Gregynog Hall Raise the Roof - Stage 1 Report

Prepared for Gregynog Trust

Buttress

June 2024

Version history

Project name: Gregynog Hall
Project number: 9784
Client: Gregynog Trust

Rev:	Date:	Status	Name	Description
1	26-06-24	Draft	Alex Scrimshaw | Associate Architectural Technologist	Stage 1 Report

Certified B Corporation

GREGYNOG

AHF Transforming Heritage
www.ahfund.org.uk

Buttress is a leading design studio. We are people shaping places for people.

Architecture for an equitable tomorrow

1 Introduction

Introduction

Gregynog is a 750 acre estate in the heart of Wales filled with history, culture, nature and stories.

Gregynog Hall is a Grade II* Listed building, at the heart of the cultural and architectural history of Wales for centuries and set in Grade I Listed gardens at the centre of a 750-acre estate. The Hall and grounds are surrounded by an internationally important National Nature Reserve, landscape and woodland setting.

Gregynog is now owned by the Gregynog Trust, a registered charity established in 2016 which took ownership in June 2019. They offer a welcoming setting, in which everyone can discover, experience, enjoy and be inspired by nature, creativity and the arts.

Brief

Buttress Architects have been commissioned by Gregynog Trust to prepare the designs for the re-roofing of Gregynog Hall. The re-roofing works are to extend across the original pitched slate covered roofs to the historic Hall, the felt roofs to the 1970s extension and the low-level slate roof to the laundry room annex.

Following several technical inspections, it is clear that the continuing effort to patch and repair the roof are no longer sufficient to arrest the problems of water ingress and building damage caused by the deteriorating roof condition. In addition, several health and safety concerns needing urgent remedy are becoming ever more evident. In light of these issues the Trust has concluded that the replacement and upgrading of the roof to the entire hall is now required.

Authorship

This document has been prepared by Alex Scrimshaw, Associate Technologist, Accredited Conservationist and Lucy Ashcroft Senior Architect of Buttress Architects Ltd.

Photographs taken by Alex Scrimshaw and Lucy Ashcroft of Buttress Architects, with drone imagery support provided by Kenneth Hughes of Gregynog Trust.

This appraisal aims to:

- Present current condition findings and recommendations for re-mediation following site visit.
- Consider options for repairs, replacement, looking at maintainability, consent issues and any other technical considerations.
- Capture and present a scope of work emerging from the site visit and discussions with the Trust.
- Prepare a schedule of planned and focused investigative surveys.
- Work with the Quantity Surveyor to develop a detailed cost plan and summary.

The full extent of the works will include:

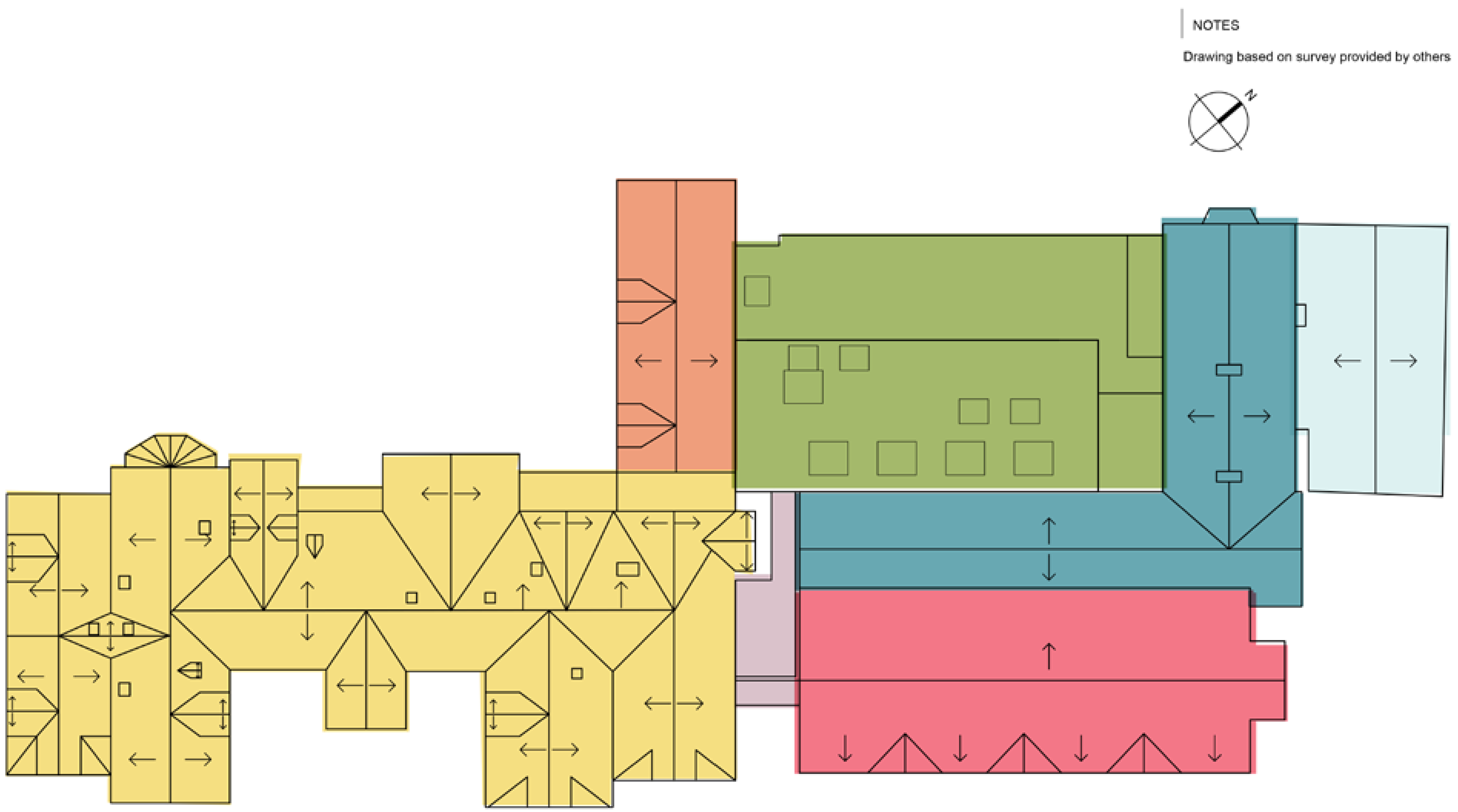
- Replacement of all pitched roof areas in slate salvaged from the building and/or from new sources.
- Replacement of all flat roof areas with a high-performance roof membrane system.
- Replacement of all internal valley gutters and flashings.
- Insulation of all roof areas to exceed current building regulation standards in anticipation of the future regulatory and performance environment.
- Repair and/or replacement of all cast iron rainwater gutters and down pipes.
- Repair and/or replacement of barge boards, eaves timber work around the roof perimeter.
- Repair and restoration of all ground water drainage leading to the final point of rainwater discharge to the mains sewer.
- Renewal of lightning protection to the building.
- Temporary roof covering and protection to the building during all phases of the construction work so as to facilitate the works but also to engage the public whilst works are in progress.

Options for inclusion to be assessed during stages 1,2 and 3 include:

- Subject to on site inspection and assessment the substructure and insulation to the 1970's flat roof area may need to be upgraded or replaced.
- Reinstatement of historic building ornamental details including finials and ridge tile details etc.
- Reinstatement of missing chimney pieces either as replacements of the chimneys as originally constructed or as new cultural, artistic, or environmental roof-line features of the restored building.
- Refurbishment and redecoration of building elevations.

Key Plan

For the purposes of this report, the Hall complex has been sub-divided into the following areas, with the following sub-headings referred to here on out.



MAIN HALL

KITCHEN WING

LINK BUILDING

MUSIC ROOM BLOCK

ANNEXE WING

LAUNDRY BLOCK

REFECTORY BLOCK (ALEX GORDON EXTENSION)

2 Site Context

2

Context

Gregynog is one of Wales' premier country estates and the former home of the extraordinary Davies sisters, art collector and public benefactors. Gregynog Hall is Grade II* listed, sitting in the heart of Grade I listed gardens, surrounded by an internationally important nature reserve, representing an exceptional level of architectural and historical interest.

The Hall and stable block are surrounded by walking trails through a 750-acre estate.

The estate offers a venue that hosts weddings, conferences, concerts, and various events, whether they be family focused, music and/or cultural events.

Gregynog Hall houses a collection of fine arts, literature, language, history, and cultural publications, housed within its library.

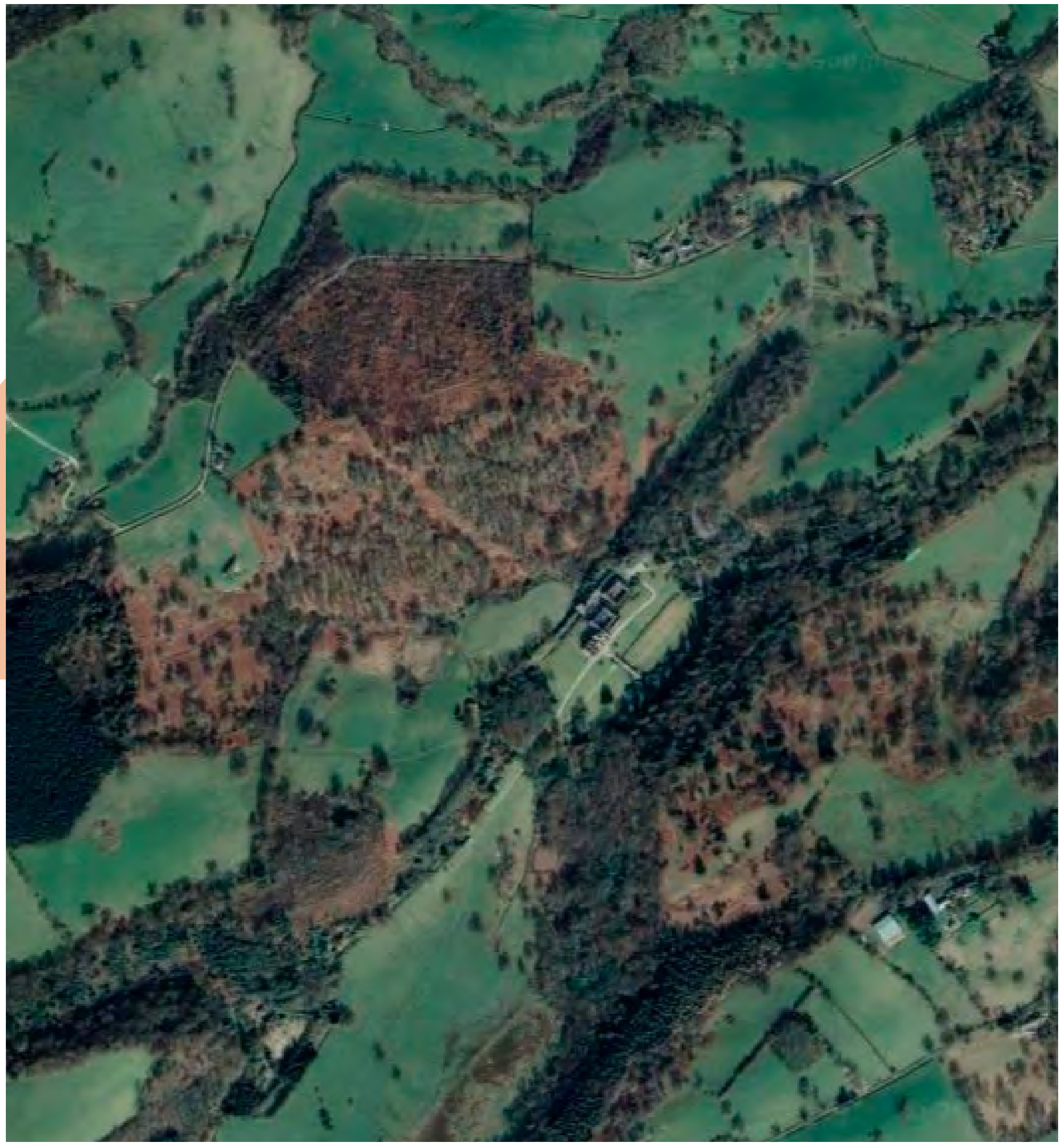
Location

Gregynog Hall is an E-plan four storey house with basement and attic stories, located in the County of Powys, Wales. It is not located within a conservation area; however, it is within the Grade I listed grounds and gardens.

The Hall and grounds are situated within the Gregynog National Nature Reserve and in the setting of a Site of Special Scientific Interest (SSSI).

The Hall is predominantly accessed from B4389, down The Galloping Drive. 1.7km SW of parish church in a large parkland and gardens. The Hall faces roughly SE.

Gregynog, Tregynon, Powys, SY16 3PL, Wales.



Understanding the Heritage

> *"Gregynog Hall was built between c.1840 and c.1880 on the site of a former residence of the Blayneys. The new Hall was designed and built by the new owners – the Hanbury-Tracy's. In 1895, its ownership passed to Joicey, who carried out alterations including a billiard room extension, before selling the Hall and its entire estate in lots at auction in 1913. In 1920, the Hall, its gardens, parkland and its much-reduced estate was purchased by the Davies sisters, with the sole intention of creating a venue for Welsh culture. Their alterations to realise this vision were purposefully simple, in some cases austere, and included extensions to create a Music Room with residential accommodation and further space to house the equipment required of their newly-founded Gregynog Press. The Hall and estate were bequeathed to the University of Wales in 1960, welcoming its first students in 1964 and being extended with the Refectory Block to the area in 1967. The University sold the Hall and remainder of the estate to the Gregynog Trust in June 2019."*[1]

Gregynog Trust

In 1920, the Hall, its gardens, parkland and its much-reduced estate was purchased by the Davies sisters, with the sole intention of creating a venue for Welsh culture.

Listing Description

NPRN: 29283

Description

Gregynog Hall is a three storey E-plan house plus attics, with gabled dormers and slate roofs. It is half-timbered in appearance but clad in rendered concrete moulded and painted in black-and-white style. Incorporating early seventeenth century panelling in the dining room from an earlier house, it was rebuilt from about 1840 and by 1872 the house had taken its present form, of brick clad in concrete and painted to imitate the local timber-framed tradition. The Gregynog Estate is notable for the exceptionally early use of concrete to build cottages, farm buildings and bridges. Bequeathed to University of Wales in 1963.

(Source: Cadw listing description, 31 January 1997.)

Gasworks are marked on the 1885 to 1886 OS maps.

The Economic Gas Company issued a pamphlet c1881 in which they described their system of manufacturing gas for heating purposes and motive power at the low cost of 1s. per 1,000 feet. This system was reported to be in operation at Gregynog Hall, Lord Sudeley's seat. The house was sold in 1894 by Lord Joicey, who it would appear removed the gasworks. The gasworks would have been used to light the house.

Associated with: Park/gardens (Nprn265565).

B.A.Malaws, RCAHMW, 14 May 2007

1. Donald Insall Associates, ' GREG.01 Gregynog Hall Conservation Statement' Oct 2020, p.g7

Summary of Significance

"The Hall has considerable architectural significance as a substantial 19th century country hall in a Jacobean-Tudor style, likely designed by its owner the gentleman-architect Charles Hanbury-Tracy, with alterations by his son Henry. It exhibits a relatively early and certainly novel use of shuttered cement render alongside concrete features, forming a half-timbered effect on an unusually grand scale. The Hall and its estate hold considerable historic significance for their association with the Blayney, Hanbury-Tracy, Joicey and the Davies families – the latter of which affords it a substantial level of cultural significance, for the sister's contribution to the arts in Wales.

The significance of the building manifest in its fabric can be summarised as follows:

- *The Main Hall's external elevations and lively gabled roof form are of the highest significance, as is its 17th century panelling within the dining room – reused from the previous hall.*
- *The WC extension and butler's room extension are of low significance and the replacement metal and chunky timber casement windows detract.*
- *The Music Room Block and its extensions by Ricardo and Hall are of high significance, though the Link Block is less well-considered in its junctions and the NW elevation has been abridged by the Refectory Block.*
- *The Kitchen Wing is of high significance overall and its south west elevation is of a similar quality to the Main Hall.*
- *Its plainer elevations are of more modest significance and its metal-framed and vented windows detract.*
- *The Annexe Wing is of high historic significance in representing the development of the Hall – initially being two storeys and being added to in the 1920s – however; its elevations are largely of modest to low significance.*
- *The Refectory Block holds some historic significance; however its external appearance detracts.*
- *The late-19th century Stable Block (Grade II) is of high significance for its association with the Hall and its high quality principal elevation (and its inner face) with fine red rubbed brickwork, whilst its other elevations are of more modest significance.*
- *The interiors of the Main Hall at basement, ground and first are generally of high significance, retaining most of its Victorian planform and its good quality mock-Tudor or Jacobean decorative features as well as a highly sculptural staircase, set within the stair tower.*
- *The plainer and altered service areas are of more modest significance.*
- *The Davies sisters' 1930s bathrooms, fitted marble vanities and mirrored marble effect chimneypiece are also of high significance, as is their austere 1920s and 30s furniture collection.*
- *The attic rooms retain most of their layout and are typically modest and of high significance for their planform, and otherwise they are of modest significance; they feature later bathrooms, replacement doors and fire screens, which detract.*
- *The University-era alterations include dedication nameplates, which are of some modest historic significance.*
- *The more recent replica fire doors at ground and first floor are neutral.*
- *The basic fire doors and screens and clunky AV equipment detract, as do the more recent alterations including removal of chimneybreasts and insertion of wet rooms in the Kitchen and Annexe wings.*
- *The Music Room Block interiors are is mostly in a purposefully austere 1920s Jacobean style.*
- *The music room itself is of high significance, whilst the corridor and bedrooms at first floor are of moderate significance.*
- *The adjacent Link Block interiors are of moderate significance, featuring some good quality materials and finishes – though their quality really comes from their external architecture.*
- *The interiors within the Kitchen Wing are quite altered and of moderate significance, where the planform has been altered or features lost, this detracts.*
- *The accessible parts of its second floor are of low significance.*
- *The interior of the Annexe Wing is plainly finished and is mostly of moderate to low significance.*
- *The Refectory Block interiors are simple, with finishes and features of their time and of little or no significance. The main corridor is meanly proportioned and where it interacts with the Music Room Block, it detracts"*[2]

2. Donald Insall Associates, ' GREG.01 Gregynog Hall Conservation Statement' Oct 2020, p.g3-4

Summary of Condition

The summary of condition text below has been extracted from the previous building condition report, dated March 2017, commissioned by University of Wales, undertaken by Ferrier Hart Thomas Chartered Building Surveyors.

The purpose of the report was to establish the structural and fabric condition of the site's buildings and structures allied to bringing the site and its buildings into a state of compliance and good state of repair.

Only pertinent items have been extracted verbatim to summarise the previous inspection, focused upon the Hall complex only.

The Main Hall

- *The Main Hall and its later additions ie the "Music Room"; the Courtyard block of the early 20th Century and the Alex Gordon annex of 1967 remain in reasonable structural order throughout with only isolated moderate aspects of deterioration which are considered to be of moderate concern, nevertheless remediation works will be required at the earliest opportunity in order to prevent further and more significant deterioration and as part of a planned programme of works.*
- *Superficially the buildings are largely in a tired condition with notable aspects of disrepair following a long period of ad hoc repair and under investment. Given this, sizeable repair of the building is necessary, and this should be controlled by a planned programme of works to suit the future use and logistical needs of the building(s).*
- *The natural slate roof coverings are primarily original and have reached their useful life expectancy and need to be replaced. Approximately one third of the roof has been replaced to the West side (assumed 1960's) but exhibits some disrepair. There is extensive lead sheet detailing to valleys; concealed gutters; ridge lines and hips etc. including lead clad flat roofed dormers.*
- *Our recommendation is that all roof coverings inclusive of lead detailing are replaced as a priority if extensive internal refurbishment is to occur. All weatherboards require urgent minor repair and complete redecoration in conjunction with roof replacements.*

- *Rainwater gutters and downpipes require urgent clearance of blockages and complete restoration to include replacement of inappropriate sections of UPVC.*
- *All chimney stacks have been lost and perhaps could be reinstated to period detail.*
- *Lower-level lead sheet clad flat and bay window (North side) roofs are aged and have been extensively patch repaired and require further renewal.*
- *The external render faced brick masonry walls remain in relatively good condition, but localised patch repairs are necessary. Ad hoc redecoration has been conducted to more visible areas but on the whole deterioration occurs. Urgent redecoration externally is considered necessary.*

The Main Hall

Figure 1 a

Figure 2 b

Figure 3 c

Figure 4 d

Music Room and Laundry Block

- Predominantly this section remains in fair good superficial order throughout but again there is age related deterioration. The natural slate roof coverings are of some age (circa 100 years) and exhibit general deterioration allowing more recent water entry in places. Given their age consideration should be given to their replacement. Several sections of built-up felt covered flat roofs show age related deterioration and would also benefit from replacement and upgrade of insulation.
- Repair of two aged brick chimney stacks is also necessary.
- The rainwater disposal system and weatherboards also require restoration, repair, and redecoration. External walls remain in good condition save for evidence of structural movement to the East gable of the Music Room which will require some remediation.
- The half-timbered wall sections also remain in sound order but require recoating of surface finishes.
- Windows and doors remain in reasonable order but wear and tear occurs in places. Complete external decoration is however now necessary.

