

QUINQUENNIAL INSPECTION REPORT

on the Chapel of St Peter
AUCKLAND CASTLE, BISHOP AUCKLAND

Inspection of Churches Measure 1991
DURHAM DIOCESAN SCHEME
MARCH 2022

DIOCESE: DURHAM
DEANERY OF AUCKLAND
ARCHDEACONRY AUCKLAND

Listed Building Grade I.

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Detail of the Bishop Trevor Memorial by Nollekens

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Chapel South Front



Chapel South and East Fronts



Chapel North Front



Chapel West End Narthex and Organ Gallery.



Chapel viewing west to Narthex Screen



Chapel Interior Bishop John Cosin's Ledger and Reading Desk.



Chapel Interior viewing East to Sanctuary and Nave Ceiling.



Chapel East Window

SUMMARY OF PRIORITIES AND RECOMMENDED ACTIONS

THE FOLLOWING PRIORITIES SCHEDULE IDENTIFIES PREVIOUS PRIORITY ITEMS FROM THE QIR 2017, THEIR STATUS AND NEW ITEMS WHICH ADD TO THE PRIORITIES SCHEDULE.

 BLUE HIGHLIGHT SIGNIFIES WORKS COMPLETED SINCE LAST QIR APRIL 2017

 GREEN HIGHLIGHT SIGNIFIES QIR 2022 ADDITIONAL NEW ITEMS AND OBSERVATIONS ON PRIORITIES LIST

A URGENT REQUIRING IMMEDIATE ATTENTION

- 3.6.4 **NORTH AISLE ELEVATION:** Check and effect appropriate repair or renewal to defective downpipe to east terrace.
- 3.6.5 **NORTH AISLE ELEVATION:** Check and clear ground gullies of silt and standing water.
- 3.8.21 **EAST END ELEVATION:** Clear drainage channel across terrace and ensure water is freely dispersed away from chapel.
- 3.9.4 **SOUTH AISLE ELEVATION:** Check and clear/repair western downpipe.
- 3.14.2 **FIXTURES AND FITTINGS:** Structural engineer to assess and advise on stability of chapel screen, public/staff to be advised of risk in the meantime. *Report and design solution drafted by Conservation Engineer, proposal under review.*

B WORKS RECOMMENDED WITHIN THE NEXT TWO YEARS 2019

- 3.2.4 **NAVE ROOF COVERINGS AND GUTTERS:** Allow to renew 100% pointing to lead back gutter flashings, abutments and rear parapets.
- 3.3.3 **NORTH AISLE ROOF COVERINGS AND GUTTERS:** Renew 100% pointing to lead back gutter flashings, abutments and rear parapets. **Steeplejack access into Aisle roof void via hatches.**
- 3.5.3 **SOUTH AISLE ROOF COVERINGS AND GUTTERS:** Allow to renew 100% pointing to lead back gutter flashings, abutments and rear parapets. **Steeplejack access into Aisle roof void via hatches.**
- 3.6.13 **NORTH AISLE ELEVATION:** Re-point all cracks and open joints, including joints to window surrounds, in lime mortar.
- 3.7.5 **NORTH CLERESTORY:** Arrange for steeplejack access to gain access to finials to test for security of exposed stone, clear vegetation and re-point.
- 3.7.11 **NORTH CLERESTORY:** Re-point open joints, and monitor movement evidence as part of the above.
- 3.8.9 **EAST END ELEVATION:** Undertake re-pointing of localised open joints.
- 3.8.17 **EAST END ELEVATION:** Undertake cleaning and stabilisation of the historic glazing in the east end. *Works instructed to commence April 2022*

- 3.8.25 EAST END ELEVATION: Fill open/failing joints with lime mortar.
- 3.9.14 SOUTH AISLE ELEVATION: Re-point all open/failing joints.
- 3.9.18 SOUTH AISLE ELEVATION: Undertake cleaning and stabilisation of south windows.
- 3.10.6 SOUTH CLERESTORY: Fill open and failed joints with lime mortar, including movement joints.
- 3.10.11 SOUTH CLERESTORY: Re-point open joints, and monitor movement evidence as part of the above.
- 3.10.13 SOUTH CLERESTORY: Undertake cleaning and stabilisation of the windows.
- 3.11.8 WEST END ELEVATION: Re-point open and failed joints with lime mortar.
- 3.11.12 WEST END ELEVATION: Re-point open and failing joints to window.
- 3.11.15 WEST END ELEVATION: Insert lead cover flashing to window cill.
- 3.14.3 FIXTURES AND FITTINGS: Undertake repair, conservation, and cleaning, of the chapel screen under strict specification.
- 3.14.8 FIXTURES AND FITTINGS: Undertake localised joinery repairs to address specific damaged and broken sections. *Condition Survey has been carried out implementation options under review.*
- 3.15.3 GLAZING: Carry out specialist clean and stabilisation of historic glazing in situ.
- 3.15.6 M&E: Undertake major M&E improvement in line with intended use and environmental strategy, conservation requirements and linked to site-wide infrastructure strategy. Instruct TGA to review their 2017 Report and prepare site specific understanding of Chapel.
- Add item PARAPET MERLONS: Loose merlons to all elevations have been re-bed and stabilised.

C WORKS RECOMMENDED TO BE CARRIED OUT DURING THE QUINQUENNIUM

- 3.4.2 NORTH AISLE RAINWATER DISPOSAL: Redecoration and servicing will need to be considered under an ongoing cyclical maintenance plan every 5 years, or a part of a major refurbishment project. *Local decoration works.*
- 3.6.14 NORTH AISLE ELEVATION: Undertake wider conservation and repair of decayed and inappropriate pointing mortars, renders and decayed stones.
- 3.6.15 NORTH AISLE ELEVATION: Allow for localised renewal of small decayed stone units that have fully decayed.
- 3.6.17 NORTH AISLE ELEVATION: In accordance with YGT report, remove all existing secondary glazing and replace with appropriate isothermal protective glazing system. Undertake conservation works to historic glass in the same programme.
- 3.7.6 NORTH CLERESTORY: Allow for renewal of certain carved curved arched head stones to windows, carved hoodmould stops, and mullions.
- 3.7.7 NORTH CLERESTORY: To main walling area, parapets, pinnacles and windows, remove damaging cement pointing and re-point in lime, and undertake lime mortar repairs.

- 3.7.12 NORTH CLERESTORY: Remove damaging cement pointing and repoint in lime mortar, including pointing to window units and leadwork to cills.
- 3.8.10 EAST END ELEVATION: Undertake full re-pointing of elevation, with mortar repairs and localised stone renewals.
- 3.8.11 EAST END ELEVATION: Allow for conservation repairs to arms and cartouche.
- 3.8.12 EAST END ELEVATION: Dismantle and reinstate corner pinnacles to remove iron cramps.
- 3.8.16 EAST END ELEVATION: Undertake conservation and repair of the window masonry in the east end.
- 3.9.15 SOUTH AISLE ELEVATION: Undertake 100% removal and re-pointing of cementitious mortars and replace with lime mortar, including to windows.
- 3.9.16 SOUTH AISLE ELEVATION: Undertake stonework conservation, 100% removal of cement, re-pointing and localised renewal programme.
- 3.10.7 SOUTH CLERESTORY: Undertake programme of stonework conservation and repair, including 100% removal of cement and re-pointing in lime, and localised renewals to window units.
- 3.10.12 SOUTH CLERESTORY: Remove damaging cement pointing 100% and repoint in lime mortar, including pointing to window units and leadwork to cills.
- 3.11.6 WEST END ELEVATION: Undertake removal of vegetation growth and bird guano from gable sculpture, and carry out conservation works generally.
- 3.11.7 WEST END ELEVATION: Allow for dismantling and rebuilding of corner pinnacles with inert dowels, localised renewals and full raking out and re-pointing.
- 3.11.13 WEST END ELEVATION: Undertake conservation and renewal to window units, remove epoxy repairs.
- 3.11.14 WEST END ELEVATION: Undertake 100% renewal of pointing to window.
- 3.11.16 WEST END ELEVATION: Undertake repairs to glazing.
- 3.11.16 WEST END ELEVATION: Renew current protective glazing with isothermal glazing system.
- 3.13.18 FLOOR: Re-grout/re-bed deflected sections.
- 3.15.4 GLAZING: Plan and execute phased glazing conservation and protection in line with YGT recommendations.

D WORKS REQUIRING CONSIDERATION BEYOND THE QUINQUENNIUM OR WHEN FUNDS ALLOW

- 3.7.14 NORTH CLERESTORY: Undertake glazing repairs where needed.
- 3.8.18 EAST END ELEVATION: Undertake full conservation programme to east windows and install new isothermal protective glazing system.
- 3.8.24 EAST END ELEVATION (TERRACE): Pending the outcomes of the above, plan for programme of major improvements to tanked covering, drainage and vault space to alleviate deterioration mechanisms.

- 3.8.26 **EAST END ELEVATION (TERRACE): Undertake programme of extensive re-pointing and stone repairs, including works to steps, copings, pinnacles and so on.** *Some spot and localised pointing has been undertaken, more remains to do.*
- 3.9.19 SOUTH AISLE ELEVATION: Install protective isothermal glazing system to south windows with full conservation works undertaken to historic glazing as per YGT recommendations.
- 3.10.14 SOUTH CLERESTORY: Undertake glazing repairs where needed.
- 3.12.6 NAVE AND CHANCEL: If no immediate risk is posed, consider replacement of non-breathable membrane above ceiling during future re-roofing works with breathable alternative.
- 3.12.7 NAVE AND CHANCEL: Redecorate ceiling to appropriate historic scheme informed by research.
- 3.13.12 INTERNAL WALLS: Remove and replace modern plasters and finishes with appropriate traditional systems.
- 3.13.16 ARCADES, ANTE CHAPEL: Clean Frosterley columns, consider micro-crystalline re-waxing under strict specification, following detailed conservator report.
- 3.13.19 FLOOR: Undertake conservation clean, preceded by trials under strict specification.
- 3.14.9 FIXTURES AND FITTINGS: Undertake programme of cleaning, conservation and repair to fixtures and fittings within wider programme of rehabilitation of the interior.
- 3.14.13 FIXTURES AND FITTINGS: Undertake organ refurbishment project.
- 3.14.18 FIXTURES AND FITTINGS: Undertake informed conservation of reredos and painted panel.
- 3.14.20 FIXTURES AND FITTINGS: Undertake conservation of painted shields.
- 3.15.4 GLAZING GENERALLY: Plan and execute phased glazing conservation and protection in line with YGT recommendations.

