31 August 2021

St. Colemans Church,

Macroom,
Co. Cork.

Structural and Condition report :

Macroom Church Of Ireland,

Co. Cork

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Contents:

1. Introduction.
2. Building context/ site description.
3. Building condition and recommendations:
4. Summary of conclusions.
5. Appendices.

1.0 Introduction:

Design Forum Architects and Ray Keane Engineers were engaged in July 2021 to review the existing information available and provide a new report to establish the current Structural and General Condition of the building and to provide a schedule of conditions relative to the elements identified in Section 2.0.

The ongoing Macroom Bypass project has introduced new scope and potential for sensitive development opportunities within the town centre once so badly affected by heavy traffic.

The Church of Ireland Church, Macroom dates from 1825, and sits within an enclosed graveyard overlooking the castle and bridge at Castle Street. The building has huge potential both in its setting, scale and atmosphere to make a significant contribution to the cultural, community and heritage offering in the town.

This report should help to establish the basis and validity of proposals for the Macroom Church of Ireland refurbishment project, and to support Cork County Council in their applications for Planning and Government Funding.

Condition surveys and investigations were carried out in the 1990's. The 1991 Survey Report identified priority areas for repair and replacement, for example the floor and sacristy area. Some of these works were incorporated by the time the 1999 Survey Report was prepared. A further report was carried out by Fourem Architects early 2000s'.

This initial condition survey was non-intrusive, to assess and record the condition of the existing building. Some intrusive and investigative works may be required to enable the existing construction / structure to be fully assessed.

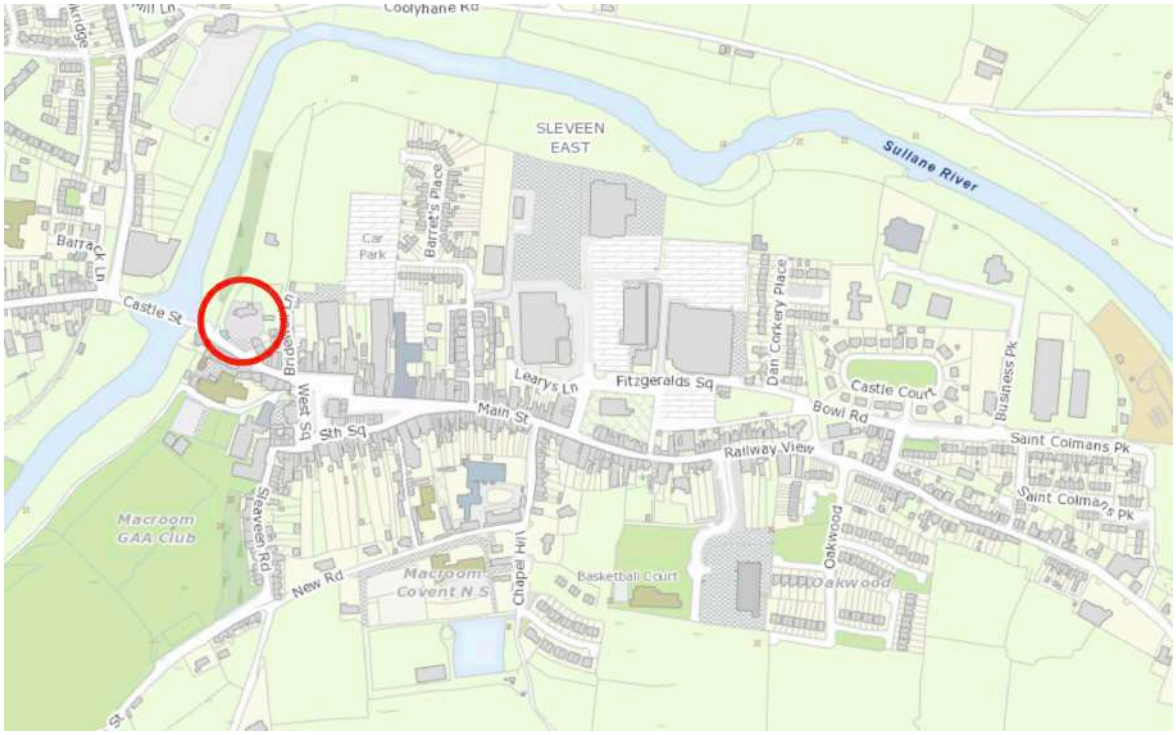
The surveys will subsequently be used to determine appropriate methods to carry out refurbishment, repair or upgrading to the elements identified.

The report sets out an outline conservation strategy, identifying a list of must do, should do and could do conservation works.

The scope of the survey is related to internal and external elements of the building and encompasses all levels i.e. identification (outline) of the tombs below ground, Ground, First (tower), Second (tower) and Roof levels. No areas are specifically excluded.

2.0 Building context/ site description.

The building is located at the Western End of the town of Macroom, alongside the Sullane River and across from Macroom Castle.



• *fig1. St. Colemans Church location.*

2.1 Recorded monuments:

There are two recorded monuments on the site CO071-050001, the graveyard itself and CO071-050002 the Church, earlier 1669 structure of the Church (Tower) was rebuilt form c.1825. Nave, and Porch and and tower were added and the church extensively rebuilt, with work attributed to Richard Pain 1869. Interior later remodelled again in 1898.

2.2 NIAH Listing:

The Church itself is on the National Inventory of Architectural Heritage, Registered No. 20852022, dated 1820-30, rated as of Regional importance.

Listing Description:

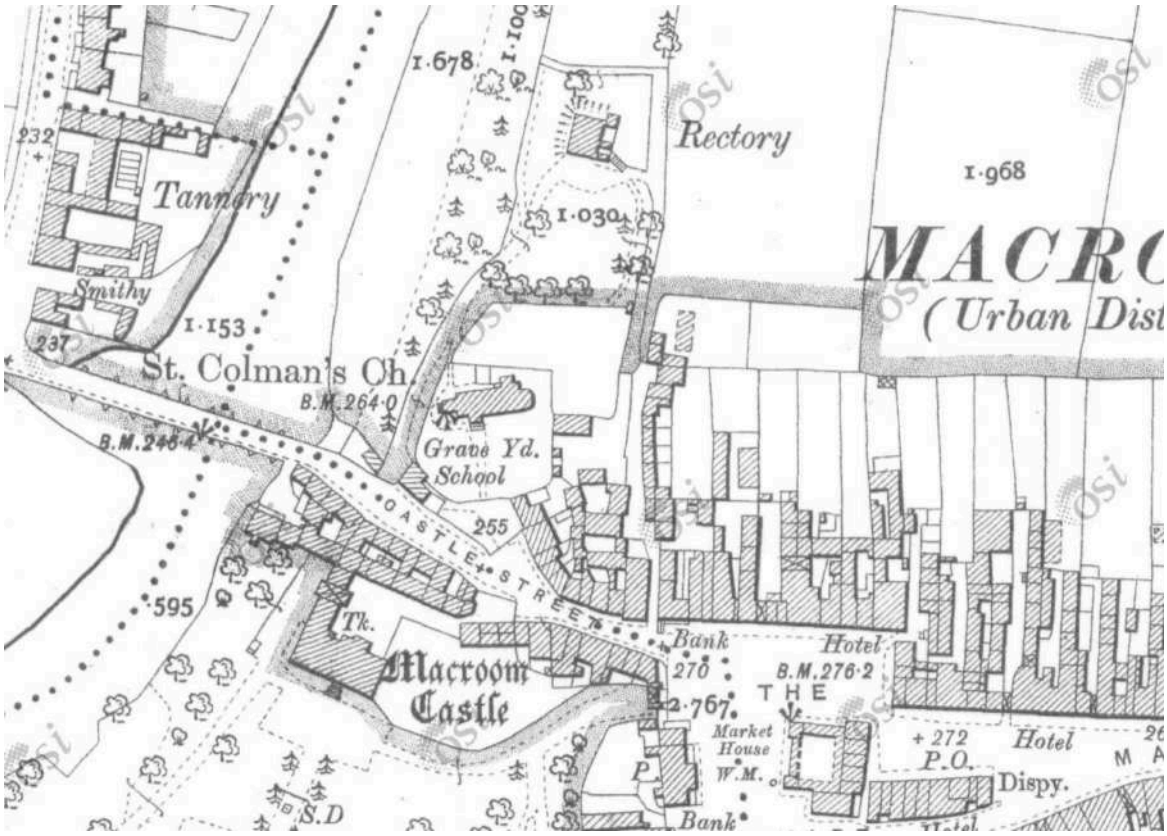
Freestanding double-height Gothic-Revival Church of Ireland church, built 1825, having five-bay nave with three-stage entrance bell tower to side (west), gable-fronted porch to front (south) of nave, bowed three-bay chancel to east, added 1869, and recent extension to rear (north) of nave. Interior remodelled 1898. Pitched slate roof with ceramic ridge cresting, having uPVC clad eaves and uPVC rainwater goods. Carved limestone corner

pinnacles, crenellations and cornice to tower. Bowed hipped slate roof to chancel. Tooled limestone gabled parapet with corner pinnacles to porch. Dressed mixed stone walls with tooled limestone quoins to tower, having tooled limestone string courses separating stages. Engaged tooled limestone blocking buttresses to tower corners, having helmed coping and trefoil-headed panels. Carved limestone buttresses with pinnacles to porch. Pointed arch window openings with tooled limestone sills to nave, having cut limestone block-and-start surrounds and hood mouldings. Bipartite lead-lined stained glass windows within reticulated tooled limestone tracery to front elevation window openings. Single-light pointed arch lead-lined stained glass windows to rear elevation and western bay of front elevation. Pointed arch window openings with tooled limestone sills to chancel, having tooled limestone hood mouldings and block-and-start surrounds. Lead-lined stained glass windows to tooled limestone ogee headed tracery. Pointed arch window openings with tooled limestone sills to third stage of tower, having block-and-start limestone surrounds and hood mouldings, openings blocked with timber panelling. Square-headed window opening with tooled limestone sill and label moulding with carved label stops to second stage of tower, having tooled limestone mullion and cast-iron quarry-glazing. Pointed arch door with tooled limestone hood surround and hood moulding with carved label stops to tower, having chamfered diminishing reveal, timber panelled door and tooled limestone steps. Pointed arch entrance opening with tooled limestone surround and hood moulding with carved label stops to porch, having tooled limestone stepped approach. Square-headed door opening to interior of porch having replacement double-leaf timber battened doors. Square-profile rendered piers to front of site with cast-iron gates. Set within graveyard.

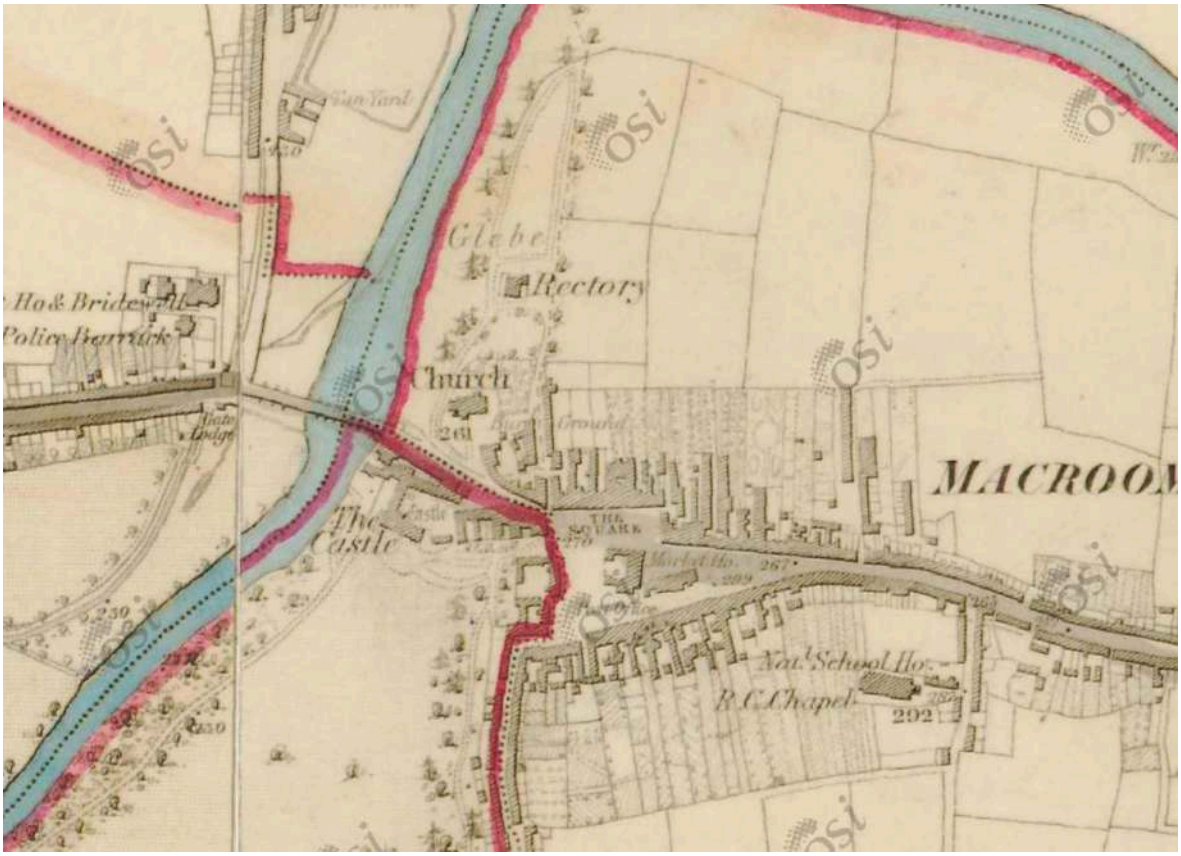
NIAH Appraisal:

This is an interesting example of an elaborated church and tower built with the aid of a grant of £1000 from the Board of First Fruits. Designed by George Richard Pain, the chancel was added by Welland & Gillespie in 1869, while the stained glass is by Heaton, Butler and Bayne. An excellently designed and crafted building, is a fine example of the work of George Pain, who designed many architectural delights in the nineteenth century.