Refectory (Alex Gordon Wing)

- This infill structure over three storeys superficially remains in reasonable condition but demonstrates age related deterioration. Little or no improvement has occurred to this wing in more recent times hence the majority of original finishes and fittings remain. These are considered to be old and tired.
- The built-up felt roof coverings over three levels currently allows water penetration in several locations; is reaching their useful life expectancy and exhibits inappropriate and suspect detailing where meeting the windows and walls of the Music Room wing. There is also a strong presumption that insulation levels are non-existent or below current standard.
- Rooflights also exhibit notable disrepair above the Davies Room, Servery and Food Storage and Preparation areas, some of which have been patched repaired after water ingress. Replacement of the rooflights and flat roof coverings to an insulated standard and improved detailing is now an urgent priority.
- Rainwater gutters and downpipes require urgent clearance of blockages and complete restoration.
- Externally walls remain in satisfactory order but masonry paint finishes are tired and require recoating.
- Steel framed single glazed windows illustrate typical issues consistent with 1960's detailed components with evidence of bowed and twisted opening lights to allow draughts and general deterioration of decoration. Timber framed and glazed doors generally require minor repair and redecoration.

Music Room & Laundry Block

Figure 8 a

Figure 7 b

Figure 6 c

Figure 5 d

Refectory Block

Figure 12 a

Figure 11 b

Figure 10 c

Figure 9 d

3 Current Issues

3


Gregynog Trust

Current Issues

Conduct of the Inspection

The survey inspection was carried out over a single visit on Wednesday 1st of May 2024 with representatives from Buttress Architects (Architects), Mann Williams (Structural Engineer), Ingleton Wood (MEP Engineer & PD) and IWSA (Quantity Surveyor).

Associate Technologist Alex Scrimshaw, BSc (Hons) HNC, MCIAT Accredited Conservationist and Senior Architect Lucy Ashcroft BA (Hons), PGDip, MSc represented Buttress Architects Ltd.

The weather conditions at the time of the inspection were sunny, dry and clear.

The contents of this report are based on an inspection made from ground level and other safely accessible vantage points only. The survey was limited to the full exterior envelope of the Hall complex, including the third floor (attic level) of the main hall and other interior spaces across the complex. No further aspects of the Hall or estate were recorded or form part of this condition report.

Unless otherwise stated, the inspection has been purely visual and no enclosed spaces or inaccessible parts (such as removal of slate or hidden timbers) have been opened up for inspection.

The inspection was visual and non-destructive and limited to reviewing the built architectural external envelope and attic level interior only.

This report indicates the current condition of the buildings at the time of the survey. It does not purport to be wholly comprehensive but to indicate the principal areas of concern. It is a report on the condition and the recommendations contained herein are not intended to be a specification for repair and must not be used for such purposes. Any repairs carried out must be based on full specification following further investigation of the items contained within this report.

The costs have been established based on the survey information contained within this and separate sub-consultant reports and therefore are subject to the same limitations.

It is of paramount importance that any repairs are correctly carried out based on professional advice. Insensitive repairs, even correctly carried out, can easily destroy the architectural character of a building and inappropriate solutions to defects may prove unsatisfactory in the long term or in some cases, aggravate a problem.

It should be noted that nothing within this report is intended to convey criticism of any person.

Limitations of the Survey

A number of roof void access hatches were not opened during the inspection due to access limitations and spaces being occupied at the time of the inspection.

Access ladder access was provided across several ceiling hatch locations, however where access was permitted this was only a cursory view and no physical access into the roof voids themselves was undertaken.

Visual inspection was restricted externally within a number of locations due to the presence of well-established soft and woody vegetation growth across the façades.

Other Specialist Reports

Supplementary specialist reports have been provided separately by Mann Williams, Ingleton Wood and IWSA. These reports can be found within the appendices.

Drawings and Other Documents

The drawings contained and referred to within this report and used during the survey are based on initial information provided by the client. The accuracy of this information has not been confirmed.

Full and complete elevations of the hall complex have not been provided; where necessary photographs have been marked-up to complete the survey around the full exterior envelope. It should be noted that elevations within atriums and the central 'cloister' atop of the refectory have not been provided, this includes elevations across the refectory, annex wing, link building and kitchen wing.

Any diagrams illustrated are for information only and are not too scale.

No up-to-date measured survey data has been provided and or has been commissioned during this exercise.

Acknowledgements

Buttress gratefully acknowledges the assistance provided by Lydia Bassett and Kenneth Hughes on the day of the survey inspection, before and thereafter.

Summary of Findings

The purpose of the survey was to assess the condition of the full exterior of the Hall complex and third floor and to put forward suitable recommendations for repairs / replacement to stop current extensive water ingress issues across the various roofs, as well as highlighting fabric repairs across the elevations to limit further degradation.

Geographical orientation is used throughout, and elevations where required, are referenced according to the direction in which they face.

In general, the hall complex as a whole is considered to be in ***Poor condition***, as it comprises many of the constituent elements of the Historic England description. A condition status is given against each of the sub blocks, including elements and components.

The summary of findings is sub-divided across the following areas.

- Main Hall
- Kitchen Wing
- Link Building
- Music Room Block
- Annexe Wing
- Laundry Block
- Refectory Block

The condition status and defects observed have been marked-up across a series of elevations and photographs.

Historic England advise that a building's condition can be categorised as follows:

Good – structurally sound; weathertight; no significant repairs needed.

Fair – structurally sound; in need of minor repair; showing signs of a lack of general maintenance.

Poor – deteriorating masonry; leaking roof; defective rainwater goods, usually accompanied by rot outbreaks; general deterioration of most elements of the building fabric, including external joinery; or where there has been a fire or other disaster which has affected part of the building.

Very Bad – structural failure or clear signs of structural instability; loss of significant areas of the roof covering, leading to major deterioration of the interior; or where there has been a major fire or other disaster affecting most of the building.

Main Hall - Pitched & Flat Roofs

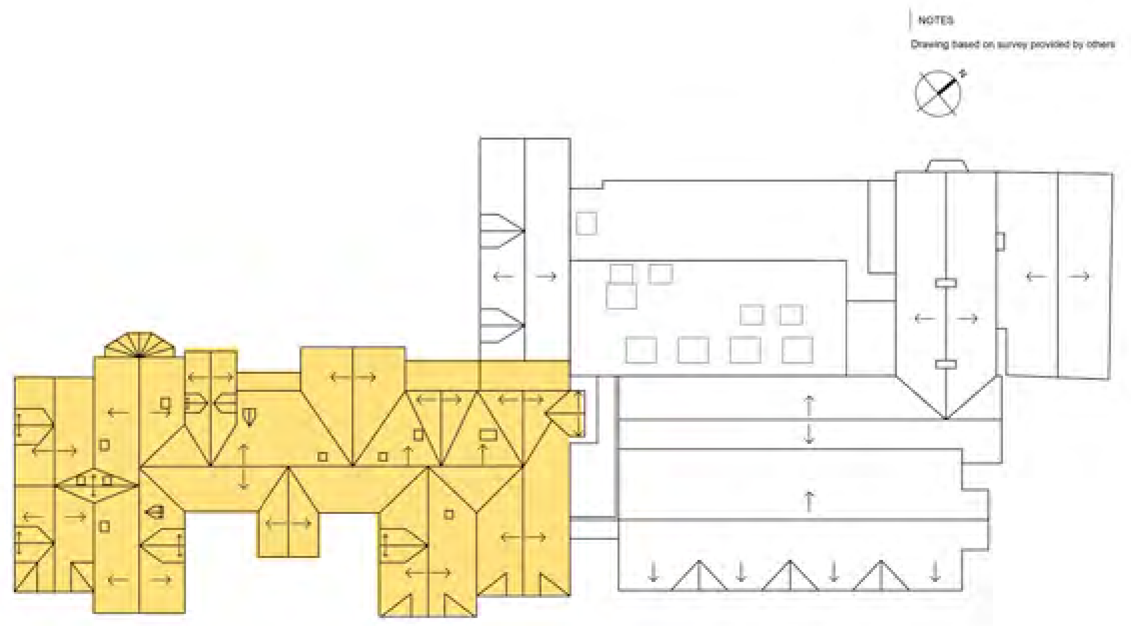
Description

The main hall roofscape is made up of a series of interconnecting gables to the south and west sides and further gables and gablets to the north side. The roofs have a deep eaves projection and are formed with visible deep moulded softwood fascias, secured to the rafter/purlin ends and supporting bracketing. The roof slopes are punctuated by several dormers of varying size with interfacing slopes creating a number of valley gutters of varying size and arrangement. Valley gutters are lead lined with dormers a mix of slate and lead covered, some with lead ridges. A couple of in line rooflights are inset into the pitch. The valley gutters benefit from the provision of small / narrow access door hatches which provide access from attic level out onto the valley gutters, though can be a bit of a squeeze. There are timber duck / snow boards within valley gutters. It is obvious that a large area of roof slopes has been re-slated in the past to the west side with coursed slate and felt observed to the interior, this was understood to have been re-roofed at some point between the last 50-60 years. The majority of the roofscape is covered in a lighter grey Welsh slate, laid in diminishing courses, slates are fixed traditionally with wooden pegs and lime torching, there are no roofing felts within these locations. A large proportion of timber finials remain to the apex of gables, though have been capped with lead.

We understand with the benefit of historic photography that there were 5 brick-built chimneystacks across the main hall roof, octagonal in form, however there were no remnants of these above the slate line, though their rough positions can be identified across the original roof slopes, due to the presence of contrasting slates used to infill and re-roof the voids left by the stack removals.

There are a number of lead lined flat roofed areas across ground level bay windows / projections. A single bay to the south elevation, to the right-hand side of the main entrance. The roof is at a shallow pitch with a single wood roll to the centre, interfaced and lead flashed at the abutment with the main hall rendered façades. There are a further three lead lined roofs to the north elevation. A projecting bay window to the right-hand side, split across several bays with wood rolls, flashed at the interface with the rendered façade. A small projecting bay to the centre, set back from the main elevation; the roof is lead lined split across 3 bays with wood rolls, interfaced and flashed at the abutment with the rendered elevations. A metal railing sits atop. Finally, a ground floor infill area to the left-hand side, with a lead lined roof, split with wood rolls, interfaced and flashed with the rendered elevations. All roofs discharge into cast iron gutters.

To the northeast corner at the interface with the Kitchen Wing, there is a 2-storey block with flat bitumen lined roof covering, split centrally by a lead wood roll.



Condition

The roofed areas can be described as being in a ***poor condition***. The original slate roofs are in a state of disrepair with significant areas considered to be 'live', with slates highly susceptible to becoming loose/ dislodged. There is a high number of loose slates, which have settled within gutters (valleys/cast iron). When inspecting the interior roof voids, there was evidence of sizable apertures where daylight could be seen streaming through into the interior. Where the slates have yet to have detached, there is evidence of slates free-hanging and/or dislodged insitu. The slates look to be of considerable age and are failing. The ridges are lead lined with limited evidence of clips, a number of sheets are loose and in a well-worn condition.

There have been extensive water ingress issues across the lead lined valley gutters, due to the age of the roof. The estate manager has been able to temporarily patch repair areas by applying liquid waterproofing solutions across the leadwork and slates which has appeared to have stemmed ingress for the time being. Where accessible, the valley gutters were spongy underfoot, the substrate and supporting timbers are likely to be unsalvageable. Internally within the crawl spaces, there was localised evidence of wet rot within valley gutter locations. Lead lined pitched valley gutters are also in poor condition, again, these have been sporadically temporarily repaired. There is evidence of soft and woody vegetation growth within the valley gutters, which are benefiting from the moist and sheltered environment.

Within the valley gutters, there are the remnants of loose laid timber snow / duck boards which are rotten and in a state of disrepair.

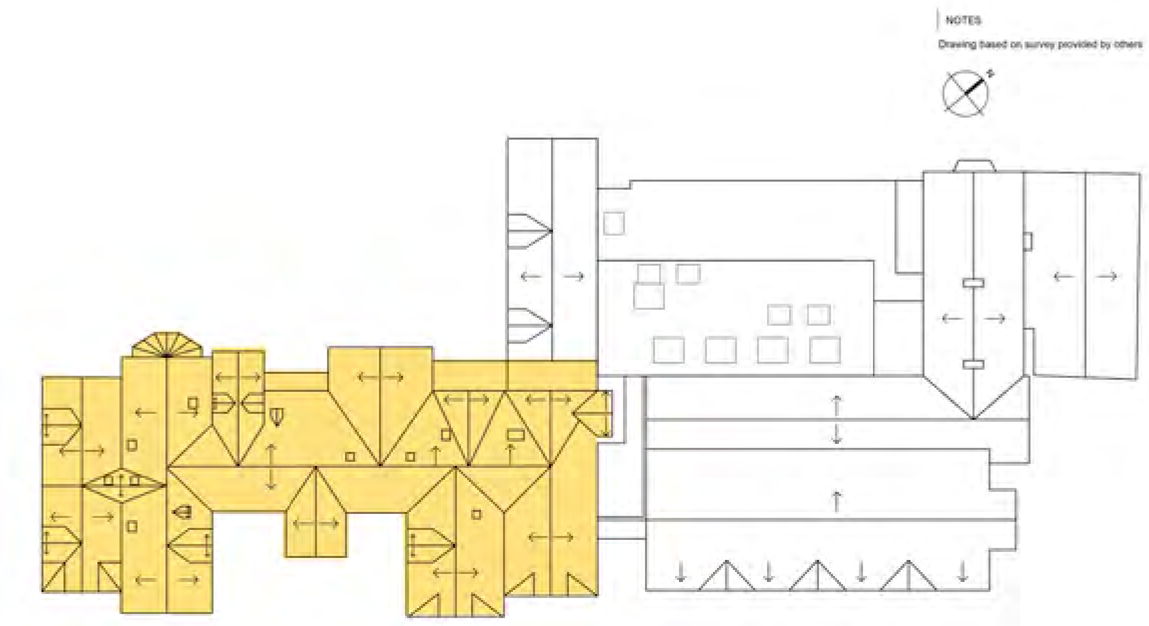
The leadwork across the roof access hatches is in a state of disrepair, leadwork is thin and poorly detailed.

The leadwork across the dormer windows shows signs of age, several loose slates sit upon the roofs.

The re-roofed area to the west of the hall could be described as being in a fair condition, however these areas also exhibit disrepair with detached slates and eroded clay ridge tiles. There is also recent evidence of water ingress internally across the small lead lined dormer windows.

All leadwork across flat roofed areas shows signs of extensive disrepair, the lead has thinned with substrate boarding ghosting through the surface, there are holes, splits, surface deterioration and considerable evidence of poor-quality temporary patch repairs. The bitumen lined roof covering is in a tired condition and is not an appropriate material for such a building.

Main Hall - Rainwater Goods & Weatherboards



Description

Deep projecting eaves and apex arrangement exists throughout the main hall roofscape, formed in softwood. The decorative bargeboard to the gables is made up of several timber profiled boards, secured back to projecting exposed timber purlins. Bargeboards interface at the apex with timber finials, decorative heads are missing and have since been capped with lead. The timber eaves fascia board is fixed back to exposed projecting rafter ends. All timber-work is expected to be traditionally painted with oil-based paint. Large format ogee style cast iron gutters sit upon ferrous brackets fixed back to supporting structure and discharge into rectangular section cast iron rainwater pipes with ornate hopper heads, which predominantly disperse into below ground drainage gullies. A handful of downpipes have since been replaced with UPVC.

Condition

The timber-work can be described as being in ***fair condition.*** There were localised areas of decay evident where visible, with extensive deterioration of paint finishes with blistered and flaking paint generally.

The rainwater goods can be described as being in poor condition. There is significant evidence of surface corrosion across gutters and downpipes, with a number of joints exhibiting leaks. Silt, vegetation (saplings) and detritus build-up across guttering generally, leading to standing water, blockages and overspill. Decorations are poor generally with extensive areas of flaking, blistered and detached paint. A number of downpipes and hoppers were blocked with water streaming down from the joints and hopper head, this had led to outbreaks of vegetation growth within the surrounding areas, with significant soiling across façades. The cast iron gutter bracketing is perhaps fixed to far apart with evidence of gutters dropping due to the weight and/or inappropriate fixing back to structure. Several downpipe brackets are either missing and/or defective (cracked) with several sections showing signs of corrosion, cracked and/or with fracturing. Reports in the past have suggested that a large proportion of rainwater goods could be overhauled, however where accessible and visible, it appears that a large % of rainwater goods may be beyond salvage. UPVC rainwater goods are inappropriate in this setting.

Main Hall - External Walls & Windows

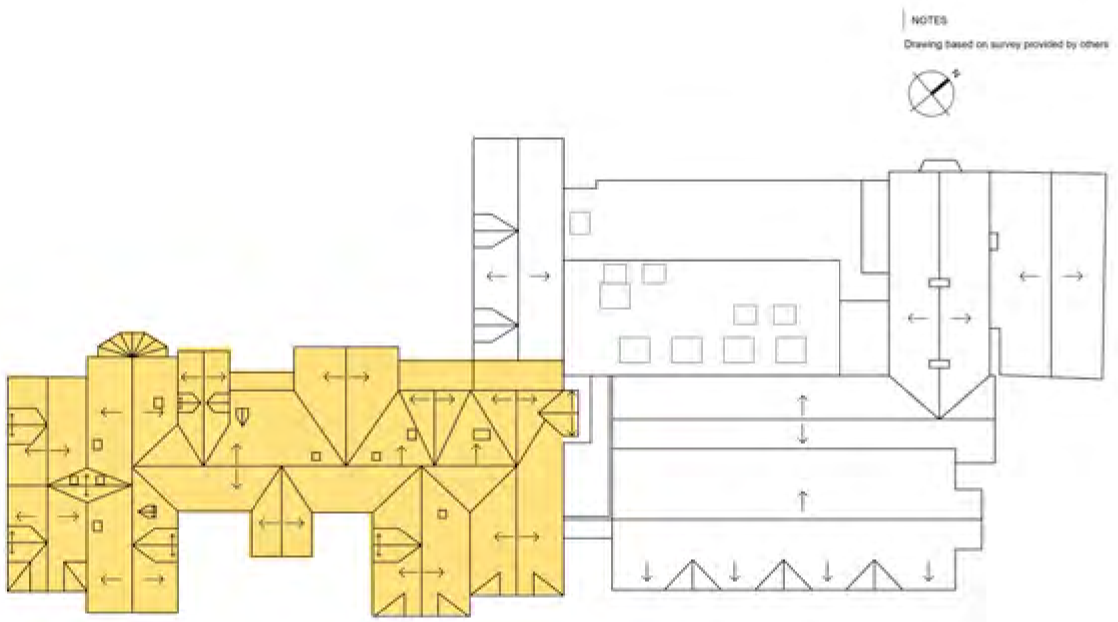
Description

The main hall extends up to four storeys above ground level and is built of solid masonry load bearing wall structures which have been faced up and masked by the application of a painted concrete render. There are a series of projecting and recessed bays. The render to most elevations projects from the face to create a mock 'black and white' timbered appearance, with the 'timber' projecting slightly from the infill panels. The 'timber' is decorated with black paint and the infill panels are white. The pattern and arrangement of the 'timber' changes from bay to bay. The rendered panels sit upon a natural ashlar stone plinth across the south, west and east in part elevations. The render extends upwards to the full height of the hall. The main entrance to the south elevation is a cement stucco render with stringcourse and buttressing, lined out, sat upon a stone plinth with ashlar stone door surround. A timber arched doorset is positioned centrally within the door surround. Cast iron rainwater pipes are surface fixed, typically rectangular with cast iron hopper head and cast iron ogee guttering. To the right hand side of the main entrance is a ground floor projection with 4-light window and rendered panels either side.

On the south elevation, the windows are positioned within the 'timber' framing and are symmetrically aligned. The ground floor windows are typically split across 4-lights, at first and second floor levels they are split across 2-lights and at third floor level they are a mix of 2-lights and single bay configurations.

The timber casement windows are inset within stone surrounds with mullions, transoms and cill. There are several blind windows in the same format as adjacent windows across each of the floor levels.

The west elevation is in one plain with rendered feature and stone plinth. Stone window surrounds are in the same format to the left- and right-hand side as those seen to the south, however the central portion are 3-light windows. There are 3 cast iron rainwater pipes each with a hopper head and swan neck connection with cast iron guttering. The left and right hand windows extends upwards to fourth floor level within a dormer window arrangement.



The north elevation is of a lesser quality with the 'timber' and infill panels inline with no projection, this also includes the plinth, which is a concrete render lined out to mimic stone as opposed to ashlar stone as seen to the remaining elevations. Ashlar stone three sided ground floor bay window to the right, with pitched lead roof and UPVC guttering. A small single storey projection inset within the central bay return, this has rendered panels, concrete plinth and a metal balustrade sat atop of the flat lead lined roof. The window within this bay is a stone tracery style with timber casement windows. Single storey bay infill to the left hand side, with three timber vertical sliding sash windows. Flat lead lined roof with cast iron guttering. All windows to this elevation are typically painted vertical sliding sash windows, with a handful of painted timber casement windows within the circulation stair.

The east elevation can only be partially viewed externally, following the construction of the link building, however the arrangement is similar as that seen to the south elevation, with rendered panels and a mix of 2/3-light windows within stone surrounds.

There are a number of soil pipes fixed across the façades located towards the eastern side of the north elevation, the pipework is typically UPVC.

The timber casement windows across the east, south and west elevations are all thought to be original and of softwood with opening lights. Windows are understood to be traditionally painted externally with oil based paints.

To the north elevation there is a mix of 2/2, 4/4 and 6/6 pane single hornless softwood framed vertical sliding sash windows, with a handful of timber casement windows.

