Church of the Ascension, Timoleague
Conservation Report

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1.0 Introduction

This report has been carried out on behalf of our clients, The Vestry of Kilgarriffe Union of Parishes, who requested a Conservation Plan for the Church of the Ascension, Timoleague. It is located in Cork County. The Church is a protected structure (RPS ID 01375) and is listed on the National Inventory of Architectural Heritage (Reg No. 20856005). It is an Anglican Church dating from the early 1800s, with later additions.

To demonstrate the history of the site, existing conditions, and recommendations for future works this report contains the following information:

-Heritage protection context and methodologies used

-Historical background with chronology of development of the building

-Written description of the existing building with condition report

-Labelled photographic record of the existing building

-Assessment of significance

-Recommendations for repairs

-Possible sources of funding

2.0 Heritage Protection and Methodologies

2.1 Overview of Heritage Protection Legislative Framework

All development should be assessed on consistency with statutory heritage policies, designations and guidelines. Ireland has ratified European and International conventions in relation to the protection of its built heritage. These, along with a large body of conservation charters and associated conventions and documents, are an essential framework for good practice in the protection and enhancement of the Historic Environment.

Planning and Development Act 2000

The Planning and Development Act 2000 (as amended) requires that Planning Authorities compile and maintain a Record of Protected Structures. The RPS is a mechanism for the statutory protection of our built heritage. A protected structure may be included in the RPS on account of its architectural, historical, archaeological, artistic, cultural, scientific, social or technical point of view. Each owner and occupier of a protected structure is legally obliged to ensure that the structure is maintained and protected from endangerment, whether by direct action or neglect.

When a structure is protected the protection includes the structure, its interior, the land within its curtilage and other structures within that curtilage (including their interiors), and all fixtures and features that form part of the interior or exterior of all these structures. All works which would materially affect the character of the Protected Structure, or a proposed protected structure, require planning permission even when those works would otherwise be exempt. There is provision under Section 57 of the Act for the owner or occupier of a Protected Structure to seek a Declaration from the relevant planning authority to determine works to the structure that would materially affect its character and therefore require planning permission, and those works that may be carried out as exempted development.

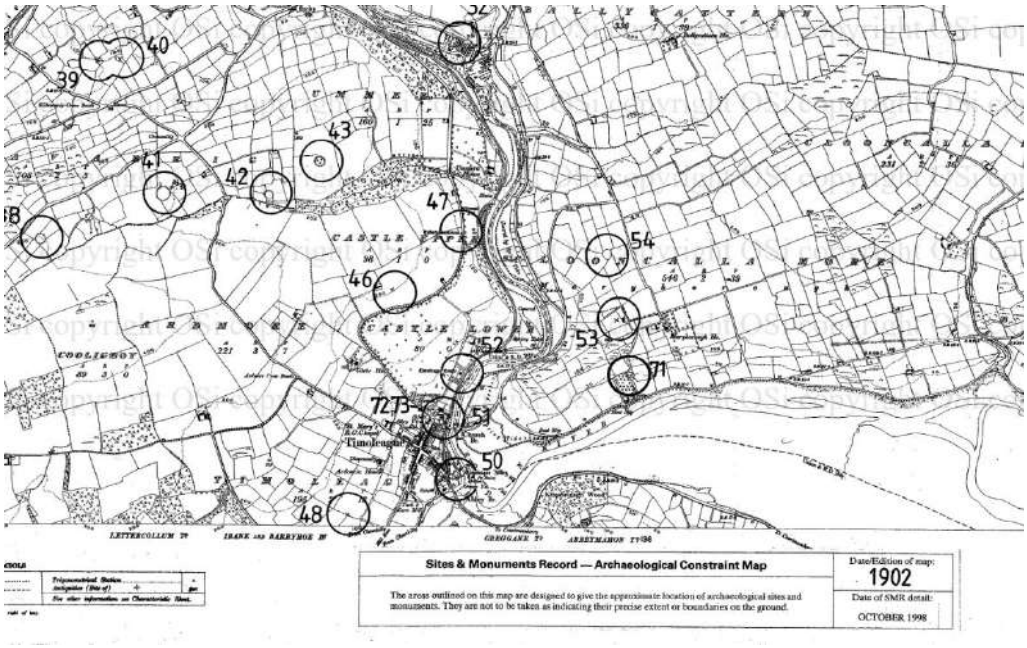
The Church of the Ascension, Timoleague is a protected structure (RPS ID 01375)

National Monuments Act 1930-2004

Structures and/or sites may be protected under the National Monuments Acts 1930- 2004. This can be in addition, or as an alternative, to protection under the Planning and Development Acts. The protection of structures under the National Monuments Acts takes place at national level within the Department of the Environment, Heritage and Local Government. Sites protected under the National Monuments Acts are contained in the Record of Monuments and Places (RMP). The RMP is established and maintained by the National Monuments Section of the Department of the Environment, Heritage and Local Government.

The Church of the Ascension, Timoleague is listed in the Record of Monuments and Places (CO 123-051). The earlier Church and graveyard are also recorded (CO 123-073 / CO 123-72)

RMP Map CO123



Wildlife Acts

The Wildlife Acts 1976 - 2000 are the principal statutory provisions providing for the protection of wildlife (both flora and fauna) and the control of activities which may impact adversely on the conservation of wildlife and their habitats. The Minister for the Environment, Heritage and Local Government is the Competent Authority for the servicing of a number of wildlife-related international agreements and implements a number of EU Regulations, Directives and International Conventions.

Competing conservation requirements of the natural and the built heritage may give rise to dilemmas. Conservation Rangers from the Department of the Environment, Heritage and Local Government can be consulted and may be able to suggest measures to avoid damage to the habitats of fauna.

All bats and their roosts are protected by law and a licence is needed to disturb them in the wild. Prior to carrying out work on a protected structure a survey should be undertaken to ascertain if there is any evidence of a bat population in the building.

National Inventory of Architectural Heritage

The National Inventory of Architectural Heritage is a unit within the Department of the Environment, Heritage and Local Government engaged in compiling an evaluated record of the architectural heritage of Ireland. The NIAH survey was established on a statutory basis by the enactment of the Architectural Heritage (National Inventory) and Historic Monuments (Miscellaneous Provisions) Act 1999.

The Church of the Ascension, Timoleague is listed in the NIAH (Reg No. 20856005).

2.2 Overview of Methodologies

This report has been written in accordance with the ICOMOS Guide to Recording Historic Buildings (Butterworth Architecture, 1990) and the RIAI Guidelines for the Conservation of Buildings, 3rd Edition (RIAI, 2010). As per these guides the first object of a survey should be to record what is necessary in order to understand and to illustrate the history of the building in its plan, structure, development, use and decoration. This enables the architect and client to understand the structure and to make decisions during the conservation process based on the best information available.

The Report is based on site visits, map research, historical research and the input of various consultants. The conclusions of the report are generally based on visual inspections. Some opening up work was undertaken to establish the condition of the floor joists concealed from view. A microscope was employed by Dr. Jason Bolton for analysis of building fabric in situ. No samples of the building fabric were taken for analysis.

Site visits to the Church by James Bourke Architects were as follows:

-11th July 2019: Meeting with JBArch, J. Kelly and J. Bolton (weather was dry and overcast)

-30th July 2019: Meeting with JBArch and J. Kelly (weather was dry and sunny)

A Bibliography of the historical resources used can be found in the appendix of this report. Sketches have been prepared for this report for illustrative purposes. As no works beyond repairs and renewal are proposed a full measured survey was not required.

The report relies on the input of the following consultants:

-John Kelly, Project Engineer (structural engineer / conservation engineer).
David Kelly Partnership, Nelson House, Emmet Place, Youghal.

-Dr. Jason Bolton, Architectural Conservation Consultant (mosaic specialist)

-Ronan Mealy, Consulting Engineer (M&E specialist)
Ronan Mealy Consulting Engineers, 1City Wall, James Street, Kilkenny

The ancillary reports by these specialists can be found in full in the appendix.

Also included in the appendix is a survey report on the stained glass windows by Aria Stained Glass, Cortoon, Claregalway, County Galway. This report was commissioned independently by The Vestry of Kilgarriffe Union of Parishes, and includes a survey of the windows and recommendations for repairs with guideline prices.

3.0 Historical Overview

The Church of the Ascension is built on an east-west axis with a simple rectangular body. It stands within a graveyard overlooking Arigideen River and is exposed towards the estuary. This is a First Fruits church with a tower in a Gothic Revival style located to the west. The present church was built the early 1800s in the location of an earlier medieval church. This earlier church is listed under the Record of Monuments (CO 123-073). It is located centrally within a graveyard which is also listed (CO 123-072).