• *Fig 2. Zones of Notification (Section 12) and NIAH/ RMP identification*



• *Fig 3. St. Colemans Church location. C 1900*

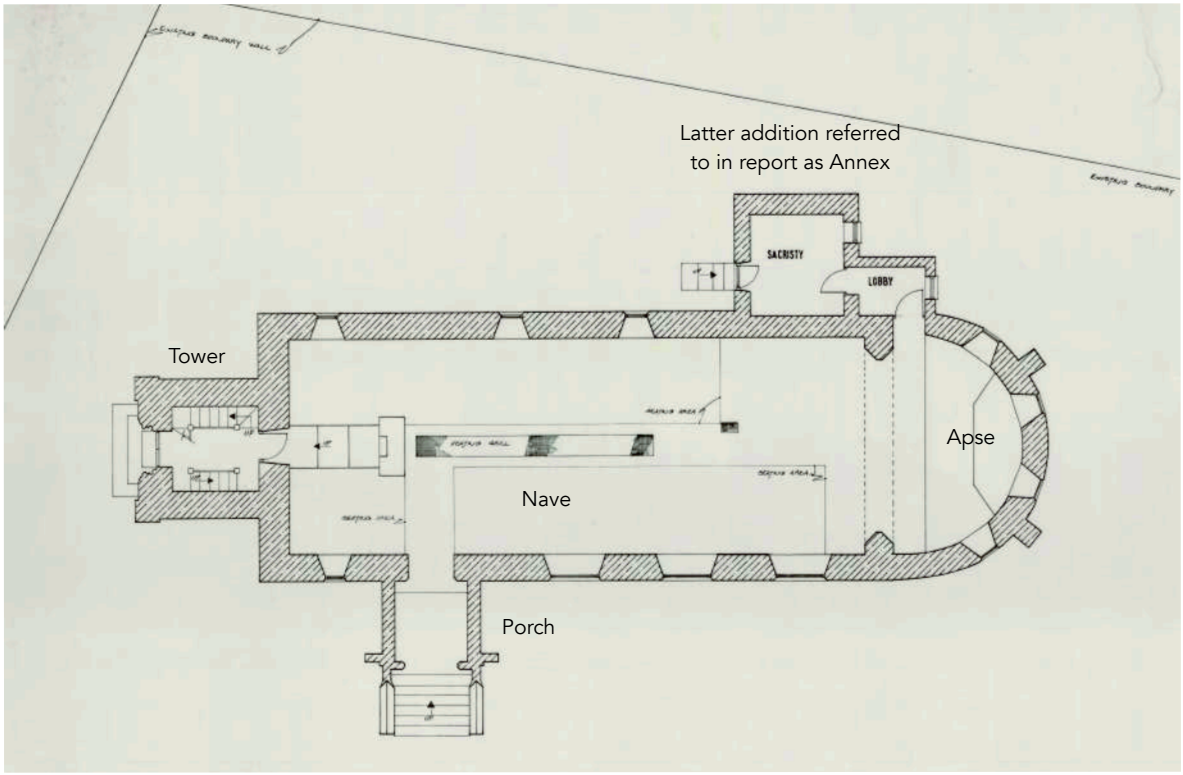


• *Fig 4. St. Colemans Church location. C 1850*

3.0 Building condition and recommendations:

3.1 Recent History.

We understand the building has been unoccupied since the late 1980's/ early 1990's and not long after c1994 after the building was deconsecrated, work commenced on the conversion of the bunuodling as a 'Youthreach' facility for the town.



• *Fig 5. St. Colemans Church plan before commencement of 1990's work.*

At the time conversion works commenced 1994, according to correspondence from Niel Murphy B.E to Macroom UDC the work included:

1. Removal of 'defective' windows and making safe and blocking up opes.

2. Securing of building against trespass.

3. Hacking down internal plasterwork

4. Removing internal doors.

5. Demolition of an annex to rear and construction of larger replacement.

6. Laying of new internal floor.

7. Installation of floodlighting.

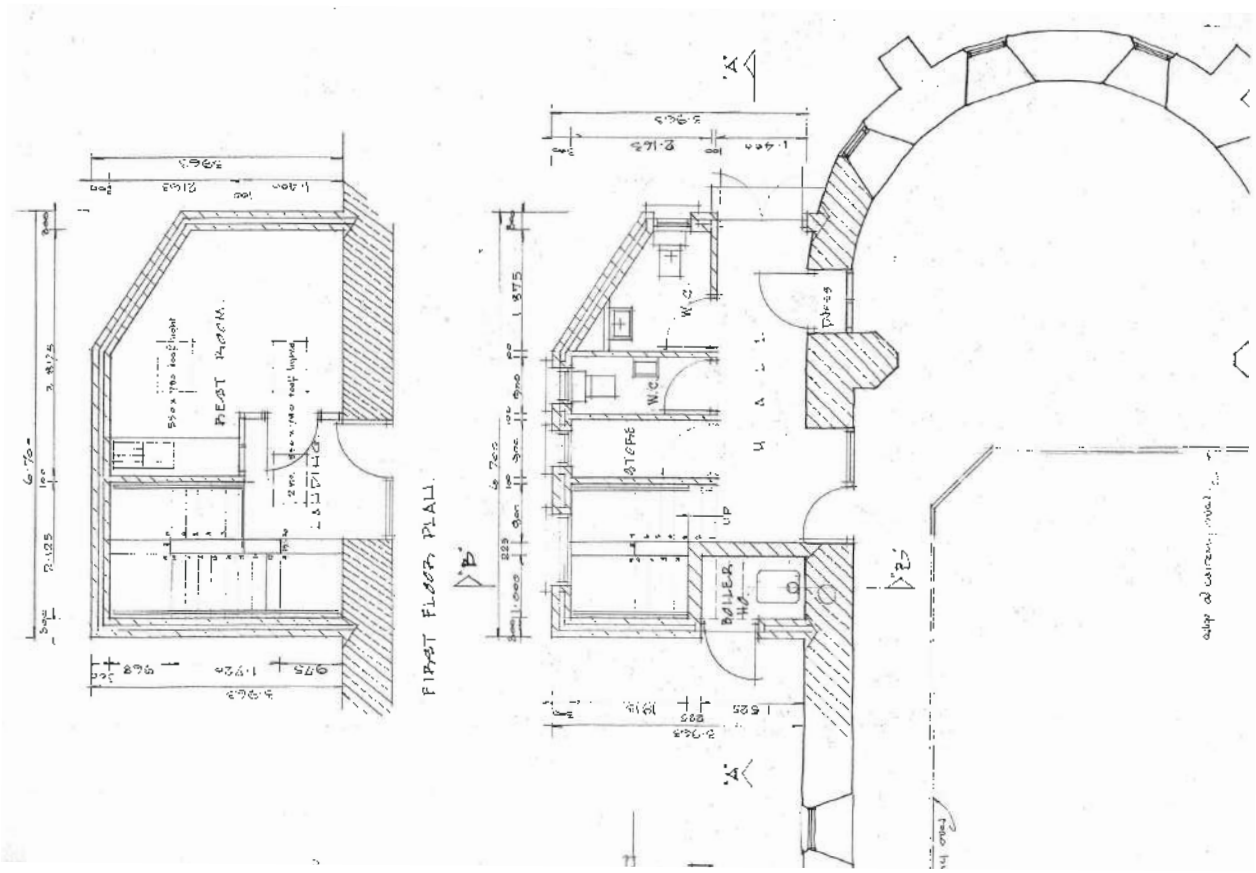
8. Laying underground surfaces.

9. Main roof trusses were exposed and examined and roof structure surveyed.

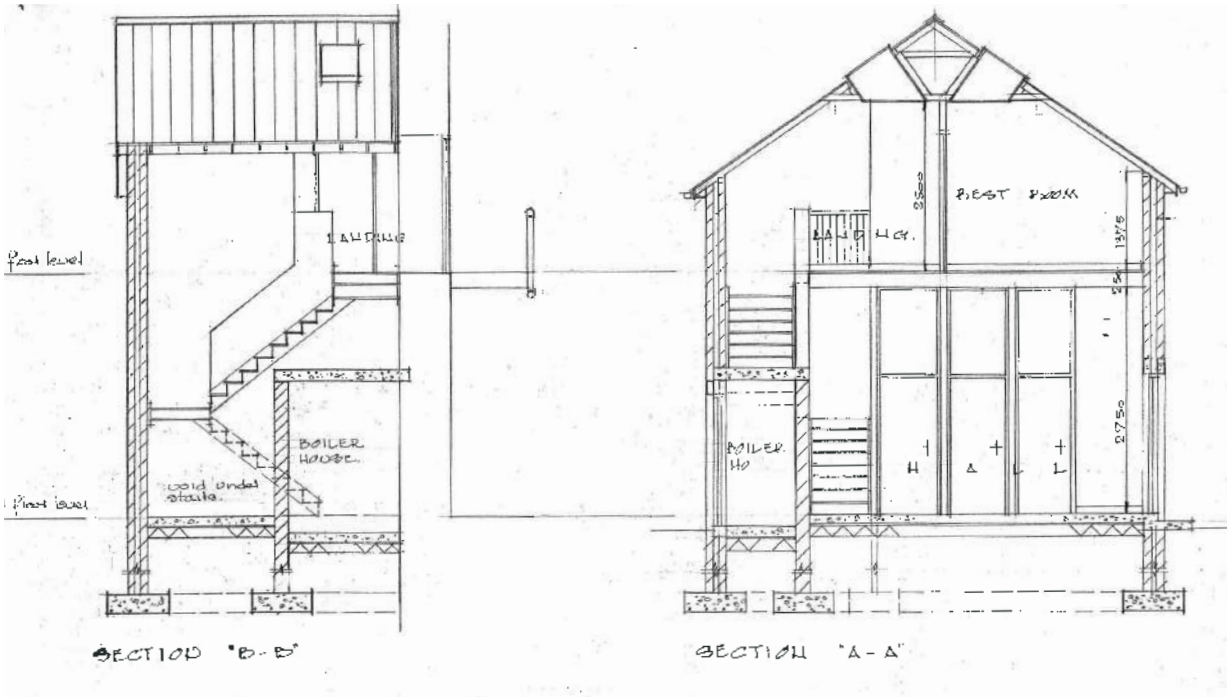
10.Roof was stripped and re-slated, with new PVC gutters and rainwater goods introduced.

The rest of proposed works, which were to include installation of new windows, new Mezzanine floor and general cutout including wiring, plumbing, central heating etc were to commence later, but remain unfinished.