Main Hall - External Walls & Windows

Condition

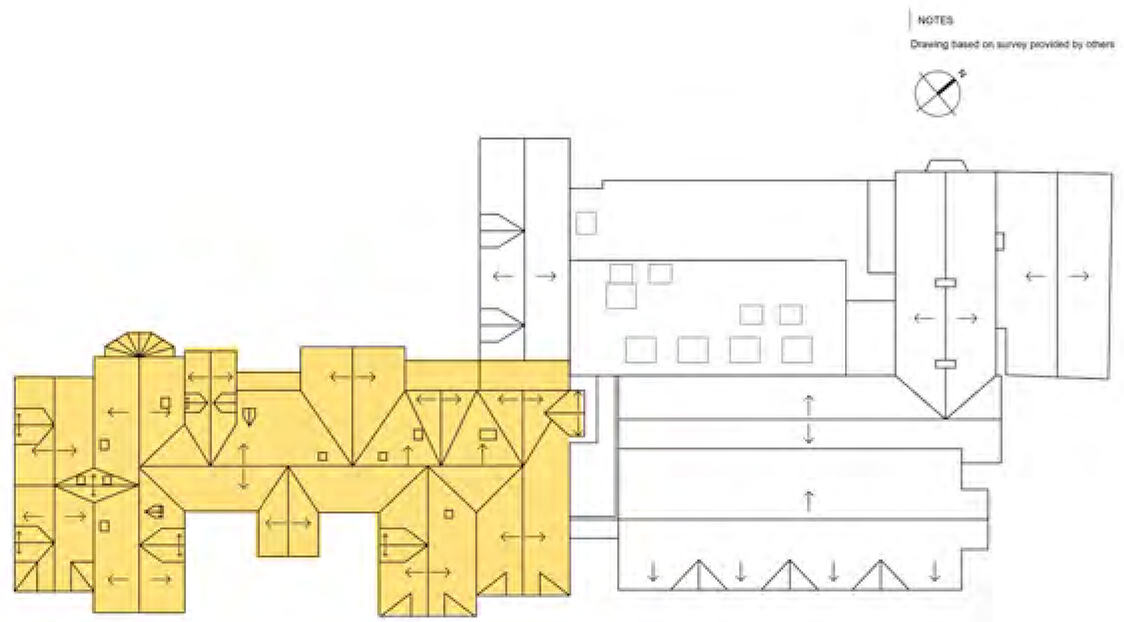
The external elevations can be described as being in ***poor condition***. The painted rendered façades are heavily crazed and blistered with isolated areas showing signs of further deterioration with spalled concrete and delamination. The walls also exhibit minor crack damage, many of the defects are considered to be superficial, however once water has gained entry into the concrete, there is a high likelihood that the render is in a poorer condition than currently suggests. Scarring has occurred across the render within sporadic locations, due to the past removal of vegetation growth across the face. The elevations are heavily soiled with water run-off evident across cills and/or due to defective rainwater goods.

't' bar ferrous supports left insitu, projecting from the central recessed elevation with spalled concrete to the perimeter due to iron expansion.

There are a number of locations where the concrete stucco features, such as stringcourse, buttressing and detail work are showing sign of deterioration with loss of detail across drip edges, in some instances there has been total loss with ferrous dowels and fixings now becoming visible, this is evident to the right hand side buttress at the main south entrance. Long vertical hairline fracture noted above the main entrance door.

There are localised outbreaks of delamination across the natural stone plinth, though nothing too deeply inset at this time. There is a high proportion of open mortar joints across the stone plinth, likely exacerbated by the presence of vegetation.

There is a significant volume of ferrous eyelets, fixings and wiring across the façade at ground level, likely installed in the past to encourage plant growth across the elevations. There is still however a large volume of ivy /vegetation growth across the elevations, which will likely be detrimental to the fabric behind.



The stone window surrounds appear to be typically in a fair condition, although there are a number of defects visible, such as detachment of stone due to the presence of ferrous cramps, erosion and fracturing. The stone is quite soft in areas and following potential re-dressing is likely to result in further fabric loss.

Paint decorations across timber windows is poor, with significant blistering and flaking paint, including loss of window putty within localised areas. Timber decay is evident across several windows, predominantly focused towards the cill and lower framing members. A number of the glazing panes are cracked with a handful of sash windows across the north elevation in a poor state of disrepair, it was noted that the bottom rail to the top sliding sash had become detached to one of the high level windows.

There are open mortar joints across a high percentage of the stone window surrounds.

Several areas of the concrete plinth across the north elevation have become detached, thus exposing the masonry corework.

Main Hall - Roof Voids & Attic Spaces

Description

We were pleasantly surprised to find that access had been well considered across the third floor level in the past, with a number of strategically placed access hatches, providing access into roof void crawl spaces at eaves level with further access into the valley gutters through another external access hatch.

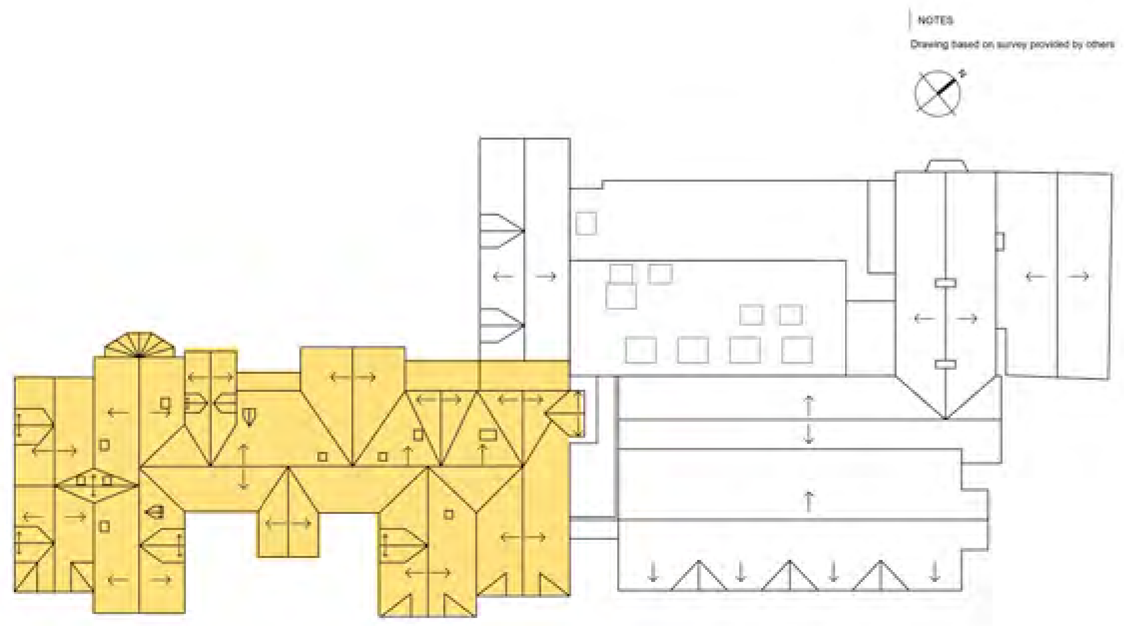
Within the original slated area of the roofs, the slates are oak pegged across battens with lime torching to the underside. The re-roofed area towards the west was seen to have a felt insitu.

Timber roof structure within eaves was a mix of painted and unpainted timber. A number of loose slates were being stored within the eaves voids.

We noted that there were areas of mineral wool insulation which had been laid across roof void spaces, as noted through a number of roof access hatches at third floor level.

The third floor is still used for guest accommodation with rooms generally well kept, clean and tidy though has a dated interior. Rooms were kitted out with beds and furniture.

The remnants of masonry built chimneystacks could be seen within a number of roof voids, with infill timbers and slating evident.



Condition

The roof voids can be described as being in ***fair/poor condition***, with the attic spaces in fair condition. There was evidence of past and current water ingress, with areas of defective / spalled plaster finishes and/or water run-off down finished surfaces and/or noted at ceiling level with areas of saturation / soiling.

The valley gutters have been particularly susceptible to water ingress, with a number of adhoc methods instigated by the trust, to try to temporarily stem and control water ingress internally, with a number of well placed buckets / loose guttering and/or water catchment contraptions installed. We were advised that following some temporary holding repairs externally, that some of these areas have been watertight of late. There was however evidence of timber decay / rot within these locations, focused towards the valley gutter supporting structure and rafter ends.

There was considerable staining noted across roof timbers generally, though during inspection 'wet' timbers were focused around the valley gutters and rooflights.

We did not benefit from full access to all concealed and hidden timbers.

Daylight was observed within a number of locations, which correlated with external drone survey showing missing slates within these areas.

Torching is heavily fractured.

Kitchen Wing - Pitched Roofs

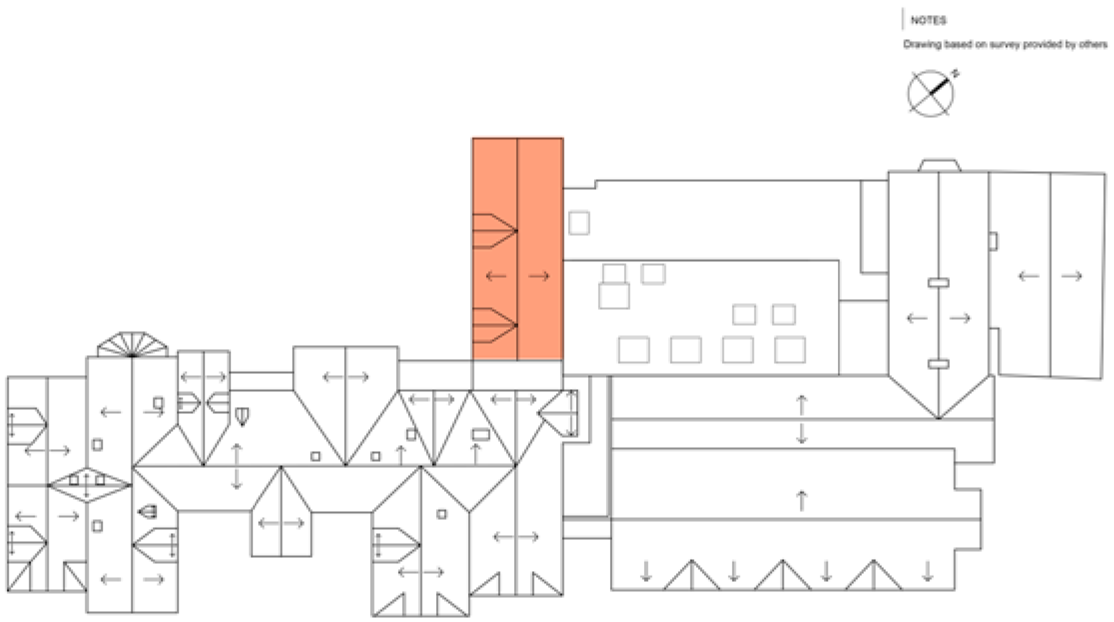
Description

Duo-pitched natural slate roofs with two large gablets to the west slope, west slope has been replaced in its entirety, including a small portion of the east slope towards the north. The assumed original section retained in diminishing courses to the remainder of the east slope. Lead lined ridge.

We understand with the benefit of historic photography that there was a single brick-built chimneystack located centrally between the gablets, octagonal in form, however there were no remnants of these above the slate line.

Condition

The roofed areas can be described as being in a ***poor condition.*** Roof slopes exhibit general disrepair with failure evident through loose/detached slates with lead sheeting detailing of considerable age.



Rainwater Goods & Weatherboards

Description

Deep projecting eaves and apex arrangement exists throughout the kitchen wing, formed in softwood. The decorative bargeboard to the gablets is made up of several timber profiled boards, secured back to projecting exposed timber purlins. Bargeboards interface at the apex with timber finials, decorative heads are missing and have since been capped with lead. The timber eaves fascia board is fixed back to exposed projecting rafter ends. All timberwork is expected to be traditionally painted with oil-based paint. Large format ogee style cast iron gutters to the west slope sit upon ferrous brackets fixed back to supporting structure and discharge into rectangular section cast iron rainwater pipes with ornate hopper heads, which predominantly disperse into below ground drainage gullies. The east slopes have half round cast iron guttering discharging into circular rainwater pipes.

Condition

The timber-work can be described as being in ***fair condition***. There were localised areas of decay evident where visible, with extensive deterioration of paint finishes with blistered and flaking paint generally.

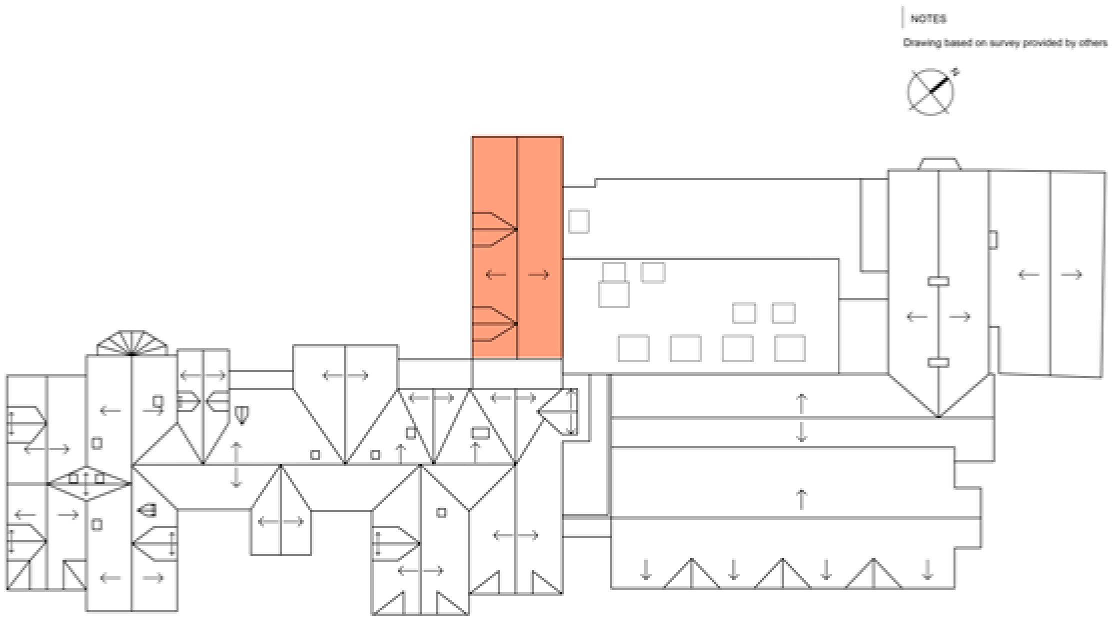
The rainwater goods can be described as being in ***poor condition***. There is significant evidence of surface corrosion across gutters and downpipes, with a number of joints exhibiting leaks. Silt, vegetation (saplings) and detritus build-up across guttering generally, leading to standing water, blockages and overspill. Decorations are poor generally with extensive areas of flaking, blistered and detached paint. The cast iron gutter bracketing is perhaps fixed to far apart with evidence of gutters dropping due to the weight and/or inappropriate fixing back to structure. Several downpipe brackets are either missing and/or defective (cracked) with several sections showing signs of corrosion, cracked and/or with fracturing. Reports in the past have suggested that a large proportion of rainwater goods could be overhauled, however where accessible and visible, it appears that a large % of rainwater goods may be beyond salvage.

Kitchen Wing - External Walls & Windows

Description

As seen across the north elevation of the main hall, the west elevation of the kitchen wing is of a lesser quality with the 'timber' and infill panels in line with no projection, this also includes the plinth, which is a concrete render lined out to mimic stone as opposed to ashlar stone as seen to the remaining elevations.

Painted masonry to the east elevation with timber vertical sliding sash windows.



draft

Condition

The external elevations can be described as being in ***poor condition***. The painted rendered façades are heavily crazed and blistered with isolated areas showing signs of further deterioration with spalled concrete and delamination. The walls also exhibit minor crack damage, many of the defects are considered to be superficial, however once water has gained entry into the concrete, there is a high likelihood that the render is in a poorer condition than currently suggests. Scarring has occurred across the render within sporadic locations, due to the past removal of vegetation growth across the face. The elevations are heavily soiled with water run-off evident across cills and/or due to defective rainwater goods.

Significant soiling and dampness across the east elevation caused by defective rainwater goods. Decorations across the masonry are poor with open mortar joints.

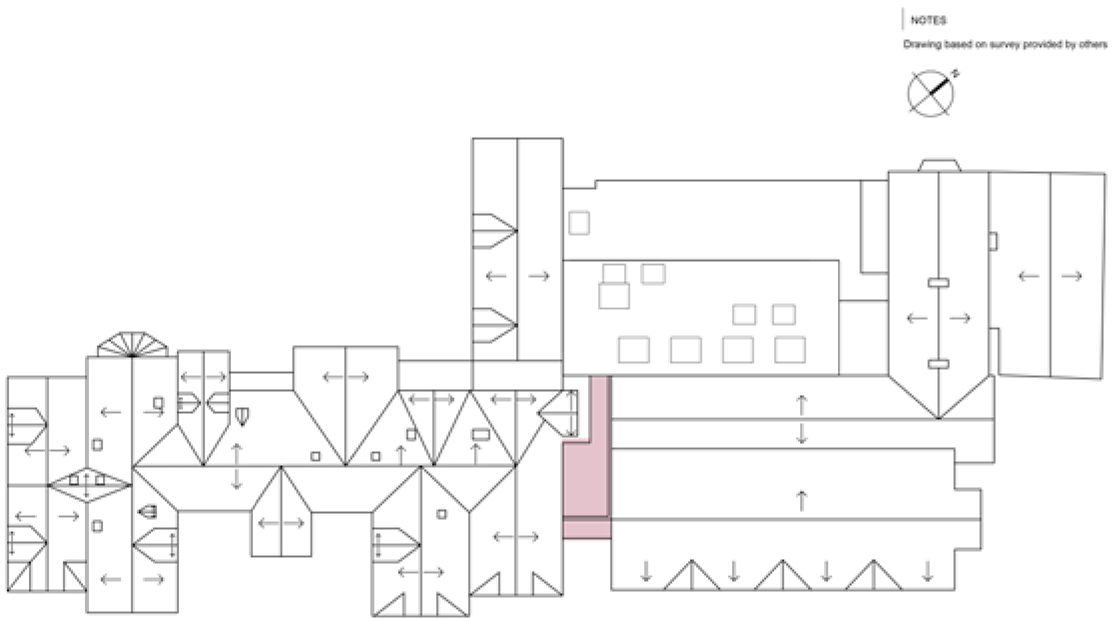
Link Building - Flat Roofs

Description

There are a number of flat roofed areas across the link building at varying levels, covered with a built-up felt system, interfaced with the main hall and music room block. There is a small projecting ashlar stone parapet with stone copings. Simple painted timber fascia where eaves guttering fixed.

Condition

The roofed areas can be described as being in a ***poor condition***. Significant ponding and moss/algae outbreak. Evidence of cracking and blistering across roofing felt.



Rainwater Goods & Fascias

Description

Cast iron rainwater gutters and downpipes, with painted timber fascias.

Condition

The rainwater goods and timber-work can be described as being in a ***poor condition***. Significant soft vegetation and silt across guttering. Evidence of leaks across joints, surface corrosion and decorations blistered and flaking.

External Walls & Windows

Description

Tiered wall construction with first floor section set back from ground floor. Separated by a flat roof and shallow parapet. External walls are made up of ashlar blocks laid to course to the south elevation with arched door opening and panelled timber doorset. Window surrounds are stone mullioned and transomed with fixed and opening metal framed window lights. Decorative stringcourse above window openings. The north elevation is of brick-built construction with ashlar stone detailing around window and door openings.

Condition

The external elevations can be described as being in ***fair condition***. Pointing in poor condition with open mortar joints and general soiling / greening across the surface, including stone window surrounds and features.

Music Room Block - Pitched Roofs

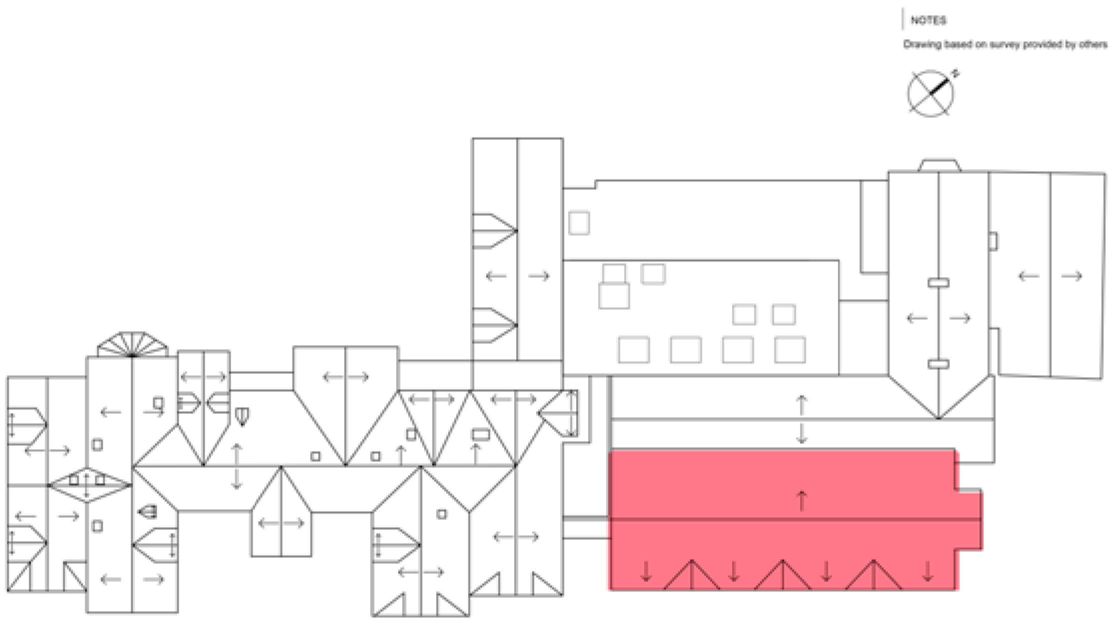
Description

Duo-pitched slate roofs to the north and south with three large gablets across the south face with a projecting gable to the east end. Natural slate coverings over timber battens with lead ridge. Traditional overhand detail to the eaves as seen with the main hall. Long stepped lead lined valley gutter running the entire length of the roof to the north slope at the interface with the annex wing. Timber snow / duck boards noted within two locations across the valley gutter. The gutter drains to outlets at the east and west ends. It is understood that the west end outlet transitions through the link building, discharging onto a flat roof within the atrium.

