevation gutters have been replaced in half round upvc with 75ø upvc downpipes;
- Repeatedly saturated defective render to east elevation around bay has led to water ingress with loss of structural integrity of timber corbel brackets, now requiring remedial repair **49**;
- Overhaul of window frames, cills and casements to bay window **50** and adjacent sashes;
- Masonry to axial stack ch09 in reasonable condition but ferrous restraint strap to head of stonework should be removed **44** following repair of defective stonework with stainless steel skew fixings;

Plain clay tiled hipped roof is at the end of its useful life and is suffering from water ingress leading to batten failure and decay to head of rafters. The roof coverings need to be replaced.

Roof is substantially understructured and integrity of the roof structure is compromised by poor load transfer between hip rafters and purlins (and defective and inefficiently propped west purlins). Although the roof could theoretically be repaired by extensive local strengthening works, the structure is of limited historic significance and the building might benefit more from efficient restructuring.

Localised remedial structural repair to reinstate integrity of corbel brackets to base of bay window and repairs to adjacent roughcast render, secondary framing, window frames and opening casements.

Inspect, repair, replace and overhaul cast iron ogee gutters and downpipes to east side of roof and reinstatement of ogee cast iron gutters and downpipes to west side of roof.

Localised cross tying to head of stack ch09 with stainless steel threaded bars or spiraties to restrain historic movement and to allow removal of ferrous restraint clamp.

4.10 *08, 09 & 10 – Single storey extensions to south side of Manor House*
Limestone parapets separate roofs into three discrete areas, each with lead covered flat roofs with perimeter gutters to falls. All roofs are laid over iron filler beam joists. Roofs 08 and 09 discharge to cast iron downpipe rwp14, while roof 10 discharges onto adjacent roof to the east.

- Lead roof coverings to all three roofs in very poor condition;
- Roof 08 has been recoated with torched on roofing felt and the intermediate joint between bays is now covered by a flush lap joint;
- 09 & 10 retain intermediate timber cored lead rolls but have been overcoated with bitumen paint, which now breaking up;
- All three lead roofs have inadequate falls, minimal step heights between bays and very small roof outlets (evidenced by the large built up of debris across the roofs);
- Stone parapets are in reasonable condition but require localised repointing to perpend joints to ensure copings retain weathertightness;
- Evidence of jacking of stonework near to central door (yellow **53**) most likely associated with corroding embedded iron filler joists. Warrants further investigation before roofs repaired;
- Cast iron downpipe rwp14 has direct outfall from roof 08 and small branch outlet from roof 09. Neither outlet is rodable (for maintenance) & would benefit from adapted outlet pipes;
- Cast iron downpipe rwp14 is corroding and needs to be repaired and redecorated;
- Check condition and operation of below ground drainage.

Filler beam joists beneath lead roof are thought to be corroding and should be exposed, cleared of corrosion products and re-decorated prior to commencement of roofing works.

All three lead roofs are in poor condition and should be reconstructed to improved falls, with increased step heights and new catch pits in accordance with Lead Sheet Training Academy recommendations.

Outfalls should be linked through to existing cast iron downpipe by a hopper to enable proper maintenance and clearance. Inspect and redecorate cast iron downpipes and ensure operation of below ground drainage and gullies.

Localised repointing of open joints to masonry parapets, copings & perimeter flashings in lime mortar.



52 Single storey extensions to south elevation with three separate lead roofs bounded by limestone parapet walls. Roof 11, with lead covered coping is visible in the foreground. **53 South elevation** with roofs 08, 09 & 10. Yellow area shows area of stone jacking most likely associated with corroding embedded beam ends to iron filler joists beneath. Red areas denote areas of defective lime roughcast render, following ongoing saturation from defective parapet gutters at high-level. **54 Roofs 10 and 11** with abutment to single ply roof to east. Outfall from chute outlet from 11 connects with hopper to downpipe rwp10.

4.11 *11 – Flat roofed area below dormer ds08*

Two bay lead flat roof with falls to concealed parapet gutter to south, bounded by lead capped parapet wall **52**. Lead roof has intermediate lead cored roll and has been coated with bitumen paint – which is now breaking down. Gutter falls to chute outlet to south east corner and then discharges into hopper and downpipe rwp10.

- Lead roof coverings to in poor condition and contains two existing lead weld patches **52** ;
- Roof at minimal pitch and narrow box gutter difficult to keep clear of debris **37**;
- Outfall via chute outlet and decorative cast iron hopper into downpipe wp10 **54**;
- Cast iron downpipe rwp10 is misaligned and should be reinstated to new alignment;
- Check shoe outlet and gulley (within lightwell) and efficiency of below ground drainage.
- Lead capping to copings stones appears to be in serviceable condition.