Brady's Clerical and Parochial Records of Cork, Cloyne and Ross provide the following evidence for the history of Timoleague Church from 1291 through to 1860: [1]

1291- *Ecca do Tulag*

1693 - *the Church is well repaired and cared for (translated from original Latin).*

1699 *- 'divine service at Timoleague. About 80 persons at Church'*

In 1802, August 21st *- the Bishop decrees the old parish church of Timoleague (now unsafe, through age and decay) to be pulled down, and the materials to be preserved for a new church ; the Minister, Churchwardens, and parishioners representing that by an annual rate they may provide a sum to build a new church on old site. James Harris signs the memorial, as Curate. No other Minister signs.*

1811. May 25 - *Timoleague new church, built on the old site, is consecrated under the name of the church of the Ascension.*

1815. January 2 *- Alexander Johnston memorials for liberty to build at Timoleague, and the Bishop approves, 12th January; and certifies, on 31st Oct., 1816, for an outlay of £1,045, from which deducting £900, loan from the Board of First Fruits, £145 remains as charge on successor.*

1832 - *One church, capable of accommodating 110 persons, built in 1810, at the cost of £461 10s. 91/4d. British, granted, in way of loan, by the late Board of First Fruits ; of which loan there remained £144 10s. chargeable on the parish in 1832, repayable by annual instalments of £8 9s. 10d. Divine service is celebrated twice on Sundays in summer, and once in winter, and on the principal festivals. The sacrament is administered monthly and on the three great festivals. The benefice is a rectory.*

1860 - *The church in order. No font. Divine service twice on all Sundays, and once on the usual holidays. Sacrament monthly, average of communicants, 14 ; and on the three great festivals, average 20.*

From this we can see that a medieval church was present in this location and in a good state of repair in the late 1600s. By 1800 the church was in a serious state of disrepair and was demolished. It is interesting to note that the original materials were reused in the new church. The Church of the Ascension was consecrated in 1811.

In its description of Timoleague, A Topographical Dictionary of Ireland, 1837, contains the following description:

"The church is a small neat structure, built in 1810 by aid of a loan of£500 from the same Board" (Board of First Fruits) [2]

[1] Brady, 1863, vol 2, pgs. 555-559
[2] Lewin, 1837, https://www.libraryireland.com/topog/T/Timoleague-Barryroe-Cork.php

The Church of Ireland's Board of First Fruits funded a church-building programme in the early 1800s. This was a physical manifestation of the reformation of the Church of Ireland, and 'First Fruits' is a term that has come to define the architectural style of these churches.[3] Timoleague Church is a typical example of this style, with its simple rectangular body and western tower.

During the 19th century the chancel, vestry and south transept were added to the church. The 6" OSI map, completed 1837-1842, shows the original rectangular volume of the church with bell tower to the west. The later 25" map, completed 1888-1913, shows the extended church as per its current plan form.

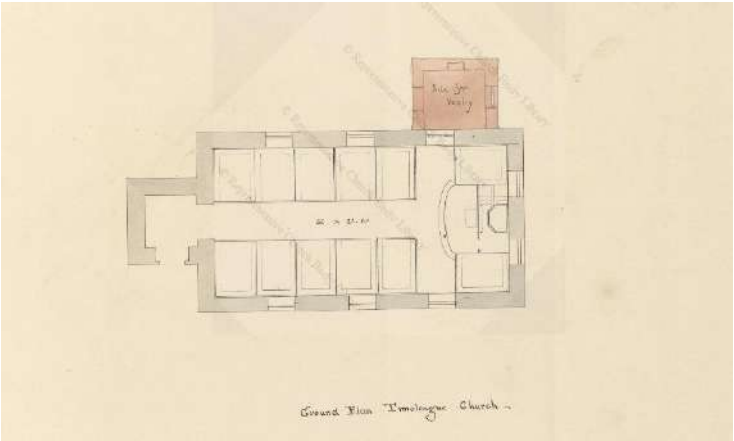
6" colour, 1837-1842

25" 1888-1913

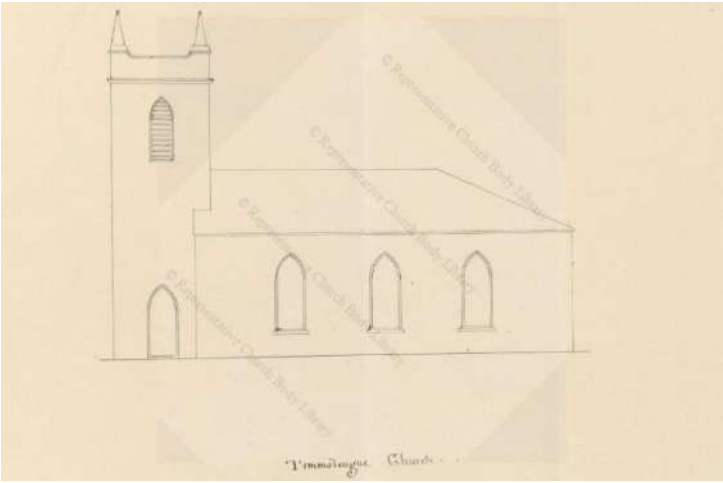
The NIAH dates the single bay chancel to the east and vestry to the north to 1863 and the southern transept to 1890. The Representative of Church Bodies Library- Architectural Drawings has two sets of historical drawings for the church. The first set, by James Pain (architect to the Board of First Fruits for Munster), are dated 1835 and show a proposed robing room to the north. A second set of drawings by Wellend and Gillespie are dated June 1862. These are the tender drawings for a new vestry and repewing, works to be executed under direction of architects to the Ecclesiastical Commissioners. Note that the volume depicted in the 1835 drawings is not shown in these drawings. There is no record of any drawings for the east chancel. The southern transept was built under the direction of Robert Travers of Timoleague House, but again no drawings of this are recorded.

[3] O'Mahony, pg. 98.

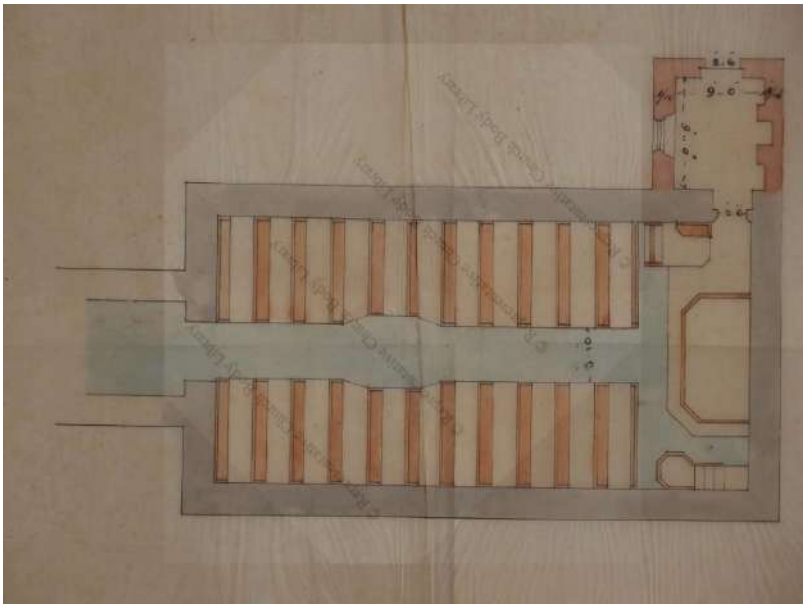
1835 Drawings for robing room to north by James Pain