Condition

The slate coverings appear to be in a ***fair condition***. There are isolated slipped/dislodged slates with a handful that have worked loose, lying across gutters.

Leadwork is well worn across the ridge, pitched valley gutters and stepped valley gutter to the north slope.



Rainwater Goods & Weatherboards

Description

Deep projecting eaves and apex arrangement exists across the roofscape, formed in softwood. The decorative bargeboard to the gables is made up of several timber profiled boards, secured back to projecting exposed timber purlins. Bargeboards interface at the apex with timber finials. The timber eaves fascia board is fixed back to exposed projecting rafter ends. All timber-work is expected to be traditionally painted with oil-based paint. Large format ogee style cast iron gutters sit upon ferrous brackets fixed back to supporting structure and discharge into rectangular section cast iron rainwater pipes which predominantly disperse into below ground drainage gullies. Circular cast iron downpipes to the east end projection.

Condition

Decorations in ***poor condition*** generally across timber-work. The gutters exhibit signs of surface corrosion and leaks across a number of joints.

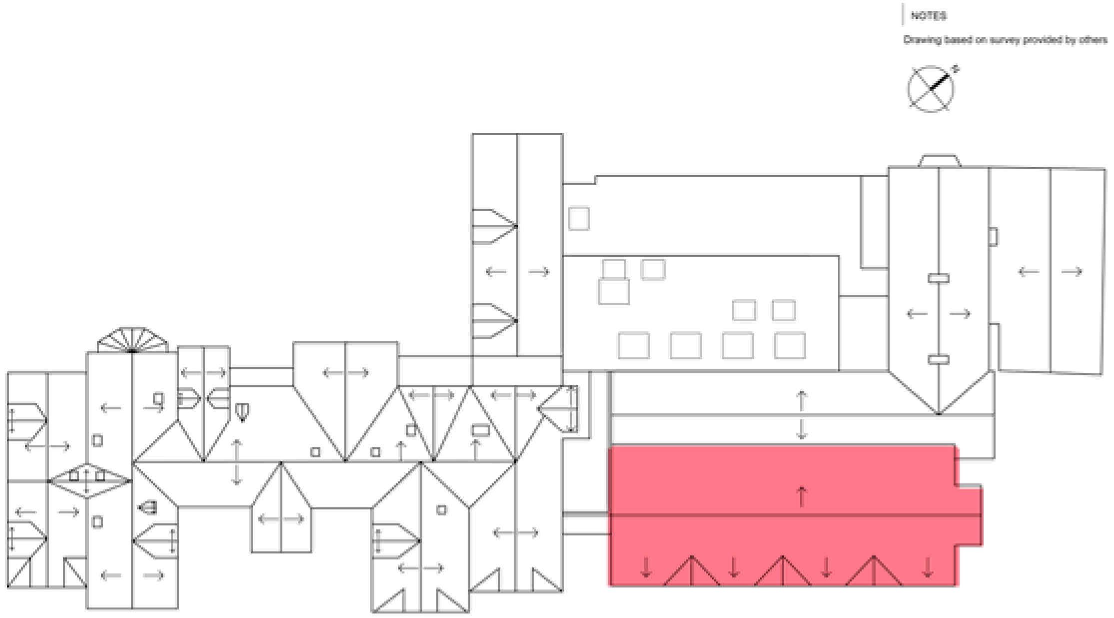
Two of the cast iron downpipe sections are defective, with cracks and/or have detached.

Music Room Block - External Walls & Windows

Description

Ashlar stone wall at low level with traditional oak framed construction atop with rendered infill panels between. This arrangement extends around onto the east and west elevations. The ashlar stone extends either side of the bay window projections with oak framing and infill panels within the pediment. Window surrounds are formed with stone mullions and transoms. Well established vegetation masked much of the elevation at low level.

Original leaded light glazing with plain clear glass and series of painted metal framed opening casements and high-level opening fanlights.



Condition

The external elevations can be described as being in ***poor condition***. Localised timber decay noted, predominantly at the timber sole plate location. Scarring across timber framing and infill panels following removal of vegetation. There is a high level of open mortar joints across ashlar masonry. A handful of defects were observed across the stone mullions and transoms with fractures and some spalling noted.

Stepped vertical crack noted to the east projecting elevation with some stone blocks noted as being offset. A tell-tale had been installed at high level.

Metal framed windows are in a ***fair condition***, albeit decorations are poor as seen elsewhere. Localised areas of corrosion with a handful of defective panes of glazing.

Annexe Wing - Pitched Roofs & Chimneystacks

Description

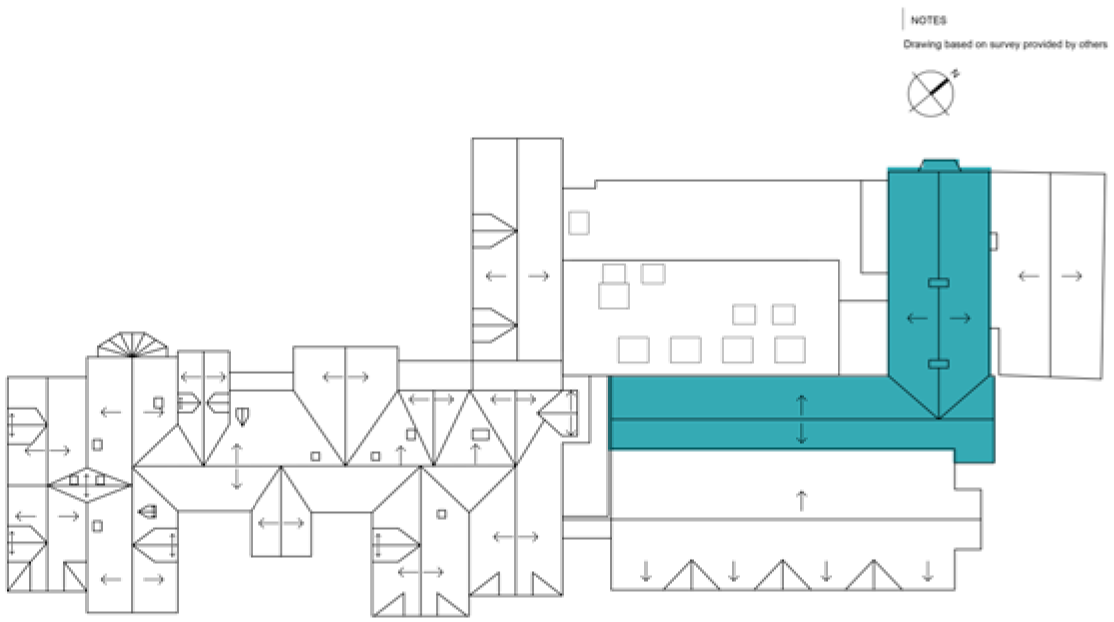
An L-shaped building with duo-pitched timber framed roof structure with four large slate covered slope and sprocketed eaves. It is understood that no roofing felt exists here and the underside is traditionally torch pointed and parged with a lime mortar. Traditional overhang arrangement at eaves and verge locations with lead sheeted ridges. Post and wire snow guarding fixed along full length of southern slope, adjacent music room block. There are two brick-built chimneystacks to the east/west slopes, with clay pots.

Condition

The roofed areas appear to be in a ***fair/poor condition***. There are isolated slipped/dislodged slates.

Leadwork is well worn across the ridge, pitched valley gutters and stepped valley gutter to the north slope.

Open mortar joints across chimneystacks.



Rainwater Goods & Weatherboards

Description

Deep projecting eaves and apex arrangement exists across the roofscape, formed in softwood. The decorative bargeboard to the gables is made up of several timber profiled boards, secured back to projecting exposed timber purlins. Bargeboards interface at the apex with timber finials. The timber eaves fascia board is fixed back to exposed projecting rafter ends. All timber-work is expected to be traditionally painted with oil-based paint. Cast iron guttering with circular downpipes. Flexible UPVC pipe has been fixed to south gutter to south wing to disperse water.

Condition

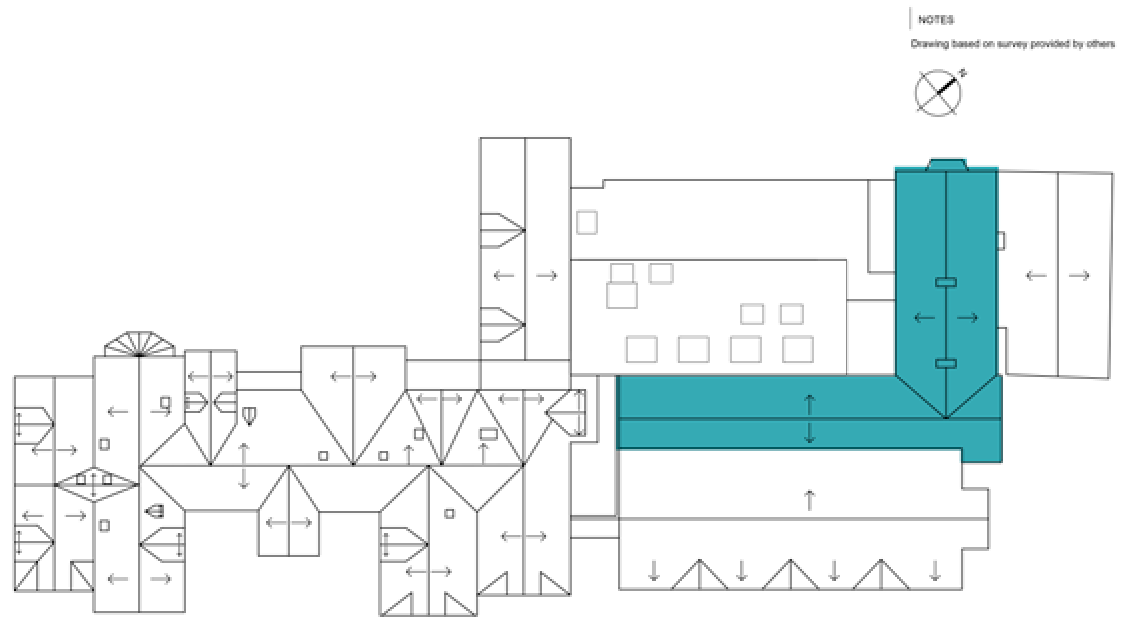
Decorations and rainwater goods are in ***poor condition*** generally. The gutters exhibit signs of surface corrosion and leaks across several joints, again with poor decorations.

Annexe Wing - External Walls & Windows

Description

The annexe wing can essentially be split into two wings, dividing the 'L' shaped block into two rectangles, with the north and south wings. The north wing is constructed from masonry and clad with a simple concrete render, painted white, with features decorated in black. The north, east and west elevations to the north wing are rendered. The south wing is of brick-built construction with ashlar stone detailing around window and door openings. The north and south elevations of the south wing are masked from view from the main exterior envelope, observed from the opposing refectory block. The east elevation of the south wing is painted masonry with ashlar stone detailing around windows and doors.

Original leaded light glazing with plain clear glass and series of painted metal framed opening casements and high-level opening fanlights. To the north window there is a mix of steel framed casement windows with leaded light glazing, single glazed timber framed casement windows and single glazed vertical sliding sash windows to the bay window.



Condition

The external elevations can be described as being in ***poor condition***. The painted rendered façades are heavily crazed and blistered with isolated areas showing signs of further deterioration with spalled concrete and delamination. The walls also exhibit minor crack damage, many of the defects are considered to be superficial, however once water has gained entry into the concrete, there is a high likelihood that the render is in a poorer condition than currently suggests. Scarring has occurred across the render within sporadic locations, due to the past removal of vegetation growth across the face. The elevations are heavily soiled with water run-off evident across cills.

Minor timber decay across windows. Decorations are defective throughout, blistered and flaking. Some corrosion across metal framed casement windows.

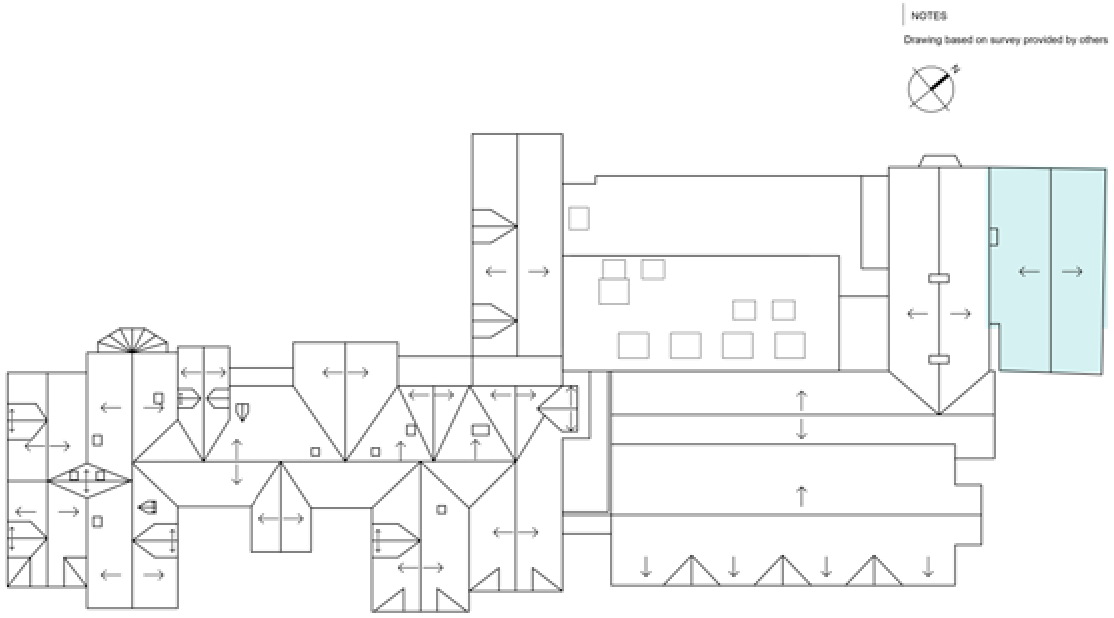
Laundry Block - Pitched Roofs

Description

A rectangular shaped single storey building to the most eastern side of the hall complex. The roof is duo-pitched with timber framed roof structure with natural coursed slate covering with slate ridge. Traditional overhang detail at eaves and verge as seen elsewhere. At the abutment with the annex block, there is a stepped lead lined valley gutter, which drains to the north and south.

Condition

The roofed areas appear to be in a ***poor condition***. Extensive vegetation / moss growth across the surface. A number of slates are loose/dislodged and/or have been patch repaired. Stepped lead lined valley gutter in very poor condition at the abutment with the annex wing with significant vegetation outbreak and saturation.



Rainwater Goods & Weatherboards

Description

Deep projecting eaves and apex arrangement exists across the roofscape, formed in softwood. The timber eaves fascia board is fixed back to exposed projecting rafter ends. All timberwork is expected to be traditionally painted with oil-based paint. Half round cast iron guttering with circular downpipes.

Condition

Decorations and rainwater goods are in ***poor condition*** generally. The gutters exhibit signs of surface corrosion and leaks across a number of joints, again with poor decorations.

External Walls & Windows

Description

Traditional masonry construction comprising brick faced cavity walls, decorated to all elevations. Painted timber framed casement windows and timber glazed doorset to the east elevation. Elevation is decorated white with a black coated plinth. Plinth projects with chamfered top. Stone window cills, painted. Painted timber doorset to south elevation with fanlight over.

Condition

The external elevations can be described as being in ***poor condition***. Decorations are poor across masonry walls and window features, with flaking and blistered surfaces generally. Scarring across walls following removal of vegetation growth.

Refectory Block - Flat Roofs

Description

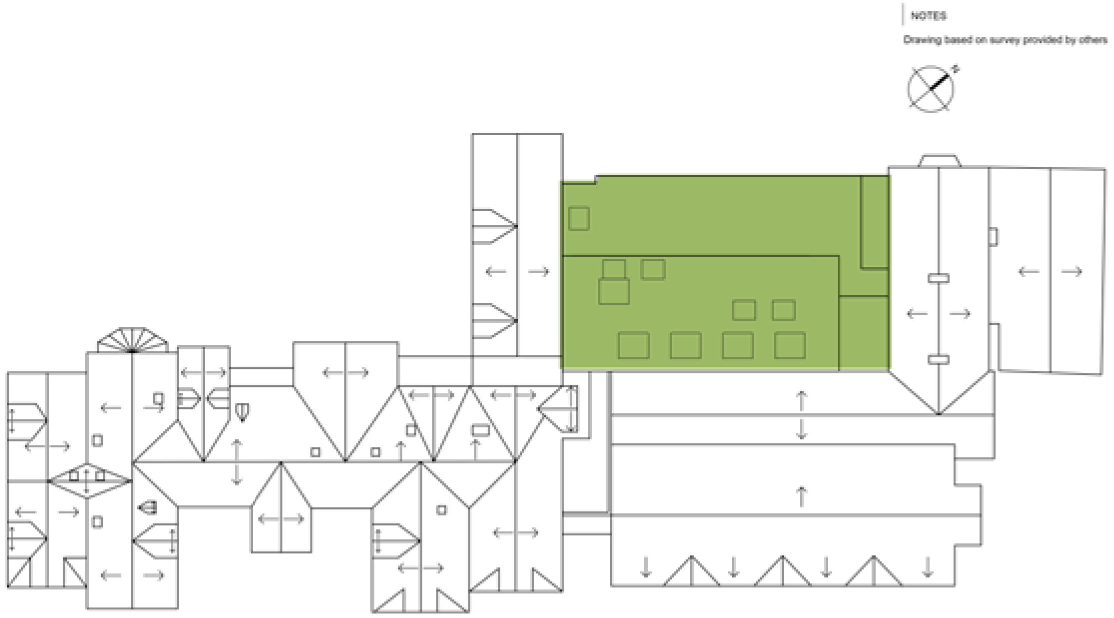
The roofs are split across a series of levels, extending up to 2nd floor level across the most northern block. A built-up felt covering with green mineral cap sheet has been laid over roof structure. Roof structure is a mix of concrete with localised timber / stramit board infill. There are a number of kerbed flat roof rooflights, typically confined to the central portion. Roofs discharge from upper levels, down to lowest roof which presumably discharges to ground, this potentially discharges into an internal rainwater pipe.

This extension infill is generally of poor quality and is not considered to be in-keeping with the status of the remainder of the hall complex.

Condition

The roofed areas appear to be in a ***poor condition***. Physical access was not gained to this roof and has been viewed from accessible vantage points and supported by some drone imagery provided by the client. The flat roofed areas are considered to be in poor condition. There are a number of locations of ponding water with significant saturation towards the south at the interface with the annex wing, where there is significant well established vegetation growths. The felt is heavily blistered and bubbled, with debris noted sporadically across the roof, following detachment from the surrounding structures. Significant ponding to flat roof noted above the north elevation 2-leaf door access point.

A number of the glazed rooflights are defective with evidence of cracks and past patch repairs.



Rainwater Goods & Fascias

Description

Traditional eaves arrangement with modern type guttering, potentially aluminium discharging into circular cast iron downpipes. Gutters fixed to painted eaves fascias.

Condition

The rainwater goods and timber-work can be described as being in ***fair/poor condition***. The rainwater travels through a tiered system across various levels before making its way to the lowest point. It is likely that a portion of the drainage is fed into an internal system across various outlet locations. Condition similar to that seen elsewhere, extensive vegetation growth and silt across guttering, leaks and surface corrosion. Decorations are poor generally.

External Walls & Windows

Description

Traditional masonry construction comprising brick faced cavity walls, decorated to the north elevation with concealed metal lintels over openings. Windows are steel casement windows with side and top opening lights. Plain tiled cills to the north elevation set into painted timber sub-frames. There are four timber framed and glazed doorsets to the north elevation.

Condition

The external elevations can be described as being in ***fair/poor condition***. Painted masonry in poor condition, heavily soiled across upper level with some flaking and blistered surfaces generally. Localized open mortar joints to remaining elevations. Decay across timber sub-frames with some distortion noted across steel framed units. As seen elsewhere, decorations are poor.

Gregynog Trust

Considerations

When working with heritage assets, there is potential to expose unexpected and unique irregularities, arrangements, and situations that require dynamic responses. Some defects will be deep rooted and will only become evident once the layers of the fabric are delicately peeled back. The true extent of defects beyond the outer surface will only become apparent once high level safe access has been facilitated and hands-on, tactile appraisals are undertaken by the Principal Contractor (specialist sub-contractors), Heritage Architect and Structural Engineer.

It is clear from the site inspection across the exterior and interior that there are significant water ingress issues, with defective slates, decayed timber, detached guttering and failed rainwater outlets visible.

Unknowns & Discoveries

One of the biggest challenges with buildings of this splendour and stature is that many of the issues often remain undetected for years, buried beneath decorative elements and/or concealed by surface finishes. It is often not possible to undertake invasive investigative inspections across assets of this nature, due to their listing status. Non-invasive survey techniques can often be adopted successfully, such as the use of Ground Penetrating Radar (GPR), UAVs and thermal imaging, however until areas have been 'opened up' and layers delicately peeled back, appraisals and allowances are often based on a series of assumptions, based upon previous experience.