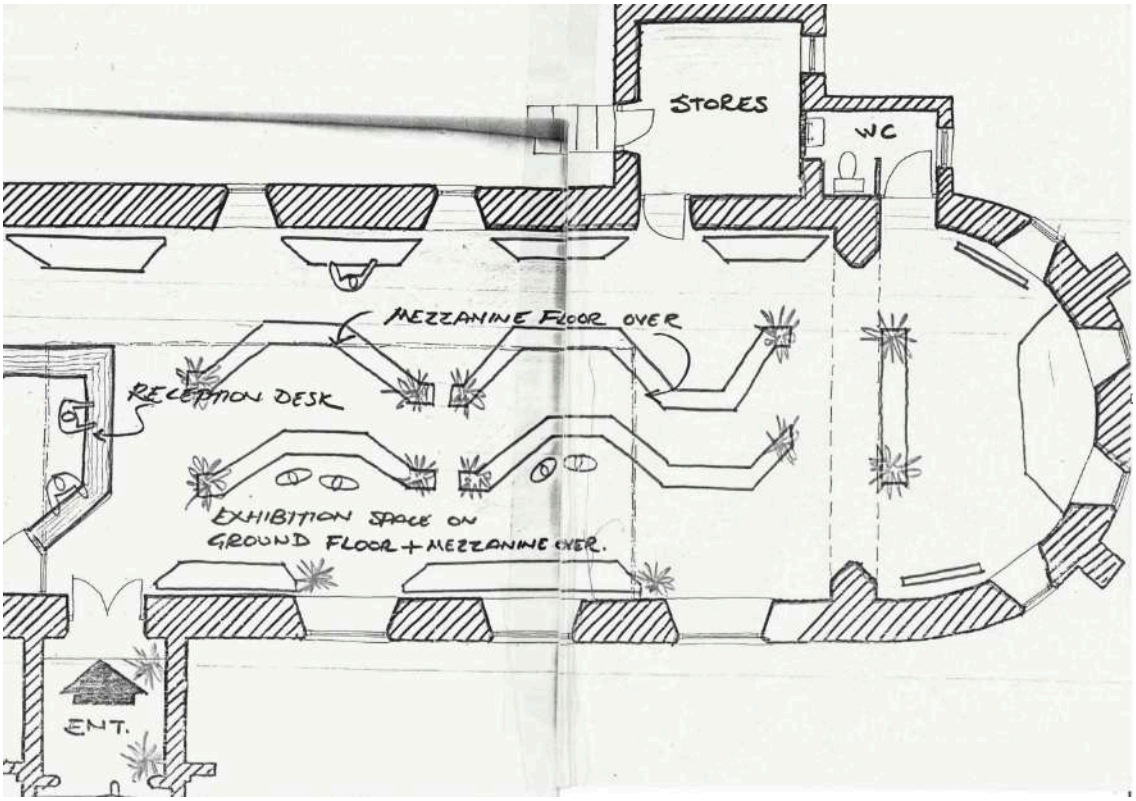
We would recommend trying to find photographic records prior to and during the works undertaken and including these in a comprehensive building record.



• *Fig 6. Proposals for rear replacement Annex, now partially completed.*



• *Fig 7.Proposals for rear replacement Annex stairs and , plans for new Mezzanine floor within Church.*



• *Fig 8. Sketch proposals for Church interior layout.*

3.2 Building exterior: Selection of External general views.

• *Fig 9. Church Approach.*

• *Fig 10. Cemetery and Church Approach.*

• *Fig 11. Proximity of Church to town centre.*

• *Fig 12. Church from SE corner of Cemetery.*

• *Fig 13. Church tower from SW.*

• *Fig 14. Southern approach elevation of Church.*

• *Fig 15. Southern approach elevation of Church.*

• *Fig 16. Entrance porch.*

• *Fig 17. Entrance porch.*

• *Fig 18. Entrance porch.*

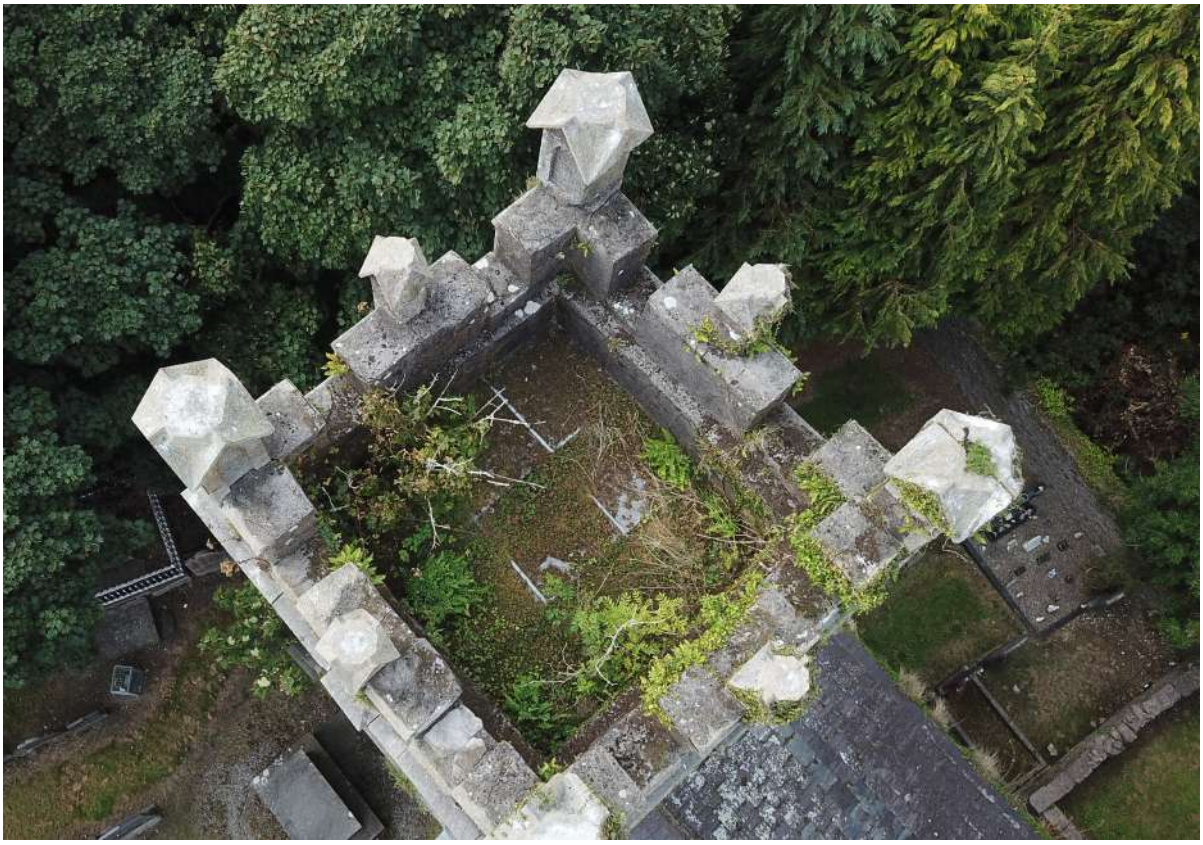
• *Fig 19. Entrance porch roof.*

• *Fig 20. Tower viewed from West.*

• *Fig 21. Tower viewed from East.*

• *Fig 22. Tower viewed from South East, and abutting roof.*

• *Fig 23. Tower from above.*



• *Fig 24. Tower roof from above.*

• *Fig 25. Tower roof abutment SE corner.*

• *Fig 26. Tower from North.*

• *Fig 27. Tower vegetation/ growth.*

• *Fig 28. Tower vegetation/ growth.*

• *Fig 29. Tower window.*

• *Fig 30. Rear North elevation with tower to right and partially completed annex to left.*

• *Fig 31. Rear North elevation with partially completed annex ahead.*

• *Fig 32. Rear North elevation with partially completed annex ahead.*

• *Fig 33. North East rear elevation of partially completed annex.*

• *Fig 34. North East rear elevation of partially completed annex and back of Apse.*

• *Fig 35. Partially completed annex and back of Apse.*

• *Fig 36. Partially completed annex and back of Apse, from roof level.*

• *Fig 37. Rear of Apse, from roof level.*

• *Fig 38. Apse, from South East.*

• *Fig 39. Tower entrance.*

3.3 **Building Interior:** Selection of views:

• *Fig 40. Interior looking to Alter (East).*

• *Fig 41. Interior looking to Alter (East).*

• *Fig 42. Interior looking towards tower (West).*

• *Fig 43. Interior looking to Alter and new entrance made to link to rear annex, with mezzanine access above.*

• *Fig 44. View from Alter to door original lobby to Sacristy. Now access to annex.*

• *Fig 45. View above same location as above (fig 44).*

• *Fig 46. View towards alter.*

• *Fig 47. Access to Annex from alter.*

• *Fig 48. Access to Annex from in front of alter.*

• *Fig 49. New opes formed in North wall forming access to Annex.*

• *Fig 50. Inner North wall with stripped plaster and new opes.*

• *Fig 51. Inner North wall with stripped plaster and new opes.*

• *Fig 52. Rear Western wall in church with access to tower.*

• *Fig 53. Rear Western wall in church with access to tower, and front entrance on left.*

• *Fig 54. Partially completed Annex building with mezzanine access landing.*

• *Fig 54. Partially completed Annex building looking East.*

• *Fig 55. View up inside tower.*

• *Fig 56. Panelled ceiling and exposed roof trusses.*

• *Fig 57. Looking South through entrance lobby.*

• *Fig 58. Looking South alongside entrance lobby, with temporary ESB supply panel.*

• *Fig 59. Roof underside and arch over alter.*

• *Fig 60. Roof underside and arch over alter, with signs of movement to left and mid span.*

• *Fig 61. Signs of movement to left of arch span.*

• *Fig 62. Perimeter 'duct' left around new RC floor around church. Indication of some minimal insulation.*

3.4 Building fabric report:

3.4.1 General:

The building appears to be sound generally in part because of the roofing works and replacement of rainwater goods carried out already in mid 1990's, which have kept much of the weather out! Ironically the broken and missing windows have also maintained a regular airflow through the structure that has also maintained the interior, with positive natural ventilation.

There is some evidence of settlement that will be picked up more in the Structural report, but which does not appear to be too significant or irreparable.

The work carried out in 1993-4 might be more questionable in some parts nowadays in terms of best conservation practice but in general they have helped secure and consolidate the structure!

Materials used would be questionable too and some other work carried out on the building in moor recent past would also be problematic in parts. The bigger issue being the use of non breathable cement based mortars and pointing.

It would seem that the internal walls may have been injected with a chemical DPC around the floor level also, and while this was quite common practice in older buildings at the time, its efficacy would always be questionable in such deep masonry structures, and it is most likely to have been of little or no value.

The introduction of a concrete slab in the building might also not be best practice in current thinking, where maintaining breathability would have been of more value. The floor level is generally elevated above external ground level however, which probably minimises the capillary rising dampness, and other measures might assist in addressing this issue.

The extension to the rear of the building might have been more delicately handled and its interface with the existing building, however we assume budget constraints and limitations would have been a factor in the proposal as built. A dilemma now, other than Conservation best practice is the upgrading of what has been built to meet regulations. This might be a matter for further debate once plans develop for the rest of the building and site.

At the time of reporting the proposals for the building were not reviewed, but the earlier scheme had proposed an internal mezzanine and link to rear annex stairs and toilets with boiler house for central heating plant.

3.4.2 **Roof:**

The building was re-roofed c1994. There may be some concern about the trusses and a slight dipping of the roof plane on both North and South sides of the main roof but this might be reviewed separately under RKA structural report.

Natural slates were used in the re-roofing and possibly an element of salvage of slates from the original roof. Slates appear basically sound across the roof generally, but there are certainly some slipped slates and some flashings in need of attention. Ridge flashings/ tiles to rear annex roof are missing and lead ridge flashing to entrance porch needs urgent attention.

Rainwater good thought the roof are PCV along with what appears to be UPVC fascias in places. This has served its purpose and helped keep much of the dampness and rainwater out. It should be replaced in due course with suitable appropriate cast iron (or potentially cast aluminium) oge moulded rainwater goods. Where all original fabric is lost, a lower cost and durable cast aluminium alternative could be considered arguably, depending on budgets.