Lead flat roof and concealed gutter in poor condition, with numerous patches to lead and should be replaced to new falls, with wider gutter over insulated substrates to Lead Sheet Training Academy requirements.

Inspect, repair, overhaul, decorate existing cast iron hopper & downpipe and reinstate to new vertical alignment with necessary offsets and non-ferrous wall fixings. Check condition of gulley and ensure efficient operation of below ground drainage.

4.12 *12 – North entrance porch*

Three bay lead flat roof with falls to concealed parapet gutter to south, bounded by decorative stone pediments to three sides. Gutter falls to very small diameter outlet to south east corner and then discharges into internal downpipe.

- Roof laid at minimal pitch as elsewhere, with narrow box gutter and small diameter outlet which is very difficult to keep clear of debris and often gets blocked, resulting in water ingress within porch. Difficult to improve run-off from roof without enlarging outlet pipe which would require major reconfiguration of roof;
- Lead roof coverings generally in good order but most easterly bay has backfall and ponds **56**;
- Not known if timber boarding below east bay is decayed but it would be useful to get leadworker to lift this bay and inspect substrates;
- Limestone pediments damaged by severe frost in winter 2022/3 and require mortar repair.







55 East elevation of porch and adjacent offset downpipe rwp01 from projecting north parapet gutter. **56 Lead roof covering to roof 12** with tree bays falling to south box gutter. Easternmost bay has backfall and ponds. Very small diameter outfall to east end of gutter runs internally to concealed downpipe. **57 Detail of west pediment** with frost damage to oolitic limestone coping.

Lead flat roof and concealed gutter in reasonable condition but laid to minimal falls and with narrow gutter and constrained outlet pipe. It should be possible to locally repair east bay and replace timber substrates if necessary.

Efficient operation of porch roof limited by narrow outlet pipe but will require major reordering of leadwork to achieve. In the interim ensure roof is regularly inspected and kept clear of all debris to avoid risk of blockage. This is an easy stand-alone project to implement if/when necessary, resources become available if long term problems persist.

4.13 *Below ground drainage*

We do not have accurate and complete records of location and condition of below ground drainage on site. This is especially important as are considering the possible installation of additional gullies for new downpipes from the parapet gutters at high level.

Commission a cctv drainage report to assess condition and location of below ground drainage.

4.14 *Roughcast render*

With the exception of the stone north facade, all elevations of the Manor House are protected by roughcast lime render. This generally remains in reasonable condition with the exception of localised areas that are frequently saturated by the overtopping of the projecting parapet gutter, especially to the south elevation. In these areas the render is become soft and delaminating resulting in frequent and repeated saturation of the masonry walling beneath. Walls should be allowed to dry back under a protective scaffold before the local reapplication of lime based thrown roughcast render matched to adjacent finishes. It will also be necessary to assess the structural condition of saturated timber lintels and floor joist bearings adjacent to these areas.

Allow for inspection and localised opening up of saturated timber lintels/floor joist to assess condition.

Remove loose and defective areas of roughcast render and allow walls to dry back under protective coverings prior to reapplication of lime-based thrown roughcast finish with appropriate aggregates.






58 Loss of render adjacent to rwp04 following frequent saturation of render from overflowing parapet gutters at high level. **59 Typical delamination of render** with soft base coat of ash mortar with lime rich roughcast finish. **60 Cross section of render** with very thin 2-3mm coat of lime rich thrown roughcast render containing local South Cerney/Ashton Keynes Cotswold stone aggregate.







61 Loss of render to window head below ds02 with ongoing saturation leading to loss of render over lintel position externally and adjacent to boiler flue. **62 Detail of render loss** with exposed grey base coat and fern growing in frequently wet wall. **63 Internal damp penetration** with water ingress around flue and damp penetration and mould growth above lintel.

4.15 *Inserted metal casement windows*

Stone mullion and transom windows have with inserted metal windows, with either plain or leaded lights and fixed or opening casements. In many areas urgent redecoration is necessary to prevent rust staining or corrosion and future extensive damage to adjacent stonework. It will be necessary to establish a prioritised list of window repairs to be undertaken over a series of years. Most windows can be repaired from tower scaffold and the works can be executed in isolation from other adjacent repair works if necessary. In some rooms it may be sensible to consider installation of secondary glazing to improve thermal and acoustic performance.

Undertake survey of defects to inserted metal casement windows and provide priority list based on urgency, access and risk of associated damage to adjacent mullions and transoms (masonry).