E DESIRABLE IMPROVEMENTS WITH NO SPECIFIC TIMESCALE

- 1.19 NAVE AND CHANCEL: Aesthetic improvement to disabled access provision.
- 3.6.8 Omitted
- 3.12.8 NAVE AND CHANCEL: Replace inappropriate decorative timber elements with traditionally designed and executed alternatives.
- 3.13.10 INTERIOR: Remove incongruous C20 spiral stair to organ loft and test feasibility of re-opening historic stair from vestry (taking in environmental, security and structural implications) or replacement of modern stair with appropriately designed alternative commensurate with the significance of the space.
- Add Item **TEMPORARY SEATING: Faculty Application has been submitted.**

R ROUTINE MAINTENANCE REQUIREMENT

- 3.3.2 **NORTH AISLE ROOF COVERINGS AND GUTTERS: Under maintenance programme clear silt and debris from roof, gutters and sump outlets; ensure rainwater disposal system is free flowing.**

- 3.5.2 SOUTH AISLE ROOF COVERINGS AND GUTTERS: Under maintenance programme clear slit and debris from roof, gutters and sump outlets; ensure rainwater disposal system is free flowing.
- 3.6.7 NORTH AISLE ELEVATION: Check and maintain rainwater goods as part of routine maintenance programme at least twice a year, with redecoration to cast iron units on a 5-yearly basis or on an appropriate cycle.
- 3.6.18 NORTH AISLE ELEVATION: As part of routine maintenance, clean and redecorate all ferramenta etc. on an appropriate cycle.
- 3.6.20 NORTH AISLE ELEVATION: Undertake planned test of lightning conductor system with licensed contractor.
- 3.7.3 NORTH CLERESTORY: Check and maintain rainwater goods as part of routine maintenance programme at least twice a year.
- 3.7.13 NORTH CLERESTORY: Redecorate ferramenta as part of routine maintenance on a 5-year cycle.
- 3.8.19 EAST END ELEVATION: As part of routine maintenance, clean and redecorate all ferramenta etc. on an appropriate cycle.
- 3.9.5 SOUTH AISLE ELEVATION: Undertake servicing and any minor repairs to rainwater goods as part of routine planned maintenance every 5 years or appropriate cycle.
- 3.9.20 SOUTH AISLE ELEVATION: As part of routine maintenance, clean and redecorate all ferramenta etc. on an appropriate cycle.
- 3.10.3 SOUTH CLERESTORY: Clear and maintain twice a year as part of planned maintenance, effect minor repairs as needed.
- 3.10.15 SOUTH CLERESTORY: Maintain and redecorate ferramenta as part of planned maintenance on an appropriate cycle.

M MONITORING REQUIRED

- 3.6.12 NORTH AISLE ELEVATION: Continue structural monitoring and review with conservation structural engineer. **NOTE 2022: No formal monitoring is in place, review with structural engineer areas of concern where monitoring would be beneficial. Structural Engineers report would be beneficial in understanding the building.**
- 3.7.8 NORTH CLERESTORY: Monitor bulge in wall, and consider within future structural engineer's appraisal.
- 3.7.10 NORTH CLERESTORY: Continue structural monitoring and review with conservation structural engineer
- 3.8.13 EAST END ELEVATION: Fill crack through ashlar and keep under observation with bulging sections, incorporate in conservation structural engineer's appraisal.
- 3.8.22 EAST END ELEVATION: Conservation structural engineer to advise on condition of SE pinnacle, and keep under observation.
- 3.9.12 SOUTH AISLE ELEVATION: Undertake review with conservation structural engineer of structural anomalies and keep under observation.

- 3.10.8 SOUTH CLERESTORY: Keep zones of movement under observation, and consider as part of future appraisal by structural engineer.
- 3.10.10 SOUTH CLERESTORY: Continue structural monitoring and review with conservation structural engineer.
- 3.13.2 CLERESTORY WALLS: Fill movement cracks and monitor.
- 3.13.11 CLERESTORY WALLS: Keep crazed and cracked finishes under observation, and review with structural engineer during future appraisal.

Note **ENVIRONMENTAL MONITORING: Programme of environmental monitoring of temperature, relative and absolute humidity is underway.**

X FURTHER INVESTIGATION REQUIRED, INC OPENING-UP WORKS

- 3.2.3 **NAVE ROOF COVERINGS AND GUTTERS: Provide safe temporary access for inspection.**
- 3.6.6 NORTH AISLE ELEVATION: Undertake CCTV drainage survey generally to assess condition and extent of drainage network around the chapel.
- 3.6.11 **NORTH AISLE ELEVATION: Arrange for steeplejack access to gain access to finials to test stability of exposed stones.**
- 3.7.5 **NORTH CLERESTORY: Arrange for steeplejack access to gain access to finials to test for security of exposed stone, clear vegetation and re-point.**
- 3.8.8 **EAST END ELEVATION: Arrange for steeplejack access to high level elements to test for stability, including corner pinnacles showing iron cramp damage.**
- 3.8.14 **EAST END ELEVATION: Investigate, and allow to treat for, masonry bees.**
- 3.8.22 EAST END ELEVATION: Conservation structural engineer to advise on condition of SE pinnacle, and keep under observation.
- 3.8.23 **EAST END ELEVATION: Investigate vault space and asphalt covering above to understand environment, damp issues and associated risks to chapel. Commenced**
- 3.9.11 **SOUTH AISLE ELEVATION: Arrange for steeplejack access to gain access to finials to test for security of exposed stone.**
- 3.9.12 SOUTH AISLE ELEVATION: Undertake review with conservation structural engineer of structural anomalies and keep under observation.
- 3.9.13 SOUTH AISLE ELEVATION: Investigate efficacy of former damp-proofing measures as part of site-wide study.
- 3.10.5 **SOUTH CLERESTORY: Arrange for steeplejack access to inspect stability of high-level elements.**
- 3.11.5 **WEST END ELEVATION: Arrange for steeplejack access to high level elements to assess stability of pinnacles, finials etc.**
- 3.12.5 NAVE AND CHANCEL: Review implications and risks of presence of non-breathable membrane over ceiling structure during external roof inspection (and potential opening-up of leadwork) and building environment review.
- 3.13.3 CLERESTORY WALLS: Assess movement cracks during structural engineer's appraisal.
- 3.13.13 CLERESTORY WALLS: Test feasibility of cement removal to arcades with a view to replacement and removal with lime mortars.

- 3.13.14 CLERESTORY WALLS: Assess previous damp-proofing measures and any residual moisture issues, with specification attention to wall and pier bases and salt affected areas, and concealed areas behind furniture.
- 3.13.15 CLERESTORY WALLS: Pursue environmental monitoring programme to inform future interventions and conservation responses.
- 3.14.2 FIXTURES AND FITTINGS: Structural engineer to assess and advise on stability of chapel screen, public/staff to be advised of risk in the meantime.
- 3.14.4 FIXTURES AND FITTINGS: Investigate bat-damage mitigation measures with ecologist to fixtures in general. *Permanent solution in progress*
- 3.14.12 FIXTURES AND FITTINGS: Commission specialist report on the current condition of the organ and refurbishment needs.
- 3.14.16 FIXTURES AND FITTINGS: Undertake tactile inspection of reredos from MEWP.
- 3.14.17 FIXTURES AND FITTINGS: Undertaken detailed survey and conservation trials to painted panel.
- 3.15.8 Undertake sub-floor investigations to ascertain condition of former heating network and suitability for re-use of sub-floor distribution voids.

Z HEALTH AND SAFETY

- 3.1.2 ROOF COVERINGS (GENERAL): Provide safe access to facilitate future inspections and access for routine maintenance. Requires design.

I.0 INTRODUCTION

I.0 INTRODUCTION AND PRELIMINARIES

- I.1 This Quinquennial Inspection was carried out on 19th November 2021 by the Inspecting Architect Christopher Cotton RIBA, AABC following review of progress over the past quinquennium with David Ronn and Dr Alexander Holton. This is the third inspection of St. Peter's Chapel at Auckland Castle carried out by the inspecting architect, with the first being undertaken as part of the major HLF-funded works to the wider Castle in December 2013-January 2014. The previous Quinquennial Inspection Reports April 2017 and May 2012 were available for review.
- I.2 The appointment of Christopher Cotton for the role of Inspecting Architect is with Auckland Castle Trust as approved by the Diocese of Durham.
- I.3 This is a general condition report only, as is required by the Inspection of Churches Measure 1955 and the Care of Churches and Ecclesiastical Jurisdiction Measure 1991. It is **not** a specification and must not be used for the execution of the work recommended herein, other than routine maintenance. The architect is willing to prepare specifications and to arrange all professional work necessary to assist TAP in applying for the necessary statutory approvals including Faculties and to direct the execution of any works of repair and enhancement.
- I.4 It is recommended that an architect's specification is drawn up for all repairs to ensure strict control of the methods and materials used within the context of the Grade I listed Chapel and its Castle setting.