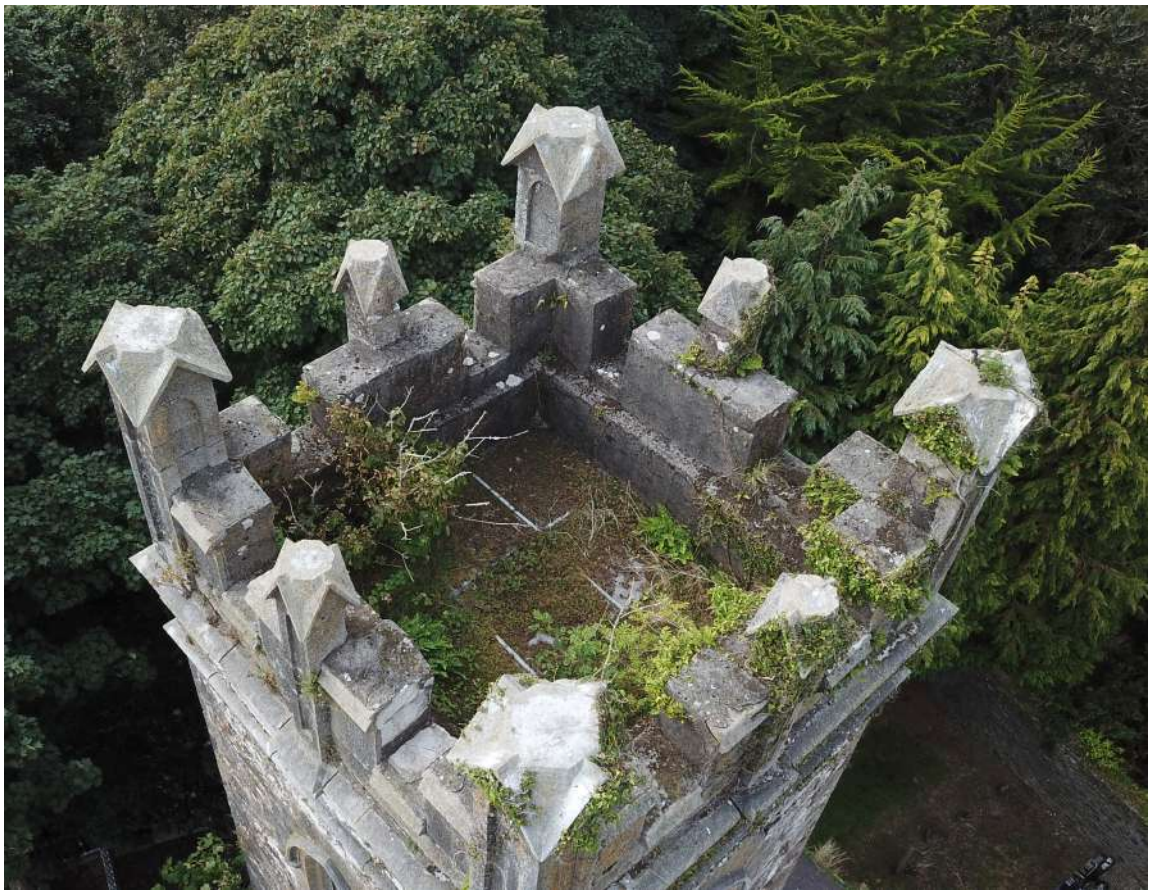
Where lead flashings meet masonry walls and are often dressed over with sand cement mortar this detail leads to its own difficulties, and should be addressed.

Roof gutters generally need urgent attention to maintain their operation in short term. This might be one priority action for the site.

The same applies to Church and rear Annex roof gutters and down pipes, front and back of the building.

The roof of the tower of the Church also appears to have been addressed as part of the rest of the roof works. It looks like this may have had a lead roof repair at the time? Much sand cement mortar and render has been put on the upper level of the tower and it is possible that this may have been a part of creating a 'ring beam' to support the Castellations at the roof level.

Inevitably outlets out of reach become blocked up and growth is normal enough in these situations. The proximity to some fine surrounding trees is sadly another part of this problem, and some guided pruning would be no harm especially to trees in contact with the building.



3.4.3 **External walls:**

The building was constructed with stone walls and lime based mortars originally. The rear elevation to the North, not unusually was plastered in its time and it is possible that more of the external walls were also originally lime plastered.

The greatest challenge in many ways is the more recent repair work carried out in cementious renders and created their own set of inevitable developing problems. The problems of trapping moisture in the walls with non breathable render/ pointing is exacerbated by lack of drying internally and the building remaining unoccupied for as long. Removing the 'new' sand/cement pointing would be an extensive project and maybe it might not be entirely practical to carry out this work at the start of the project. The areas where it has become an issue should be more closely investigated and perhaps a phased approach to this issue might be adopted.

As mentioned above the counter render over and above flashings is one very specific issue, in that water above the flashing line cannot escape and effectively over Tim rendered the flashing ineffective.

The other area of concern is the more vulnerable stone details and their securing to the building. Some have had pointing eroded over time and possibly corrosion of mounting dowels or similar underlying issues, and others are open joints now encouraging growth which in turn opens the joints further and adds to the issue.

Growth should be addressed and removed and follow on re-pointing to lessen possibility of re-growth.

Care would need to be taken to have this work carried out by mason as opposed to landscape crew/ tree surgeon!

A concrete (cement based) plinth band has been introduced at the bottom of the rear (North) wall of the Church and may have been added relatively recently. This tends to make it harder for moisture travelling down the wall to escape, and has the opposite effect and drives rising dampness further up into the building. This should be removed in a few areas and wall examined behind. The objective should be its total removal.

Much of the North Facade has retained its lime pointing and remnants of its original render.

The South side of the building has been extensively re-pointed with S/C mortar which has in itself started to fail and needs remedial attention.

3.4.4 **Stone details:**

Tower:

The Tower has fine Carved limestone corner pinnacles, crenellations and cornice, and dressed mixed stone walls with tooled limestone quoins, having tooled limestone string courses separating stages. Detail appears to have been lost and some further research may be needed to see what might have capped the pinnacles. While some work was clearly done at this level in recent years, with significant concrete internal parapet added, the point needs attention, and concrete condition needs survey.

There are finely tooled limestone blocking buttresses to tower corners, having helmed coping and trefoil-headed panels. The level of growth in the tower indicates the amount of pointing required and moisture retention resulting from same.

The following image also indicates the amount os S/C heavy pointing to the SW corner of the Church and tower.

Porch:

There is a tooled limestone gabled parapet with corner pinnacles to porch, along with carved limestone buttresses with pinnacles to porch. Sadly there is detail missing here too it would see, and a little research might uncover some evidence of what was there? Dowel fixing holes can still be seen.

3.4.5 **Windows:**

The pointed arch window openings with tooled limestone sills to nave, having cut limestone block-and-start surrounds and hood mouldings to others.

The windows themselves are removed in some areas and some are damaged in-situ.

Externally windows are protected with steel mesh, and the main larger windows along Nave are reasonable safe and secure. In the less protected and smaller opes there is more damage, and repairs needed. Storm glazing/ secondary outer screen might be more appropriate in future?

Damaged windows.

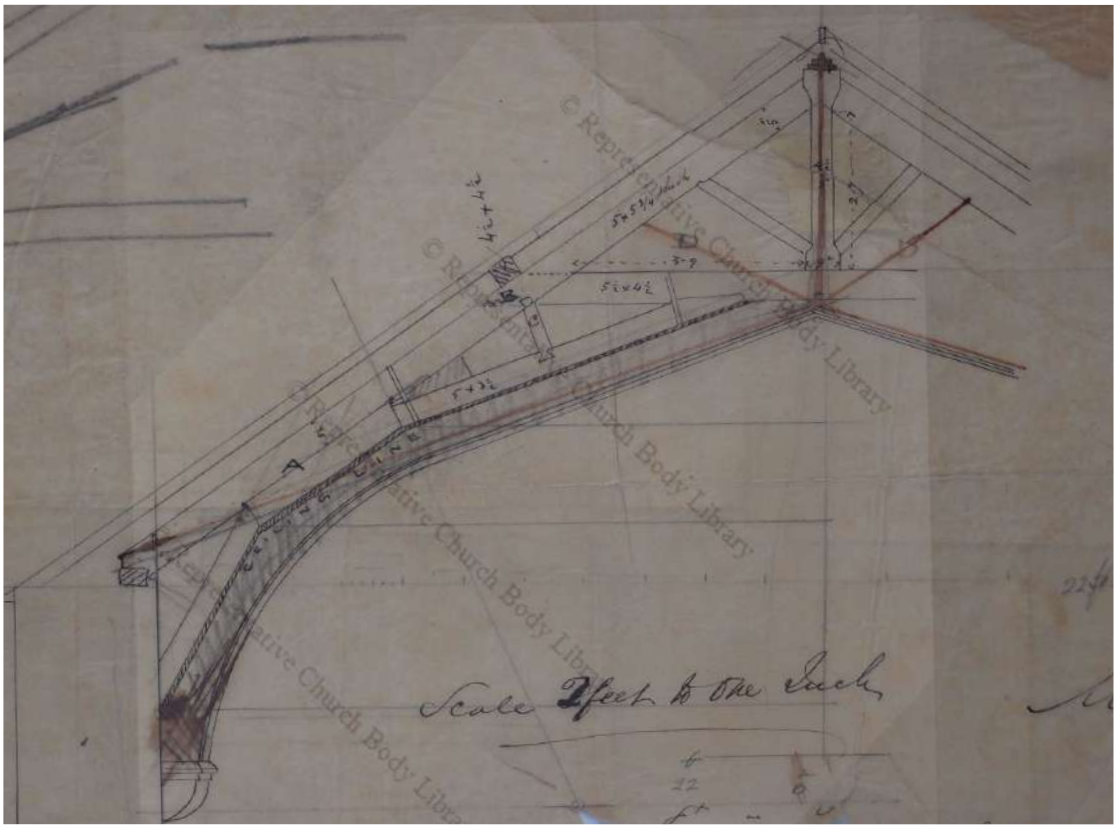
In oder to conduct a full and detailed close-up survey of windows, including lead work and bedding of frames/ support structures, a platform/ ladder access would be required. We would like to see the general closer condition in due course and particularly where one of the stained glass windows behind the Alter in the Apse has been damaged and is in need of significant repair. This window should be better protected ASAP.

3.4.6 **Doors:**

The doors have sadly all gone and will need replacement in due course. All door opes have been blocked up and secured.

3.4.7 **Interiors:**

Roof/ Ceiling: The roof trusses will need closer inspection once access can be arranged. The unusual structure of the trusses is to the original Design, indicated in sketch (RCB Library) from c1868

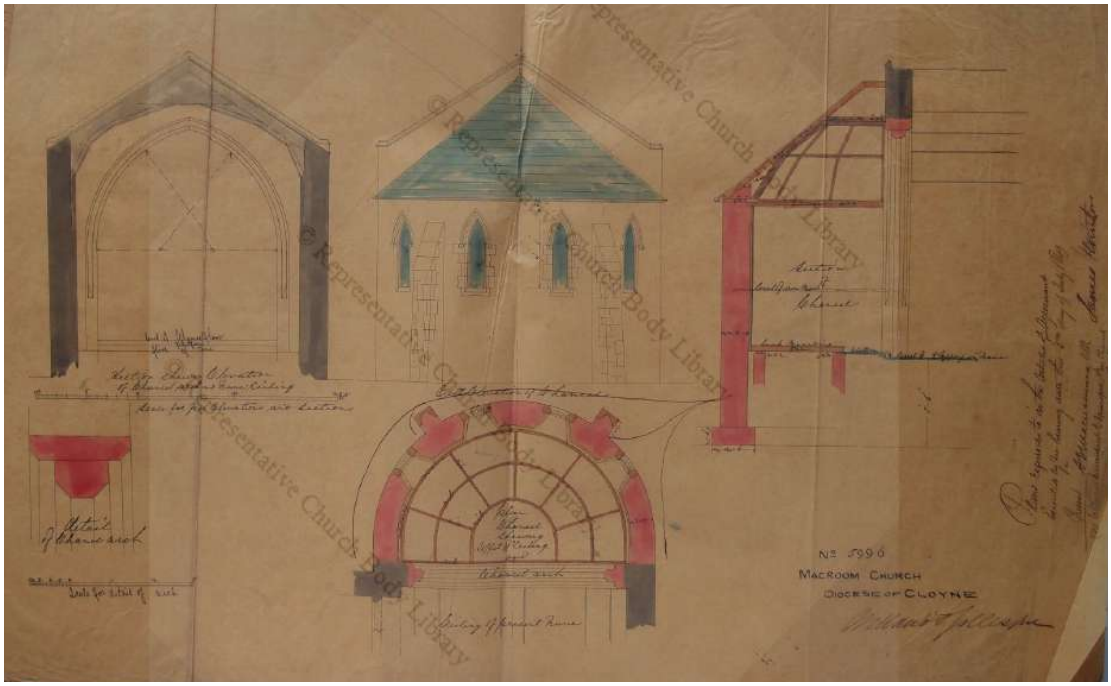


• *Truss original design drawing 1868 (RCB Library).*

The wall plates and timber generally should be inspected more closely once elevated platform is available to provide the access. Timbers close to external walls may need to be treated while roof works are ongoing. It is clear the current ceiling timber battens are new and the original ceiling line in drawing above were lower down, or at least intend to

be lower in the Nave. Rafters look to have been replaced when the roof was re-slated, and there is a chance the wall plate was also changed in places, but hard to confirm from ground level.