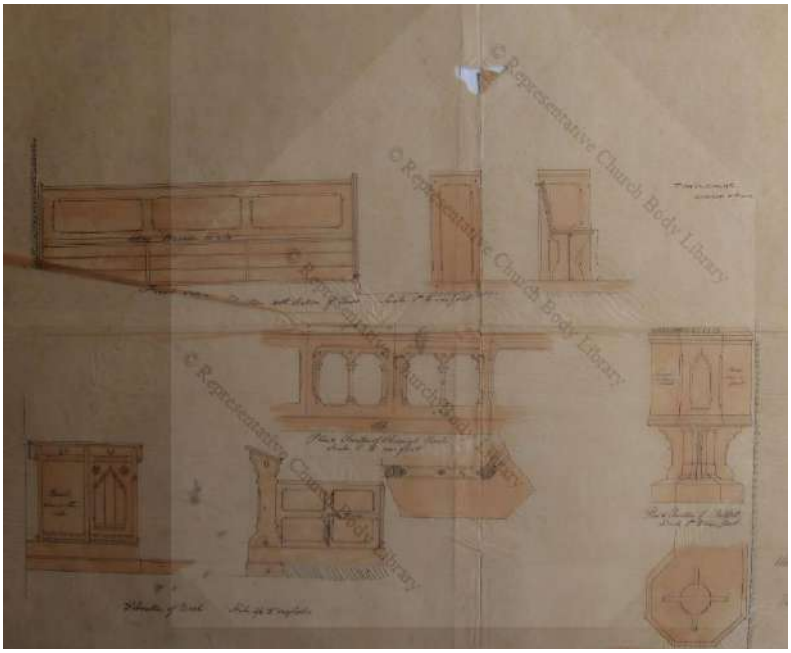


1835 Drawings for robing room to north by James Pain



1835 South Elevation by James Pain

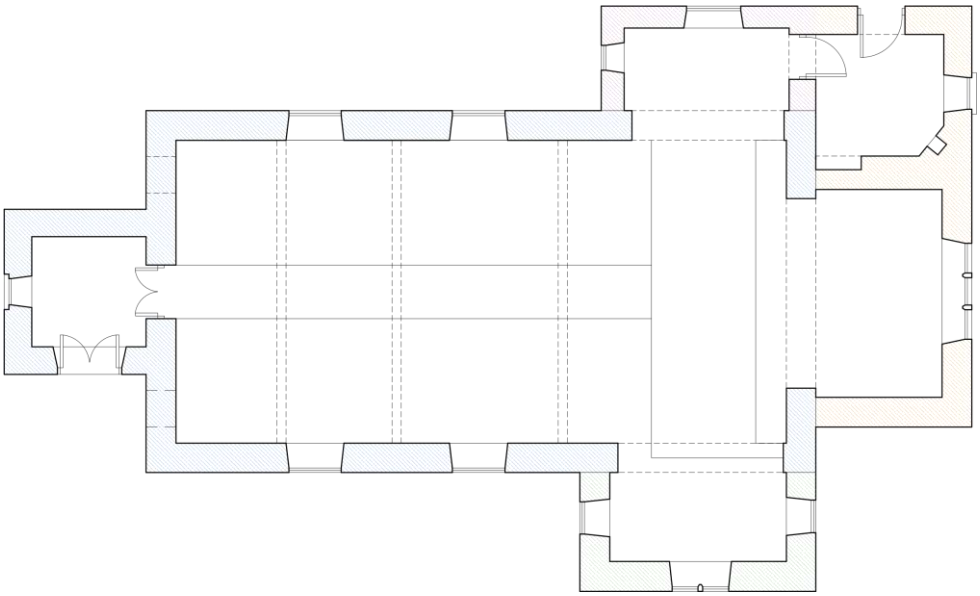




1862 Drawings for vestry to north and repewing by Wellend and Gillespie

Of particular note in the Church of the Ascension is the internal decoration. The walls are elaborately decorated in rich mosaics, begun in 1894 by Robert Augustus Travers in memory of family members. The work was continued by his son, Robert, in 1918 in commemoration of his father and brother who were killed at Gallipoli. The last phase of mosaics was completed in 1925, on the south wall of the nave. These were installed by Italian craftsmen and were paid for by the Maharajah of Gwalior as a memorial to his friend and physician, Lt. Col Crofts from Concamore, who had saved the life of his son.

Lead lined lattice and lead-lined stained glass windows are found throughout the church. The eastern chancel window was installed in 1865. The nave and southern transept windows were installed in 1890.



Phase 1 / 1811

Phase 2 / mid - 1800s (possibly in tandem with phase 3)

Phase 3 / 1863

Phase 4 / 1890

4.0 Written Description

4.01 External

The Church of the Ascension is built on an east-west axis with a simple rectangular body. A tower in a Gothic Revival style is located to the west. Externally the church is plain, with exposed coursed and roughly squared rubble sandstone and mudstone walls with dressed stone quoins. walls have been repointed using a cement-based mortar throughout in various styles, including raised strap pointing. The mortar is failing in places, with the mortar having cracked and lost its bond with the stones. The original finish would most likely have been lime render. An aerial photo of the church, possibly dating late 1970s-1980s, shows the lime render intact on the original body of the church. The southern transept is un-rendered in this photo. Earlier black and white photos (date unknown) similarly show a rendered church, with the southern transept in exposed stone. Also of note in these photos are the central vent above the nave and chimney to the east gable, neither of which now remain. Different types of stone are visible in the various phases of construction in the church. There are a number of low-level relieving arches visible at ground level at the south wall of the south transept and to the east gable of the chancel. This could indicate the presence of crypts below. There is a semi-basement at the east gable wall of the chancel, covered by stone and concrete flags. This is trimmed out locally by an iron beam which is severely corroded. There is a slight crack in the stone window frame over this opening. There is evidence of movement in the south transept, likely due to settlement under the foundations. This movement may have ceased or may be ongoing. There is no evidence of a piped surface water drainage system, which suggests that the gullies may discharge to soakaways. If soakaways are near the building, they may be contributing to movement visible in the south transept.

Pointed arch window opening with lime-stone cills are found throughout, with lead lined lattice and lead lined stained glass windows or cast iron windows. Windows are described in detail in later section of the report.

Historic Photographs of the church

Pitched roofs are natural slate with clay ridge tiles and overlapping dressed stone verge and gable copings generally. Half round cast aluminium and cast iron gutter pipes are smaller than the original brackets and discharge to gullies via round downpipes. They are corroded in places, allowing water to saturate the walls locally.

The roof to the east chancel and vestry has recently been renewed throughout. The roofs finishes elsewhere are in a moderate state of disrepair. A considerable number of slates are slipping, indicating widespread nail sickness, likely as a result of corroded nails. The south transept roof is particularly problematic. Numerous slates have slipped to this roof, and there are issues with gutter falls. In addition to this the original stone coping stones to the south gable have been replaced with cast concrete which is cracked and likely causing issues with damp internally. The bell tower has a flat lead roof behind a high stone parapet water pooling is visible to one corner of this roof externally. Water damage is present in the bell tower internally, indicating that this flat roof is in need of repair.

The bell-tower is the most decorative element externally. The tower has louvered belfry openings on three sides with pointed arches and tooled limestone surrounds and cills on the upper stage. The tower has string courses and tooled limestone corner pinnacles on the parapet wall. The clock wall on the south wall, facing the village, dates from 1904. A pointed arch window opening with tooled limestone cill and surround is located on the west elevation of the bell tower. A recessed surround on ground floor window follows the shape of a doorway, but no lintol is present and it is likely that this is a decorative element rather than an original doorway (note that the door is shown in its current location in Pains 1835 set of drawings. No opening is shown on the west wall in these drawings). The door opens on the south wall. It is a pointed arch opening with tooled limestone surround, rubble stone voussoirs and double leaf vertical boarded timber doors.

The ground to the south transept and chancel falls away rapidly to the graveyard and eastern boundary wall. The graveyard at the eastern boundary is retained by a substantial retaining wall.

4.02 Internal - Overview

Internally the walls are elaborately decorated in mosaics to the main body of the church. A painted ceiling to the chancel and decorative floor tiles further add to the rich internal decoration. This church was an expression of the reforming Oxford Movement in the late 19th century Anglican Church (Travers 1985), which saw theological changes tending back towards pre-Reformation ideas and a desire for greater decorative church architecture. In "A Companion Guide to Architecture in Ireland 1837-1921" Jeremy Williams wrote the following in praise of the church:

"this building was a monument to a living friendship enshrined in a hidden masterpiece of the Arts and Crafts Movement in Ireland"

"transcended the sectarian divide between Irish Catholic and Protestant, the Indian Muslim and Hindu, personal friendship breaking up distinctions of caste and colour"

4.03 Bell Tower

The Bell tower is located to the west end of the church with the entrance doors opening to the south, facing the village of Timoleague. The vertical boarded timber entrance is set within splayed reveals with a pointed arch above. The stone threshold is flush with external ground levels. A single lead-lined stained-glass window is located on the west wall. The floor is solid construction and tiled in a red/black checker pattern. A brass plate to the west of the entrance door dates the installation of the clock above to 1908.

The walls are painted render and are showing signs of damp. White salt crystals can also be seen on the wall surfaces and floor tiles. The paint is non-breathable, which is significantly contributing

to the issues with the damp. Surface moisture readings of between 10-25% were recorded. The ceiling is timber and is showing serious signs of decay, with water staining visible on the boarding at the underside.

A semi-permanent ladder and hatch to the north west corner provide access to the upper levels of the bell tower. The bell is in the upper of two levels, supported by a timber bell frame resting on the external walls. The frame appears to be in a reasonable condition, though some woodworm damage is visible. Walls here are exposed stone and are not displaying the same issues with damp as the ground level. Corrosion is visible to the wrought iron joists used bell tower roof structure, with water staining visible to the underside of the timber roof. The bearing ends of timbers in external walls could not be accessed and should be checked for signs of decay.

4.04 Main Body

The original volume of the church forms the Nave, with two windows to the south and two to the north. These window openings align with those shown on the earliest drawings of the church. Two more windows are found to the west, on either side of the bell tower at high level. The windows are described in detail separately.

Timber floors found beneath the pews, with a central tiled aisle. Opening up works have shown that the floors are suspended timber with timber square edged boards fixed to continuous shallow timber beams laid on roughly placed stone filling. There is no provision for ventilation. A considerable level of decay is present. The central aisle is solid construction. The tiles are by Minton, Hollins and Compacy Ltd (Minton Tiles). Some minor damage is visible to the floor tiling, but this appears to be the result of general wear and tear over the years rather than any inherent defects in the building fabric.

The roof to the nave is an exposed hammer beam timber structure with timber ceiling finish. Round bar tie beams are located at eaves level. The principal rafters are supported on dressed limestone corbels built into the inner wall face below eaves level. Common rafters are housed into the purloins. The timbers appear to be in good condition generally. However, water staining is visible to the rafter ends and purloin ends at the west gable, especially to the south side. The ends need to be checked for damage.

The walls are decorated in mosaic above a marble wainscot throughout the Nave. The mosaics are described in detail separately. Marble is cracked to the north wall and loose at the junction between the nave and south transept, likely due to movement of the transept.

An angel font is of particular note. Located to the south of the entrance it is Italian style in Cararra marble and is a sister to the pair in the Catholic church of Tralee (NIAH record). It was installed in 1902. Pews are not those shown in the drawings and are relatively recent additions. Metal radiators were installed throughout the church circa 1919.

4.05 East Chancel

The east chancel was constructed in 1863. A single, large stained-glass window is the focal point of the chancel (described in detail later). The roof is painted in eight panels featuring angels carrying texts of mourning. These tempura paintings were restored recently as part of the repairs to the roof in this part of the church and therefore appear to be in very good condition. This section of roof was also insulated using gutex insulation.

The chancel has a raised solid floor with geometric and encaustic tile finish to match the aisle. The tiles are by Minton, Hollins and Compacy Ltd (Minton Tiles). 3 steps give an overall rise of around 430mm from nave floor level. It is likely that the ground in this area may be made up with fill to a

significant depth. Movement cracking is visible to this floor. The cause of this movement is unclear. The marble step at the perimeter is loose in a number of locations and needs resetting. Investigations are required to establish the cause of the movement.