SCOPE AND LIMITATIONS OF THE SURVEY

- I.5 This report is based on the findings of an inspection made from the ground, supplemented by MEWP access within the central vessel of the interior at two points, east and west (between the timber screen and chapel entrance). Inaccessible voids and hazardous spaces were not accessed. Similarly, the external roof coverings to the aisles and central vessel were not inspected as there was deemed to be no safe access to these levels.
- I.6 It is emphasised that the inspection has been purely visual as a general condition report only. Concealed woodwork or other parts of the structure which are covered, unexposed or inaccessible have not been inspected and therefore we are unable to report that any such part of the property is completely free from defect.
- I.7 The scope of this report is defined by the red boundary on the enclosed plan as confirmed with Durham Diocesan Advisory Committee (DAC) in 2017 as the boundary of Ecclesiastical Exemption. However, where relevant, connecting elements within the Chapel context immediately outside the red line have also been noted within this report. The elements within the red line boundary remain subject to statutory planning control, but not Listed Building Consent (LBC). A Faculty (essentially a licence) from the Diocesan Registrar is instead required in place of LBC to undertake works to the building, including most forms of repair. In circumstances where a Faculty is not necessary this must be confirmed in writing by the Archdeacon of the diocese.
- I.8 This report should be read in conjunction with the following associated reports:

- Purcell Architecture: Condition Surveys of Internal Wall Elevations Dec 2020
- Purcell Architecture: Phase (Stage) I Conservation Briefings and Priorities Schedule for Investigations leading to Programme of Major Conservation Works. Dec 2020.
- Charles Blackett Ord: Proposals for the stiffening of the Narthex Screen.
- Lightning Protection System
- TAP: Maintenance Plan and Activities Schedule
- Harrison and Harrison: Organ Condition Report 2017
- TAP: Conservators Condition Report on the Chapel Fittings and Furnishing.
- TGA Consulting Engineers, Condition Survey for the Mechanical and Electrical Engineering Services at St. Peter's Chapel, May 2017: **Report to be updated as a preliminary to major works; consideration of net zero carbon objectives.**
- Tobit Curteis Associates – Auckland Castle: St Peter's Chapel; Environmental Monitoring of the Chapel, March 2016 and onwards. **Environmental Monitoring Report to coordinate with Conservators, Glaziers and Building Services Report to provide coordinated approach.**
- Hirst Conservation, Initial Appraisal of Selected Interior Fittings, April 2017.
- The York Glaziers Trust, St. Peter's Chapel, Auckland Castle, Bishop Auckland, Glazing Condition Survey and Recommendations, June 2017. **Report to be updated as a preliminary to major works.**
- Durham Wildlife Services – Ecology Risk Assessments

I.9 An asbestos survey (circa 2017) of the Chapel has been carried out separately to this report and should be directly consulted in connection with any Asbestos Containing Materials (ACMs) present in the building. The Asbestos Register should be made available for any consultant or contractor working on the building. No assessment of the presence of asbestos is covered within this report.

FIRE PRECAUTIONS

- I.10 All fire detection systems should be inspected on a planned cycle by a competent engineer to ensure they are in good working order with the inspection recorded in the chapel/castle log book. Extinguishers should be expected annually and the inspection recorded on the individual extinguishers and in the log book. Fire detection systems and extinguishers were not tested as part of this survey. Life Safety Systems have been tested during the QQ.
- I.11 Note that new fire safety rules affecting all non-domestic premises came into effect on 01 October 2006. (The Fire Safety Order 2005). This requires a Fire Risk Assessment to be maintained.

MAINTENANCE

- I.12 The repairs recommended in the report (with the exception of *de minimis* maintenance items) are subject to statutory approvals as described above.
- I.13 Cement based mortars, renders, plasters and products, modern polymer based emulsion and proprietary sealant systems which prevent breathability of the historic fabric should be avoided.

All these systems are now known to have a steady deleterious effect on the materials, environmental conditions and character of historic buildings.

- I.14 Although the chapel should be formally inspected every five years, the fabric should be periodically checked by the estate staff with regular attention paid to the maintain rainwater disposal goods in appropriate working order. Gutters, downpipes etc. should be checked and cleared at least twice a year. It should be understood that serious and costly issues may develop if even minor issues of maintenance are left unattended.

HEALTH AND SAFETY

- I.15 The overall responsibility for the health and safety of the chapel, castle and grounds lies with the Auckland Castle Trust This report may identify areas of risk as part of the inspection, but this does not equate to a thorough and complete H&S risk assessment of the chapel.
- I.16 The Construction (Design and Management) Regulations 2015 apply to all building and construction projects, regardless of the size, duration and nature of the work.
- I.17 Under the Regulations, ACT are obliged to ensure that a construction project is set up so that it adequately controls risks to health and safety of those who may be affected from start to finish. The client has overall responsibility and the Principal Designer and Principal Contractor provide support in different phases of the project.

ACCESSIBILITY IMPROVEMENTS

- I.18 The Equality Act 2010 concerning access to existing buildings came into effect in October 2010.
- I.19 In respect to the chapel, the degree of compliance with the Act's requirement to provide reasonable access adjustments must be balanced against the requirements to protect the historic fabric of the building. Further advice is contained within the English Heritage publication *Easy Access to Historic Properties*. Where it is not possible to fully comply with the recommendations for access, measures to reduce access restrictions should be introduced that are compatible with protection of the historic fabric. **Further improvements in access should be considered in the short term.**

PROTECTED SPECIES

- I.20 Several wildlife species found in the chapel and castle are protected by legislation and the licensed approval of Natural England will be required for works that relate to the habitat of any protected species. This includes the presence of bats within and around the chapel. This presence may affect the timing of any proposed repairs or enhancement works.
- I.21 It is a serious criminal offence to be in breach of this legislation.
- I.22 The extensive bat activity in the chapel is currently leading to staining, damage and loss of historic fabric, mainly from bat urine and excrement.

CLIMATE EMERGENCY AND CARBON FOOTPRINT

- I.23 It is recommended that an assessment is undertaken of heating, lighting and energy use and conservation measures to inform how in the long-term energy saving measures can be

considered. This will comprise assessment of carbon neutral sources of energy input and measures to retain energy within the building. During any works, measures to improve carbon neutral energy generation and energy retention should be adopted either piecemeal or comprehensively under a major refurbishment project. It recommended that these are considered within the scope of any development in the use of the chapel.

On 12 February 2020 General Synod recognised that we are in a climate emergency and committed to an ambitious carbon reduction target of Net Zero by 2030. The culture is changing fast, both outside and within ecclesiastical building and the church; questions of sustainability should inform all our buildings-related decisions from now on, and this report highlights opportunities for action. See also the Practical Path to Net Zero Carbon (PPNZC) document in the appendix, and the Sustainability Countdown to 2030 section below.

The Church of England Research and Statistics Team has created an [Energy Footprint Tool](#). This will tell your church what your 'carbon footprint' is, based on the energy you use to heat and light your buildings, and is part of the Online Parish Returns System. You will need to input the data from the most recent year's electricity and gas/oil etc. bills, and the tool will then tell you the amount of carbon produced annually by heating and lighting your church building; it will also offer some helpful tips to reduce your carbon emissions. As you use the tool each year, you will be able to see how your church improves, as you take steps to cut your carbon footprint. Most dioceses now have a [Diocesan Environmental Officer](#) in post, who may be able to offer support, including on questions of ecology and biodiversity, and signpost you to [further resources](#).

Sustainability Countdown to 2030: It will be for the PCC to set its priorities for sustainability improvements, and I would encourage you to use the Practical Path to Net Zero Carbon (PPNZC) appended to this Report to help set these. The following gives you a suggested timetable to address in the next five years, as we prepare for 2030 (references relate to the PPNZC): [List follows, combining items from the report with non-condition items from the PPNZC, such as renewable electrical tariff.]

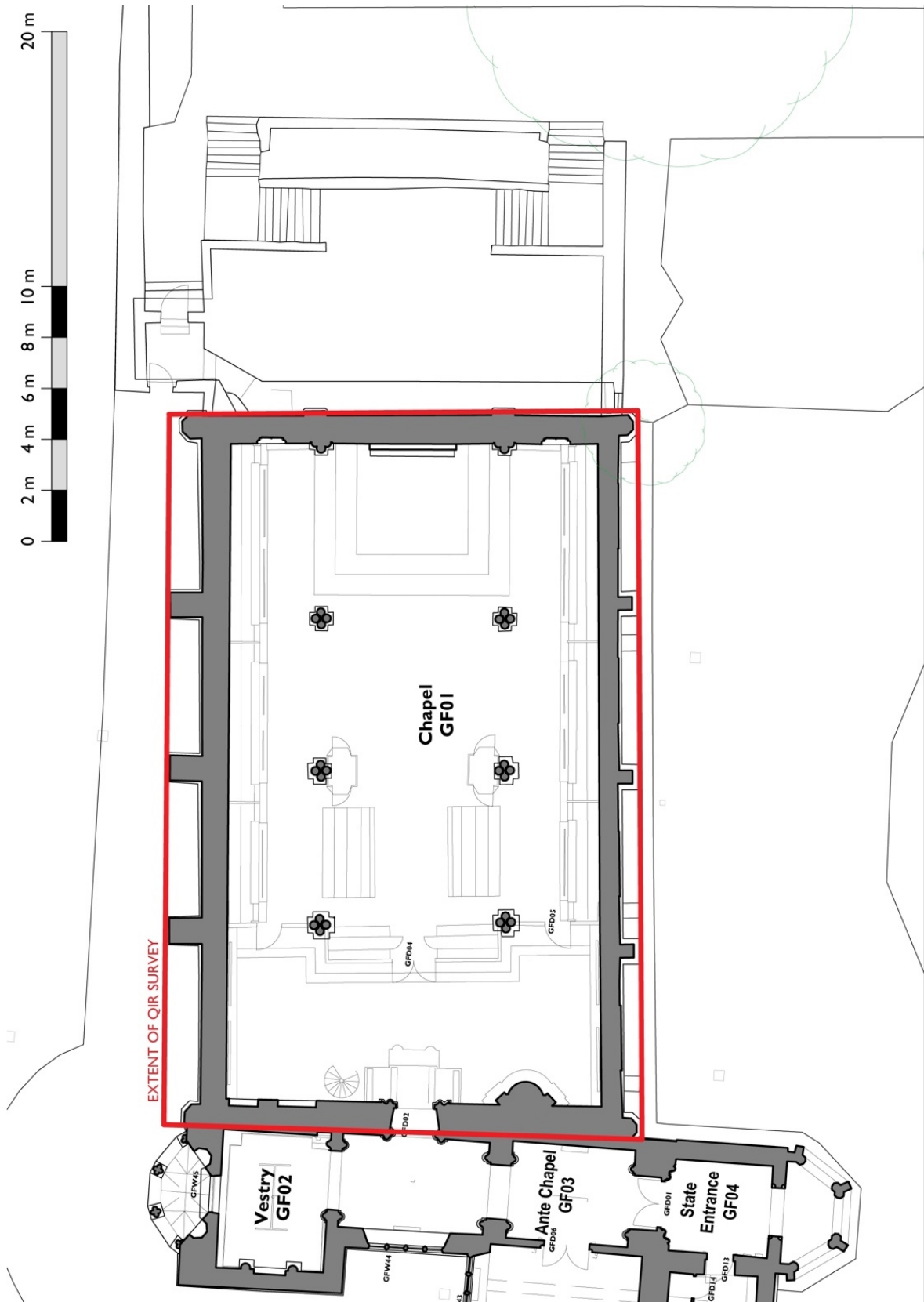
A stable internal environment where rapid losses of heat and temperature fluctuations are reduced will aid the preservation of historic fabric, in particular organic materials such as timbers and materials vulnerable to moisture and condensation damage such as the stone work, marbles and paved surfaces.