The Ceiling over the Chancel is significantly different and plaster details remains. Welland & Gillespie drawings of the Chancel who this addition to the rear of the Pain building. Drawing dates from 5th July 1869.

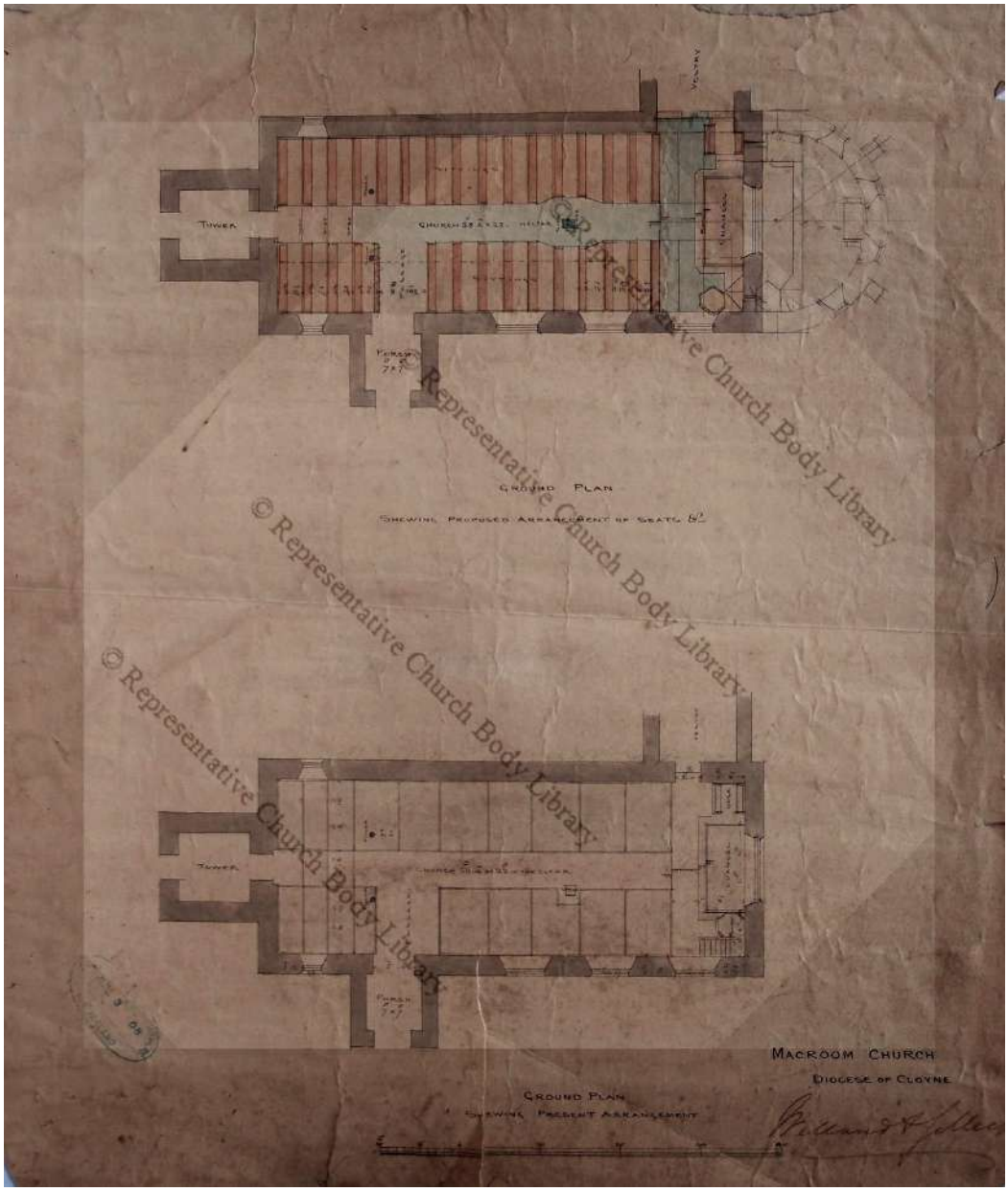


• *Chancel designs from July 1869 (RCB Library)*

Internal walls:

The internal walls have all had their lime plaster removed. This has exposed the masonry behind in the entire space, with the exception of some areas where plaster remains in the Chancel.

Earlier drawings 1869, suggest the form of the building before the chancel was added. Rear (North) windows in Nave were added after this stage, and the Chancel built, after removal of the rear wall behind the alter. The wall to the Vestry was more open as well.



• *Chancel designs from July 1869 (RCB Library)*

3.5 **Recommendations:**

Repairs St. Colemans

3.5.1 Mortar/ Pointing.
One of the typical challenges facing a structure such as this is the later use of sand/ cement mortars and pointing trapping in moisture in the walls. This is a very common problem and very typical of buildings of the type and era. Remedial works often involved adding new non breathable impervious mortars in an effort to address dampness issues. Sadly this tends to do the opposite and traps external rainwater and moisture getting in behind in any areas that are not perfectly sealed and this water finds it very difficult to escape. The other source is dampness/ condensation within the building being unable to escape.

This issue will need to be addressed, by removal of cementious material and repointing where practical with lime based mortar mixes. The extent of the repair and reinstatement would need to be reviewed by removal of a few sections. This is sometimes quite invasive and possible better not carried out across the entire building, but often this failed additional cement based pointing is not too deep and can be relatively easily removed. The resultant repaired surface can be far more attractive as well, and improve the appearance of the building. Removing pointing in places often results in a flow of water trapped within the structure of the wall!

Evidence of Slating inside tower would certainly be pointing to damp issues. The tower will need to be investigated for poor reports as above, and flashings should be closely reviewed. It may be advisable to introduce counter flashings above stone banding details, with good depth of bedding, if these are found to be a problem on closer inspection. (Access at height required)

The rear wall appears to have had less pointing but has lost its earlier hailed lime wash finish coat. Consideration should be given to its re-instatement, but might be part of a discussion on the proposal for the inner lining/finish of the walls. Repointing works should be carried out on this elevation as well regardless.

A few tests would be recommended.

3.5.2 Rot in timber as a result:
It would be important to check wall plate level decay. Inspection of all timbers that have been in contact with damp walls would be essential and a plan for protection of the timbers in these situations should be developed with a Rot/timber decay specialist. Boron or similar treatment may be appropriate.
The roof works carried out in the 1990's have certainly helped save the structure and prevented further decay.

We would recommend a detailed structural appraisal of embedded heads and load bearing items would be an essential recommendation, once access to upper levels is available.

3.5.3 Rising damp:

No reading were taken of the levels of dampness in the lower walls in the Church. It would appear from the line of holes around the lower base of walls, that the walls might have been chemically injected around the perimeter. The effectiveness of this treatment is likely to be minimal in such deep masonry walls, and this would not be seen as best practice nowadays in terms of addressing rising damp issues. Assuming it would have had minimal effect, and the addition of new non breathable floor slab will have exacerbated to the situation. We would recommend efforts be made, with Archaeological support, to explore the option of introduction of a 'French drain' around the perimeter of the building to aid removal/lowering of ground water immediately outside the building where elevated. General measures to improve drainage around the building and take off build up of water around the building can help significantly.

We would recommend exploring this option with the team Archaeologist, to establish if it is viable and to what extent it can be carried out with minimal impact on burials etc. This drain would be covered neatly in gravel and not visible on completion.

3.5.4 Concrete floor in Church:

The removal of the original Church floor, and its replacement with a new concrete slab may not have been the best solution. One the one hand it may force more water up the walls of the Church and on the other hand it might actually have stabilised the wall base structure a little. It would seem unwise to consider its removal at this stage. The introduction of drainage as above would hopefully mitigate against additional exacerbation of dampness issue.

Recommend external drainage as above. We have tried to get more information on the floor structure/ and insulation etc to confirm what has been build, but not yet available. It would be a good idea to try to establish what is in the ground.

3.5.5 Annex/ extension:

This extension was part of a proposal to access a mezzanine in the Nave. The work was never completed and what was done was a fairly basic (budget constrains no doubt) 'back of house' facility to support the then plans for the relocation of facilities into the building. Its roof has been somewhat exposed by loss of ridge tiles/ capping and its unfinished state makes its condition fairly poor. It was a plan to locate a plant room for central heating here as well as stairs to above, and toilets below.

The future of this structure depends very much on the emerging plans for the use of the building, as planned develop. While not a particularly sympathetic addition, it might be

more practical depending on the brief, to complete and upgrade this structure, than to remove and replace. We might recommend a closer look once the plans emerge for the development of the building.

3.5.6 Services:

It would seem that some connections were planned for toilets in the rear annex, however this would need to be established. Some opening up may be required. Any excavation would require Archaeological input.

The proposal had been to introduce a central boiler and presumably radiators, or perimeter radiant pipe in void left in floor perimeter. The best proposal for addressing M&E installations would depend of the plans for the development and how the building might be used. Radiant overhead heat panels may be the best solution minimising pipe runs etc and the need to heat the volume is only used intermittently?
Services are likely to be surface mounted and should try not to chase or cut into the existing fabric. Fit out or installations might conceal M&E fit out without needing to impact on the structure.

We would suggest a solution follow the proposals for the use of the building, and be informed by same.

3.5.7 Roof:

The roof on the building appears to be in reasonably good condition and has protected the structures below for almost 20 years. There would be a need however to look more closely at flashings and lead-work specifically. Much of the investigation needs upper level access but issues can be seen from below. There is a little dipping in the roof, that might be picked up in RKA review, and may need further investigation.
UPVC fascias if at roof level should be replaced as roof gutters and rainwater foods are being addressed.

We recommend that a detailed review of the flashings be carried out and the roof investigated more closely from a scaffold in due course. We should assume that flashings to tower and abutments be replaced and cement pointing above be removed. The cuts for the flashings should be chased in adequately and an upstand introduced at the rear of the buried sections of lead flashings to intercept damp/ penetrating water.
Ridge flashings damaged or missing on porch and annex should be urgently re-instated.

3.5.8 Rainwater goods:

The UPVC goods on the building served their purpose and along with roof repairs managed to keep most rainwater from above out of the building.

We would recommend these should be replaced with cast gutters and downpipes as part of a plan of refurbishment of the building. The replacement profiles can be informed by similar buildings of the same vintage and design. In interim the existing gutters should be cleared and downpipes all freed-up. Rain water should be intercepted in galleys around building, and taken away.

3.5.9 Windows:

There are some damaged windows and they should be protected asap from further damage. The rear Chancel stained glass window that is damaged should be afforded support internally to prevent further collapse. Ideally the damaged windows should be restored and fully repaired. There are a few stained glass artists who could advise and make recommendations in this regard.

We would recommend appropriate protection for now, and more detailed review. The option of 'Storm Glazing' externally should be carefully considered, as this would afford protection from vandalism and storm damage, and offer a degree of shielding from the elements, with some marginal thermal benefits. The void would be ventilated.

4.0 Summary of conclusions:

The building is relatively sound and in reasonable condition, while fairly significantly altered internally. Structural review will address the movement in a few locations an identify recommended repairs as required.

Repair works to external defects should be the first to be carried out. The repair of defects requires care and skill. Repairs should be kept to a minimum, and minimise impact on the building as much as possible.
A long term strategy for the site should be developed and renewed as part of the continual management process. Careful consideration should be given to the maintained and repair of the site. Record should be maintained of the history of repairs in visual and documented form.

Fabric should not be removed from the site without agreement and careful recording.

All alterations or additions should be carefully planned and suitably qualified professional advice sought.

A separate discussion might follow this report regarding proposals and interventions.

4.1 Immediate actions /repairs recommended:

4.1.1 Short term:

In advance of any development and while plans are being advanced for new use:

- Roof level access: Immediately we would suggest getting a small works contractor to arrange access to upper level for a closer look at some of the problem areas, inside and out. This might allow an opportunity of a temporary re-fixing of any loose lead work/ capping to Porch etc.
- Clearing gutters: This contractor might clear all gutters as a matter of urgency and all downpipes from same.
- Opening up: This could be done by same visit and from same access, where required.
- Review of ground level drainage and services below ground.
- Review of Archaeological constrains on site and plan for works.
- Easier (temporary) door access to the building to facilitate access and works.
- Securing and further protecting all windows in so far as possible.
- Arranging windows review and report, specifically on stained glass windows.
- Removal in so far as practical of significant growth in tower particularly. This would need to be carried out by builder/stone mason ideally and not landscaper/ parks team. The removal might weaken structures behind.
- Continue research of works carried out in 1990's and condition of new extension.
- Some security lighting particularly to rear might be appropriate if practical. Cameras might also be considered as a deterrent.