The walls are decorated in mosaic above a marble wainscot. The mosaics are described in detail separately.

4.06 North Transept

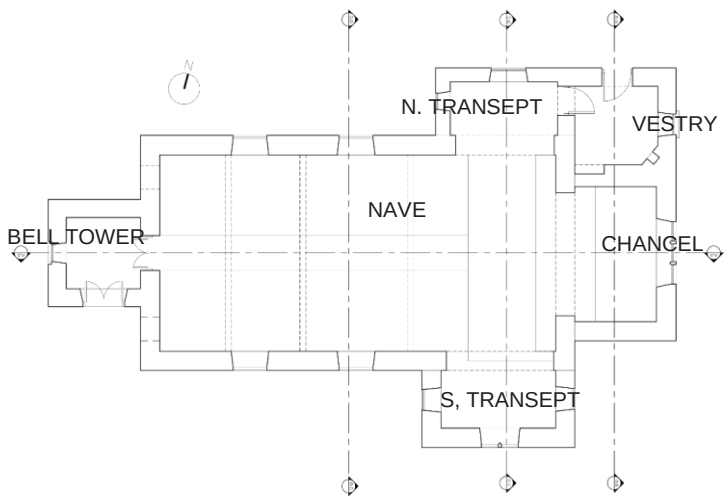
A large round headed arch opening leads into the organ room. Two windows openings are located in this space, one to the north and one to the west. It is possible that these were relocated from the original Chancel. From this space a pointed arch timber door leads into the vestry. The floor level steps down from the east to the west by around 225mm. Walls are unpainted render and this finish damaged to the west wall.

4.07 Vestry

The vestry is accessed via a pointed arch door from the organ area. It has one window to the east, with a splayed reveal. Walls are painted render. Timber roof joists visible with painted timber ceiling and appears to be in good condition. The floor finish is carpet.

4.08 South Transept

A large round headed arch opening leads into the south transept. Windows are located to the three sides. This is the area showing the greatest image of damage in the church, both as a result of the poor condition of the roof and the movement which has occurred over time. Significant cracking is visible above the windows to the east and west. Minor water staining is visible on the roof. The marble wainscot is loose, and damage is visible to the mosaics throughout. Surface moisture readings of around 18% were recorded. The floor is suspended timber and opening up works indicated a significant level of decay present.



Key Plan

4.09 Windows_Overview

Note that an attached report by Aria Stained Glass provides additional detail on the stained-glass windows.

W.001_East Chancel
Pointed arch window with three light intersecting tracery with over-lights. Splayed tooled limestone cill externally, with some staining present. Limestone surround. The stained-glass window is dated 1865 and is by William Warrington, one of the leading stained glass artists of this time. The northern pane depicts *The Raising of Dorcas*, south is *The Presentation* and centrally is *The Crucifixion*. This figurative representation caused offense to Bishop, John Gregg, who felt that it was 'graven' and refused to consecrate the church until it was properly covered. It remained covered by a cloth until the early 20th C. It appears to be in a reasonable state of repair.

W.002_South Transept
Pointed arch single lancet window. Splayed tooled limestone cill externally with limestone surround. Mosaic cill internally with splayed mosaic surrounds. The window was likely installed circa 1890 from the studio of Clayton and Bell and glass design is by George Daniels. It depicts *Christ Condemned*. It appears to require repair works.

W.003_South Transept
Pointed arch window with two light intersecting tracery. Splayed tooled limestone cill externally with limestone surround. Mosaic cill internally with splayed mosaic surrounds. The window was likely installed circa 1890 from the studio of Clayton and Bell. The left lancet depicts *The Good Shepherd* and the right The Light of the World. The quatrefoil depicts and Angel. The window appears to require repair works.

W.004_South Transept
Pointed arch single lancet window. The window was likely installed circa 1890. Splayed tooled limestone cill externally with limestone surround. Mosaic cill internally with splayed mosaic surrounds. The window is from the studio of Clayton and Bell and glass design is by George Daniels. It depicts *Christ the King.* It appears to be in a reasonable state of repair.

W.005_Nave South Wall
Pointed arch window with two light intersecting tracery. The window was likely installed circa 1890. Splayed tooled limestone cill externally with limestone surround. Mosaic cill internally with splayed mosaic surrounds. The window is by Lavers, Barraund & Westlake, a prominent London based stained glass company. It depicts *Jesus walking on the Water* and it appears to require repair works.

W.006_Nave South Wall
Pointed arch window with two light intersecting tracery. Splayed tooled limestone cill externally with limestone surround. Mosaic cill internally with splayed mosaic surrounds. The stained-glass window was installed circa 1890 and is by Mayer of Munich. It depicts *The Good Centurian.* The window appears to require repair works.

W.007_Nave West Wall
Note- this window was being repaired at the time of the site inspections by James Bourke Architects. This Description is based on the report by Aria Glass.

Pointed arch window. Splayed tooled limestone cill externally with limestone surround. Splayed render reveal and cill internally Date unknown, but possibly circa 1811 and part of the original Altar windows until the Church's renovation. It may be the work of Thomas Williment. Diamond quarry background with decorated border.

W.008_Nave West Wall
Pointed arch window. Splayed tooled limestone cill externally with limestone surround. Splayed render reveal and cill internally Date unknown, but possibly circa 1811 and part of the original Altar windows until the Church's renovation. It may be the work of Thomas Williment. Diamond quarry background with decorated border. It appears to require repair works as a matter of urgency.

W.009_Nave North Wall
Pointed arch window with two light intersecting tracery. The window was likely installed circa 1890. Splayed tooled limestone cill externally with limestone surround. Mosaic cill internally with splayed mosaic surrounds. The window is by Lavers, Barraund & Westlake. It depicts *The Miracle of the Loaves and the Fishes.* It appears to require repair works.

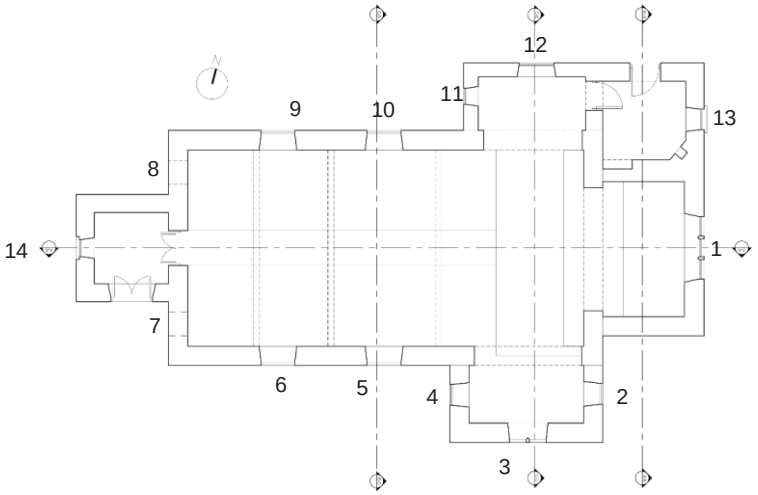
W.010_Nave North Wall
Pointed arch window with two light intersecting tracery. Splayed tooled limestone cill externally with limestone surround. Mosaic cill internally with splayed mosaic surrounds. The stained-glass window was installed in 1890 and is by Lavers, Barraund & Westlake. It depicts *The Sermon on the Mount.* It appears to require repair works.

W.011_Organ West Wall
Pointed arch single lancet window. Splayed tooled limestone cill externally with limestone surround. Render cill internally with splayed surrounds. Diamond leaded window in clear glass with stained glass decorative border likely by Thomas Williment. It appears to be in good repair.

W.012_Organ North Wall
Pointed arch cast iron window with two light intersecting tracery. Splayed tooled limestone cill externally with limestone surround. Render cill internally with splayed surrounds. Diamond leaded window in clear glass with stained glass quatrefoil depicting a dove. This quatrefoil is in urgent need of repair.

W.013_Vestry East Wall
Pointed arch cast iron window set into timber frame. Limestone cill externally. Render cill internally. Diamond leaded window with clear glass. It appears to be in good condition.

W.013_Bell Tower West Wall
Pointed arch window with recessed surround externally. Limestone cill externally. Splayed render cill internally. Stained glass with stylised fleur des lis design. It appears to be in good condition.



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4.10 Mosaics_Overview

Note that an attached report by Jason Bolton provides additional detail on the Mosaics.

The internal elevations of the church are covered in mosaics on almost all of the surfaces. The first mosaics were commissioned in 1894 and work continues up until 1925. The designer is unknown, but the work is thought to have been undertaken by Italian craftsmen, who first laid out the tiles on the lawn of Timoleague House.

The first phase of the mosaics was the decoration of the chancel, commissioned by Robert Augustus Travers in memory of family members. A design of leaves and flowers is enhanced by gold-leaf. A paschal lamb is also incorporated into the design.

The work was continued in the main body of the church by Robert's son, also Robert. These works were in commemoration of his father and brother who were killed at Gallipoli. The last phase of mosaics was completed in 1925, on the north wall of the nave. They were paid for in part by the Maharajah of Gwalior as a memorial to his friend and physician, Lt. Col Crofts from Concamore, who had saved the life of his son. Stylised designs of leaves and flowers are used throughout the north and south walls. The earlier west wall, however, shows a pictorial representation of the Ascension with the Apostles.