RECOMMENDATIONS AND PRIORITIES

- I.24 The following tabulation has been used to identify the order of priority for the recommended actions:
- A. URGENT WORKS REQUIRING IMMEDIATE ATTENTION
 - B. WORKS RECOMMENDED WITHIN THE NEXT TWO YEARS
 - C. WORKS RECOMMENDED TO BE CARRIED OUT DURING THE QUINQUENNIAL
 - D. WORKS REQUIRING CONSIDERATION BEYOND THE QUINQUENNIAL OR WHEN FUNDS ALLOW
 - E. DESIRABLE IMPROVEMENTS WITH NO SPECIFIC TIMESCALE
 - R. ROUTINE MAINTENANCE REQUIREMENT
 - M. MONITORING REQUIRED
 - X. FURTHER INVESTIGATION REQUIRED, INC. OPENING-UP WORKS
 - Z. HEALTH AND SAFETY

- 1.25 **NB: The prioritised recommendations contained in this report are provided objectively under the assumption that the works will be programmed and executed under typical phasing and funding parameters for a chapel or church of this type, and not in the context of any major capital works project (such as a major refurbishment and re-ordering programme). In the event of any major project being undertaken, it is recommended that works beyond the quinquennium (category D) along with any desirable works (category E) are brought forward as far as is practicable, and where funds allow.**

PLAN OF ST PETER'S CHAPEL



2.0 LIST DESCRIPTION AND PREVIOUS REPAIRS

LISTED STATUS

- 2.1 The Chapel of St. Peter at Auckland Castle is Listed Grade I.
- 2.2 **DESCRIPTION:** Domestic aisled hall, later chapel, with terrace and steps. c1190. For Bishop Puiset (on stylistic evidence), possibly on foundations of earlier hall, completed by 1249. Aisle walls probably raised by Bishop Bek (1284-1311) replacing smaller gables. Conversion to chapel including rebuilding south wall, renewing clerestory, and refacing east and west walls, 1661-5 for Bishop Cosin. Craftsmen John Langestaffe mason, Marke Todd and James Hulle, joiners, Abraham Smith, John Brasse and Richard Herring, carpenters and carvers (Raine, Boyle). Aisle floors raised to level of nave, and chapel refloored, for Bishop van Mildert in 1827. Further restorations for Bishop Lightfoot, and 1978-83 for the Church Commissioners.
- 2.3 **MATERIALS:** rusticated ashlar, coursed squared stone north wall, lead covering to roofs.
- 2.4 **PLAN:** chapel has 4-bay aisled nave and chancel with screen, to west full-width vestibule. South porch to west entrance passage and former robing room.
- 2.5 **EXTERIOR:** east elevation has tall 5-light window with geometric tracery, and 2-light aisle windows with trefoil heads. Below windows blocked arches and relieving arch are vestiges of screens passage of former hall. In first bay of north wall a similar arch under the window is also blocked and was part of the domestic hall arrangements. South elevation refaced for Cosin has rich rustication, much with lozenge jewels. 3-light aisle windows have reticulated and decorated tracery. 7 clerestory windows probably for Cosin, with segmental heads and modified geometric tracery. Tall pinnacle buttresses, at aisle and clerestory angles polygonal with ogee coping. Crocketed pinnacles corbelled between clerestory lights. West gable has tall 4-light window with reticulated tracery, and at top a well-cut inscription ADORATE DOMINUM IN ATRIO SANCTO EIUS and Cosin's arms above. All parapets battlemented.
- 2.6 South-east entrance projects with canted arcaded C18 Gothic porch below 2-light window under battlemented parapet. In porch, richly carved C17 doors.
- 2.7 Terrace wall and steps at east end. Shallow stone L-plan steps flank wall with ashlar coping, the end sections forming parapets to steps. At centre, one 1881 inscription recording Bishop Lightfoot's work and his setting up of the second inscription, dated 1752 'JOSEPHUS EPISCOPUS FECIT' must relate to work done by Bishop Butler who began major improvements to the grounds.
- 2.8 **INTERIOR:** has black and white marble floor, 4-bay arcades, west screen, and panelled beamed roof on arched braces and corbelled wall posts. Arcades have many-moulded pointed arches on quatrefoil piers with shaft rings, north and south shafts sandstone, east and west shafts Frosterley limestone which is also used for

- capitals and arches. Central bays are shorter. West responds are head corbels, and capitals waterleaf, the southern more elaborate; others moulded. Round lessenes above piers support large figures of angels.
- 2.9 In west wall 3 arches of a blind arcade with stiff-leaf decoration, discovered in 1980s restoration, have been left exposed; this was the dais end of the hall. In north aisle western bay a pointed arch is also revealed, with stiff-leaf capital. 3 steps to Altar with carved Frosterley limestone and oak reredos 1884 by Hodgson Fowler in Perpendicular style, carving by P de Wispelaere of Bruges.
- 2.10 Woodwork for Cosin in his typical style, mixing Gothic and Baroque, includes pulpit and reading desk, chancel stalls with principal canopies, and magnificent carved oak screen with swags of fruit and foliage.
- 2.11 MONUMENTS: include Frosterley marble grave cover in centre of nave with long inscription to Bishop Cosin; seated figure of Bishop Trevor 1775 by Nollekens. Ceiling richly carved and painted with armorial bearings especially those of Bishop Cosin. C19 armorial bearings of Bishops set on aisle walls. Stained glass mostly by Burlison and Grylls. In west entrance vestibule, arms of Bishop Cosin in stained glass.
- 2.12 LISTING REFERENCES: Raine J: History of Auckland Castle: Durham: 1852-: 45; Medieval Architecture and its Intellectual Context: Cunningham J: Auckland Castle: Some Recent Discoveries: London: 1990-: 81-90; Mackenzie E: County Palatine of Durham: Newcastle: 1834-: 294; Archaeologia Aeliana series 2: Hodgson J F: Article VIII The Chapel of Auckland Castle (for 1896): Newcastle upon Tyne: 1847-: 113-240; Archaeologia Aeliana series 2: Hodgson J F: Article VI The Chapel of Auckland Castle - Addenda (for 1897): Newcastle upon Tyne: 1847-: 113-240; Boyle: The County of Durham: 1892-: 483-497.
- 2.13 LISTING NGR: NZ2138430248
- 2.14 WEB LINK: <http://www.britishlistedbuildings.co.uk/101196446-chapel-of-st-peter-at-auckland-castle-bishop-auckland#.WV5jLmeWyUk>

PREVIOUS INSPECTIONS AND HISTORY OF REPAIRS

- 2.15 Previous QIRs were undertaken in 1999, 2004, 2012 and 2017. No known QIRs are available prior to these dates, the chapel not previously being regarded as the subject of the Inspection of Churches Measure. While other earlier survey reports may exist, only the 2017 and 2012 QIR with embedded 2004 QIR notes were available at the time of this survey.
- 2.16 The Auckland Castle and Chapel condition survey associated with the current HLF project (Purcell 2013/2014) was also available and consulted at the time of the present QIR.
- 2.17 Further research is needed, but in sum the key periods of repair and restoration are believed to run as follows:
- 2.18 1790s: Bishop Barrington – improvement of the chapel including the installation of a new reredos under the direction of James Wyatt

1828: Bishop Van Mildert – reconstruction of floor (potentially related to the installation of a furnace-flue heating system, of which traces were found in 1996)

1888: Bishop Lightfoot – provision of new stained-glass windows, new replacement reredos by CH Fowler, addition of clerestorey angels. Upgrade of below-ground heating system to introduce hot water pipework.

1978-1983: Bishop Habgood – repair and replacement of roof timbers, total renewal of lead roof coverings, renewal and re-pointing of external masonry, rendering of lower part of west wall of the chapel, damp-proofing and drainage works, underpinning of the main entrance porch, introduction of new heating and lighting systems, re-leading of the stained glass of the east window (along with mullion renewals), dismantling and reconstruction of the organ gallery and blocking of its spiral access stair within the west wall, replacing the stair with the present spiral stair in the chapel. Redecoration, including ceiling and adornments. Dampness in the floor persisted and subsequent drainage works were carried out but failed to alleviate the problem.

1996: Lifting and re-laying of the floor tiling with damp-proof course material laid on the supporting sleeper walls and ventilation provided by the sub-floor voids. Cement render removed from the west wall of the chapel and replaced with lime plaster, also limewashed. Conservation work to pier bases and damp-proofing measures were introduced where the terrace abuts the east wall.