The roof voids and crawl spaces at eaves level are well served across the main hall with ceiling hatches providing the opportunity for shoulder height observation across voids, however there are aspects which are simply not accessible, such as towards the eaves, hidden by loose laid items such as mineral wool and/or are encapsulated by finishes and structure.

The main Hall has a concrete render applied with mock timber framing painted, stone features (plinth, door, and window surrounds) as well as stucco render, lined out to mimic the aesthetic of stone to the main south entrance and north elevation plinths. There is significant evidence of spalling and crazing across the surface of the render.

The true condition of these materials will largely remain unknown until further close-up tactile appraisals and surveys are undertaken. The defects observed may only be superficial. There is also a myriad of historic services, cabling and pipework extending across the property, some live, some redundant.

Gregynog Trust

Working with and within heritage assets, buildings, and structures there is always a high potential to uncover and expose irregularities or unexpected arrangements

We would therefore propose to schedule a series of planned and focused investigative surveys, to be undertaken during RIBA Stage 2, to inform the proposals and allow for the inclusion of suitable allowances (contingencies) across the tender documentation. These surveys will likely require the submission of formal Planning & Listed Building consent applications and will include the development of detailed method statements and specifications. These types of surveys will typically require the use of MEWPs and/or temporary scaffold provisions.

In addition, there will be a variety of specialist non-invasive surveys to consider and commission, such as timber and damp survey, mortar and render analysis, paint analysis, drainage CCTV, monitoring equipment (thermostats/vibration), ecology, windows etc.

Working with and within heritage assets, buildings, and structures there is always a high potential to uncover and expose irregularities or unexpected arrangements, situations, and further defects above and beyond those previously expected, which will require the team to react dynamically to the various discoveries.

It will be important to have processes and good lines of communication in place with the site and design team, so that if any discoveries come to light, that they are appropriately triaged, and the items are dealt with proactively.

Investigations (invasive & non-invasive)

As noted within the unknowns and discoveries section, to inform proposals moving forward and thus reducing project risk, we would recommend that the Trust commission a series of investigations / analysis. The list below is not exhaustive and will develop as the project progresses, however these surveys and investigations are considered to be crucial, allowing for the production of a robust tender package.

In advance of these investigations, it will be important to commission the production of a full measured survey across the hall complex including output in Autocad and/or Revit software.

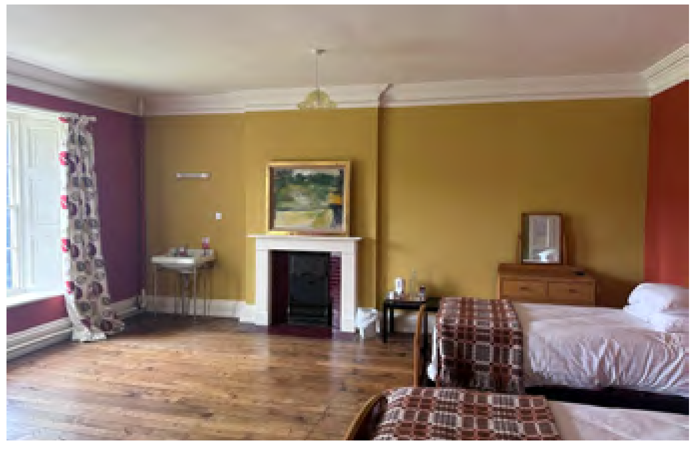
- Full measured survey drawings
- Asbestos and contaminants surveys
- Fireproofing / stopping surveyor
- Timber and damp surveys
- Mortar analysis across masonry and stone elevations
- Render analysis across exterior elevations
- Lime torching analysis
- Paint analysis across render, timber-work, metalwork (windows, doors, rainwater goods etc.
- Drainage CCTV of below ground network
- Dye testing of rainwater outlets and sumps to understand system connectivity
- Tactile assessment across key locations of the rendered façades via the use of a MEWP / tower scaffold
- Tactile assessment across bargeboards, fascia boards, soffit boards, exposed rafter/purlin ends and finials via the use of a MEWP / tower scaffold
- Window and door condition survey inspections
- High level assessment across all rainwater guttering and brackets likely requiring MEWP / tower scaffold
- Assessment of all rainwater downpipes likely requiring MEWP / tower scaffold
- Obtain profiles of mouldings across timber-work / metalwork to inform proposals

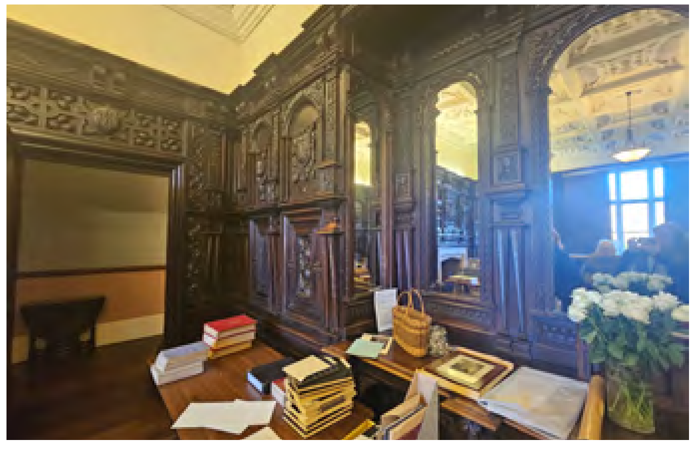
Invasive Surveys

- Careful removal of render across external façades to understand build-up and condition. This will likely be further developed following tactile survey.
- Temporary opening up and removal of lead sheeting across valley gutters and flat roofed areas to understand lead and substrate condition
- Temporary opening up and removal of bitumen felt across flat roofed areas to understand substrate condition
- Temporary opening up of eaves and verges across multiple locations to understand arrangement and condition of concealed timbers (rafter, wall plates etc.)
- Temporary opening up and removal of internal wall plaster across multiple locations to understand substrate condition
- Temporary lifting of timber floorboards across eaves crawl spaces across multiple locations to understand substrate condition

Working in and around an occupied site

We understand that the entire hall complex will remain in full operational status throughout the building contract, albeit areas will be temporarily decanted such as third floor level of the main hall.





Communication and collaboration will be key to limit disruption and disturbance. Weekly meetings between key stakeholders will allow concerns to be raised in advance, setting up direct lines of communication to dynamically manage the project alongside the Gregynog Trust team and Principal Contractor.

We will work with the Trust and its various departments to understand the impacts that proposed works will have to their operations and visitor experience. Key events, and seasonal fluctuations in visitor patterns will all be taken into consideration, to manage the risk to the visitor offer as works are on site. We can also work with the Trust to understand how to turn risks into opportunities for engagement and learning, telling the story of the building, its past, present, and future through the project.

draft

Managing the internal environment

The various workstreams and packages of works are predominantly focused externally across façades and roofed areas, however window restoration and works across the roofs will necessitate access to the interior spaces. A large proportion of the interior spaces are occupied and used daily. It will be critical to interrogate the requirements of the collections and interior spaces to ensure that the interior environment does not fluctuate significantly or exacerbate any problems.

Protection of features

It is vital that key architectural features are sufficiently and robustly protected from damage during the works (both stabilisation and repair) including fireplaces, decorative joinery elements, decorative features, floor finishes etc..

Logistics & Sequencing

Access and scaffolding / tenting to enable the works will be a key aspect of successfully delivering the various projects both from a logistics / sequencing point of view and cost consideration. It will be advantageous to facilitate early engagement with a scaffolding contractor / designer, to develop the intent for scaffolding, alongside site wide logistics to form part of the tender pack.

The Scaffold

A full external access scaffold will be erected, sequenced to commence with a phased erection and handover strategy. The scaffolding will need to maintain all entry points, providing safe access/ egress to and from the building, including protection from debris and maintaining appropriate light levels, as well as all vehicular access routes for access across the grounds, including providing access for emergency services vehicles.

Initial data analysis suggests that the scaffold will likely be untied and freestanding due to the panelled rendered façades, with the potential to brace through window apertures. The exact detail of restraint and potential imposed loadings will be developed with the scaffold contractor and structural engineer, including consultation with the local authority.

A full temporary roof is recommended to be provided, which will provide a controlled working environment for the contractor, who will be able to proceed to strip and re-roof the Hall including other areas, undeterred by inclement weather, which will mitigate against any delays due to bad weather. The temporary roof will also provide protection from the elements (weather) across the interior of each of the assets, given the buildings are to remain in occupation. It will be important to understand the make-up of the grounds and topography, buried services as well as any culverts or cellars which may impact the erection of a scaffold or provision of a mobile crane. Ground investigations will be conducted early in the project.

Logistics

It is critical that site logistics are fully understood and developed early on, including review of access limitations (routes to be maintained / segregation), scheduled events, deliveries, infrastructure provisions etc.

Following this, key general arrangement schematic plans will be developed, to highlight key pinch and clash points across the site. This will prove to be a key asset, during the procurement process. Buttress will work closely with the Trustees to identify any concerns and set parameters.

We would guide and assist the client team to develop their aspirations for the site and what the visitor experience will look like, during the various construction projects, including the provision of added social value and wider engagement during the lifespan of the project.

The re-roofing and conservation work across the Hall will require intricate planning and management, as the Hall currently offers accommodation, as well as access to a library, music room, drawing room, dining room; many of the interior spaces have elaborate and embellished panelling and ceilings, the Hall also houses staff quarters, offices and hosts music festivals and gatherings.

We will help the Trustees to determine the best course of action to progress the works in a safe and timely manner, reviewing options for temporary closure and segregation from the public.

The main plan form of the Hall extends across an area of circa 45x22m, with later connecting additions to the northeast, and will require a full scaffold and temporary roof, due to the significance of the building as well as the precious contents within.

Further Considerations

Drying out the interior fabric

Re-plastering or proposed works in association should not be carried out until the interior fabric has dried out to acceptable levels. The saturated substrate should be monitored, and moisture sampling undertaken prior to re-plastering if required.

On the basis that the interior air temperatures are maintained at suitable levels, the interior fabric should start to dry out naturally, though there is the opportunity to accelerate the drying out process by introducing dehumidification units if required.

It is recommended that areas of saturated and/or defective plaster should be removed early in the programme, to provide an extended period for drying out, prior to re-plastering.

Trace Heating

Consider the installation of trace heating along concealed and inaccessible gutters. Trace gutter heating is a self-regulating heating cable specifically designed to prevent snow and ice building up on roofs, eaves and within drainpipes. This prevents potential surcharging of rapidly thawed ice and snow, overwhelming the rainwater system.

Fire Stopping & Compartmentation

The fire protection of concealed and hidden spaces is of prime importance.

Compartmentation in roof voids is a particular issue with respect to hidden fire spread.

Guidance is presented in Section 8 of Approved Document B [2] on the means of satisfying compartmentation requirement at the junction of a compartment wall within the roof. The guidance essentially involves.

- Fire stopping up to the underside of the roof covering or deck and restricting flame spread in the area around the junction.
- Continuing the compartment wall up through the roof extending beyond the top surface of the roof covering.

Additional fire stopping measures are likely to be required throughout the existing built assets as per guidance provided within ADB, including but not limited to:

- Fire dampers
- Intumescent seals
- Fire stops
- Cavity barriers

Note, if fire-stopping measures are to be effective, every element, opening, penetration etc. should be adequately protected by sealing or fire-stopping to maintain the continuity of resistance.

Approved Document L – Building Regulations (Exemptions)

For historic buildings, a balance needs to be achieved between improving energy efficiency and avoiding damage to the existing fabric both with regards to the impact on significance and potential detrimental and irreversible damage imposed by inappropriate / unsuitable methods of improvement.

The Building Regulations Approved Document Part L make it clear that a reasonable compromise on energy efficiency targets may be acceptable in order to preserve character and appearance and to avoid technical risks.

Potential Risks of Upgrading Older Buildings

Information extracted from Historic England 'Energy Efficiency and Historic Buildings – application of part L of the Building Regulations to Historic and Traditionally Constructed Buildings' guidance document.

- *Causing unacceptable damage to the character and appearance of historic buildings.*
- *Causing damaging technical conflicts between the existing construction and changes to improve energy efficiency.*

4 Design Development

4

Options Appraisal

The general requirement of this study was to review the roofs and elevations across the hall complex and to put forward suitable recommendations for replacement and remediation.

Two options have been considered to respond to the brief, which are then sub-divided by additional scope of work and options across each block of the hall complex.

- Do Minimum

- A series of Large Scale Projects


Gregynog Trust.

As one of Wales' architectural treasures, the major roof restoration marks an important step towards ensuring the Hall's architectural integrity and historical significance are preserved for future generations.

Do the Minimum - Short Term

This option would involve general maintenance tasks across the existing roofscape, including reactive repairs as and when an issue arises. The repairs are generally temporary in nature.

Following our site inspection, observed defects have been identified on a marked-up diagram which require urgent attention to halt further decay and loss of building fabric.

Include for all access/prelims requirements, whether that be via MEWP/ladder/tower scaffold.

These items extend across the entire roofscape.

Project Scope

1. Clear all gutters/downpipes of silt and detritus and ensure that gutters and rainwater pipes are free flowing. To extend across all guttering, downpipes, flat roof outlets, valley and parapet gutters.
2. Re-fix slipped and/or missing slates.
3. Undertake temporary repairs (liquid applied water proofer) to areas of split / defective leadwork.
4. Lift and re-bed loose ridge tiles/linings and/or replace.
5. Remedy any items that pose a health and safety risk.
6. Prune back and remove established vegetation growth around the façades.

Advantages

Regular access and maintenance will improve the general upkeep of the system and identify any issues as and when they arise.

Free flowing drainage, silt and detritus removed.

The works are clearly repair and maintenance tasks and would therefore not require statutory approvals.

Disadvantages

Repairs are temporary in nature, requiring constant upkeep and ongoing review.

Continued degradation of defective elements and components.

Defects may extend and/or be exacerbated.

Sustained water ingress issues.

Retain internal ad-hoc catchment containers for rainwater ingress.

Gregynog Trust

Phased - Large Scale Projects

This option highlights all the works required to secure the hall's future, providing a fully wind and watertight envelope completed to a standard commensurate with the Grade II* listed status.

For the purposes of this report, due to the size and scale of the hall complex, the areas have been sub-divided across building areas. The principal focus of this study is with respect to the roofed areas, however, given the requirement for full perimeter scaffolding and temporary roofs, this brings with it the opportunity to carry out fabric repairs across the elevations.

Clearly, there will be economies by combing both re-roofing works and fabric repairs across the elevations, as this avoids doubling up on access systems in the future. This to can be said with respect to combing several projects into a single construction package, which would of course increase build costs but would see economies made with respect to prelims, access and materials.

The cost plan is to be structured on the basis that each project will be undertaken independently.

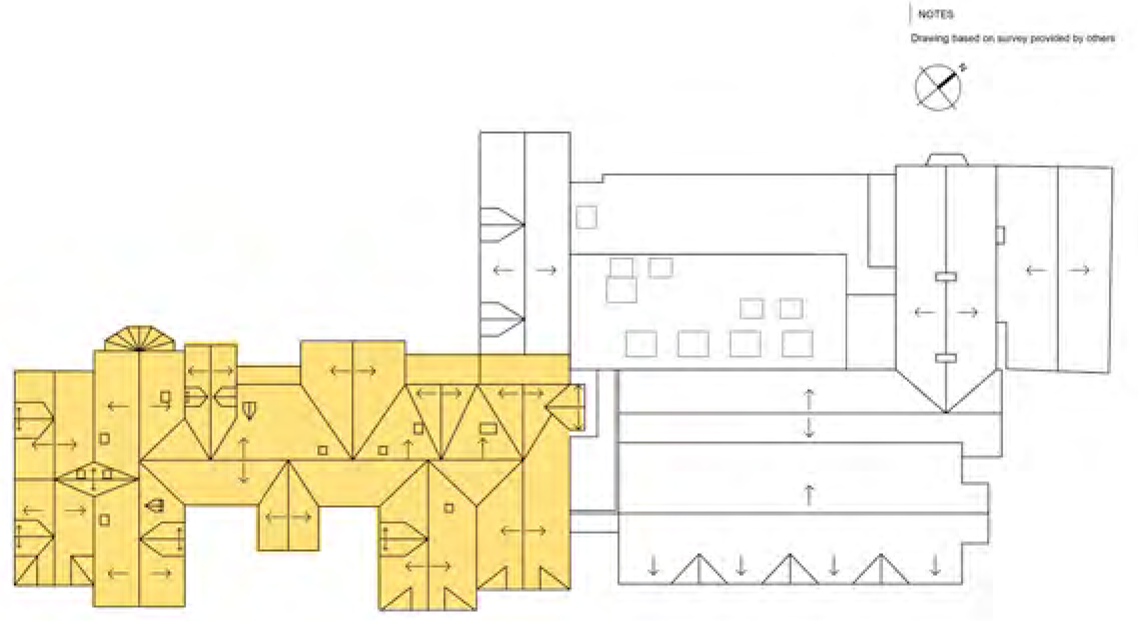
Architectural scope of works excludes input from MEP consultant and structural engineer, refer to separate MEP / structural engineer reporting for works identified in relation and recommended to be included within each package.

The following scope of works are sub-divided between each of the hall 'blocks', split between the roof and elevations.

Main Hall

Roof Removals

1. MEP, ducting, penetrations, services etc. are all to be maintained throughout the works.
2. Allow for temporary removal of all fixtures and fittings to facilitate the re-roofing works and reinstate within original locations post roof completion.
3. Remove and tip all existing timber snow / duck boards across valley gutters.
4. Remove and tip all flues and ducting. Note: these may need to be maintained throughout the works.
5. Strip back all pitched slate coverings across all roofs (inclusive of gablets and dormers), including leadwork and all associated elements and components (ridge tiles / lead linings, battens, felt, access doors, rooflights etc.) to expose the roof structure. Note: removal of lime torching to the underside and pegs.
6. Strip back all leadwork across valley gutters including gutter sole boards and supporting structure and all associated elements and components to expose the roof structure.
7. Strip back all leadwork across lower-level flat roofs including gutter sole boards and supporting structure and all associated elements and components to expose the roof structure.
8. Strip back all leadwork across ground floor bay window including gutter sole boards and supporting structure and all associated elements and components to expose the roof structure.
9. Strip back all bitumen felt to flat roof including all supporting structure and all associated elements and components to expose the roof structure.
10. Inspect all timberwork, bargeboards, fascia's, soffits, finials etc. for potential decay.
11. Remove and tip all soft/woody vegetation, silt and detritus across guttering and gutters.
12. Remove and tip all UPVC guttering.
13. Remove and tip all in line rooflights.
14. Remove and tip all lead lined dormer rooflights.
15. Remove and tip all lead lined roof access hatches.
16. Remove all mineral wool insulation across roof voids, clean and remove all debris.
17. Remove ferrous balustrading to the north elevation ground floor projection.



Roof Proposals

a. Allow for full re-roofing across all pitched roofs with 100% natural Welsh slate fixed in diminishing courses, onto new treated battens and counter battens, with breather membrane / eaves support tray. To include all new lead flashings across all weatherings including valleys, soakers, solid wood roll ridge with clips. To include proprietary continuous eaves and ridge ventilation by Nicholson.

b. Allow for full 100% new lead lined stepped valley gutters, inclusive of lead flashings, sumps/outlets and weatherings onto 100% new treated timber supporting structure and deck with lead mushroom vents and perimeter ventilation with eaves. Bay lengths split with solid wood rolls.

c. Allow for full 100% new lead lined flat roofs with solid wood roll bays, inclusive of lead flashings and weatherings onto new 100% treated timber supporting structure and deck with lead mushroom vents and perimeter upstand ventilation at interface with façades.

d. Allow for full 100% new lead lined pitched bay roof with solid wood roll bays, inclusive of lead flashings and weatherings onto new 100% treated timber supporting structure and deck, perimeter upstand ventilation at interface with façades.

e. Supply and install new flues, extracts and ducting like-for-like, including all lead flashings and soakers.

f. Inspect and prepare all timberwork, bargeboards, fascia's, soffits, finials for redecoration. Allow for 25% renewal pending further inspection. Profiles and mouldings to match existing. Allow for re-fixing and securing retained boarding with stainless steel screws and pellet.

g. All cast iron gutters are to be overhauled, taken offsite, shot-blasted and redecorated including all bracketing. Reinstate and include additional bracketing to provide additional gutter support, thus narrowing support centres. Allow for 50% renewal and replacement pending assessment.

h. Supply and install 100% new cast iron guttering across ground floor bay window, replacing previous UPVC.

i. Supply and install new in line conservation rooflights with thermally efficient glazed units.

j. Supply and install new lead lined dormer rooflights with thermally efficient glazed units.

k. Supply and install new lead lined roof access hatch with thermally efficient external grade access door.

l. Supply and install new cast iron painted balustrade railing to north elevation flat roof.

m. INCL GENERAL PROV ALLOWANCES

Main Hall

Roof Optional

i. Allow for full re-roofing across all pitched roofs with 100% natural Welsh slate fixed in diminishing courses, onto new treated battens, slate fixed traditionally with oak pegs and internal lime torching, include all new lead flashings across all weatherings including valleys, soakers, solid wood roll ridge with clips.

ii. Allow for the supply and fix of guided fall arrest system within each of the valley gutters.