The mosaics are of high architectural, artistic and cultural value. However, they are in danger from the effects of moisture ingress in the built fabric of the church and salt mobilisation. Salt efflorescence is visible on wall surfaces, mortars have deteriorated and bulges in the underlying plaster are evident. The salt efflorescence was most visible along the south wall of the Nave, Chancel and in the south transept. Please see the attached report by Jason Bolton for further details.

5.0 Photographic Record

5.01 Internal- Overview

Nave-View to West

Nave-View to East Chancel

Nave-View to South Transept

5.02 VESTRY

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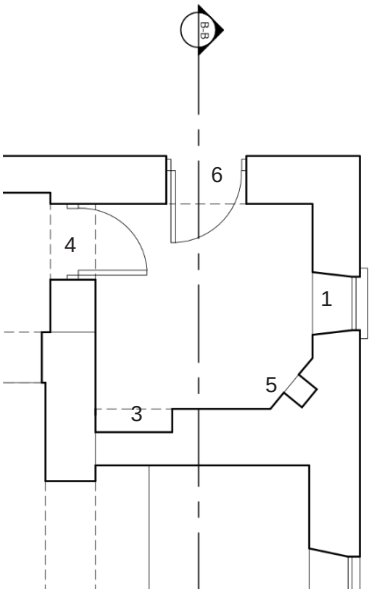

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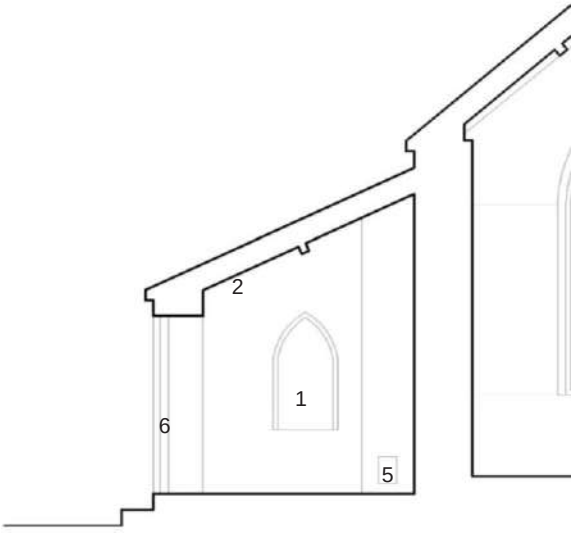
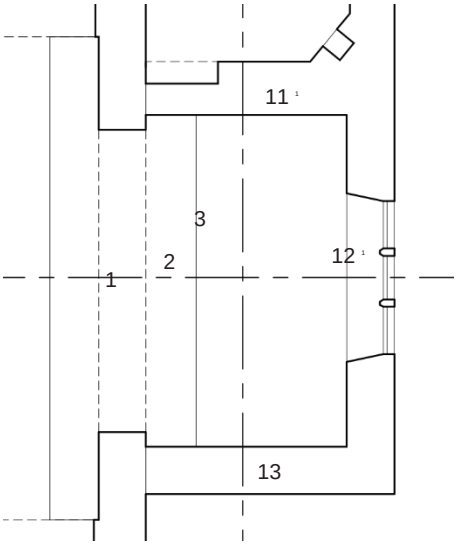


1. Window-Timber frame, diamond leaded window, clear glass
2. Timber boarded ceiling
3. Recess with built in storage
4. Vertical boarded timber door with pointed arch in square headed recess
5. Recessed safe with metal door- fireplace originally
6. Vertical boarded timber door with pointed arch in square headed recess

5.03 EAST CHANCEL



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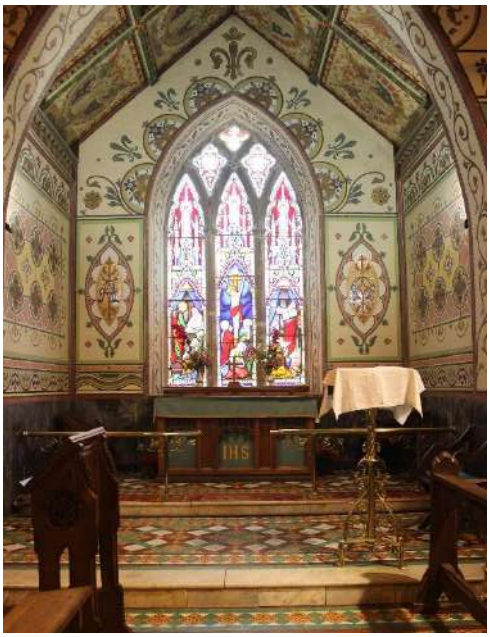

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1. Detail of Minton encaustic tiles- cracking visible
2. Crack in floor tiles caused by movement.
3. Brick build-up uncovered behind damaged marble step
4. North Roof- Angels in Tempura paint. Mosaics read- *To the Glory of God and in Memory of*
5. North Roof- Angels in Tempura paint. Mosaics read- *Laura Isobel Travers died 25 June 1906*
6. Painted ceiling to chancel, mosaics to arch, timber ceiling to nave
7. View of chancel with central east window.

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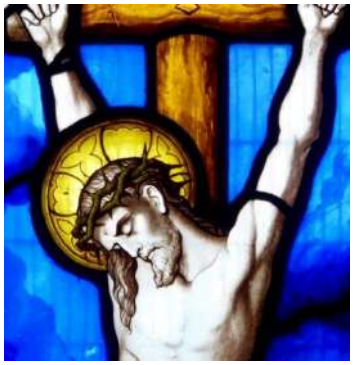

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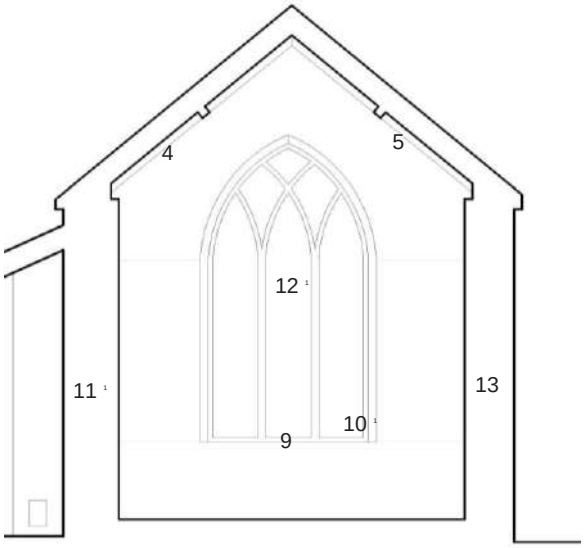

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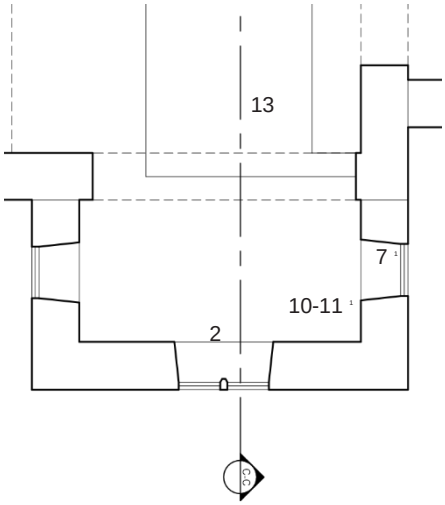
8. Detail of roof painting and mosaics to window opening
9. Damage to mosaics on window cill
10. Window detail of crucifixion
11. North wall mosaics above marble wainscot
12. Pointed arch stained-glass window with three light intersecting tracery and over-lights.
13. South wall mosaics above marble wainscot
14. Warrington Signature to window
15. Date to window - 1865

5.04 SOUTH TRANSEPT



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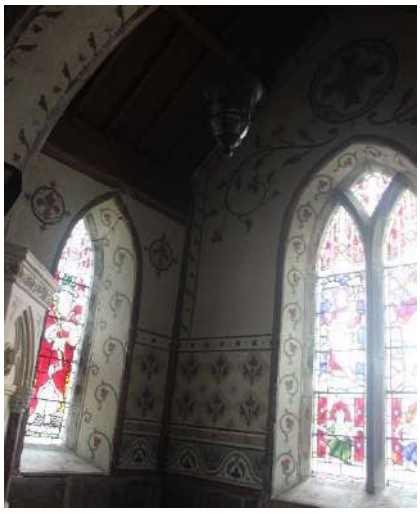

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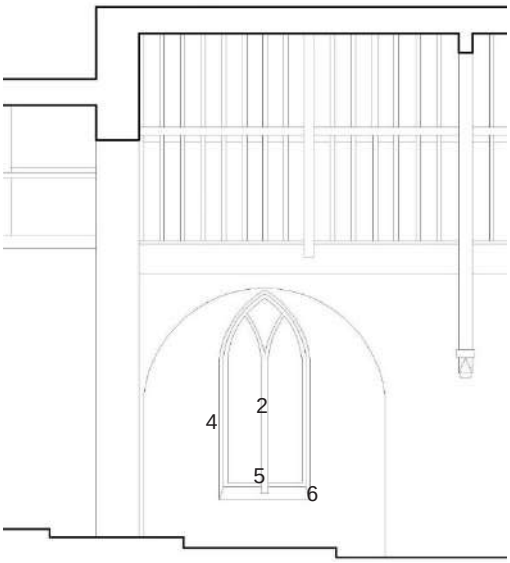