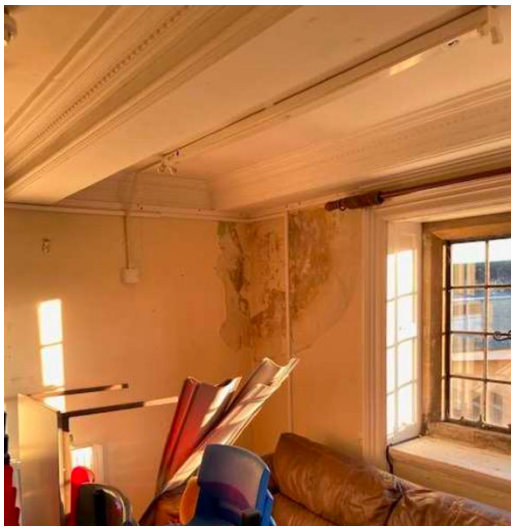
64-66 Typical examples of inserted metal casement windows with both fixed lights and opening casements. Frames will need to be treated to remove corrosion products and redecorated in a proprietary paint system to avoid further rusting. In some locations it might be appropriate to consider insertion of secondary glazing for thermal/acoustic purposes.

4.16 *Attic storey: internal finishes*

Ceilings and roof soffits throughout the second floor are subject to extensive fracture, cracking and delamination of plaster finishes. This appears to relate to loss of plaster key (failing nibs) of the thickly applied finishes from the sawn lath, rather than excessive deflection of primary or secondary ceiling structures. This is likely to necessitate extensive plaster reinstatement to the whole attic storey prior in addition to the roofing works. This may provide opportunity for the installation of internally fixed thermal insulation to the underside of ceilings, dormer cheeks and raking ceilings beneath roof slopes.

4.17 *First floor: west end internal finishes*

There is substantial water ingress to the westerly room, primarily as a result of defective roof outlets and projecting parapet gutters over an extended period. Due to the construction of the building, it has not been possible to inspect all areas of concealed roof structure at this stage and consequently realistic allowances will need to be made for anticipated works in this area.

67-68 Images from Mann Williams report showing extensive water ingress to first floor rooms at west end of Manor House. Left view is the internal face of the wall visible in **18** beneath the leaking outlet of rwp03. Right image is below ds01and one bay west of the extensive water ingress to the head of the window in **61** and the opposite side of the wall to the boiler in **63**. Areas of walling (and timber) are clearly very wet and will require extensive drying out and/or replacement of defective structural timber.

4.18 *Roof Structure*

Refer directly to Mann Williams report for comprehensive overview of the condition of the Manor House roof structure, roof trusses, perimeter gutter structure and construction details of the South East Annex roof. Drawing SK1-121 provides details of site survey notes, including structural timber sizes and areas of anticipated water ingress/fabric decay, together with an outline roof structure plan at SK1-131 and SK2-121.