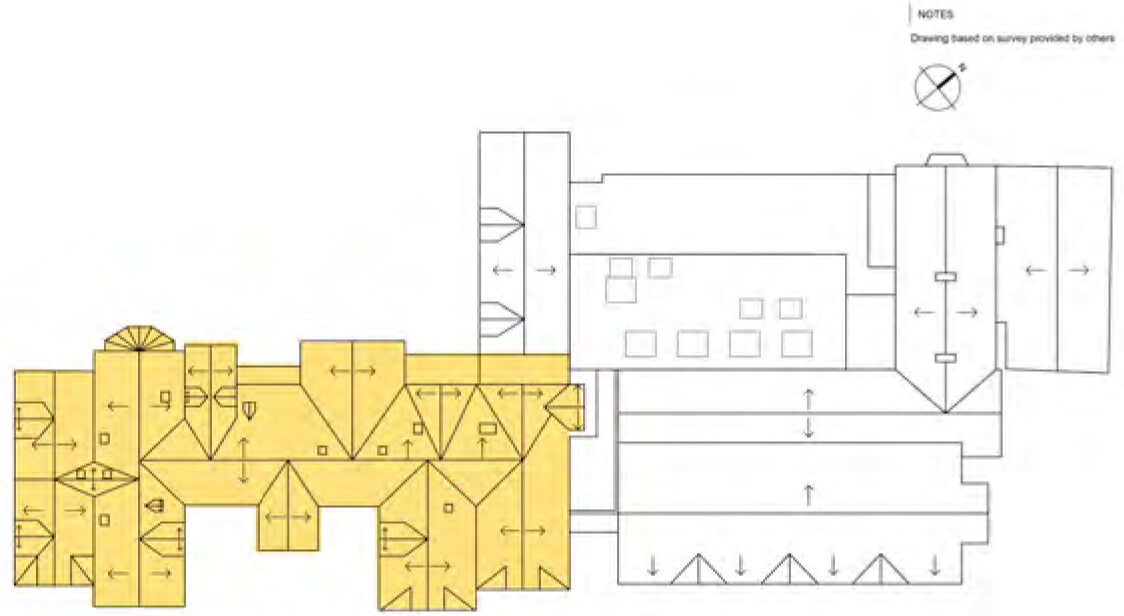
iii. Allow for the introduction of trace heating across all valley gutters as opposed to the provision of snow / duck boards.

iv. Allow for the introduction of warm roof insulation, to run across sloped eaves and across attic ceilings.

v. Allow for the reintroduction of missing ornate chimneystacks and ventilated / capped pots, including all necessary leadwork, flashings and DPC. Flues to be lined to allow for full wood burning operation and use.

vi. Allow for all necessary fire separation and compartmentation to be introduced across roof voids.

vii. Allow for replacement of all timber finials with new to match historic tall decorative finials.



Elevation Proposals

a. MEP, ducting, penetrations, services etc.. are all to be maintained throughout the works.

b. Allow for temporary removal of all surface mounted fixtures and fittings to facilitate the fabric repair works and reinstate within original locations post fabric repair works.

c. All previously painted surfaces are to be redecorated, including but not limited to timber features, windows, doors, render, masonry, rainwater goods, soil pipes etc..

d. Remove all vegetation growth across façades to allow for inspection of concealed building fabric.

e. Remove all embedded ferrous eyelets (incl wiring) and fixings across façades, typically located at ground level.

f. Cut out all ferrous elements across façades and carry out concrete repairs.

g. All decorative and non-decorative rendered mock timber panels are to be prepared and redecorated.

h. All timber and metal framed windows are to be overhauled, re-serviced, returned to full working operation and fully redecorated externally, include renewal of putty and replacement of defective/ cracked glazing.

i. All cast iron downpipes and hopper heads are to be overhauled, taken off-site, shot-blasted and redecorated including all bracketing. Allow for 50% renewal and replacement pending assessment.

j. Replace UPVC rainwater pipes and hopper heads with cast iron to match existing.

k. Replace UPVC soil pipes with cast iron.

l. All stone window and door surrounds are to be 100% raked out and repointed with a suitable lime mortar.

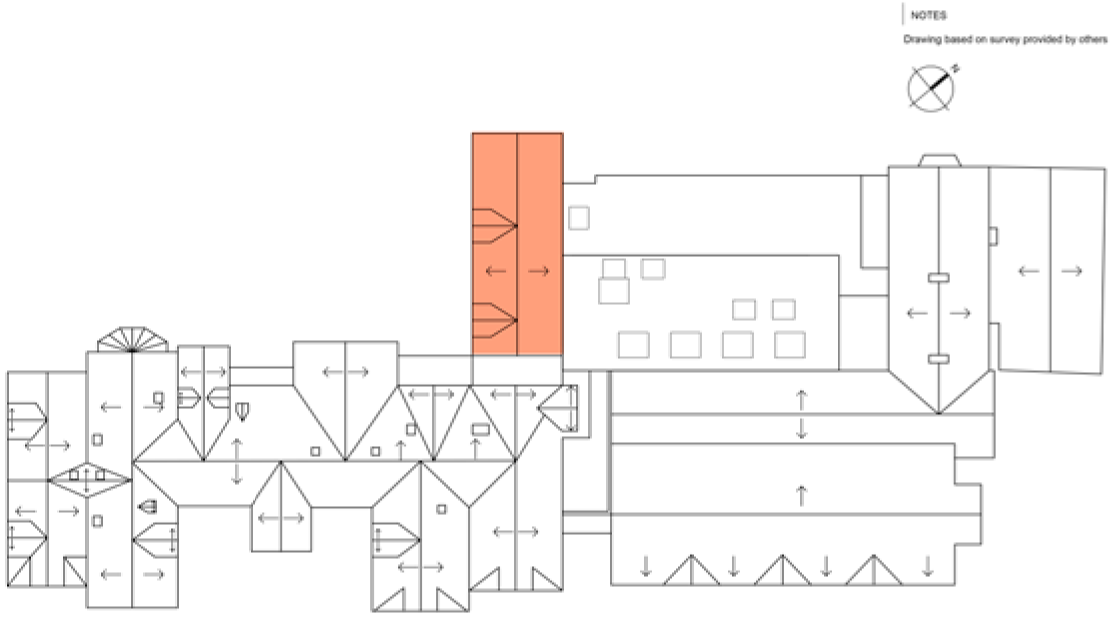
m. Undertake all necessary timber repairs across windows and doors, to include cutting out of defective timber and indenting new, profiles to match existing.

n. Undertake all necessary stone repairs including mortar repairs, full face replacement, crack/resin repair, stitch repair, indent repair.

o. Undertake all necessary concrete repairs across rendered panels and stucco.

p. PROV ITEM – allowance for replacement of x5 timber casement windows (typical size). Pending further assessment.

q. PROV ITEM – allowance for replacement of x3 timber vertical sliding sash windows (typical size). Pending further assessment.



Kitchen Wing

Roof Removals

1. MEP, ducting, penetrations, services etc.. are all to be maintained throughout the works.
2. Allow for temporary removal of all fixtures and fittings to facilitate the re-roofing works and reinstate within original locations post roof completion.
3. Strip back all pitched slate coverings across all roofs (inclusive of gablets), including leadwork and all associated elements and components (ridge tiles / lead linings, battens, felt, to expose the roof structure. Note: removal of lime torching to the underside and pegs.
4. Inspect all timber-work, bargeboards, fascia's, soffits, finials etc.. for potential decay.
5. Remove and tip all soft/woody vegetation, silt and detritus across guttering and gutters.
6. Remove all mineral wool insulation across roof voids, clean and remove all debris.

Roof Proposals

a. Allow for full re-roofing across all pitched roofs with 100% natural Welsh slate fixed in diminishing courses, onto new treated battens and counter battens, with breather membrane / eaves support tray. To include all new lead flashings across all weatherings including valleys, soakers, solid wood roll ridge with clips. To include proprietary continuous eaves and ridge ventilation by Nicholson.

b. Inspect and prepare all timberwork, bargeboards, fascia's, soffits, finials for redecoration. Allow for 25% renewal pending further inspection. Profiles and mouldings to match existing. Allow for re-fixing and securing retained boarding with stainless steel screws and pellet.

c. All cast iron gutters are to be overhauled, taken offsite, shot-blasted and redecorated including all bracketing. Reinstate and include additional bracketing to provide additional gutter support, thus narrowing support centres. Allow for 50% renewal and replacement pending assessment.

d. INCL GENERAL PROV ALLOWANCES

Roof Optional

i. Allow for full re-roofing across all pitched roofs with 100% natural Welsh slate fixed in diminishing courses, onto new treated battens, slate fixed traditionally with oak pegs and internal lime torching, include all new lead flashings across all weatherings including valleys, soakers, solid wood roll ridge with clips.

ii. Allow for the introduction of warm roof insulation, to run across sloped eaves and across attic ceilings.

iii. Allow for the reintroduction of missing ornate chimneystacks and ventilated / capped pots, including all necessary leadwork, flashings and DPC. Flues to be lined to allow for full wood burning operation and use.

iv. Allow for all necessary fire separation and compartmentation to be introduced across roof voids.

v. Allow for replacement of all timber finials with new to match historic tall decorative finials.

Kitchen Wing

Elevation Proposals

a. MEP, ducting, penetrations, services etc.. are all to be maintained throughout the works.

b. Allow for temporary removal of all surface mounted fixtures and fittings to facilitate the fabric repair works and reinstate within original locations post fabric repair works.

c. All previously painted surfaces are to be redecorated, including but not limited to timber features, windows, doors, render, masonry, rainwater goods, soil pipes etc..

d. Remove all vegetation growth across façades to allow for inspection of concealed building fabric.

e. Remove all embedded ferrous eyelets (incl wiring) and fixings across façades, typically located at ground level.

f. Cut out all ferrous elements across façades and carry out concrete repairs.

g. All decorative and non-decorative rendered mock timber panels are to be prepared and redecorated.

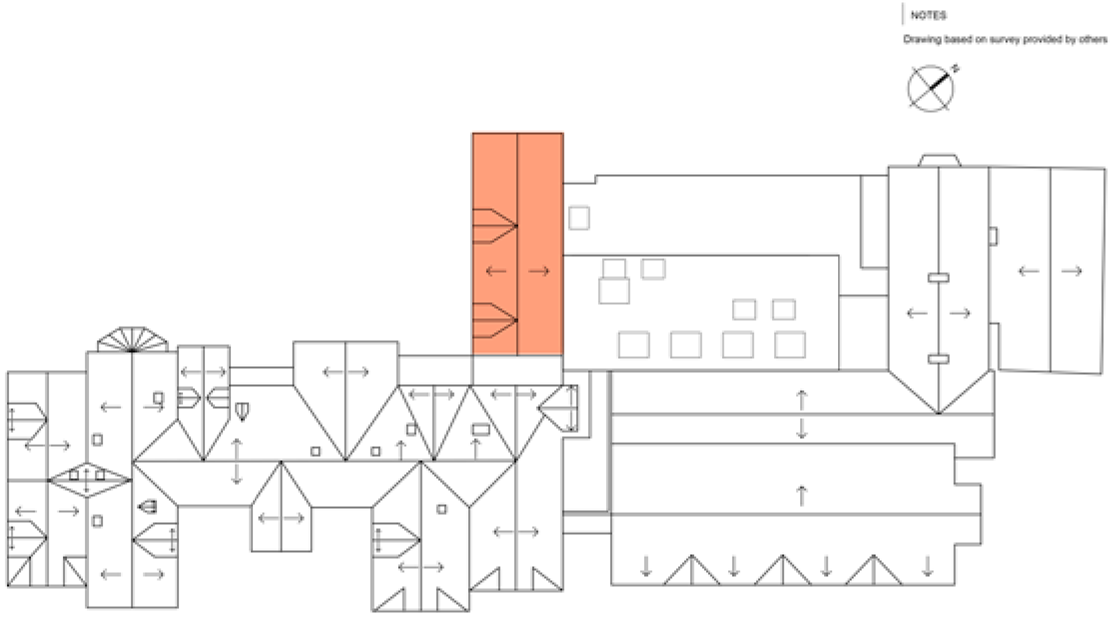
h. All timber framed windows are to be overhauled, re-serviced, returned to full working operation and fully redecorated externally, include renewal of putty and replacement of defective/cracked glazing.

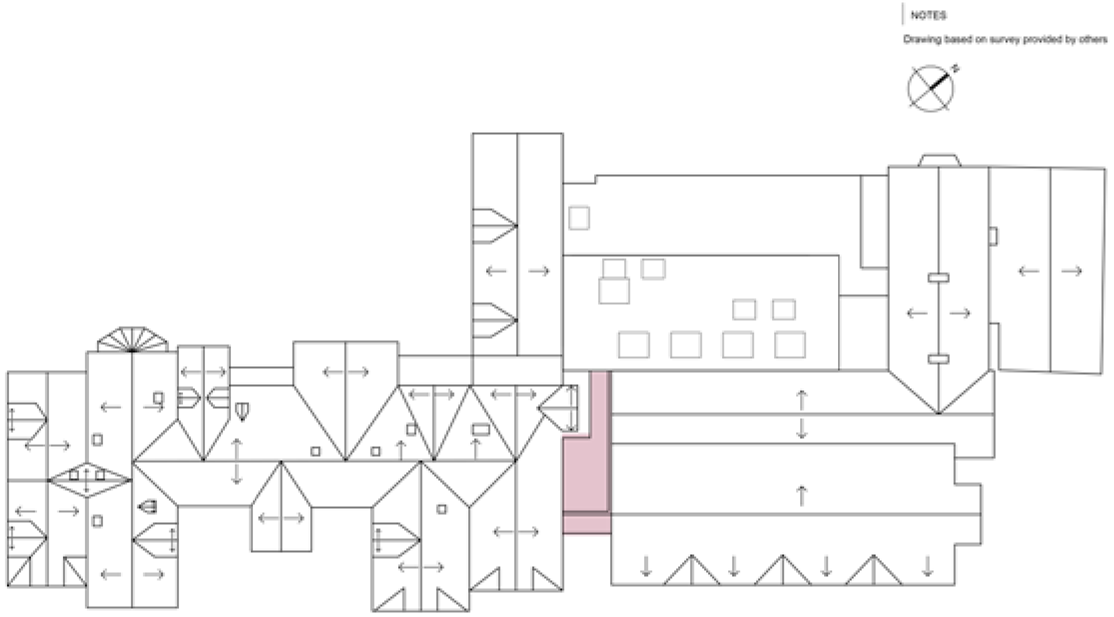
i. All cast iron downpipes and hopper heads are to be overhauled, taken offsite, shot-blasted and redecorated including all bracketing. Allow for 50% renewal and replacement pending assessment.

j. Undertake all necessary timber repairs across windows and doors, to include cutting out of defective timber and indenting new, profiles to match existing.

k. Undertake all necessary concrete repairs across rendered panels and stucco.

l. PROV ITEM – allowance for replacement of x3 timber casement windows (typical size). Pending further assessment.





Link Building

Roof Removals

1. MEP, ducting, penetrations, services etc. are all to be maintained throughout the works.
2. Allow for temporary removal of all fixtures and fittings to facilitate the re-roofing works and reinstate within original locations post roof completion.
3. Remove and tip all soft/woody vegetation, silt and detritus across guttering and gutters.
4. Remove and tip bitumen felt roof system including gutter deck and supporting structure and all associated elements and components to expose the roof structure.
5. Remove and tip lead capping's across stone parapet copings.

Roof Proposals

a. Supply and install new 100% 3-layer built-up bitumen felt system across flat roofs including new substrate and supporting timbers.

b. Inspect and prepare all timberwork, bargeboards, fascia's, soffits, finials for redecoration. Allow for 25% renewal pending further inspection. Profiles and mouldings to match existing. Allow for re-fixing and securing retained boarding with stainless steel screws and pellet.

c. All cast iron gutters are to be overhauled, taken offsite, shot-blasted and redecorated including all bracketing. Reinstate and include additional bracketing to provide additional gutter support, thus narrowing support centres. Allow for 50% renewal and replacement pending assessment.

d. Allow for raking out and repointing of 100% stone copings with a prompt natural cement.

e. Supply and install full lead capping across stone parapets with continuous stainless-steel clip.

f. INCL GENERAL PROV ALLOWANCES

Roof Optional

i. Allow for the introduction of warm roof insulation.

ii. Allow for all necessary fire separation and compartmentation to be introduced across roof voids.

Link Building

Elevation Proposals

a. MEP, ducting, penetrations, services etc.. are all to be maintained throughout the works.

b. Allow for temporary removal of all surface mounted fixtures and fittings to facilitate the fabric repair works and reinstate within original locations post fabric repair works.

c. All previously painted surfaces are to be redecorated, including but not limited to timber features, windows, doors, masonry, rainwater goods, soil pipes etc..

d. Remove all vegetation growth across façades to allow for inspection of concealed building fabric.

e. Remove all embedded ferrous eyelets (incl wiring) and fixings across façades, typically located at ground level.

f. All metal framed windows are to be overhauled, re-serviced, returned to full working operation and fully redecorated externally, include replacement of defective/cracked glazing.

g. All cast iron downpipes and hopper heads are to be overhauled, taken offsite, shot-blasted and redecorated including all bracketing. Allow for 50% renewal and replacement pending assessment.

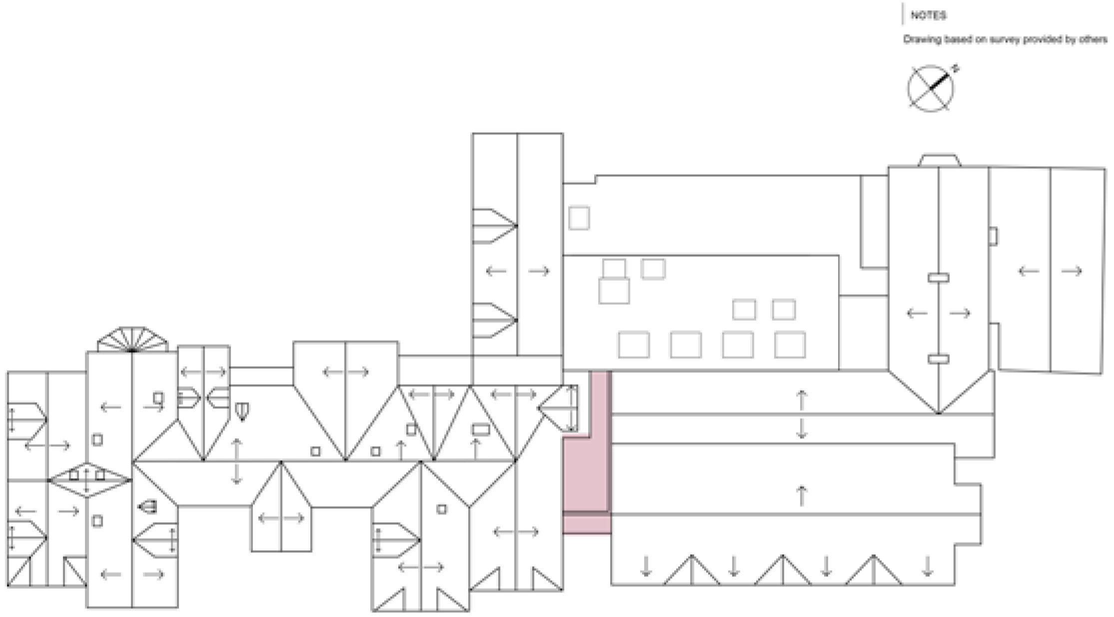
h. Undertake all necessary metal repairs across windows.

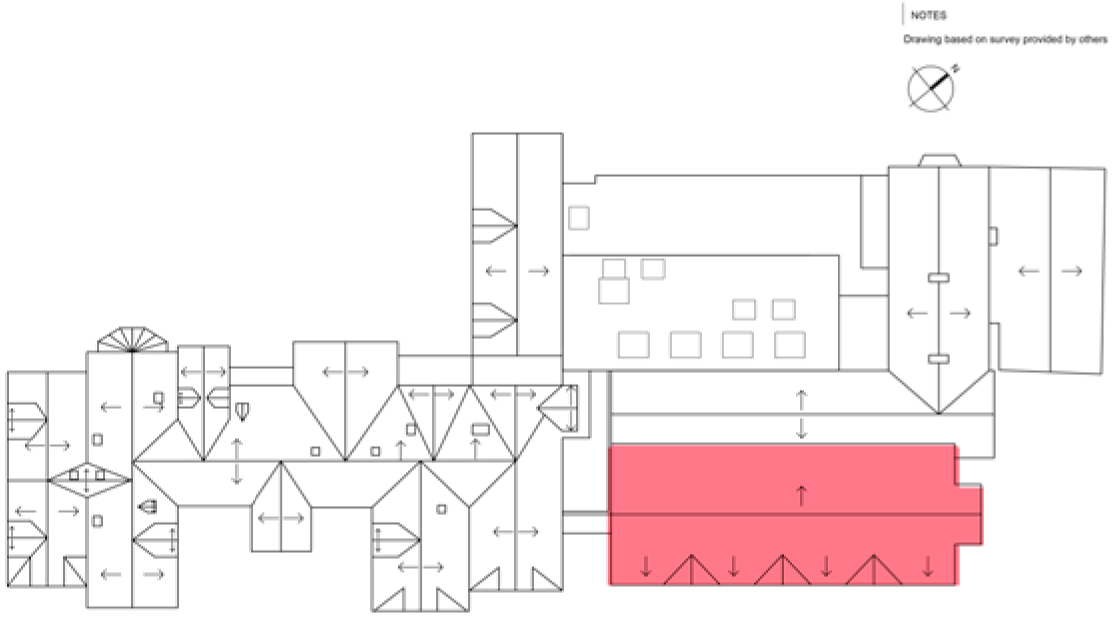
i. Allow for complete redecoration of external access door.

j. Allow for full 100% raking out and repointing of ashlar and brick façades with a suitable lime mortar.

k. Allow for a light conservation doff clean across all façades to remove soiling.

l. PROV ITEM – allowance for replacement of x2 metal framed windows (typical size). Pending further assessment.