- 2.19 No major works appear to have been undertaken since the 1996 campaign.
- 2.20 A major campaign of conservation and comprehensive refurbishment/development of the Castle was undertaken under the TAP ownership, completed 2020. The Chapel was not included within this project other than some upgrade to electrical systems including life safety systems and benefitting from the new heating boilers but not heating distribution system. A new lobby screen was installed in the Castle and Chapel entry, this aids the management of internal environmental conditions. The Vestry and Sacristy to the North was separated in use from the Chapel, becoming a small exhibitions and interpretation space associated with the Castle attraction. The external landscape improvements have enhanced the setting of the Chapel.
- 2.21 The Chapel continues to be used as a place of worship with regular services.

3.0 CONDITION SURVEY AND PRIORITISED RECOMMENDATIONS

CHAPEL EXTERIOR

3.1 ROOF COVERINGS: GENERAL

- 3.1.1 Partial access to the roofs is possible by timber ladders. However, the use of these ladders is not currently advised by TAP and no coverings were accessed for inspection during the present QI survey. It is recommended that a further roof access consultant is appointed to review the access and make recommendations for safe access upgrade, designed within the constraints of the Grade-I listed historic structure.

3.1.2 Provide safe access to facilitate future inspections and access for routine maintenance. Z

3.2 NAVE ROOF COVERINGS AND GUTTERS

- 3.2.1 The current access to the Nave roof is unsafe. It is our recommendation that temporary access is provided by scaffold platform is erected when necessary to inspect the roof in full during the QQ. Access was gained to the roof during the last QQ for inspection and local maintenance. During the 2017 inspection the roof ceiling structures were inspected vis cherry picker.

- 3.2.2 DESCRIPTION: lead roll covered; a central bay with a slight slope in both directions from the ridge, then a single bay beneath this to each slope, draining to north and south parapet gutters.

3.2.3 Provide safe temporary access for inspection and Maintenance during QQ. X

3.3 NORTH AISLE ROOF COVERINGS AND GUTTERS

- 3.3.1 DESCRIPTION: Single pitched lead roof with solid rolls, single step laid to falls towards north lead gutter, 4no. lead sump outlets to lead hoppers and downpipes. Inspected in 2013. Lead roof and gutters appear of recent origin and in good condition, but with some cracking to pointing of cover flashings. Some soiling build-up on roof and to gutters.

3.3.2 Under maintenance programme clear silt and debris from roof, gutters and sump outlets; ensure rainwater disposal system is free flowing. Steeplejack access into Aisle Roofs via access hatches for inspection. R

3.4 NORTH AISLE RAINWATER DISPOSAL

3.4.1 DESCRIPTION: 4 no. lead hopper and lead downpipes to clerestory. Appear to be in good working order.

3.4.2 Redecoration and servicing will need to be considered under an ongoing cyclical QQ maintenance plan every 5 years, or as part of a major refurbishment project. C

3.5 SOUTH AISLE ROOF COVERINGS AND GUTTERS

3.5.1 DESCRIPTION: Single pitched lead roof with solid rolls, single step laid to falls towards south lead gutter, 4no. lead sump outlets to lead hoppers and downpipes. Inspected in 2013. Lead roof and gutters appear of recent origin and in good condition. Some soiling build-up on roof and to gutters.

3.5.2 Under QQ maintenance programme clear silt and debris from roof, gutters and sump outlets; ensure rainwater disposal system is free flowing. Steeplejack access into Aisle Roofs via access hatches for inspection. R

EXTERNAL ELEVATIONS

3.6 NORTH AISLE ELEVATION

3.6.1 DESCRIPTION: the north aisle elevation comprises four architectural bays in coursed and rubble stone, indicating much alteration with the outlines of previous openings. The bays are separated by weathered buttresses; each bay contains a three light window with tracery head. The glazing is in leaded lights and comprise important coloured glass; an external secondary glazing later has been installed. The aisle is surmounted with a battlemented ashlar parapet; the buttresses terminate with crocketed finials, the polygonal corner buttresses to east and west terminate in ball finials. Rainwater goods comprise decorative lead hoppers with small overflow pipe, cast iron downpipes and outlets into ground gullies.

3.6.2 There is some evidence of minor vertical cracking/movement through parts of the wall, particularly below the windows, at the north-east corner buttress base and wall abutment, and at the west bay adjacent to the polygonal corner buttress. The wall does contain multiple earlier construction phases, with many blocked openings. The movements generally appear historic, and should be checked as part of a conservation structural engineer's report and kept under observation. The east and west corner buttresses are visibly out of plumb. Engineer appraisal of overall structure and related issues in recommended.

3.6.3 EXTERNAL RAINWATER GOODS: there is a combination of cast iron and cast lead rainwater goods, all in fair condition overall. The downpipe to the east terrace abutment to the Chapel is in poor decorative order, however, and appears to be

resulting in dampness in the wall due to possible splits/leaks. The ground-level gullies appeared clear and free flowing, but require regular inspection and clearance. A condition survey and location of outfalls of the below drainage is required.

- 3.6.4 Complete**
 - 3.6.5 Routine QQ Maintenance check and clear ground gullies of silt and standing water. A**
 - 3.6.6 Undertake CCTV below ground drainage survey generally to assess condition and extent of drainage network around the chapel. X**
 - 3.6.7 Check and maintain rainwater goods as part of routine maintenance programme at least twice a year, with redecoration to cast iron units on a 5-yearly basis R**
 - 3.6.8 Omitted**
- 3.6 WALLING: across the wall there is a combination of patched cementitious pointing and cement flashing buttered over decayed stones. There is also existing lime pointing and early lime mortar repairs and localised renders. Generally, the pointing is in fair to locally poor condition, and the cementitious mortar is exacerbating the instances of stone decay and moisture retention. The cement should be removed and renewed in lime. Areas of the older lime pointing and renders patches are very soft and decayed; this should be carefully raked out and repointed in lime mortar where it has failed, but otherwise retained. Some areas of the lime pointing and renders are sound and water tight, and so the full assessment of need for conservation and repair will only be determined from close tactile survey in future. The ashlar buttresses, parapets, copings, cornice and pinnacle bases all have areas of open joints that need raking out and repointing in lime. Window units in several areas have open joints, with several the window mullions having been renewed at some point.
- 3.6.10 The stone units themselves are of varying type and in varying condition. The dressed stone to parapets, buttresses and window surrounds, including tracery units, are fair overall. The general walling comprises a combination of dressed ashlar and coursed random blocks that has taken on the appearance of rubble due to the extent of decay and mortar repair. There are many stones suffering from cavernous decay, this has been addressed in the past with lime mortar repairs as well as some renewal of stone. Great care has to be taken with the latter so that the ancient character of the wall and the clarity of the blocked openings do not become compromised.
- 3.6.11 Complete**
 - 3.6.12 Establish structural understanding of the building and assess any structural monitoring and review with conservation structural engineer. M**

- 3.6.13 Re-point all cracks and open joints, including joints to window surrounds, in lime mortar. B**
- 3.6.14 Undertake wider conservation and repair of decayed and inappropriate pointing mortars, renders and decayed stones. C**
- 3.6.15 Allow for localised renewal of small decayed stone units that have fully decayed. C**
- 3.6.16 EXTERNAL WINDOWS: the four tracery windows have an early format of un vented external environmental protective glazing system. This is sealed against the window masonry and is resulting in significantly high levels of liquid moisture from condensation being trapped within the void between the historic glass and secondary sheet, leading to damage to both the masonry and historic glazing (cf. YGT report).
- 3.6.17 In accordance with YGT report, remove all existing secondary glazing and replace with appropriate isothermal protective glazing system. Undertake conservation works to historic glass in the same programme. C**
- 3.6.18 As part of routine maintenance, clean and redecorate all ferramenta etc. on an appropriate cycle. R**
- 3.6.19 SERVICE CABLES AND FITTINGS: Lightning conductor in sound condition. Routine testing required.
- 3.6.20 Undertake planned tests of during QQ of lightning protection/conductor system with licensed contractor. R**
- 3.7 NORTH CLERESTORY**
- 3.7.1 DESCRIPTION: the north clerestory elevation comprises 7 main architectural bays, defined by 7no. crocketed finials and 2no. polygonal corner pinnacles, with a blank half bay at each end. The central 7no. bays contain 3-light rounded arch tracery windows dating from Cosin's restoration and the formation of the old medieval hall into the chapel. The main walling stonework is in large plain ashlar blocks surmounted with a battlemented ashlar parapet. Rainwater goods comprise decorative lead hoppers with small over flow pipe, lead downpipes discharging onto south clerestory lead roof. There is evidence of movement and structural cracking at the west end of the 3rd bay (inc. parapet) and extensive masonry repairs in previous years. There are also several inappropriate epoxy mortar repairs to the window surrounds.
- 3.7.2 RAINWATER GOODS: 4no. lead hopper and lead downpipes to clerestory, appear to be in good working order.
- 3.7.3 Check and maintain rainwater goods as part of routine maintenance programme at least twice a year. R**
- 3.7.4 WALLING: The walling stonework is generally fair for its age, but weathered and also delaminating in areas, which will require de-scaling. The majority of the pointing

appears to be cementitious. The hard mix is hastening the decay of the stonework and should be removed and repointed in lime. Moulded sections of window hoods are significantly decayed in areas, preventing satisfactory shedding of rainwater and resulting in further decay of adjacent stonework. The north parapet appears to be sound and in good condition overall. The pinnacles also appear to be sound, though there are horizontal ledges where moss and damp are accumulating which will cause the pointing and stone to gradually decay. These ledges need clearing and any repointing of the horizontal joints carried out. There is a bulge to the right of the west nave window, which appears historic but should be kept under observation and considered with future reporting by a conservation structural engineer.