5.0 CONCLUSIONS

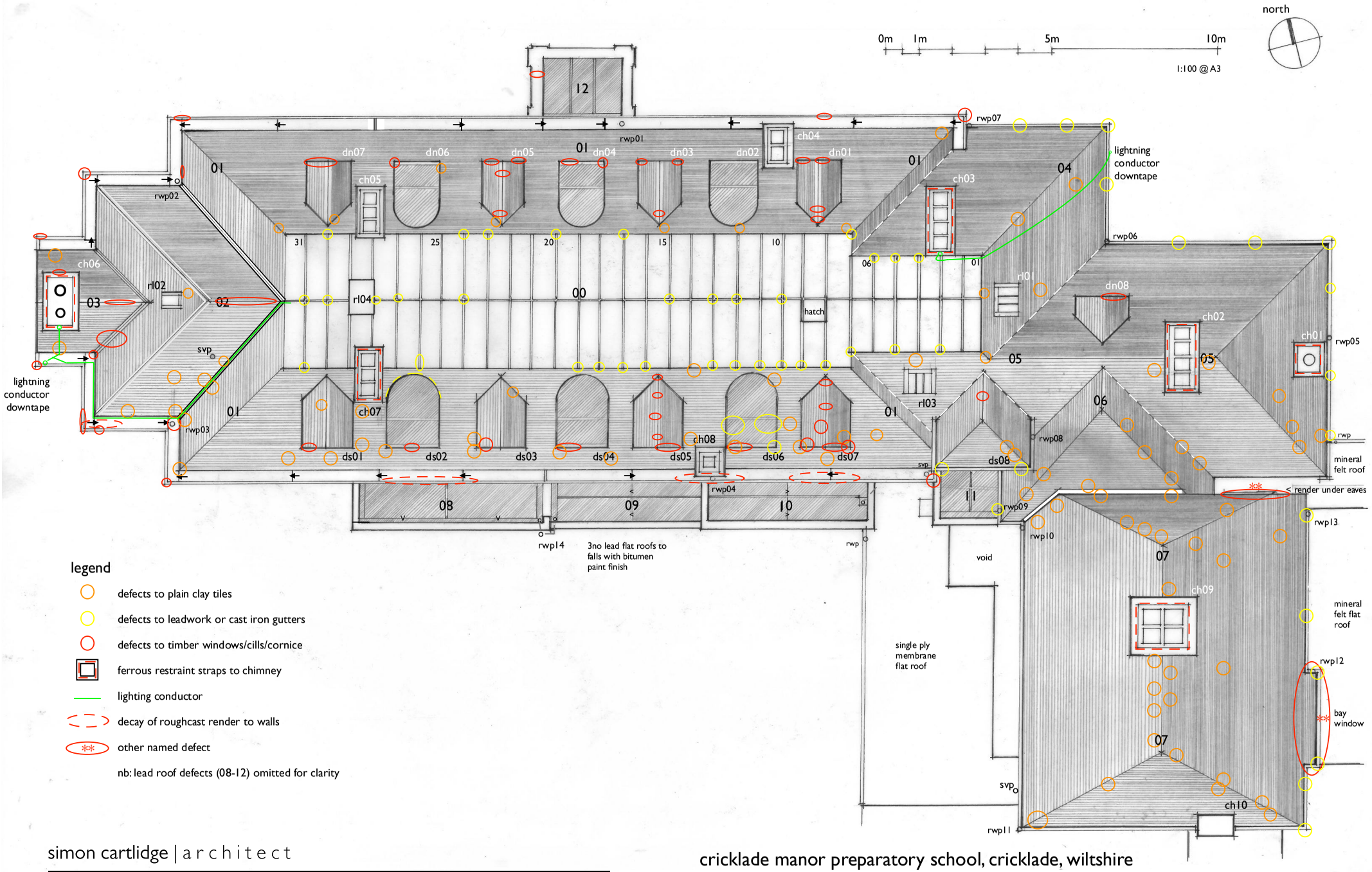
Overview

- Cricklade Manor has been subject to minimal maintenance and repair over an extended period and is now in need of extensive backlog maintenance repair & upgrading of fabric to meet current building standards (including Part L – Conservation of Fuel and Power)
- Principal tiled roof coverings are in poor condition and have reached the end of their life
- Defects are exacerbated by very poor condition of perimeter lead lined parapet gutters which concentrates water ingress around the perimeter of the building, leading to defects to timber wallplates, rafter feet, projecting gutters and protective render coatings to walls

- Gutter defects are associated with inadequate falls, minimal perimeter upstands and deficient outfalls. Whole perimeter gutter system needs to be redesigned, ideally with additional outlets and downpipes to provide more robust stormwater drainage system in the face of increasingly intense weather events associated with climate change
- It is likely redesign of gutters will necessitate change in materials to accommodate limitations of existing built form
- Repairs will also be necessary to overhaul and modify existing cast iron ogee gutters to the east end of the building and cast ion downpipes to all areas
- Will be necessary to understand existing below ground drainage provision in order to install new downpipes and gutter outlets – an accurate cctv survey of drains is a necessity
- Structural repairs to roof will include reinforcement of projecting gutters, localised repairs to wallplates, rafter feet and dormer roof structures
- Further non-structural timber repairs will be necessary to timber frames, cills and casements to dormer windows following years of little maintenance
- Inspection of lintels, beam ends and embedded timberwork adjacent to saturated masonry
- Repairs to defective roughcast render finishes to walls following drying out of fabric
- Works would most efficiently be implemented under a scaffold overroof to allow thorough opening up and evaluation of remedial repair
- It would be prudent to consider implementing limiting holding repairs to mitigate extent of water ingress by ensuring clearance of all gutters, rodding of downpipes, temporary repairs to leaking joints and leadwork (flashband), ensuring efficient operation of drains
- Lead flat roofs to the south of the building have also reached the end of their life and are built over iron filler joists with embedded beam ends which are corroding and displacing nearby masonry walling. This primary structure needs to be repaired before roof coverings are replaced
- Inserted metal casement windows within mullion and transom windows are in need of repair before corrosion becomes more advanced and results in defects to adjacent masonry
- Roof coverings and roof structure to the South East Annex are in very poor condition and should be seen as a priority for repair (or emergency stabilisation). Roof is seriously under-structured, with major defects to purlins, load transfer paths between hip rafters and ceiling joists – as a result of inappropriate previous remedial propping works
- Annex roof structure is of limited historic significance and as a consequence the building might benefit more from the reconstruction of the roof rather than its remedial repair

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legend

- defects to plain clay tiles
- defects to leadwork or cast iron gutters
- defects to timber windows/cills/cornice
- ferrous restraint straps to chimney
- lighting conductor
- decay of roughcast render to walls
- other named defect

nb: lead roof defects (08-12) omitted for clarity

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overview of defects to roof coverings, rainwater goods and chimneys

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