Music Room Block

Roof Removals

1. MEP, ducting, penetrations, services etc.. are all to be maintained throughout the works.
2. Allow for temporary removal of all fixtures and fittings to facilitate the re-roofing works and reinstate within original locations post roof completion.
3. Remove and tip all existing timber snow / duck boards across valley gutters.
4. Strip back all pitched slate coverings across all roofs (inclusive of gablets), including leadwork and all associated elements and components (ridge tiles / lead linings, battens, felt, access doors, rooflights etc..) to expose the roof structure. Note: removal of lime torching to the underside and pegs.
5. Strip back all leadwork across valley gutters including gutter sole boards and supporting structure and all associated elements and components to expose the roof structure.
6. Inspect all timberwork, bargeboards, fascia's, soffits, finials etc.. for potential decay.
7. Remove and tip all soft/woody vegetation, silt and detritus across guttering and gutters.
8. Remove all mineral wool insulation across roof voids, clean and remove all debris.

Roof Proposals

a. Allow for full re-roofing across duo-pitched roofs with 100% natural Welsh slate fixed in diminishing courses, onto new treated battens and counter battens, with breather membrane / eaves support tray. To include all new lead flashings across all weatherings including valleys, soakers, solid wood roll ridge with clips. To include proprietary continuous eaves and ridge ventilation by Nicholson.

b. Allow for full 100% new lead lined stepped valley gutter, inclusive of lead flashings, sumps/outlets and weatherings onto 100% new treated timber supporting structure and deck with lead mushroom vents and perimeter ventilation with eaves. Bay lengths split with solid wood rolls.

c. Inspect and prepare all timberwork, bargeboards, fascia's, soffits, finials for redecoration. Allow for 25% renewal pending further inspection. Profiles and mouldings to match existing. Allow for re-fixing and securing retained boarding with stainless steel screws and pellet.

d. All cast iron gutters are to be overhauled, taken offsite, shot-blasted and redecorated including all bracketing. Reinstate and include additional bracketing to provide additional gutter support, thus narrowing support centres. Allow for 50% renewal and replacement pending assessment.

e. INCL GENERAL PROV ALLOWANCES

Roof Optional

i. Allow for full re-roofing across duo-pitched roofs with 100% natural Welsh slate fixed in diminishing courses, onto new treated battens, slate fixed traditionally with oak pegs and internal lime torching, include all new lead flashings across all weatherings including valleys, soakers, solid wood roll ridge with clips.

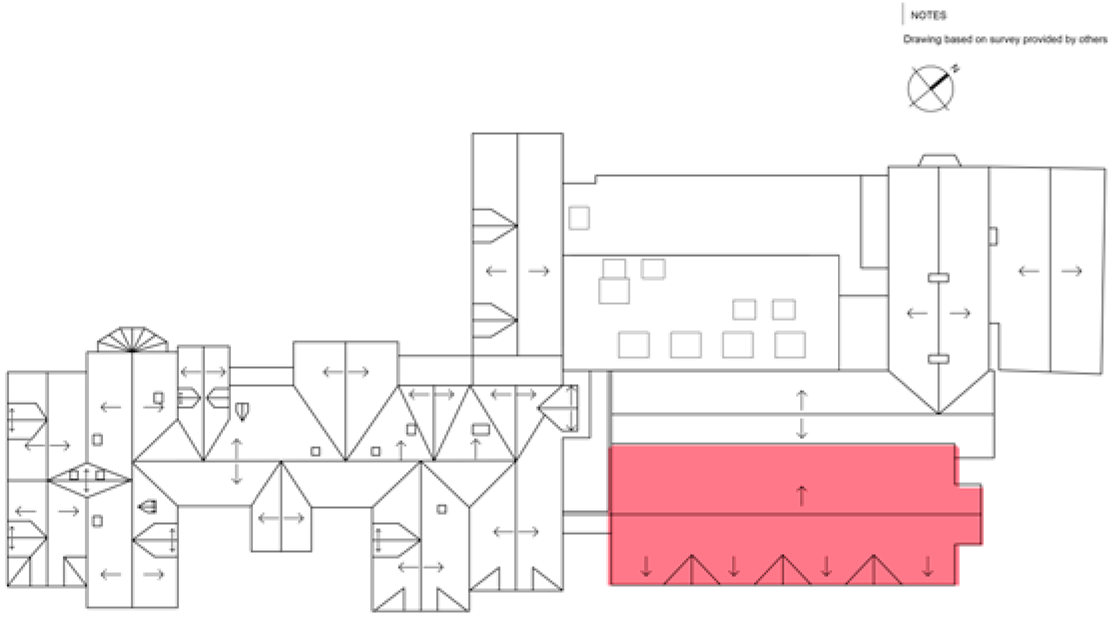
ii. Allow for the supply and fix of guided fall arrest system within the valley gutter.

iii. Allow for the introduction of trace heating across the valley gutter as opposed to the provision of snow / duck boards.

iv. Allow for the introduction of warm roof insulation, to run across sloped eaves and across attic ceilings.

v. Allow for all necessary fire separation and compartmentation to be introduced across roof voids.

vi. Allow for replacement of all timber finials with new to match historic tall decorative finials.



Music Room Block

Elevation Proposals

a. MEP, ducting, penetrations, services etc.. are all to be maintained throughout the works.

b. Allow for temporary removal of all surface mounted fixtures and fittings to facilitate the fabric repair works and reinstate within original locations post fabric repair works.

c. All previously painted surfaces are to be redecorated, including but not limited to timber features, windows, doors, render, masonry, rainwater goods etc..

d. Remove all vegetation growth across façades to allow for inspection of concealed building fabric.

e. Remove all embedded ferrous eyelets (incl wiring) and fixings across façades, typically located at ground level.

f. All rendered infill panels and timber framing members are to be prepared and redecorated.

g. All metal framed windows are to be overhauled, re-serviced, returned to full working operation and fully redecorated externally, include renewal of putty and replacement of defective/cracked glazing.

h. All cast iron downpipes and hopper heads are to be overhauled, taken offsite, shot-blasted and redecorated including all bracketing. Allow for 50% renewal and replacement pending assessment.

i. Replace defective cast iron rainwater goods with new.

j. All stone window and door surrounds are to be 100% raked out and repointed with a suitable lime mortar.

k. Ashlar stone elevations are to be raked out and repointed in full with a suitable lime mortar.

l. Undertake all necessary metal repairs across windows.

m. Undertake all necessary stone repairs including mortar repairs, full face replacement, crack/resin repair, stitch repair, indent repair.

n. Undertake all necessary concrete repairs across rendered panels and stucco.

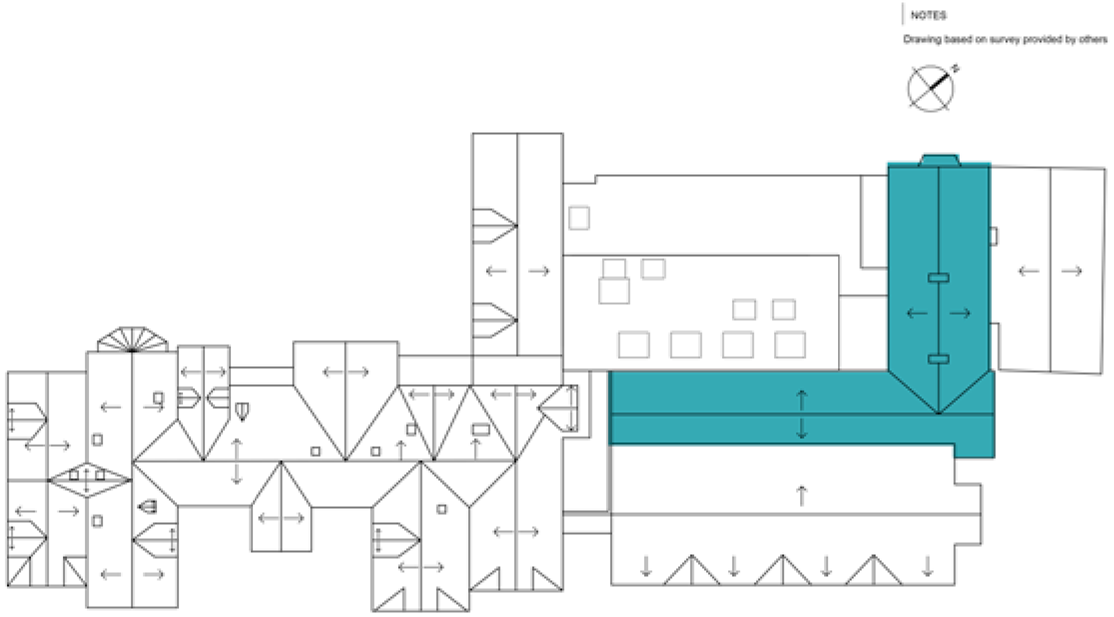
o. Undertake all necessary timber repairs across timber framing members.

p. PROV ITEM – allowance for replacement of x3 metal framed windows (typical size). Pending further assessment.

Annexe Wing

Roof Removals

1. MEP, ducting, penetrations, services etc.. are all to be maintained throughout the works.
2. Allow for temporary removal of all fixtures and fittings to facilitate the re-roofing works and reinstate within original locations post roof completion.
3. Remove and tip all existing snow post and wire installations across pitched roof.
4. Strip back all pitched slate coverings across all roofs including leadwork and all associated elements and components (ridge tiles / lead linings, battens, felt, access doors, rooflights etc..) to expose the roof structure. Note: removal of lime torching to the underside and pegs.
5. Inspect all timberwork, bargeboards, fascia's, soffits, finials etc.. for potential decay.
6. Remove and tip all soft/woody vegetation, silt and detritus across guttering and gutters.
7. Remove all mineral wool insulation across roof voids, clean and remove all debris.



Roof Proposals

a. Allow for full re-roofing across all pitched roofs with 100% natural Welsh slate fixed in diminishing courses, onto new treated battens and counter battens, with breather membrane / eaves support tray. To include all new lead flashings across all weatherings including valleys, soakers, solid wood roll ridge with clips. To include proprietary continuous eaves and ridge ventilation by Nicholson.

b. Supply and install new flues, extracts and ducting like-for-like, including all lead flashings and soakers.

c. Inspect and prepare all timberwork, bargeboards, fascia's, soffits, finials for redecoration. Allow for 25% renewal pending further inspection. Profiles and mouldings to match existing. Allow for re-fixing and securing retained boarding with stainless steel screws and pellet.

d. All cast iron gutters are to be overhauled, taken offsite, shot-blasted and redecorated including all bracketing. Reinstate and include additional bracketing to provide additional gutter support, thus narrowing support centres. Allow for 50% renewal and replacement pending assessment.

e. Allow for 100% raking out and repointing of chimneystacks including renewal of flaunching, allow for weathered caps to pots.

f. INCL GENERAL PROV ALLOWANCES

Roof Optional

i. Allow for full re-roofing across all pitched roofs with 100% natural Welsh slate fixed in diminishing courses, onto new treated battens, slate fixed traditionally with oak pegs and internal lime torching, include all new lead flashings across all weatherings including valleys, soakers, solid wood roll ridge with clips.

ii. Allow for the introduction of warm roof insulation, to run across sloped eaves and across attic ceilings.

iii. Allow for all necessary fire separation and compartmentation to be introduced across roof voids.

iv. Allow for replacement of all timber finials with new to match historic tall decorative finials.

Annexe Wing

Elevation Proposals

a. MEP, ducting, penetrations, services etc.. are all to be maintained throughout the works.

b. Allow for temporary removal of all surface mounted fixtures and fittings to facilitate the fabric repair works and reinstate within original locations post fabric repair works.

c. All previously painted surfaces are to be redecorated, including but not limited to timber features, windows, doors, render, masonry, rainwater goods, soil pipes etc..

d. Remove all vegetation growth across façades to allow for inspection of concealed building fabric.

e. Remove all embedded ferrous eyelets (incl wiring) and fixings across façades, typically located at ground level.

f. Cut out all ferrous elements across façades and carry out concrete repairs.

g. All decorative and non-decorative rendered mock timber panels are to be prepared and redecorated.

h. All timber and metal framed windows are to be overhauled, re-serviced, returned to full working operation and fully redecorated externally, include renewal of putty and replacement of defective/ cracked glazing.

i. All cast iron downpipes and hopper heads are to be overhauled, taken offsite, shot-blasted and redecorated including all bracketing. Allow for 50% renewal and replacement pending assessment.

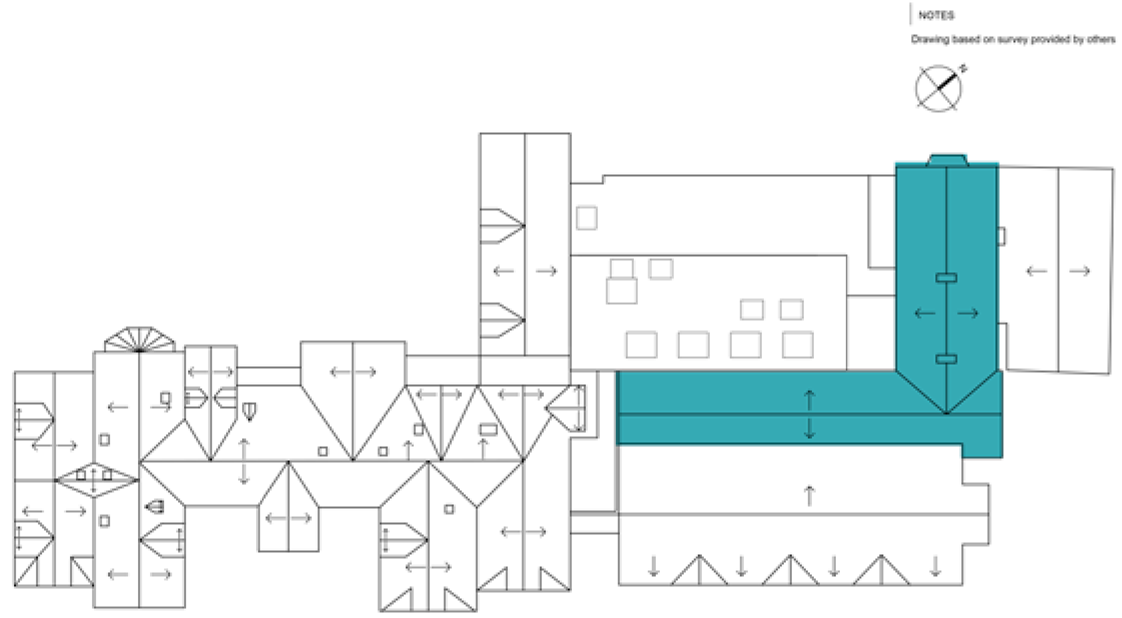
j. Undertake all necessary timber repairs across windows and doors, to include cutting out of defective timber and indenting new, profiles to match existing.

k. Undertake all necessary stone repairs including mortar repairs, full face replacement, crack/resin repair, stitch repair, indent repair.

l. Undertake all necessary concrete repairs across rendered panels and stucco.

m. PROV ITEM – allowance for replacement of x3 metal framed windows (typical size). Pending further assessment.

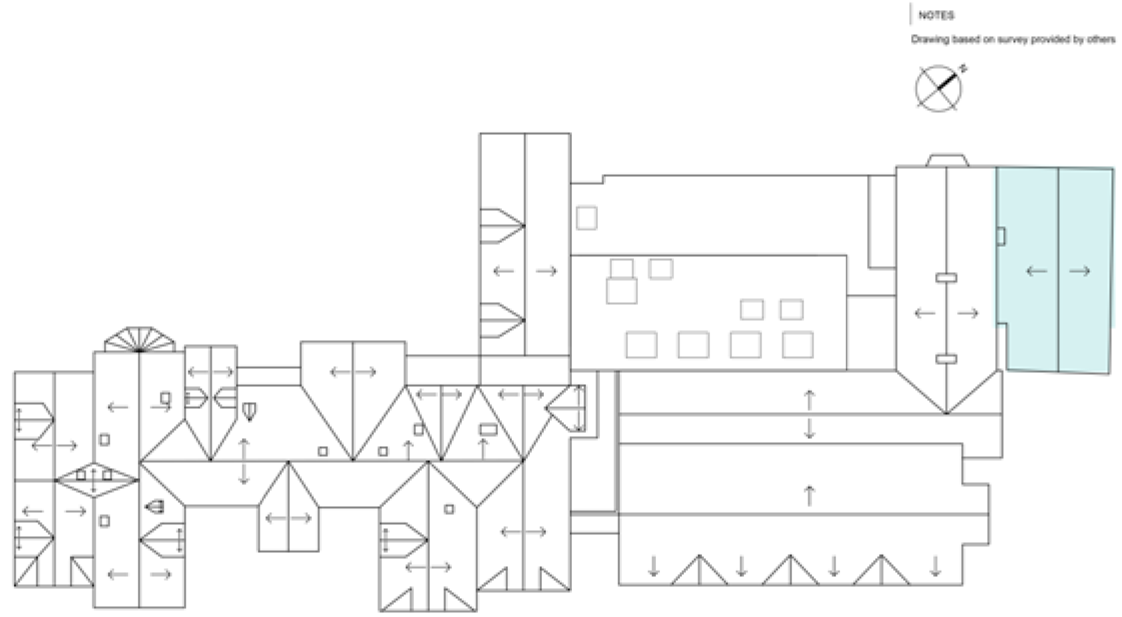
n. PROV ITEM – allowance for replacement of x3 timber casement windows (typical size). Pending further assessment.



Laundry Block

Roof Removals

1. MEP, ducting, penetrations, services etc. are all to be maintained throughout the works.
2. Allow for temporary removal of all fixtures and fittings to facilitate the re-roofing works and reinstate within original locations post roof completion.
3. Strip back all pitched slate coverings across roof including leadwork and all associated elements and components (ridge tiles / lead linings, battens, etc.) to expose the roof structure. Note: removal of lime torching to the underside and pegs.
4. Strip back all leadwork across valley gutters including gutter sole boards and supporting structure and all associated elements and components to expose the roof structure.
5. Inspect all timberwork, bargeboards, fascia's, soffits, finials etc. for potential decay.
6. Remove and tip all soft/woody vegetation, silt and detritus across guttering and gutters.
7. Remove all mineral wool insulation across roof voids, clean and remove all debris.



Roof Proposals

a. Allow for full re-roofing across all pitched roofs with 100% natural Welsh slate fixed in diminishing courses, onto new treated battens and counter battens, with breather membrane / eaves support tray. To include all new lead flashings across all weatherings including valleys, soakers, solid wood roll ridge with clips. To include proprietary continuous eaves and ridge ventilation by Nicholson.

b. Allow for full 100% new lead lined stepped valley gutters, inclusive of lead flashings, sumps/outlets and weatherings onto 100% new treated timber supporting structure and deck with lead mushroom vents and perimeter ventilation with eaves. Bay lengths split with solid wood rolls.

c. Inspect and prepare all timberwork, bargeboards, fascia's, soffits, finials for redecoration. Allow for 25% renewal pending further inspection. Profiles and mouldings to match existing. Allow for re-fixing and securing retained boarding with stainless steel screws and pellet.

d. All cast iron gutters are to be overhauled, taken offsite, shot-blasted and redecorated including all bracketing. Reinstate and include additional bracketing to provide additional gutter support, thus narrowing support centres. Allow for 50% renewal and replacement pending assessment.

e. INCL GENERAL PROV ALLOWANCES

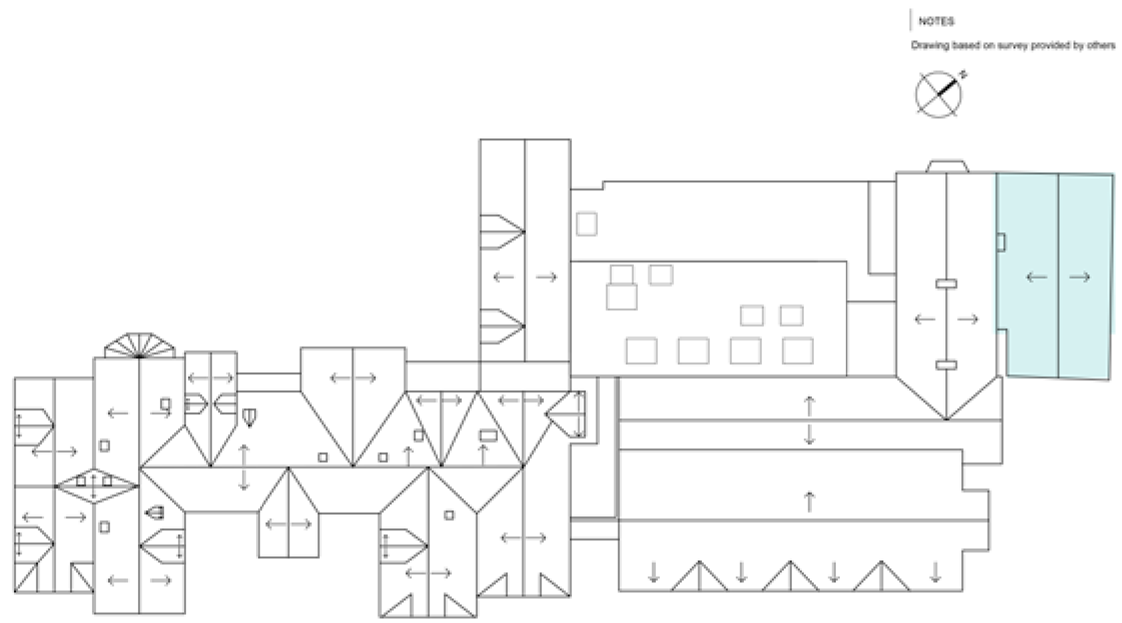
Roof Optional

i. Allow for full re-roofing across all pitched roofs with 100% natural Welsh slate fixed in diminishing courses, onto new treated battens, slate fixed traditionally with oak pegs and internal lime torching, include all new lead flashings across all weatherings including valleys, soakers, solid wood roll ridge with clips.

ii. Allow for the introduction of warm roof insulation, to run across sloped eaves and across attic ceilings.

iii. Allow for all necessary fire separation and compartmentation to be introduced across roof voids.

iv. Allow for replacement of all timber finials with new to match historic tall decorative finials.