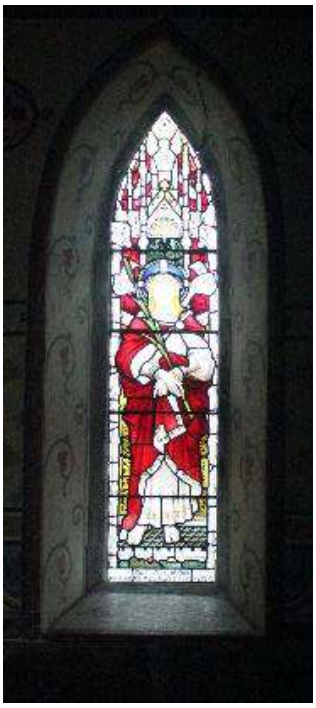

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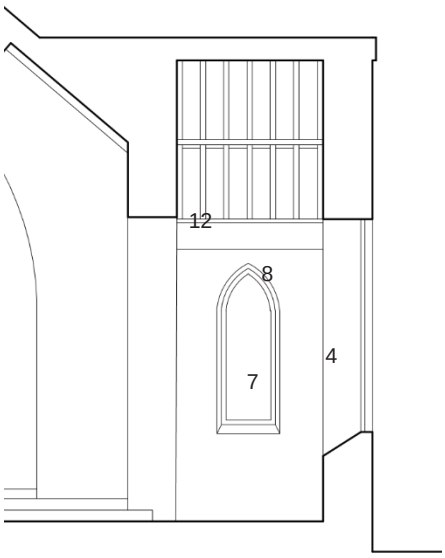
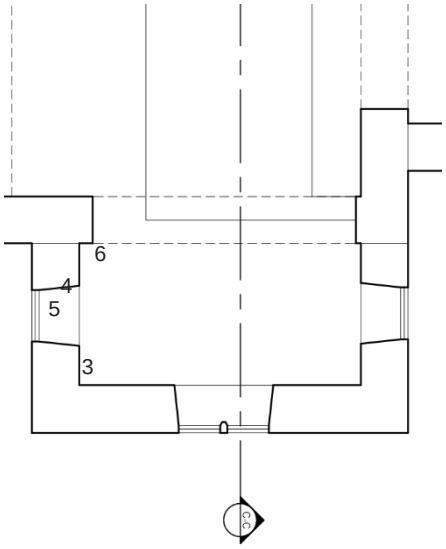


1. View of transept
2. Pointed arch stained-glass window with three light intersecting tracery to south
3. View to south-east corner of transept
4. Detail of damage to mosaics
5. Detail view of window
6. Cracking to south window reveal
7. Pointed arch stained-glass window to east
8. Crack above east window
9. Damage to mosaics
10. View of opening up to transept floor- rot present
11. View of opening up to transept floor- rot present
12. View to roof- damage caused by water ingress visible
13. View of Carrara marble lectern, installed 1902.



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1. View towards roof with minor stains from water ingress visible
2. Crack above west window
3. Detail of mosaics to west wall
4. Damage to mosaics at corner edge
5. Pointed arch stained-glass window to west
6. Detail of damage to mosaics at corners

5.05 NAVE / SOUTH SIDE

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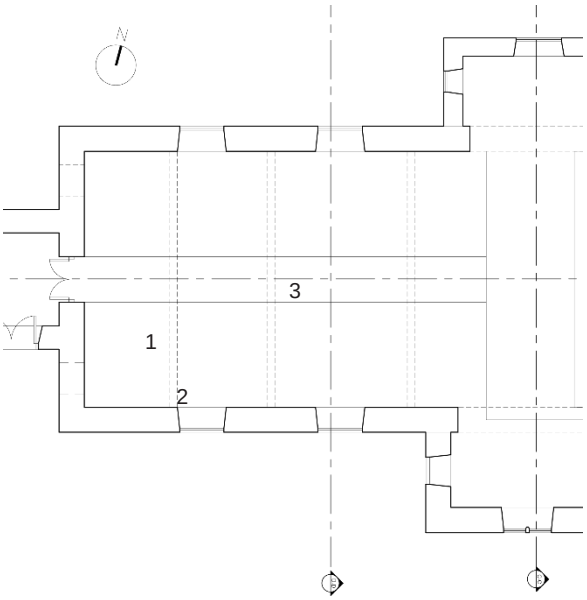
1. Floor detail – damage visible to tiles
2. Opening up to nave floor- rot present
3. Central aisle with geometric tiles
4. Hammer beam roof
5. View of south wall



5.06 NAVE / SOUTH WALL

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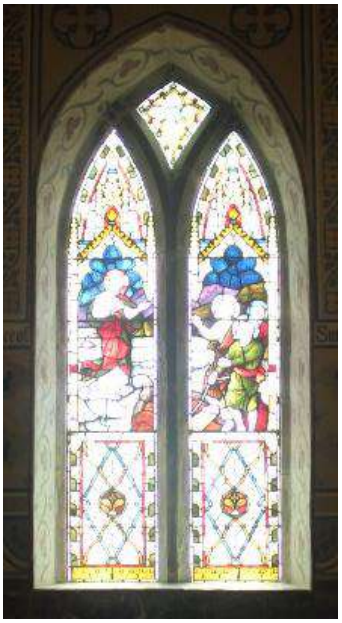

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1. South Wall Elevation
2. Pointed arch window with two light intersecting tracery depicting *Jesus walking on the water*
3. Pointed arch window with two light intersecting tracery depicting *The Good Centurion*
4. Window detail of *Jesus walking on the water*
5. Window detail *The Good Centurion*
6. Mosaic detail
7. Mosaic detail
8. Mosaic detail
9. Mosaic detail
10. Carrara Angel font installed 1902.
11. Side view of font.


TO THE GLORY of GOD And in Affectionate and Grateful remembrance

6


Surgeon General AYLMER MARTIN CROFTS C.I.E. Indian Medical Service

7


Born 25th May 1854. Died 12th April 1915.

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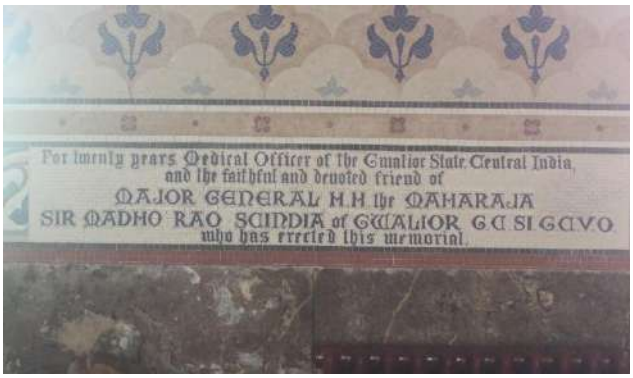
For twenty years Medical Officer of the Gwalior State Central India,
and the faithful and devoted friend of
MAJOR GENERAL H.H. the MAHARAJA
SIR MADHO RAO SCINDIA of GWALIOR G.C.S.I. G.C.V.O.
who has erected this memorial.

9


AND FORBID THEM NOT
IN MEMORY OF ALICE MAUD TRAVERS

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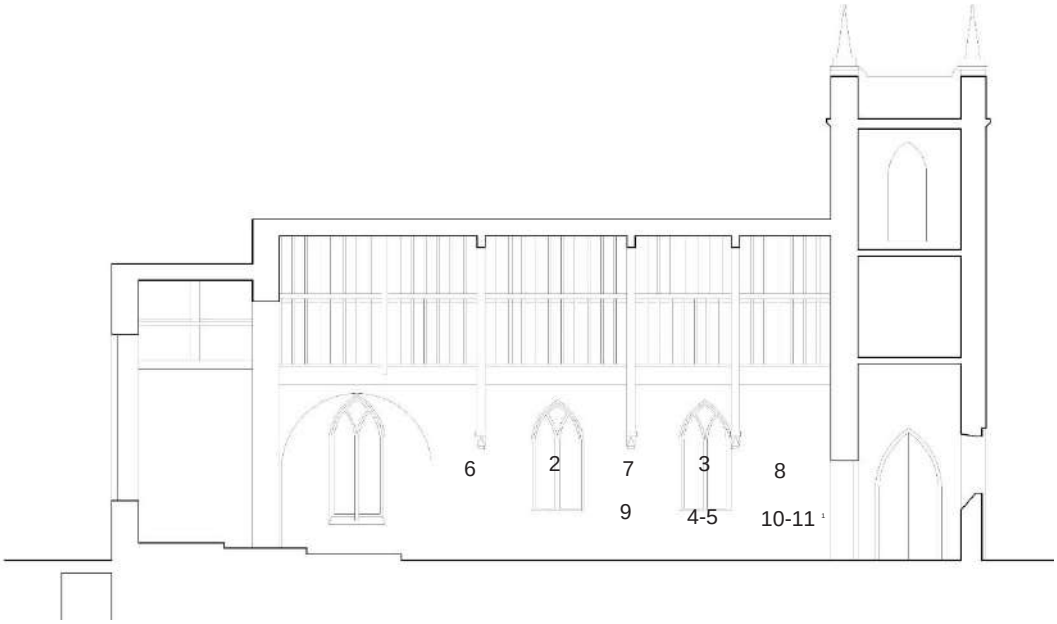
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5.07 NAVE / NORTH WALL