4.1.2 Medium term:

As soon as new project works commence on site, and upper level access is available:

- Roof level access will allow the flashings to be accessed and replaced as required. The adjoining pointing and removal of mortar band should be carried out at this time also.
- Replacing gutters and rainwater goods.
- Repairs to windows.
- Repointing as appropriate and where required.
- External 'French' drain around perimeter where possible.
- Potential re-plaster of rear (North) elevation. Depending on extension plans etc.
- Tower re-pointing and roof level repairs.
- Potential reinstatement of missing stone pinnacles. A bit more research would be required here to decide how best to address this option! Some images have been found more are missing still.
- Circulation routes around the building as well as approaching the building should be addressed and where practical, access point for future maintenance should be considered. A considered gravel perimeter path might be set out as part of the external drainage works and addressed at same time from Archaeological point of view.

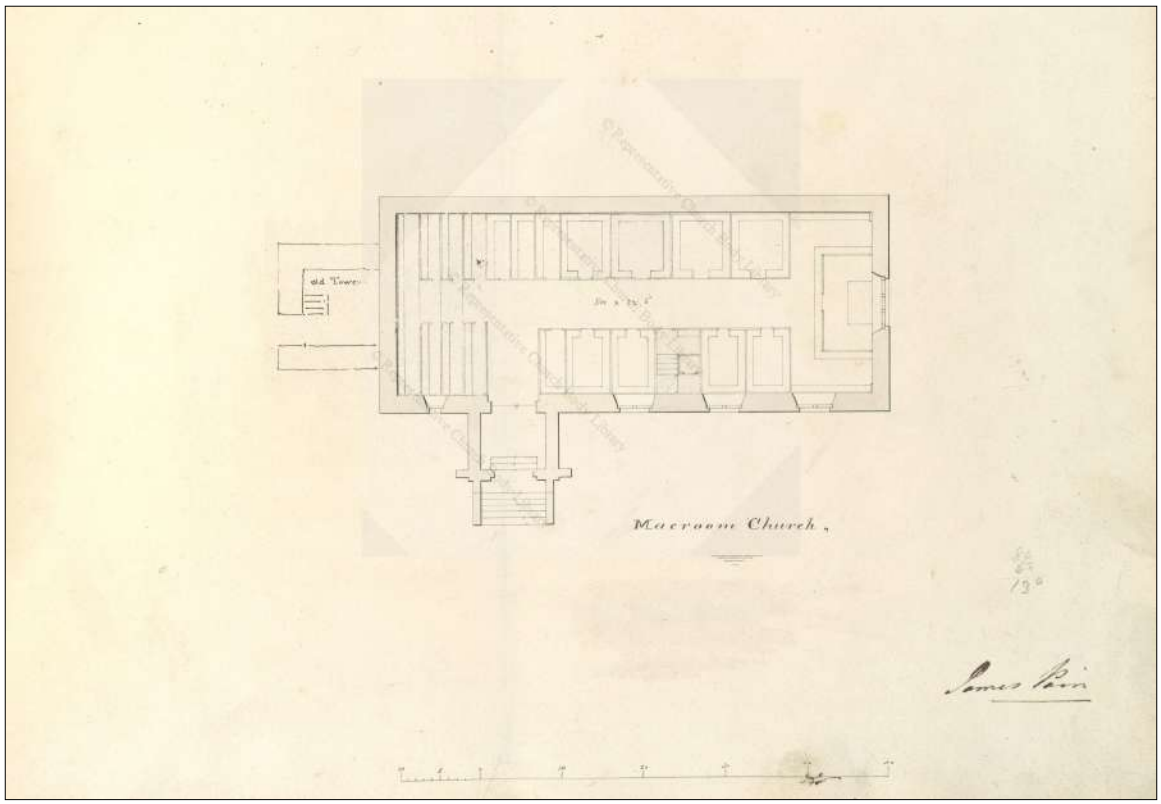
4.1.3 Longer term:

- Develop an ongoing review programme and a long term strategy for the site should be developed and renewed as part of the continual management process. With the best will in the world there will be some areas in the external skin of the building for example, where the pointing may require additional future attention, assuming all is not completely removed and replaced at contract stage. In some case the least work done the better with the minimum being done to minimise risk to the building fabric and find most economical solution to renovation.
- A long term strategy for the ventilation and maintenance of the building is crucial as well, and there may be some sustainable maintenance options to look at from this point of view.

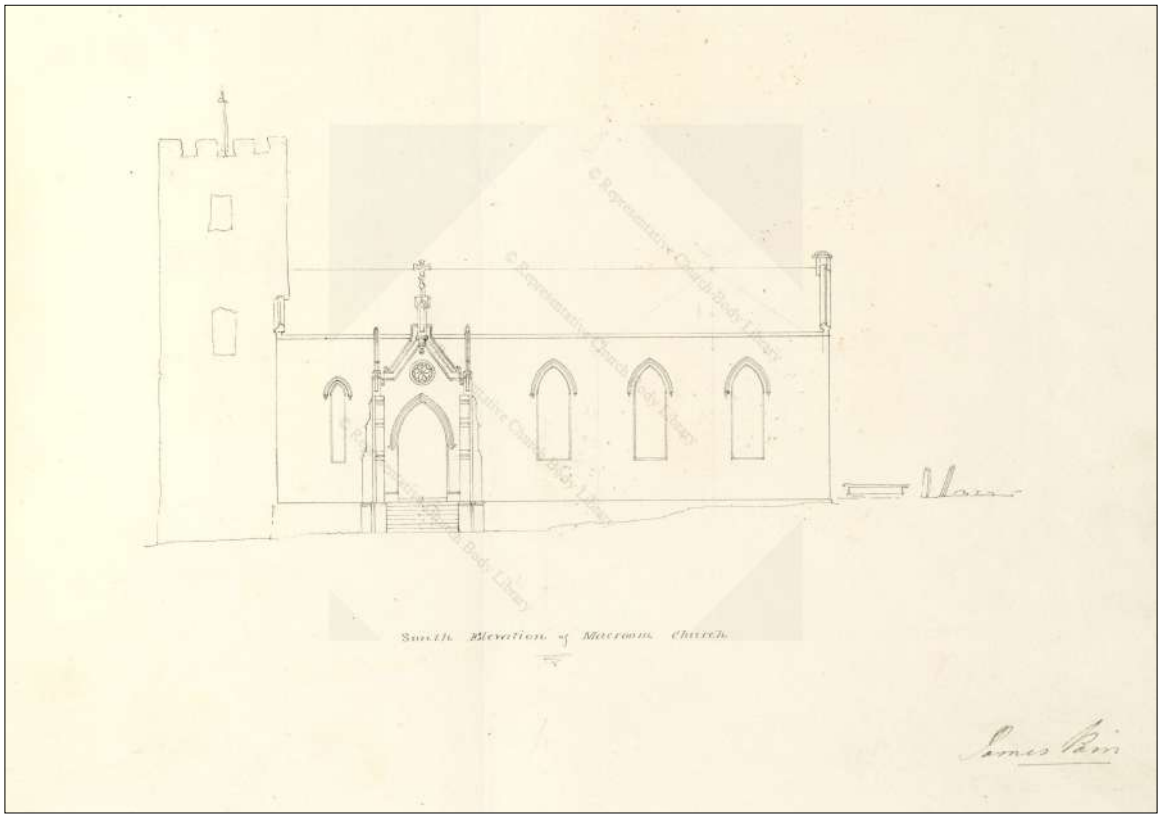
5.0 Appendices:

5.1 Engineering report:

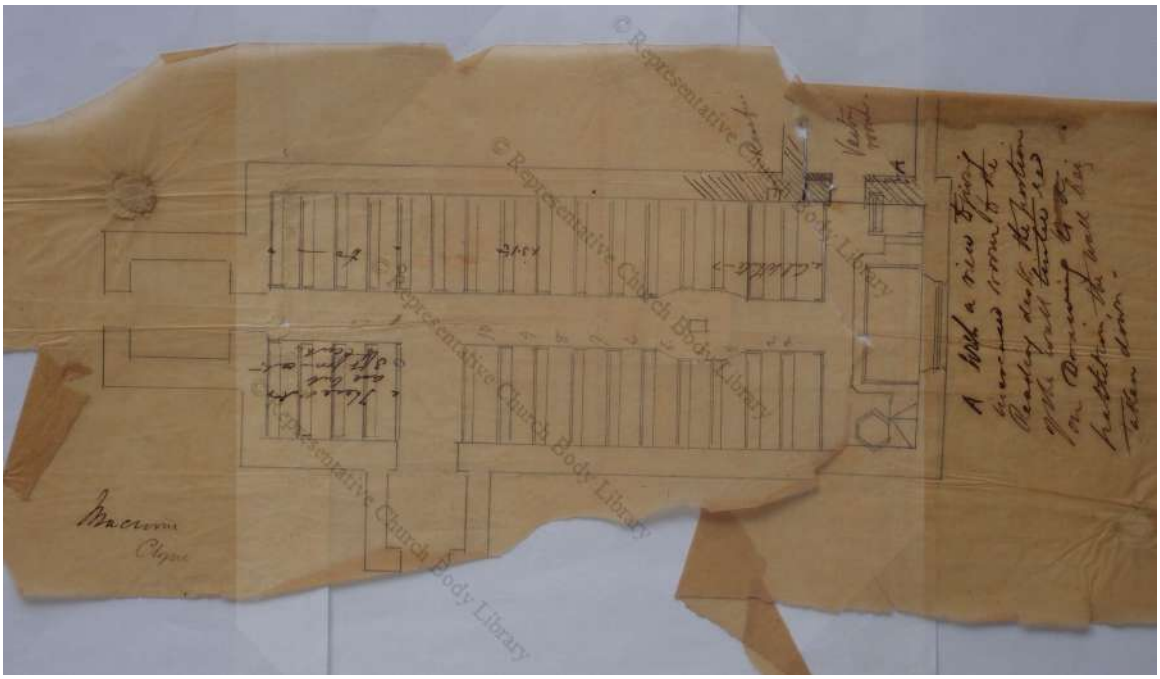
5.2 Research material - RCB Library:



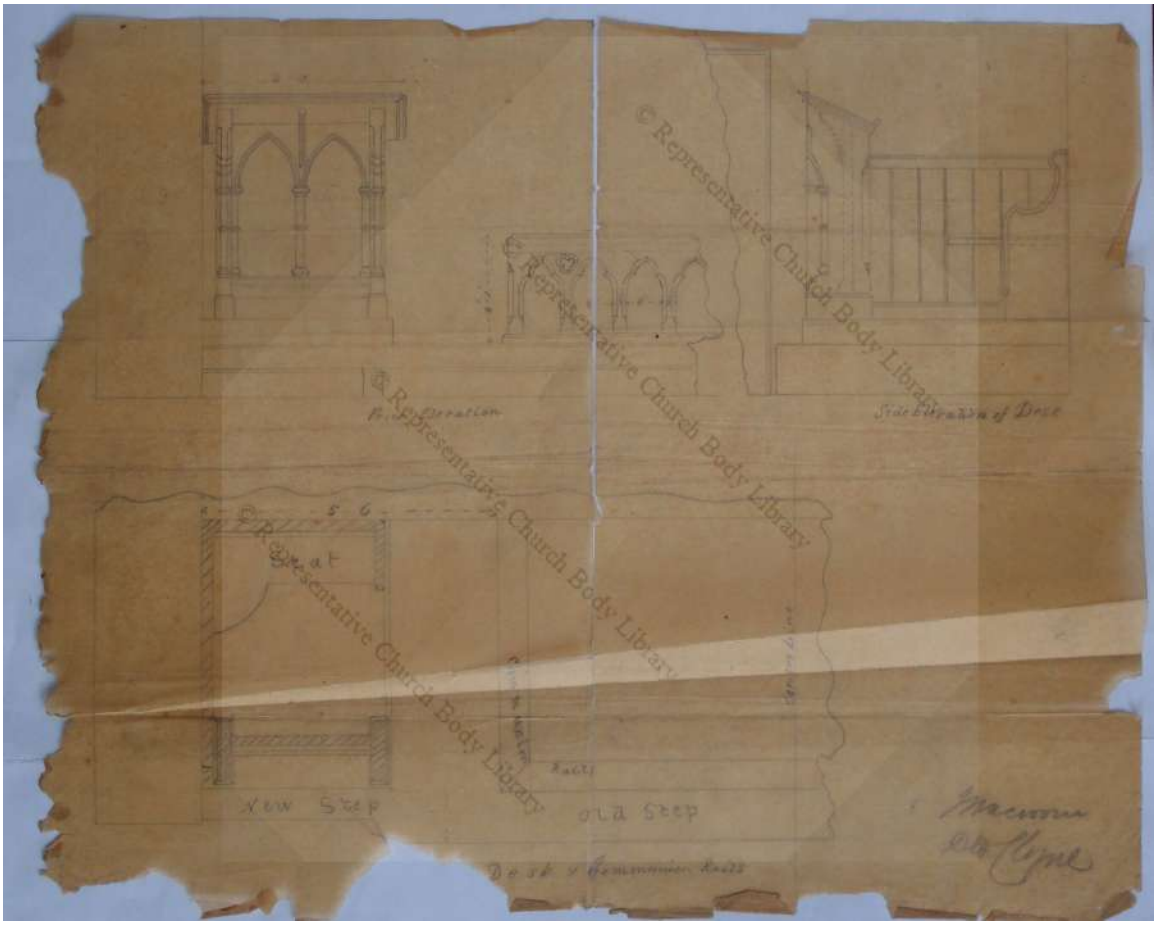
• *James Pain 1835 original plans showing existing tower and earlier church footprint. RCB Library*