Laundry Block

Elevation Proposals

a. MEP, ducting, penetrations, services etc. are all to be maintained throughout the works.

b. Allow for temporary removal of all surface mounted fixtures and fittings to facilitate the fabric repair works and reinstate within original locations post fabric repair works.

c. All previously painted surfaces are to be redecorated, including but not limited to timber features, windows, doors, masonry, rainwater goods, soil pipes etc..

d. Remove all vegetation growth across façades to allow for inspection of concealed building fabric.

e. Remove all embedded ferrous eyelets (incl wiring) and fixings across façades, typically located at ground level.

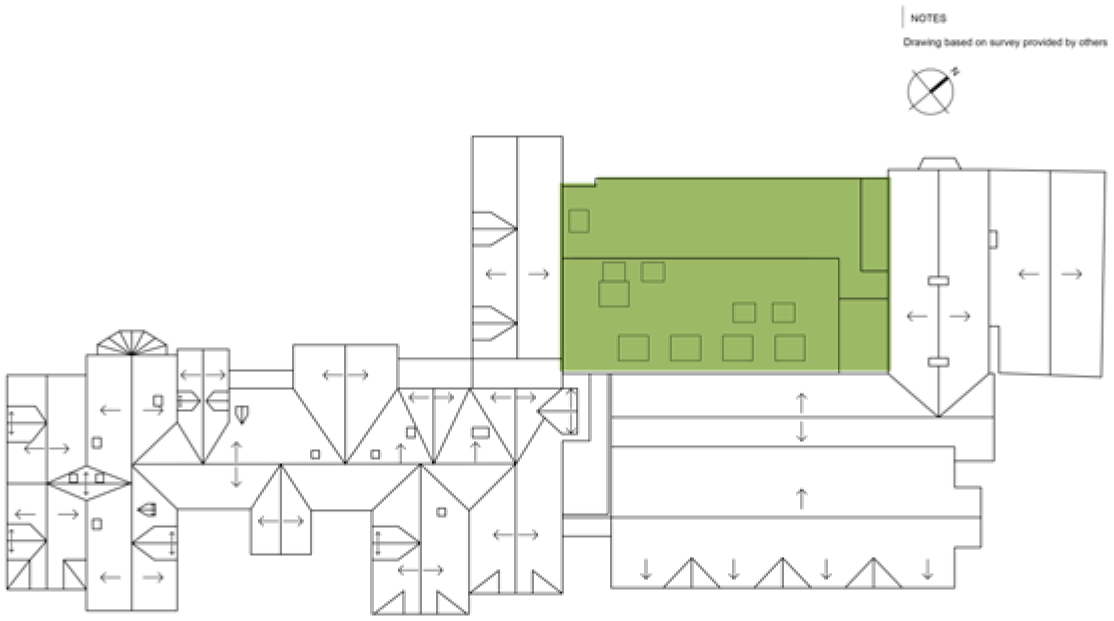
f. All timber framed windows are to be overhauled, re-serviced, returned to full working operation and fully redecorated externally, include renewal of putty and replacement of defective/cracked glazing.

g. All cast iron downpipes and hopper heads are to be overhauled, taken offsite, shot-blasted and redecorated including all bracketing. Allow for 50% renewal and replacement pending assessment.

h. Undertake all necessary timber repairs across windows and doors, to include cutting out of defective timber and indenting new, profiles to match existing.

i. Undertake all necessary stone repairs including mortar repairs, full face replacement, crack/resin repair, stitch repair, indent repair.

j. PROV ITEM – allowance for replacement of x1 timber casement windows (typical size). Pending further assessment.



Refectory Block

Roof Removals

1. MEP, ducting, penetrations, services etc. are all to be maintained throughout the works.
2. Allow for temporary removal of all fixtures and fittings to facilitate the re-roofing works and reinstate within original locations post roof completion.
3. Remove and tip all soft/woody vegetation, silt and detritus across gutters.
4. Remove and tip bitumen felt roof system including gutter deck and supporting structure and all associated elements and components to expose the roof structure.
5. Remove kerbed rooflights.
6. Remove and tip aluminium gutters and bracketing.

Roof Proposals

a. Supply and install new 100% 3-layer built-up bitumen felt system across flat roofs including new substrate and supporting timbers.

b. Inspect and prepare all timberwork, fascia's, soffits, for redecoration. Allow for 25% renewal pending further inspection. Profiles and mouldings to match existing.

c. Supply and install 100% new cast aluminium gutters and bracketing.

d. Supply and install new kerbed flat roof rooflights with thermally efficient glazed units.

e. INCL GENERAL PROV ALLOWANCES

Refectory Block

Elevation Proposals

a. MEP, ducting, penetrations, services etc. are all to be maintained throughout the works.

b. Allow for temporary removal of all surface mounted fixtures and fittings to facilitate the fabric repair works and reinstate within original locations post fabric repair works.

c. All previously painted surfaces are to be redecorated, including but not limited to timber features, windows, doors, render, masonry, rainwater goods, soil pipes etc..

d. All timber and metal framed windows are to be overhauled, re-serviced, returned to full working operation and fully redecorated externally, include renewal of putty and replacement of defective/ cracked glazing.

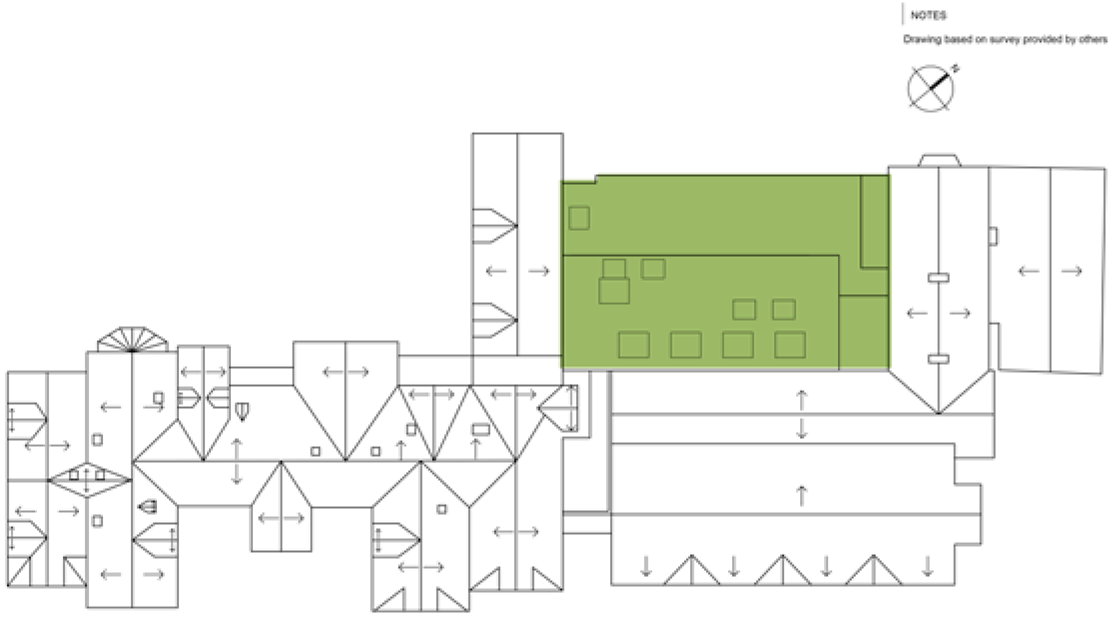
e. All cast iron downpipes and hopper heads are to be overhauled, taken offsite, shot-blasted and redecorated including all bracketing. Allow for 50% renewal and replacement pending assessment.

f. Undertake all necessary timber repairs across windows and doors, to include cutting out of defective timber and indenting new, profiles to match existing.

g. Undertake all necessary metal repairs across windows.

h. PROV ITEM – allowance for replacement of x2 metal framed windows (typical size). Pending further assessment.

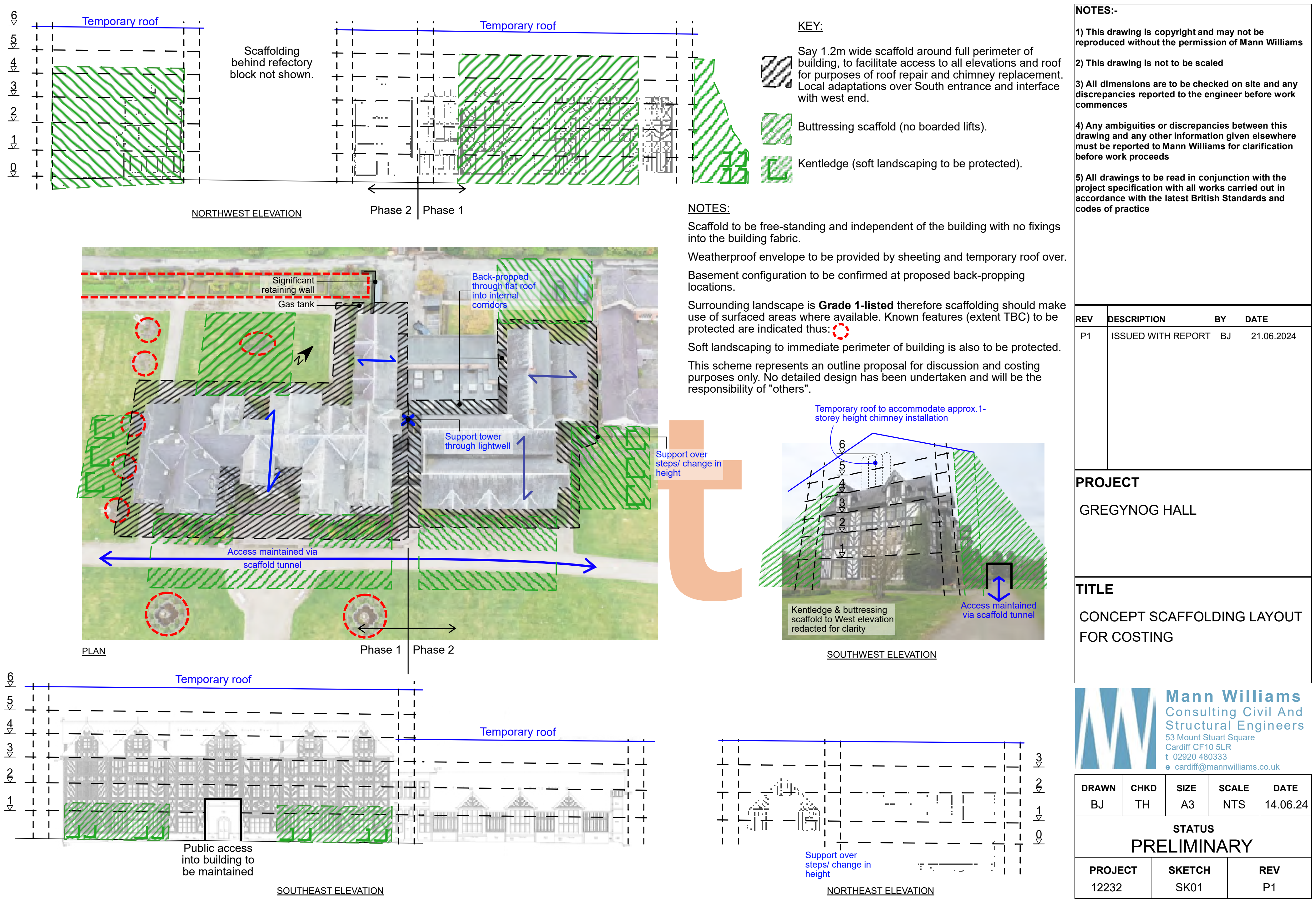
i. PROV ITEM – full replacement of metal framed windows could be considered with modern thermally efficient alternatives.



Access

Access requirements are to extend across each project, with some initial items to consider below.

- Allowance for full perimeter scaffold with temporary roof.
- Allowance for the interior to be appropriately protected throughout the works.
- Allowance for the exterior to be appropriately protected throughout the works.
- Allowance for the third floor of the main hall to be thermally sealed to limit heat loss from interior spaces across lower floor levels.



Further Allowances for Consideration & Inclusion

In addition to the general scope of work listed, it would be prudent to embed a series of allowances within each of the projects, to cover any potential discoveries and/or unforeseen items, such as but not limited to the following. These items are considered to be over and above those allowances already included within the general work scopes.

- Allowance for adhoc roof structural repairs (concealed / hidden timbers etc.)
- Allowance for internal making good and remediation across finishes following re-roofing works.
- Allowance for adhoc decorative timber repairs
- Allowance for adhoc cast iron rainwater goods repairs
- Allowance for adhoc window repairs
- Allowance for window replacements
- Allowance for adhoc stonework repairs
- Allowance for adhoc concrete render repairs (30% allowance across each elevation, includes full removal of render back to masonry substrate and renewal on a like-for-like basis, matching detailed arrangement)
- Allowance for adhoc lime render repairs
- Allowance for adhoc masonry repairs
- Allowance for adhoc glazing repairs (say x10 glazed panes of typical size, type to match)
- Allowance for full replacement of typical stone mullion section, including removal of ferrous dowels and replacement with stainless steel (allow for 2nr. full 3-light window sets to match existing)
- Allowance for below ground drainage works / jetting and remediation

Advantages

- Full wind and watertight external envelope, allowing for internal fit out schemes to progress.
- Exposure of roof structure allows for review of previously concealed hidden and/or inaccessible areas to allow unknown issues to be resolved.
- Improved safe access provisions (fall arrest/ access doors), allowing for completion of cyclical maintenance tasks.
- Introduction of snow guarding.
- Poor detailing improved.
- Renewal of roof coverings and substrates, including introduction of breather membrane.
- Leadwork and substrates renewed.
- Introduction of appropriate ventilation provisions.
- Introduction of thermal upgrades, roof insulation, thermally efficient rooflights and glazing.
- Cast iron rainwater goods overhauled and/or replaced.
- Guarantees and warranties provided.

Disadvantages

- It will be a costly exercise to undertake all packages simultaneously.
- Discoveries and unforeseen circumstances will come to light, as the layers of fabric are peeled back, potentially resulting in scope creep.
- Temporary disruption to offerings across the hall complex and estate.
- Temperature, moisture and relative humidity fluctuations across the interior during the works, due to removal of external envelope.

Priorities

The client has identified and split the hall complex into levels of priority, based on condition and future aspirations, as highlighted here.

It should be noted that the priorities are not fixed and that it may be economical to add/omit projects to make best use of budget allowances.

Priority 1

- **Main Hall**
- **Kitchen Wing**

Priority 2

- **Link Building**
- **Music Room Block**
- **Annexe Wing**

Priority 3

- **Laundry Block**

Priority 4

- **Refectory Block**

Gregynog Trust

Betterment, Desirables & Futureproofing

It is often the case that the original intentions of generations past, perhaps have been unsuccessful and there are opportunities to be explored, whilst undertaking a project of this scale to incorporate items such as enhanced thermal provisions, increased ventilation, safe access provisions to carry out routine / cyclical maintenance tasks, failsafe / overflow provisions across difficult to access rainwater outlets, breathable materials, sustainable materials (items sourced locally).

It is also important to note that climate change is having an impact across our built environment and rainfall intensity has increased, including prolonged storms and high winds. Detailed assessments will need to be undertaken, such as rainwater calculations, condensation analysis, as well as enhanced fixing solutions for slate and any other coverings, such as lead which will be exposed to potential uplift.

The re-roofing projects also provide an opportunity to improve fire stopping provisions and compartment lines of defense.

The Hall is adjacent to woodland, with a variety of bats and birds onsite, there may be a requirement to provide suitable mitigation, such as a bat loft or the provision of safe materials, such as a bituminous felt, as opposed to a felt that contains filaments.

We understand that the Trust are keen to explore the reintroduction of missing ornate chimneystacks, which will require careful consideration and archival research to be able to put forward suitable justification for their reinstatement. Historical imagery provided to date suggests that there were five tall ornate chimneystacks across the main hall and 1 chimneystack to the kitchen wing.

Lastly, the client has aspirations to undertake internal redevelopment across the internal floor levels of the main hall. As major re-roofing works have been highlighted, it would be prudent if internal fitout works are coordinated to provide penetrations and extract provisions within the roofscape during the re-roofing phase, to avoid disturbances to newly installed roof finishes and potentially voiding any guarantees / warranties which have been provided with the roof.

5 Summary

5

Gregynog Trust

Summary of Recommendations

For the purposes of this report the options have been limited to wholesale and thorough roof replacement packages, to a high quality across each of the hall complex assets, roofs have not been further sub-divided.

Due to the nature of repair and alteration works required across each of the assets, which would include major anticipated disturbance across finishes internally and externally, the preferred option if time and costs were aligned would be to undertake Large Focused Projects, to include full re-roofing and façade repair packages across each of the assets, potentially combining packages if costs permitted.

Each of the major projects would provide the client with a fully wind and watertight external envelope, allowing for internal redevelopment to progress internally.

Typical works can be summarised as follows:

- Full comprehensive re-roofing across pitched slate roofs.
- Full comprehensive renewal of all leadwork, across gutters, roofs, weatherings, flashings etc.
- Full redecoration of all previously painted surfaces externally.
- Overhauling of all cast iron rainwater goods.
- Replacement of intrusive features, uPVC / felt roofs etc.
- Repairs across timber, masonry, stone, render, metalwork elements and features.
- Removal of vegetation growth.
- Introduction of adequate insulation across the roofed areas.
- Introduction of adequate ventilation across roof voids and concealed spaces.
- Introduction of guided fall arrest system across valley gutters.

In addition, there is a list of desirable items that could be considered and included, such as.

- Reintroduction of previously lost tall ornate chimneystacks.
- Trace heating across valley gutters.

In addition, stripping back of the entire roofscape will allow for an exhaustive review and inspection within previously hidden and concealed spaces, areas of which if left untouched, may have a detrimental impact on the roofscape in the future.

Lastly, a large portion of the roofscape is of original construction including the use of oak pegs to secure the natural slate and lime torching to the underside. The proposals include for re-roofing and the utilising of modern roofing breather membrane to provide extra layer of protection in line with modern protocols, this includes fixing of natural slates with nails into treated timber battens. This will require further dialogue with the local authority and statutory authorities, therefore, an allowance within each project has been made for refixing slate using oak pegs.

Alternatively, there is the **Do Minimum** approach. This is a temporary solution, allowing for reactive and short-term repairs only. No improvement works or alterations will be undertaken within this phase. Water ingress issues will be sustained with degradation and loss of building fabric likely to continue.

Major and extensive works will undoubtedly be required in the near future and issues highlighted at this time are likely to have worsened with further degradation of the fabric highly likely.

Liaison, Consultation, & Engagement

We consult early and pro-actively with statutory consultees. This has been our approach for over two decades. By engaging early, we have open and beneficial conversations, we can understand all the potential impacts that stakeholders might have on the project, we can integrate understanding and learning into our approach and programme and move forward positively.

Statutory consents will need to be sought from the local authority for the re-roofing and fabric repair proposals.

We will work with the project team to develop a strategy for early informal constructive engagement and discussion with Powys County Council and Cadw to help define the full scope of the work.

It is highly anticipated that Planning and Listed Building consent would be required to implement the changes highlighted within this document as they involve adaptation and intervention to key aesthetic features and current details.

6 Procurement Options

7 Cost Summary

8 Next Steps

Gregynog Trust

Next Steps

This section of the report outlines next steps and longer term milestones to implementing the findings of the report.

National Lottery Heritage Fund Application

National Lottery Heritage Fund have been identified, in discussion with Gregynog Trust, as the likely principal funder of the works. It is to be noted that The Heritage Fund support projects which can deliver against all of the following investment principles:

- Saving Heritage
- Protecting the Environment
- Access, Inclusion and Participation
- Organisational Resilience

It is possible that some of the Investment Principles may be prioritised, but all of the must be addressed. As The Heritage Fund is a competitive funder, consideration should be given to delivering as strongly as possible against each principle.

The Raise the Roof project is capable of delivering strongly against each of the investment principles, albeit that a project with an emphasis on capital works is unlikely to deliver strongly enough without being supported by a well curated programme of interpretation, activity and events.

Action Plan

Below are, in simplistic terms, the steps required to deliver the scheme, assuming a grant aided approach is required:

1. Submit an Expression of Interest to National Lottery Fund
2. Identify any further submission requirements and prepare.
3. Submit application to National Lottery Heritage Fund.
4. National Lottery Heritage Fund Application.

9 Appendices

Appendices

i. Architectural Drawings

ii. Structural Report

iii. MEP Report

iv. Cost Plan

draft

Thank you

Any questions, please contact
Alex - ascrimshaw@buttress.net
Lucy - lashcroft@buttress.net

Certified B Corporation

Manchester Studio and Registered Office

Buttress Architects Ltd.
41 Bengal St.
Manchester
M4 6AF

T: 0161 236 3303

www.buttress.net

Leeds Studio

Buttress Architects Ltd.
Clockwise, Yorkshire House, Greek St.
Leeds
LS1 5SH

T: 0113 539 7965

www.buttress.net

Buttress