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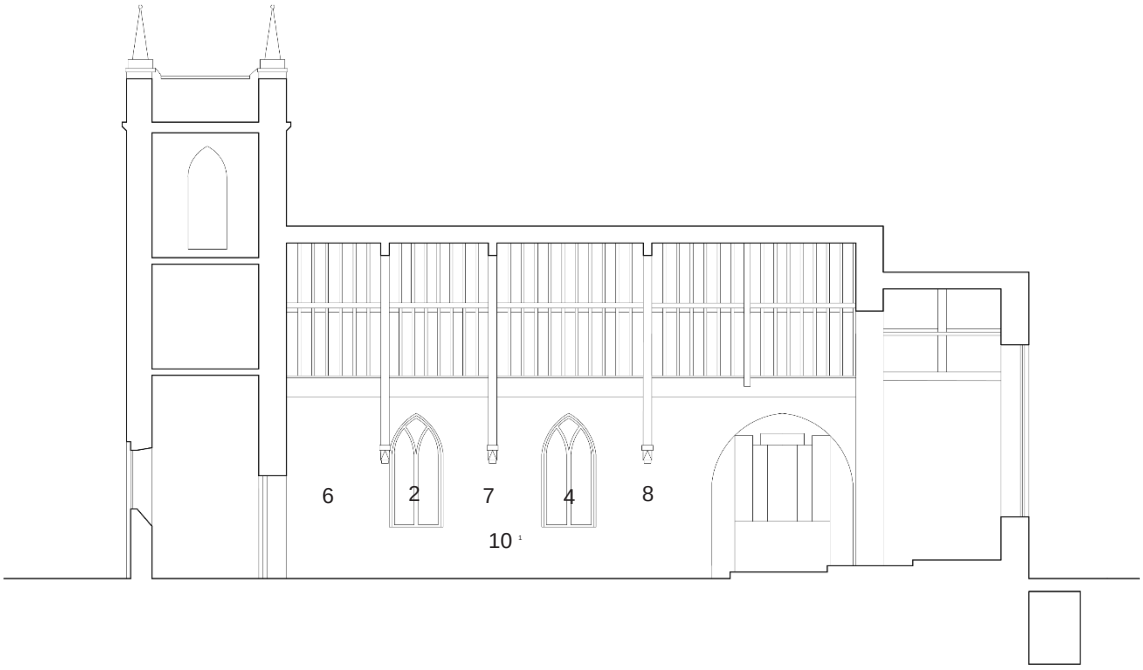

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1. North Wall Elevation
2. Pointed arch window with two light intersecting tracery depicting *The Miracle of the Loaves and the Fishes*
3. Window Detail
4. Pointed arch window with two light intersecting tracery depicting *The Sermon on the Mount*
5. Window Detail
6. Mosaic Detail
7. Mosaic Detail
8. Mosaic Detail
9. Mosaic Detail
10. Cracking to marble wainscot

5.08 NAVE / NORTH SIDE

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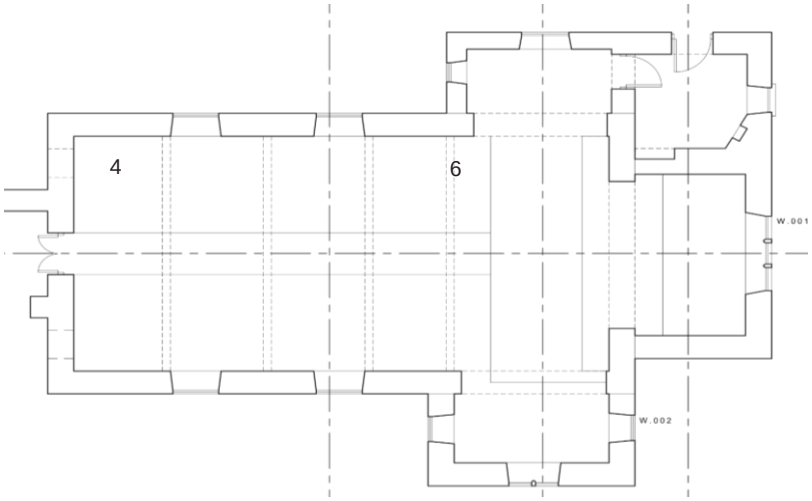
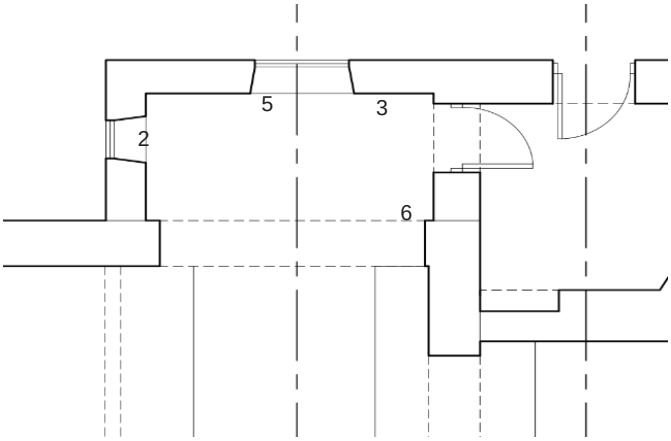
1. View towards nave roof
2. Dressed limestone corbel supporting roof structure
3. Light fittings- note that original lamps erected circa 1895
4. Section of floor replaced to north-west corner
5. Radiators installed throughout, circa 1919.
6. Opening up works – considerable dry rot present



5.09 NORTH TRANSEPT



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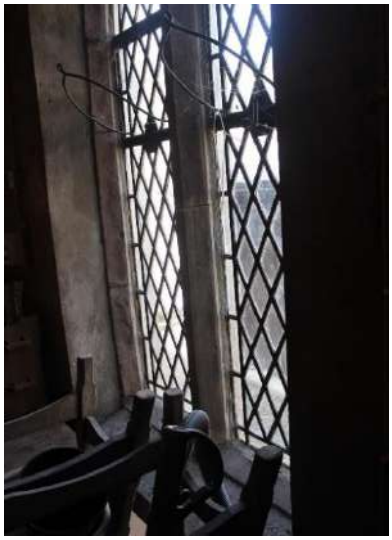

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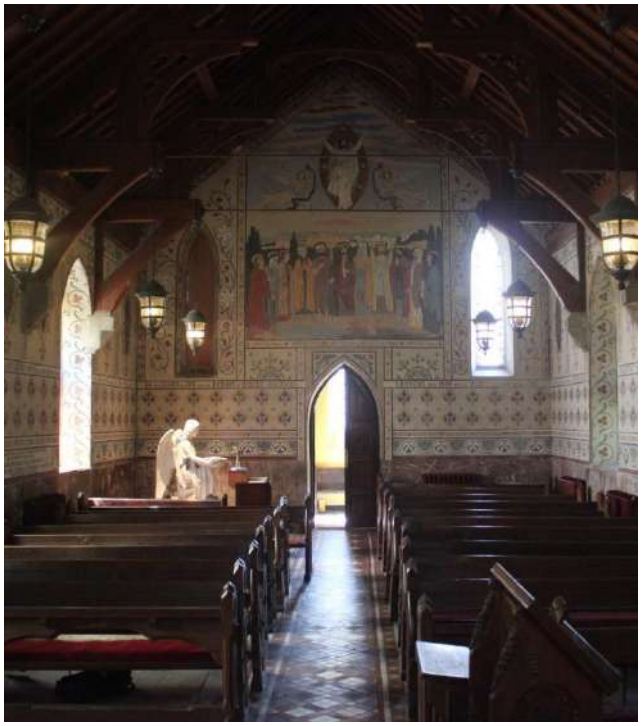
1. Organ installed c1890
2. Pointed arch window to west
3. Plaque
4. Window to north-detail of stained glass over-light
5. Clear glass diamond latticed window to north
6. Geometric floor tiles

5.10 NAVE / WEST WALL



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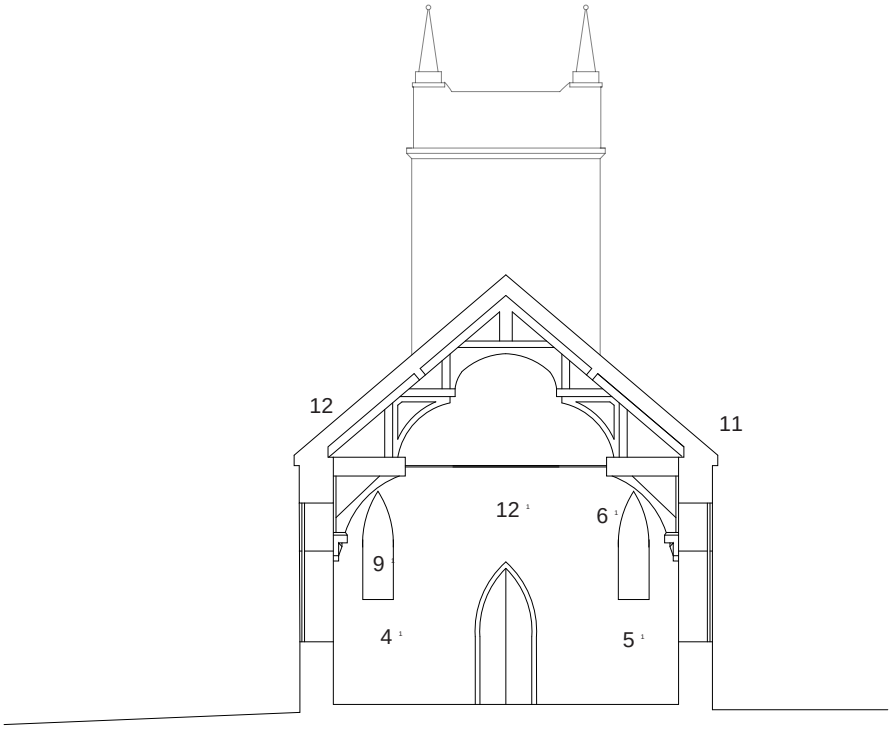