- 3.7.5 Complete**
- 3.7.6 Allow for renewal of certain carved curved arched head stones to windows, carved hoodmould stops, and mullions. C**
- 3.7.7 To main walling area, parapets, pinnacles and windows, remove damaging cement pointing and repoint in lime, and undertake lime mortar repairs. C**
- 3.7.8 Monitor bulge in wall, and consider within future structural engineer's appraisal. M**
- 3.7.9 EXTERNAL WINDOWS: the 7no. tracery windows with leaded clear glass lights are in fair condition overall, but locally poor. The glazing set into windows with cementitious pointing, which is failing and requires replacement in lime mortar. Ferramenta bars are in fair condition but require servicing and redecoration. The lead cover lashings to cills in good condition but require repointing. Evidence of movement through the third window from the east, appears to travel up through the parapet with open jointing. This should be re-pointed and kept under review. There is no protective external glazing.
- 3.7.10 Consider structural monitoring and review with conservation structural engineer. M**
- 3.7.11 Re-point open joints, and monitor movement evidence as part of the above. B**
- 3.7.12 Remove damaging cement pointing and repoint in lime mortar, including pointing to window units and leadwork to cills. C**
- 3.7.13 Redecorate ferramenta as part of routine maintenance on an appropriate cycle. R**
- 3.7.14 Undertake glazing repairs where needed as per YGT report. D**

3.8 EAST END ELEVATION

3.8.1 DESCRIPTION: the east elevation of the Chapel comprises a single sheer facade, with central gable with carved arms to the clerestorey, flanked by the east wall of the aisles. The main walling stonework is formed of large plain ashlar blocks. Many of the stones appear eccentrically bedded and therefore more vulnerable to scaling,

- delamination and decay. The central main east window is of 5-lights with a complex tracery head, the aisle windows to north and south are 2-light with a cusped geometric tracery head. The coloured glazing is set in lead with no secondary glazing protection. The east elevation is surmounted with a raking battlemented parapet, with moulded merlon stones to the coping; to the corners of the aisles and clerestory are polygonal buttresses with high pinnacles and ball finial terminations. A raised first floor terrace, outside the chapel 'red-line' abuts the east elevation. There are multiple historic phases of modification and repair.
- 3.8.2 WALLING: Generally, the walling pointing is in fair condition, but locally poor, and there are a number of areas mortar joints are open. These joints should be raked out and filled with new lime pointing.
- 3.8.3 Steeplejack access was arranged during the past QQ to test the stability of the high-level elements, including the corner pinnacles, finials etc. and risks associated with potential ferrous insert damage. These were stabilised.
- 3.8.4 Several stones to the polygonal corner pinnacle have fractured across their corners, potentially as a result of iron cramp damage (clearly visible on the SE corner). The carved arms and cartouche should be inspected at close quarters and the need for any conservation work also appraised.
- 3.8.5 Masonry bees have been noted in previous reports and may continue to present an issue. These are important pollinators but causing damage to stonework.
- 3.8.6 At the base of northern pier to the end of the nave section there is a small vertical crack through 3/4 of ashlar, this could be related to the previous kitchen roof structure having intersected with the wall.
- 3.8.7 There is some historic bulging where there internal arcades engage with the east wall.
- 3.8.8 Complete**
- 3.8.9 Undertake re-pointing of localised open joints. B**
- 3.8.10 Undertake full re-pointing of elevation, with mortar repairs and localised stone renewals. C**
- 3.8.11 Allow for conservation repairs to arms and cartouche. C**
- 3.8.12 Dismantle and reinstate corner pinnacles to remove iron cramps. C**
- 3.8.13 Fill crack through ashlar and keep under observation with bulging sections, incorporate in conservation structural engineer's appraisal. M**
- 3.8.14 Investigate, and allow to treat for local stones subject to extreme damage caused by masonry bees. X**
- 3.8.15 EXTERNAL WINDOWS: the three tracery windows appear in fair condition overall, but locally poor including holes and cracks in the main east window glazing. The glazing and associated pointing and fittings require conservation and repair,

- together with the installation of a new isothermal protective glazing system. The western mullion of the east window is fractured, probably due to a ferrous insert, and will need an indent repair back to the glazing line.
- 3.8.16 Undertake conservation and repair of the window masonry in the east end as per YGT advice. C**
 - 3.8.17 Undertake cleaning and stabilisation of the historic glazing in the east end. B**
 - 3.8.18 Undertake full conservation programme to east windows and install new isothermal protective glazing system. D**
 - 3.8.19 As part of routine maintenance, clean and redecorate all ferramenta etc. on an appropriate cycle. R**
- 3.8.20 WALLING, STEPS, TERRACE AND VAULT TO EAST OF CHAPEL: (Note: this is out of the Red-Line Boundary of the Ecclesiastical Exemption). Some pointing and roof cover repairs were undertaken at east wall abutment during the last QQ. The terrace steps are in fair to locally poor condition and should in places be lifted, re-bedded and repointed throughout. The walling needs repointing in places, where there are open or decayed joints, or where cementitious pointing is leading to active stone decay. The SE corner pinnacle section to the south wall is out of plumb and requires structural engineer assessment. The vault below the terrace suffers from the instability of the environment, is damp and in need of consolidation. The asphalt tanking above has been partially repaired and drainage channel free flowing at survey. The air vents into the Chapel from this vault is permitting cold damp spore laden air into the Chapel. This space could be adapted and made watertight and with a new connection into the chapel might offer new Vestry and Sacristy facilities – albeit considerable work would be needed.
- 3.8.21 Complete**
 - 3.8.22 Conservation structural engineer to advise on condition of SE pinnacle, and keep under observation. X/M**
 - 3.8.23 Investigate vault space and asphalt covering above to understand environment, damp issues and associated risks to chapel. X**
 - 3.8.24 Pending the outcomes of the above, plan for programme of major improvements to tanked covering, drainage and vault space to alleviate deterioration mechanisms. D**
 - 3.8.25 Fill open/failing joints with lime mortar. B**
 - 3.8.26 Undertake programme of extensive re-pointing and stone repairs, including works to steps, copings, pinnacles and so on. D**

3.9 SOUTH AISLE ELEVATION

3.9.1 DESCRIPTION: the south aisle elevation comprises four architectural bays in dressed ashlar with raised carved lozenge panels to form alternating rusticated blocks. The decorative carved string at window-cill level comprises alternating diamond and elliptical panels. All this dates to the time of Cosin. Many of the stones are eccentrically bedded and therefore more vulnerable to scaling and decay. The bays are separated by buttresses; each bay contains a 3-light window with tracery head. The glazing is in leaded lights and incorporates complex coloured glass. There is no secondary protection to the windows. The aisle is surmounted with a battlemented ashlar parapet; the buttresses terminate with crocketed finials, with the polygonal corner buttresses to east and west terminating in ball finials. Rainwater goods comprise decorative lead hoppers with small over flow pipes, square-section cast lead downpipes discharge into ground gullies.

3.9.2 Generally, there is some evidence of historic movement through parts of the wall, there is a noticeable inward lean to the centre, but appears structurally sound. The east and west corner buttresses are visibly out of plumb in that direction.

3.9.3 EXTERNAL RAINWATER GOODS: the cast lead rainwater goods are all in fair condition overall, but should be serviced in the short term and any minor fractures and fixings repaired. There is some greening behind the western downpipe, suggesting a potential leak or blockage which should be checked and addressed.

3.9.4 Complete

3.9.5 **Undertake servicing and any minor repairs to rainwater goods as part of routine planned maintenance every 5 years or as needed.**

R

3.9.6 WALLING: Generally, the cementitious pointing to the walls is itself in fair condition, but it seems likely to be having a significant deleterious effect on the condition and stability of the carved rusticated stone and decorative string, which are in a progressively poor state and condition due to moisture entrapment. There are areas of cement mortar flaunching repairs buttered over decayed stone. These will also be holding moisture in the stone and resulting in their hastened decay, either seen or beneath the cement. The pointing to the cills needs 100% renewal.

3.9.7 Steeplejack access needs arranging to test the stability of high-level elements.

3.9.8 The carved lozenge stones are in varying condition. Many of the carved rusticated blocks have lost much of their detail, as have sections of the moulded and carved string. Conservation and retention should be prioritised, with any renewals to the worst illegible stones managed over several future cycles of repair. This will avoid extensive and unnecessary renewal in a single campaign, while also ensuring the original design intent is not lost. The dressed stone to parapets, buttresses and window surrounds, including tracery, is in fair condition. The easternmost window hoodmould has one stone starting to fail, which should be repaired. The projecting moulded string stones to the buttresses are failing, which will hasten adjacent decay as their weathering ability is lost. This could be undertaken as a steady programme

- by skilled masonry in-house team or as a single major project by an external contractor.
- 3.9.9 To the base of the wall attempts have been made to introduce an injected damp proof. This requires closer inspection to understand its impact, positive or negative, on the chapel environment and any associated internal damp issues.
- 3.9.10 The holly bush against the wall at the east end was removed at last QQ.
- 3.9.11 Complete**
- 3.9.12 Undertake review with conservation structural engineer of structural anomalies and keep under observation. X/M**
- 3.9.13 Investigate efficacy of former damp-proofing measures as part of site-wide study. X**
- 3.9.14 Re-point all open/failing joints. B**
- 3.9.15 Undertake 100% removal and re-pointing of cementitious mortars and replace with lime mortar, including to windows. C**
- 3.9.16 Undertake stonework conservation, 100% removal of cement, re-pointing and localised renewal programme. C**
- 3.9.17 EXTERNAL WINDOWS: the four tracery windows are generally in sound condition overall, but local repairs are needed and there is currently no external protective glazing system. Pointing is failing. The ferramenta etc. is in need of cyclical maintenance.
- 3.9.18 Undertake cleaning and stabilisation of south windows. B**
- 3.9.19 Install protective isothermal glazing system to south windows with full conservation works undertaken to historic glazing as per YGT recommendations. D**
- 3.9.20 As part of routine maintenance, clean and redecorate all ferramenta etc. on an appropriate cycle. R**
- 3.10 SOUTH CLERESTOREY**
- 3.10.1 DESCRIPTION: the south clerestory elevation comprises 7 main architectural bays, defined by 7no. crocketed finials and 2no. polygonal corner pinnacles, with a blank half bay at each end. The central 7no. bays contain 3 light rounded arch tracery windows date from Cosin's restoration and formation of the space into the Chapel. The main walling stonework is in large plain ashlar blocks surmounted with a battlemented ashlar parapet. Rainwater goods comprise decorative lead hoppers with small overflow pipes, with lead downpipes discharging onto the south aisle lead roof. There is evidence of historic movement in the south parapet, over the west end of the 3rd bay from the west, and the 5th bay from the west.
- 3.10.2 RAINWATER GOODS: 4no. lead hopper and lead downpipes to clerestory, which appear to be in good working order.