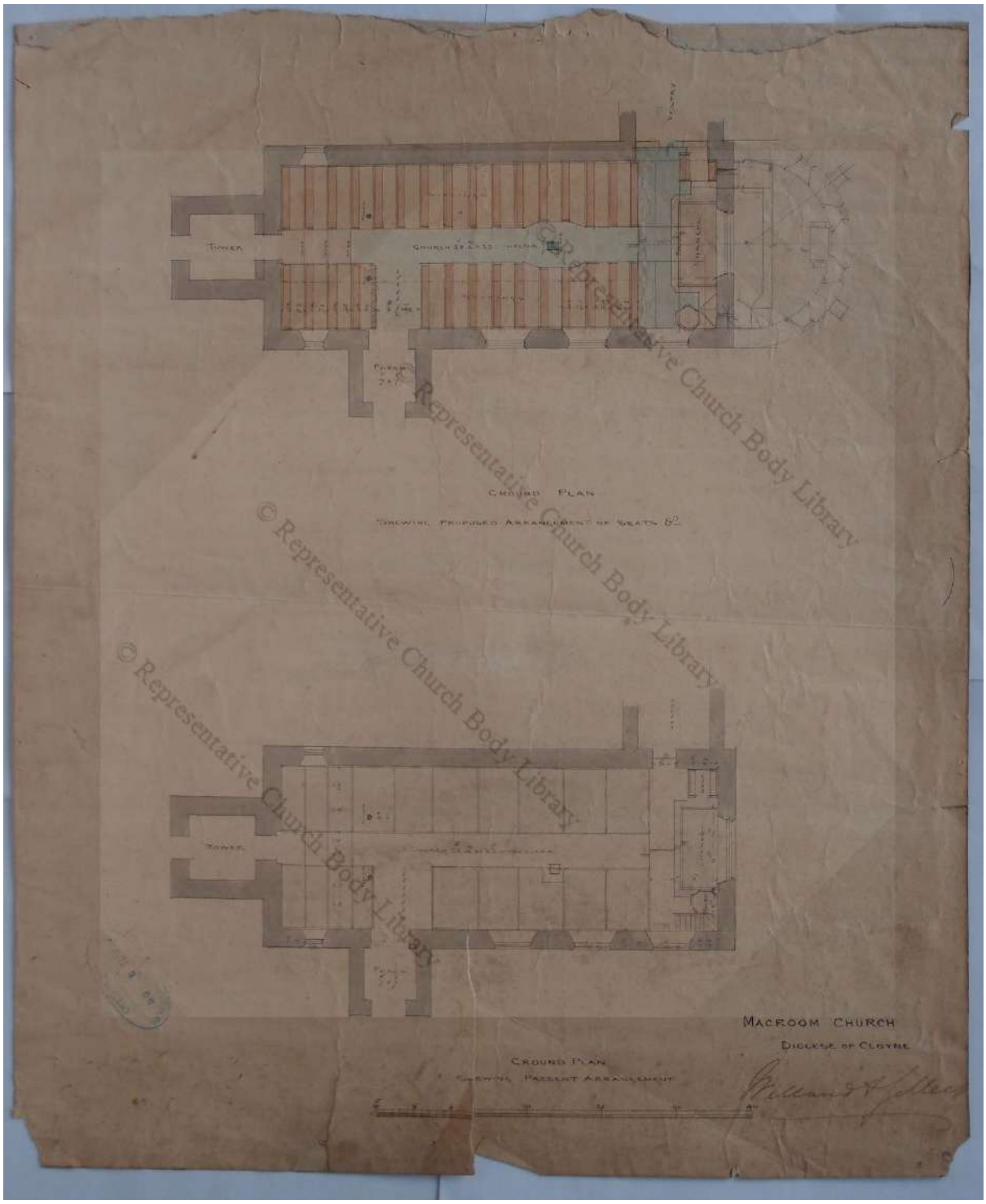


• *James Pain 1835 original elevation showing existing adjoining tower and adjoining cemetery! RCB Library*

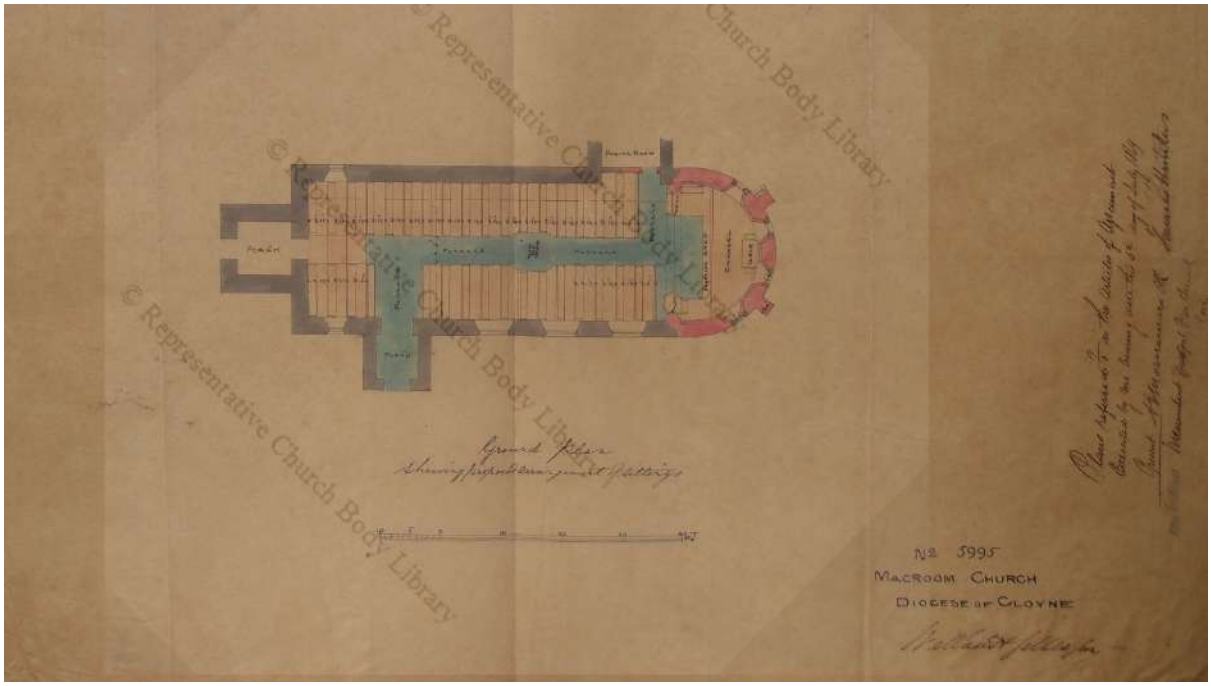


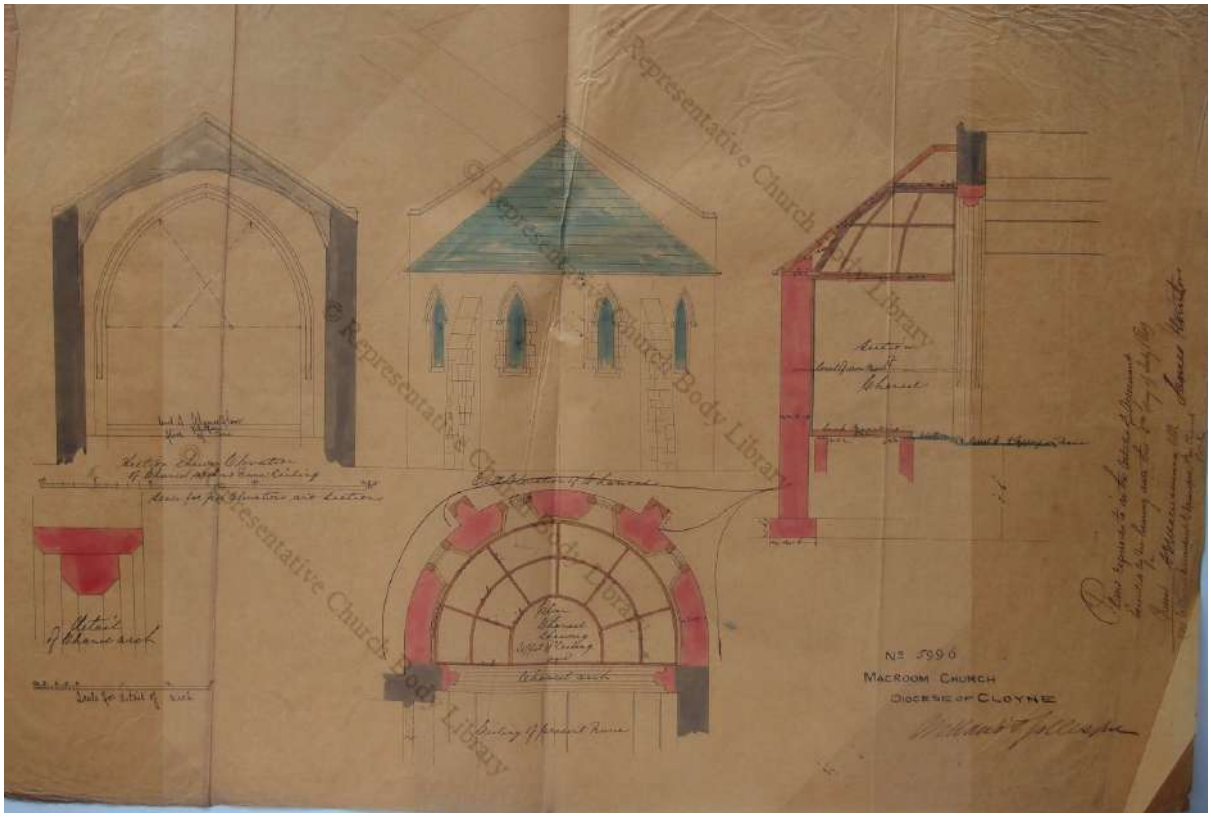
• *Welland and Gillespie 1868 review of 'reading desk', and enlarged opening to accommodate vestry room. RCB Library*