- 3.10.3 Clear and maintain twice a year as part of planned maintenance, effect minor repairs as needed. R**
- 3.10.4 WALLING: The walling stonework is generally fair, but weathered, and delaminating in areas that will need to be descaled. The majority of the pointing is cementitious. The hard cementitious mix is hastening the decay of the stonework, and this should be removed and repointed in lime. Sections of hoodmoulds are heavily decayed in areas, preventing satisfactory shedding of rainwater and resulting in further decay of adjacent stonework. The south parapet appears to be sound and in good condition. The pinnacles appear to be sound, though there are horizontal ledges where moss and damp is accumulating which will contribute to decay. The growth needs to be cleaned off with lime repointing at all of the horizontal joints. There are zones of historic movement already noted above.
- 3.10.5 Complete**
- 3.10.6 Fill open and failed joints with lime mortar, including movement joints. B**
- 3.10.7 Undertake programme of stonework conservation and repair, including 100% removal of cement and re-pointing in lime, and localised renewals to window units. C**
- 3.10.8 Keep zones of movement under observation, and consider as part of future appraisal by structural engineer. M**
- 3.10.9 EXTERNAL WINDOWS the 7no. tracery windows with leaded clear glass lights are in fair condition. The glazing set into windows with cementitious pointing which is failing and requires replacement in lime mortar. The ferramenta bars are in fair condition but require redecoration. The lead cover flashings to the cills are in good condition, but require repointing. There is evidence of movement through the third window from the east through the parapet and an open joint. This should be re-pointed and kept under observation.
- 3.10.10 Continue structural monitoring and review with conservation structural engineer. M**
- 3.10.11 Re-point open joints, and monitor movement evidence as part of the above. B**
- 3.10.12 Remove damaging cement pointing 100% and repoint in lime mortar, including pointing to window units and leadwork to cills. C**
- 3.10.13 Undertake cleaning and stabilisation of the windows. B**
- 3.10.14 Undertake glazing repairs where needed. D**
- 3.10.15 Maintain and redecorate ferramenta as part of planned maintenance on appropriate cycle. R**

3.11 WEST END ELEVATION

3.11.1 DESCRIPTION: the west elevation of the chapel comprises a high level single facade, with central gable and carved panel, flanked by the west walls of the aisles; the main walling stonework is in coursed and rubble stone. The central west window of the nave is of four lights with tracery head with external secondary glazing. There is evidence of an epoxy resin coating to the moulded window stonework. The historic glazing is coloured patterned glass in lead cames. The west elevation is surmounted with a raking battlemented parapet with moulded merlon stones to the coping; to the corners of the aisles and clerestory are polygonal buttresses with high pinnacles and ball-finial terminations.

3.11.2 WALLING: The stones of the parapet merlons, cornice and central octagonal pinnacle together with sections of the gable sculpture have been repaired previously and appear in fair condition. The sculpted section has moss cover and biological growth, which may be enhanced by bird guano, and there are several visible open joints. This carving should be carefully cleaned and conservation works considered to protect the stone by ensuring there is effective rainwater run-off. The stonework of the two octagonal corner pinnacles is heavily pitted and suffering from surface scaling, and is generally in poor condition. There are also some open joints to these elements. Close steeplejack inspection of the pinnacles and finials is required. The NW corner pinnacle is visibly out of plumb in that direction.

3.11.3 Generally, the masonry is pitted, worn and decayed but appears structurally sound. The majority of the pointing is cementitious. The hard cementitious mix is hastening the decay of the stonework and this should be removed and repointed in lime. It may be necessary to carry out either large areas of stone renewal or mortar repairs, depending on future tactile survey and assessment. Care should be taken to protect the historic texture, colour and liveliness of the wall. Some local pointing was carried during the QQ.

3.11.4 The back of the Nave parapet was not inspected as access was not permitted.

3.11.5 Complete

3.11.6 Complete

3.11.7 Allow for dismantling and rebuilding of comer pinnacles with inert dowels, localised renewals and full raking out and re-pointing. C

3.11.8 Re-point open and failed joints with lime mortar. B

3.11.9 EXTERNAL WINDOWS: epoxy resin compounds have been applied to the tracery and window surround mouldings to prevent water ingress but have had the opposite effect. This is now failing and the splits and cracks are now trapping moisture, damaging the stonework causing and hastening decay, and should be removed. Two mullions in this window have diagonal splits, suggesting ferrous insert damage. Sections of tracery will need to be replaced. There are open joints to the upper levels of the tracery and some of the tracery has become slightly dislodged.

- The cill is in poor condition and a lead cover flashing should be introduced to shed water.
- 3.11.10 The secondary external glazing which is in large glazed sheets with lead banding has been installed incorrectly and there is no ventilation between the inner and outer sheets. This is leading to the decay of the historic glass, which appears to be from the 18th-century. The mortar pointing within which the secondary glazing is held is failing. It is also allowing large numbers of flies to nest between the windows. This existing detail is also leading the build-up of damp, particularly on the north side. The current external glazing requires renewal, with replacement with an isothermal system.
- 3.11.11 As part of any further specialist glazing advice on the condition of the Chapel windows comment should be made on these with a timescale for long-term maintenance. Ferramenta and fixings should be closely inspected and any iron work redecorated when scaffold access is provided.
- 3.11.12 Re-point open and failing joints. B**
- 3.11.13 Undertake conservation and renewal to window units, remove epoxy repairs. C**
- 3.11.14 Undertake 100% renewal of pointing to window. C**
- 3.11.15 Insert lead cover flashing to window cill. B**
- 3.11.16 Undertake repairs to glazing. C**
- 3.11.17 Renew current protective glazing with isothermal glazing system. C**

CHAPEL INTERIOR

3.12 NAVE & CHANCEL

- 3.12.1 DESCRIPTION: Aisled basilica plan (based on former medieval hall) unifying nave and chancel with large tracery windows east and west, also tracery windows to aisles and clerestory, including both plain and painted glazing. Substantial carved timber entrance doors leading to carved decorative screen in first bay, steps to nave and high altar to east with ornate C19 carved reredos. Carved decorative ceiling, plain walls with either painted cement/gypsum plaster or lime plaster and white limewash. Organ loft with C17 organ over west entrance, original loft stair within wall thickness from Vestry/Robing Room now blocked, replaced with modern spiral stair in nave entrance. Stone floor over brick dwarf walls, wall and floor monuments (including Bishop John Cosin's, C17) and major C18 monument to Bishop Richard Trevor at west end of south aisle. Blocked gallery opening from Victoria/Trevor Suite to west above Trevor Monument.
- 3.12.2 CEILING: The ceiling has been comprehensively repaired and restructured during the latter part of the C20. It appears that this included the complete dismantling of the existing structure and ceiling panels, installation of a new steel and possible

- concrete ring beam, together with possible steel reinforcement to the principal timber trusses. The wall plates appear to have been renewed in oak and there is oak boxing and panelling that conceal structural reinforcement.
- 3.12.3 The structural condition of the ceiling appears to fair overall. There are gaps between the timberwork and numerous vents within members, but all timbers inspected appear to be solid and well secured with screws and bolts. The quality of the C20 repairs appears in places to be low, with plywood inserts to the trefoil decorative panels between the arch braces. There is localised evidence of woodworm and rot, though this appears to be historic. The presence of the non-breathable membrane is undesirable, and it is not clear if it presents any issues of defect at present. The painted redecoration is modern and inaccurate, concealing evidence of older schemes.
- 3.12.4 The aisle ceilings appear in sound order.
- 3.12.5 Review implications and risks of presence of non-breathable membrane over ceiling structure during external roof inspection (and potential opening-up of leadwork) and building environment review. X**
- 3.12.6 If no immediate risk is posed, consider replacement of non-breathable membrane above ceiling during future re-roofing works with breathable alternative. D**
- 3.12.7 Redecorate ceiling to appropriate historic scheme informed by research and analysis. D**
- 3.12.8 Replace inappropriate decorative timber elements with traditionally designed and executed alternatives. E**
- 3.13 INTERNAL WALLS**
- 3.13.1 Generally, the condition of the decorative finishes is fair, but locally poor. At clerestory level, movement cracks are evident above and through the third and fifth windows from the west on the south side and the third window on the north side. There is a small spall of plaster in the south clerestory above the windows three bays from the west. All these cracks/spalls should be filled with a flexible mortar or grout and kept under observation, and assessed again during any structural engineer's appraisal.
- 3.13.2 Fill movement cracks and monitor. M**
- 3.13.3 Assess movement cracks during structural engineer's appraisal. X**
- 3.13.4 WALLING AND SURFACE FINISHES GENERALLY: The majority of internal masonry surfaces are concealed by hard impervious and inflexible plasters, and finished with masonry-type paint. These materials appear well-adhered. The modern finishes are non-absorbent to water, exhibit large areas of spotted condensation mould, moisture streaking (especially below windows), and are generally looking tired. Their inflexibility means that minor movement is not well-

absorbed, leading to crazing and fine cracking, which should be kept under observation. This includes evidence of cracking in the south aisle walls (1st, 2nd and 3rd windows from east), in the angles to the southeast and southwest, in the north wall (below all windows), in the northeast and northwest corners, and in the west wall generally, including below the organ loft. In the zone surrounding the reredos to the east, trapped moisture has caused damage to the historic fabric, though some attempt has been made to mitigate this by the introduction of a more breathable margin. Consideration needs to be given to removal of the modern plasters and paint finishes throughout the chapel and redecoration in a breathable lime plaster and limewash system as a minimum. Tests indicate that the painted surface coating over the plaster finish are non-hygroscopic and prevent transfer of moisture via building materials. Some evidence that large sections of the lower walling has been plastered in cement based gypsum plaster, possibly when damp proof injected system was installed. Such plasters will need removal, as will non hygroscopic paint finishes.