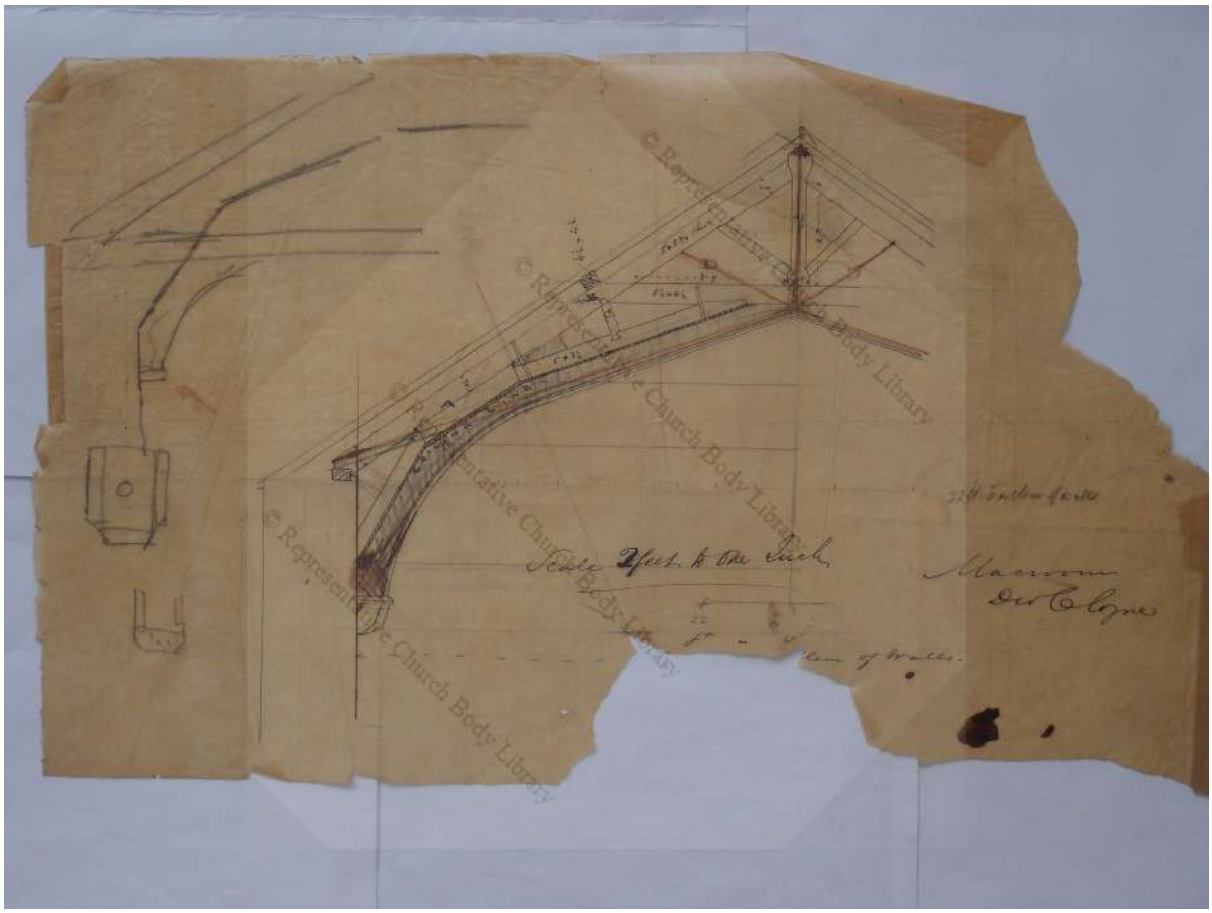


• *Welland and Gillespie 1868 review of seating and Alter. RCB Library*





• Welland and Gillespie 5th July 1869 Proposals for rear Chanel. RCB Library



• *Welland and Gillespie 1868 roof and truss design drawing. RCB Library*

St. Colman's Church, Macroom

Report on Inspection of the Structure

Cork County Council

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St. Colman's Church, Macroom

Report on Inspection of the Structure

Cork County Council

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Contents:

Introduction

1.0 The building and interaction with the site.

2.0 The masonry walls of the building.

3.0 The Floor

4.0 The Roof

Introduction.

RKA Consulting Engineers in conjunction with Design Forum Architects were engaged by Cork County Council in July 2021 to report on the general condition and the structure of the existing building with a view to its conservation restoration to make it available for community use.

Design Forum have developed the general report and issued a draft to Cork County Council.

This report by RKA Consulting Engineers is drafted to be read in conjunction with the Design Forum report, providing opinion and advice on the principal structure in the context of its likely future use.

It relies on information gleamed from the current draft report by Design Forum, on information gained from reporting by J and N Murphy Consulting Engineers in the period 1989 to 1994 and the Draft Design Forum report of 2021.

On a note of convention (to avoid confusion with some earlier descriptions in historic information) orientation of elevations referenced in this report use the current convention using the principle that the south elevation is the elevation of the building facing south, viewed looking towards north.

1.0 The Building and Interaction with the site.

1.1 As described in Design Forum report the building is set in a graveyard, which adds difficulty to making any interventions which require excavation outside the footprint of the building.

It is necessary however to consider how improvements can be made to certain aspects of the site.

- The pathway leading from the wrought iron entrance gates to the entrance porch is in need of upgrading to a safe pedestrian footpath. Photographs 1 to 5 show the existing condition including erosion of material at gate piers and tombstones.
- The design of these works requires to make provision for long term protection of walls and piers against deterioration arising from erosion due to controlled water movement.

1.2 Drainage.

- The provision of any formalised drainage system serving the rainwater collection from downpipes attached to the building is unknown. Lack of a proper maintainable drainage system for the building and access pathway is leading directly to deterioration of the building fabric and to deterioration of walls and gates.
- Investigation should be undertaken to establish the nature of any existing drainage disposal system in place. If this is discovered to exist it may be upgraded to operate satisfactorily. If no functional system is in place it may be possible to collect drainage close to the building and route it through a piped system which might be laid in the control pathway and taken out of the property to the municipal system.

1.3 Surface Treatment.

- There is no formalisation of the treatment of the ground surface adjoining the base of the structure of the building, over most of its perimeter. This is leading generally to the availability of uncontrolled water to introduce moisture into the wall structure and for decaying vegetation to degrade the surface of the building fabric.

  Consideration of the behaviour of the structural walls in relation to water penetration is dealt with later in this report but a provision made to the surface treatment may provide a resolution for drainage and control of water available to degrade the structure.

  This could be achieved by forming a grated channel immediately adjacent to the wall (either purpose built or a system such as Aco Drain). It would serve to provide drainage from the downpipes and remove moisture available for soakage into the masonry and rising in the wall by capillary action.

- It would also be helpful to introduce, to the extent possible a paved pathway adjoining the building designed to discharge surface water away from the walls and prevent vegetation growth taking place in the immediate proximity of the wall.

2.0 **The masonry walls of the building.**

2.1 The Masonry.

The walls are comprised of green sandstone with cut and dressed limestone framing windows, doors and forming buttresses, arched window heads, battlemented parapets. The sandstone is cut and squared for the most part and is of ashlar quality. The exception is the south elevation where the sandstone is well constructed rubble masonry. The walls are typically 800mm in thickness. In general the quality of the stonework is very good and its integrity and condition is very good.

2.2 Deterioration of the masonry over time.

A number of factors have affected the masonry over time, and these are described here. Further investigation of some of these defects will be required in order to assess their significance and remediation which is required.
The following are noted.

- There is vegetation establishing in many areas on the masonry, particularly the more inaccessible areas of the steeple and at higher levels where many projecting stone strings provide added opportunity for root intrusion into the masonry.
  Vegetation establishes where lime mortar becomes displaced from joints and roots can then grown within the joints and exert damaging pressure on the masonry. Mostly this only amounts to local damage to the mortar joints, but in some areas where greater root establishment in the masonry joints has taken place the result is movement of the masonry establishing significant cracking.
  The most developed example of this is on the southern (rear) wall of the steeple extending through the arched lintol of the top window, left of

centre and running upwards through the limestone corballed strings eventually emerging the battlemented parapet. The maximum crack width in this crack system is about 25mm). The plants which caused this movement are not still in place but there is significant plant establishment on the eastern face which will contribute to damage if left unchecked.

There is cracking also, but less developed, on the west face of the steeple over the main roof. This cracking when taken with the cracking on the south side contributes to displacement of the south west corner of the steeple wall and battlemented parapet of possibly 30 to 40mm at the top of the parapet.

- Erosion and recession of the lime mortar in the stone bedding joints and also in perpend joints has taken place in places. This is an ongoing process. Repair to such joints was carried out, but relatively recently, during the period when recognition of the behaviour of lime mortar joints and their ability to allow the masonry to "breathe", was lost and cement-sand was in fashion, areas of the masonry have been pointed with sand and cement. This has the reverse effect of trapping water in the masonry. It will be necessary to remove all of the sand and cement pointing and to repoint in NHL2 lime render, and also to repoint any weak or recessed joints and make them flush with the surface.

- Along the southern (rear) side of the building the plinth area has been rendered with sand and cement up to the level of the internal floor. This, similar to the pointing, was a failure to recognise the requirement for masonry of this type to breathe. It will be necessary to remove this render and restore the lime pointing of the masonry.

- A crack has developed in the masonry on the southern side of the masonry arch leading to the Apse. The cause of this crack is not immediately obvious but it is clearly related to some spreading of the arch.

  In general cracking such as this may be traced to a lateral force which the Arch design is not capable of withstanding. It is clearly a possibility that the roof structure, comprising timber trusses of an arched configuration may be exerting a lateral force at wall plate level. Analysis of the truss structure together with inspection of its condition may reveal that lateral thrust is being developed.

  A second possibility is that the rafter structure of the roof is exerting lateral pressure at wall plate level. This as provided credibility by the visual observation that the ridge line is sagging between trusses, suggesting that the rafter/purlin combination is deflecting under the roof load. The lateral force developed at wall plate level could be sufficient over the longer term to spread the walls slightly leading to the crack. Again. Analysis together with close up inspection will be required to evaluate.

- The inner face of the wall masonry has been stripped of any plasterwork lining. It is presumed that a new lining will be introduced. This may be driven by heat loss considerations. The Architect will obviously consider available options.

3.0 **The Floor.**

3.1 Work which has been caried out to re-structure the floor. It is not clear what the original floor construction comprised. However it was common in the nave of churches to construct a timber floor with an underfloor void at least in part.

3.2 In this case the original floor in the nave of the church has been completely removed and replaced by a concrete floor structure.

This also incorporates a duct recess on both sides which may be considered to have been provided to carry heating pipes for a new heating system.

It is noted that there is an insulation layer (approximately 50mm) between the duct and the masonry wall. This is seen to be expanded polystyrene which would have been common in or about 20 years ago. It is assumed that the insulation layer passes fully under the concrete floor construction. However this must be established either by satisfactory enquiry or by investigation in-situ.

3.3 It is assumed that the concrete floor can remain and be the base for whatever floor finish is chosen for the envisaged use of the building. However at this point the internal use and sub-division of the space is unknown and it is also unknown if the use will require the construction of internal structure which will impose structural loading. This will need to be considered but with a full knowledge of the nature of the concrete structure.

The investigation of the floor must also determine what moisture control layer/radon barrier has been incorporated and whether any method for removal of radon below barrier level by venting has been incorporated.

3.4 It is noted that the construction of the concrete duct wall adjacent to the inner face of the main masonry wall will have an adverse effect with regard to facilitating natural breathing of the wall, and encouraging moisture content in the masonry to remain high.

3.5 It is noted that there appears to have been an exercise carried out to chemically inject the wall just at floor level, presumably to act as a chemical barrier to prevent rising damp from occurring. Chemical barrier injection such as this can be reasonably effective against rising damp. However it does not reduce the need to encourage natural ventilation of the wall and the removal of cement-based renders or pointing which would inhibit this.

4.0 **The Roof.**

4.1 The main roof is surfaced in natural slate which is in reasonable condition generally but with some slate slippage and slate loss. The main issue in relation to this is whether it is a requirement to re-slate the roof.

In the context of a refurbishment of the building for community use it is considered that over an expected performance period of 20 years maintenance requirement would be simple annual clearance.

In this context the re-slating of the roof would be strongly advised.

4.2 The roof structure comprises timber arched trusses of somewhat unusual design, supporting mid slope purlins and timber rafters.

There is evidence of deflection in the rafter/purlin system, between supporting trusses. This suggests that there is a likelihood that the purlins in combination with the ridge member may be overstressed.

The roof requires to be accessed and the condition and configuration of the construction needs to be determined and checked structurally. As already alluded to in this report there may be lateral trust developed by this roofing system, evidenced by a crack in the arch at the junction with the nave. If this is determined to be the case, strengthening works should be introduced to control the effect.

Re-slating works would provide for removing the slight sag which has occurred in each bay, most notable towards the ends of the roof.

4.3 The timber roof trusses need to be inspected for normal deterioration due to woodworm and the possibility of fungal decay particularly at bearings onto the walls. Here also the condition of the wall plate requires to be established.

4.4 The roof of the apse is a conical natural slated configuration formed to the semi-circular shape of the apse. In general it would appear from the visual inspection that the condition of this roof is quite good and not in need of re-slating at this stage.

Close up inspection should be made to determine the construction and conditions of the ceiling.

4.5 Gutters on the building have generally been replaced with PVC guttering and consideration needs to be given in relation to the acceptability of this in the context of this building.

This will be largely a function for Architectural consideration.

The downpipes are typically cast iron and are in quite poor condition. Their renewal in the context of the overall rainwater goods should be considered.