- 3.13.5 The arcade arches are over-pointed with inappropriate cement, which is unsightly and damaging to the historic masonry. The feasibility of removing the cement without damaging the historic fabric and re-pointing in lime mortar should be appraised.
- 3.13.6 At the bases of the piers and certain sections of wall there have been long term issues with ground moisture and hygroscopic salts (including within the Ante-Chapel). Knowing that damp-proofing measures have been pursued in the recent past, a review of these measures and moisture profiling should be undertaken to understand the level of moisture activity in these areas, the efficacy of the previous interventions and whether or not the visible symptoms of deterioration are live or a hangover of the previous problems and subsequent drying out.
- 3.13.7 There is a general void in understanding the environmental conditions in the chapel, and their impact on condition and building performance. Further monitoring and investigation will be needed to inform future M&E upgrade, refurbishment, re-ordering etc.
- 3.13.8 The Frosterley Marble columns are superficially dirty and are in need of a conservation clean. Some inappropriate repair compounds will need to be evaluated.
- 3.13.9 The C20 spiral stair to the organ loft detracts from the traditional character of the chapel space, consideration could be given to replacement. The baluster at the head of the stair is mobile to the hand, though secure for use with care.
- 3.13.10 Remove incongruous C20 spiral stair to organ loft. E**
- 3.13.11 Keep crazed and cracked finishes under observation, and review with structural engineer during future appraisal. M**
- 3.13.12 Remove and replace modern non-hygroscopic plasters and paint finishes with appropriate breathable traditional systems. D**

3.13.13	Test feasibility of cement removal to arcades with a view to replacement and removal with lime mortars.	X
3.13.14	Assess previous damp-proofing measures and any residual moisture issues, with specification attention to wall and pier bases and salt affected areas, and concealed areas behind furniture.	X
3.13.15	Continue environmental monitoring programme to inform future interventions and conservation responses.	X
3.13.16	Clean Frosterley columns, consider micro-crystalline re-waxing under strict specification following detailed conservator report.	D
3.13.17	FLOOR: The paved floors is in fair to good condition, with some open joints and deflection where fine re-grouting and/or re-bedding is required. Some conservation cleaning would be desirable. The floors are in part understood to have been re-laid circa 1991; the extent of stone renewal is unclear, but there is a difference between historic marbles and black polished limestone with domed edges and flat machined slate replacements.	
3.13.18	Re-grout/re-bed deflected sections.	C
3.13.19	Undertake conservation clean, preceded by trials under strict specification.	D
3.14	FIXTURES AND FITTINGS	
3.14.1	CHAPEL SCREEN: There is some opening-up and separation of the cornice timberwork at the south west corner, with splitting in the carved panels, loose balustrading to the north return and among sections to the south, and some historic beetle attack to north return panel and loose section of moulding. Staining and mould from bat urine is present. The carved arms over the door is unstable to touch. Further structural investigation is a priority and the public/staff should be dissuaded from coming into contact with the screen in this area in the meantime.	
3.14.2	Review Structural engineer's proposal for stability of chapel screen, public/staff to be advised of risk in the meantime.	A/X
3.14.3	Undertake repair, conservation, refurbishment of historic finish and cleaning, of the chapel screen under strict conservator specification.	B
3.14.4	Address bat urine damage to historic surfaces once bat access has ceased.	X
3.14.5	PEWS AND STALLS: Generally sound overall, but with a need for localised repairs and care and retreatment of decorative/protective finishes. There is some evidence of historic beetle attack, including to the front of the south pews, with bat urine damage to the surface finish of the joinery generally. A south pew seat is also	

- fractured and in need of joinery repair. All generally serviceable. Evidence of alteration and adaptations suggested by changes in moulding profiles and joint lines.
- 3.14.6 Two reading desks and seats. Same as pews, generally serviceable. The front reading desk on both sides are in need of conservation work to tighten loose joints and stabilise the seats and backs.
- 3.14.7 The decorative reredos is damaged on its upper section, perhaps related to bat activity. The Frosterley Marble backing has deterioration at the margin due to moisture and salt activity and should be investigated and addressed as part of the wider programme of environmental monitoring and treatment/renewal of surface finishes.
- 3.14.8 Undertake localised joinery repairs to address specific damaged and broken sections. B**
- 3.14.9 Undertake programme of cleaning, conservation and repair to fixtures and fittings within wider programme of rehabilitation of the interior. D**
- 3.14.10 ORGAN: The organ is an exceptional piece, dating from the 17th century with subsequent refurbishment and enhancements.
- 3.14.11 It is in need of specialist inspection and reporting, with a view to bringing it back into a fully functioning state. The unusual cable support to the gallery should be commented on by the structural engineer.
- 3.14.12 Complete**
- 3.14.13 Undertake organ refurbishment project based on advice of Harrison and Harrison. D**
- 3.14.14 REREDOS AND PAINTED PANEL: Generally sound, but affected by dirt and bat excrement at high level and some localised timber damage and loss of details. Further tactical inspection and eventual conservation required.
- 3.14.15 Painted panel showing signs of surface loss and underlying corrosion.
- 3.14.16 Complete**
- 3.14.17 Undertaken detailed survey and conservation trials to painted panel. X**
- 3.14.18 Undertake informed conservation of reredos and painted panel. D**
- 3.14.19 PAINTED SHIELDS TO WALLS: Generally stable, but in need of cleaning and conservation.
- 3.14.20 Undertake conservation of painted shields. D**

3.15 GLAZING

3.15.1 The need for appropriate protective glazing to all the windows has already been noted above. The definitive report is the YGT Report and subsequent advice which is supported by the Architect.

3.15.2 There are common defects to many of the windows, including broken sections, corrosion and damaged leads. A campaign of *in situ* conservation should be undertaken, concurrent with the installation of the new protective glazing and stonework repairs. In the short term, the cleaning of the windows from dirt and bat urine/excrement should be undertaken.

3.15.3 Carry out specialist clean and stabilisation of historic glazing in situ. B

3.15.4 Plan and execute phased glazing conservation and protection in line with YGT recommendations. C/D

3.15.5 **BUILDING SERVICES (cf. TGA Report)**

3.15.6 In general, the existing M&E installations are now deemed to be beyond their life expectancy and there are issues of safety compliance. Major improvement/replacement works are recommended.

3.15.7 Undertake major M&E improvement in line with intended use and environmental strategy, conservation requirements and linked to site-wide infrastructure strategy. Instruct TGA to review their 2017 Report and prepare site specific understanding of Chapel. B

3.15.8 Undertake sub-floor investigations to ascertain condition of former heating network and suitability for re-use of sub-floor distribution voids. X

3.15.9 **MECHANICAL HEATING SYSTEM**

3.15.10 The heating is delivered from the new Castle boilers and central energy plant space. The distribution system is now life expired, there is evidence of leakage and failure which contributes to the high levels of moisture within the space and deterioration of the finishes.

3.15.11 **ANNUAL TEST AND INSPECTION:** A proper test should be made of the heating apparatus by a qualified heating engineer each summer before the heating season begins. The report should be retained in the Logbook. Ideally the heating system should be run at a minimum 9-12 degrees for several hours each day during the winter. This will build up the heat store in the fabric, improve environmental conditions, reduce damp and support quicker more comfortable comfort heating

3.15.12 during the periods of use. The boiler is with the five year post completion check period. The distribution system should be inspected by a qualified engineer.

3.15.13 **Priority M: MECHANICAL SERVICE AND TEST: Annual test, inspection and service by qualified electrical engineer prior to main heating system.**

ELECTRICAL INSTALLATION

3.15.14 The electrical distribution is connected to the Castle system which was comprehensively upgraded circa 2020. The Chapel has upgraded life safety protection with smoke detection and working and security systems. These remain under the contract installation warranty.

3.15.15 **QUADRENNIAL TEST AND INSPECTION:** The electrical installation should have a Fixed Wiring and Inspection Testing (FWIT) every four years by a registered National Inspection Council for Electrical installation Contracting (NICEIC) or NAPIT full scope or ECA full competence accredited registered electrician. A resistance and earth continuity test should be obtained on all circuits. The inspection and testing should be carried out in accordance with part 6 of the IEE Regulations, (BS 7671:2008) guidance note no. 3. The engineer's test report should be kept with the church log-book. This present report is based upon a visual inspection of the main switchboard and of certain sections of the exposed wiring selected at random, without the use of instruments. Any recommendations from this test should be implemented.

3.15.16 **Priority M: ELECTRICAL SERVICE AND TEST: FWIT (fixed wiring installation test) and PEAT by qualified electrical engineer each four years.**

3.15.17

LIGHTNING PROTECTION SYSTEM

3.15.18

The Chapel is protected by a lightning protection system. It is understood the tests are up to date.

3.15.19

QUADRENNIAL TEST AND INSPECTION: The lightning protection system should be inspected, tested and maintained in accordance with the recommendations of either BS6651 or where upgraded BS EN 62305 Part 3 2011, Section 7 and Clause E7. (The BS offers detailed advice on exactly how and when such inspections and tests should be carried out). It is recommended that a full (resistance and earth continuity) test with visual inspection of tapes and fixings is carried out every 4 years due to the site exposures, with an annual visual inspection only taking place each year; this can be coordinated with any routine service agreement with a reliable competent building maintenance company. Test certificates should be included in the Chapel Logbook.

3.15.20

Priority M: LIGHTNING PROTECTION SYSTEM: quadrennial test.

3.16 Date of next inspection:

April 2027