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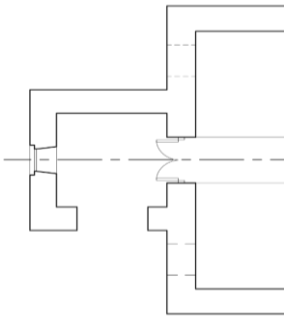

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1. View of west elevation
2. View towards south roof
3. Pointed arch doorway with mosaics to reveals
4. Mosaic detail
5. Mosaic Detail
6. Window detail
7. Detail of mosaics above window
8. View of mosaics to west wall
9. Window temporarily removed
10. Water staining visible to roof on south side
11. Water staining visible to roof to north side
12. Detail of mosaic

12 [1]

5.11 BELL TOWER

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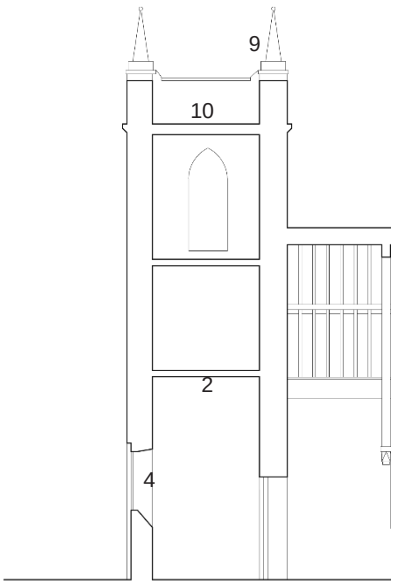

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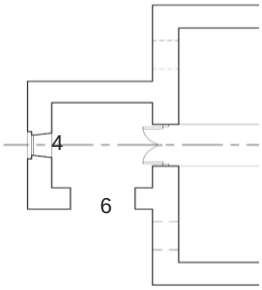

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1. View of ladder to upper levels of bell tower
2. View of roof- water staining visible
3. Plaque dating the clock to 1908
4. Stained glass window with splayed reveals to west
5. View towards nave
6. Level stone threshold with diamond tiles
7. View of bell with timber bell frame
8. Exposed stone walls in upper levels of bell tower
9. Parapet pinnacle details
10. Flat lead roof
11. Corrosion to iron caused by damp ingress in bell tower

5.12 EXTERNAL / BELL TOWER - SOUTH ELEVATION

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1. West Elevation
2. View of bell tower
3. Stone coping stones to nave
4. View of bell tower
5. Corrosion to rainwater goods
6. Vertical boarded timber door with pointed arch
7. South Elevation
8. Cut limestone window surrounds
9. View of south transept
10. Corrosion to rain water goods on south transept
11. Limestone surrounds with detail of cement pointing
12. View of south transept roof with concrete coping stones to gable

5.13 SOUTH TRANSEPT

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13. Corrosion to down pipe. Slipped slates and inappropriate expanding foam repairs visible
14. View of arch head near ground level- possible crypt below
15. Stone coping to nave
16. Ventilation brick to south transept

5.14 EAST CHANCEL

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5.15 NORTH TRANSEPT

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1. View of North transept / east wall
2. Window to north wall with tooled limestone surround
3. View of transept / north wall

OPPOSITE PAGE

1. View towards east chancel
2. View of chancel roof
3. Inappropriate concrete section installed in recent years
4. Chancel reroofed recently – slates in good condition, corrosion to rainwater goods visible
5. Window to vestry
6. Door to vestry
7. Staining visible under window
8. Different stones visible to south transept and east chancel.
9. Head of arch visible near ground level- possible crypt below.

5.16 NORTH ELEVATION NAVE

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1. View of north elevation
2. Rain water goods
3. Rainwater goods
4. View of coping stones
5. Cement pointing
6. View of north side of nave

6.0 Assessment of Significance

The building consists of an early 19th C. church built on the site of a medieval one. The Church of the Ascension, Timoleague is listed in the Record of Monuments and Places (CO 123-051). The earlier Church and graveyard are also recorded (CO 123-073 / CO 123-72)

The NIAH recognises the building as being of Architectural, Artistic, Historical and Social interest and of National importance.

The NIAH appraisal highlights the interior as being of particular importance, being '*exceptionally rich in detail and ornament. The mosaics are of particular note'. As noted in this appraisal, the* architect Jeremy Williams wrote in 'A Companion Guide to Architecture in Ireland 1837-1921' that "this building was a monument to a living friendship enshrined in a hidden masterpiece of the Arts and Crafts Movement in Ireland" and that it "transcended the sectarian divide between Irish Catholic and Protestant, The Indian Muslim and Hindu, personal friendship breaking up distinctions of caste and colour"

This church is of national importance and it is vital that it is adequately maintained to avoid the loss of irreplaceable historic fabric.

7.0 Recommended Schedule of Repairs

Note that works required to windows are not included here. Please refer to Aria report for recommendations for priority repairs to windows.

The church is built on a sloping site falling generally to the east and south towards the river. This side of the church is far more exposed than the north, and is showing more signs of deterioration within the built fabric. The building fabric must be stabilised prior to any local repair works being undertaken to internal decoration. This requires the improvement of the building envelope to reduce moisture ingress and salt mobilisation.

Moisture ingress is evident at roof level and through the walls. The roof is in urgent need of repair. Although the walls are sound they have been repointed using a portland cement mortar. This has detached in places which is leading to water ingress. Ventilation should also be maximised in order to reduce moisture build-up. Doors should be kept open when possible.

The evidence of movement suggests that the walls of the south transept may not be founded on original ground but on an unconsolidated layer of made ground. Further investigation would be required to establish whether the movement is ongoing and to establish the cause of movement cracking in the chancel floor.

The urgency and importance of repair works is categorised under four degrees of priority in accordance with BS 7913:2013. The following is our recommendation for repairs works:

Priority 1-Immediate. Work that should commence without delay for public health and safety reasons, prevent imminent damage or arrest rapid deterioration

7.01 - None

Priority 2-*Urgent. *Works that should be carried out within weeks or months, and within 18 months at most. Failure to do this would likely result in significant further damage or deterioration and increased cost.

Remedial works which should be completed within the next 6 months:

7.02 - Roof repairs-Nave and South Transept.

The roof is of critical importance. Slipped slates are found throughout the roof to the nave and south transept. Water ingress is especially visible at the west gable of the nave at the abutment with the southern roof slope. The roof should be made watertight as a temporary measure. This should be done as a matter of urgency, before the end of 2019. Rainwater goods should be replaced where they are corroded and allowing water to saturate the walls. The roof will require subsequent reroofing (see below).

7.03 - Roof repairs-Bell Tower

Water ingress is visible in the bell tower roof. The source of this should be established and temporary repairs should be undertaken to address this issue. The roof will require subsequent reroofing (see below).

7.04 - Repairs to External Walls

The existing Portland cement mortar is degrading and has detached and cracked in areas. This is allowing moisture ingress into the building but preventing evaporation, likely resulting in saturation of the building fabric. This is directly associated with the failures seen on the wall mosaics internally. The walls were originally rendered, and the stonework was designed with this in mind. It is only relatively recently in the church's history that the render was removed from the walls. Best

practice to minimise water ingress and safeguard the mosaics would be to remove all existing cement based mortar and to render the walls using a breathable lime based render.

Remedial works which should be completed within the next 18 months:

7.05 - Reroofing of the Nave and South Transept

The roof to the nave and south transept will should to be reroofed fully within the next 2 years to avoid further damage to the built fabric. This could be done on a phased basis, with the south roof taking precedence over the north due to its more exposed location. Rainwater goods and brackets should be repaired or replaced throughout.

7.06 - Supporting elements of the building fabric which are loose

Support the loose marble step at the edge of the chancel floor to prevent damage to the stone and support the loose marble wainscot at the corner of the nave and south transept.

7.07 - Removal of the paint in the bell tower

The walls of the bell tower have been painted with a non-breathable paint. The walls are showing issues with damp and salt crystallisation. The existing paint finish should be stripped off and the walls should be allowed to dry out prior to repainting in a breathable paint.

7.08 - Address evident structural deterioration

Repair or replace the iron beam over the below ground opening at the east gable.

***Investigations which should be completed within the next 18 months*:**

7.09 - Establish the cause of movement within the building

Install monitoring points at the South Transept external walls and begin a programme of monitoring. Confirm extent of void under east gable of Chancel. This may require specialist confined access equipment. Determine build-up under the floor of chancel and south transept using non-invasive methods such as ground penetrating radar. Develop strategy with adjoining landowner and monitor leaning stone retaining wall at east boundary of graveyard

7.10 - Establish whether timbers are in need of repair / replacement

Check timber bearing ends of purloins and at the bell frame.

Priority 3*-Necessary**. ***Work that there is time to plan and is due in order to keep the building in a good state of repair.

7.11 - Establish the chemical build-up of the salts present and establish a methodology for their reduction / removal.

The built fabric of the building must be improved prior to undertaking any repair works to the mosaics (see above). The moisture ingress must be minimised, which required repairs to the roof, repointing of the walls and providing adequate ventilation. Having undertaken these measures moisture levels should be monitored to establish that they are dropping. Any changes in salt action should also be monitored. Samples of the salts should be taken for analysis to determine the type present and allow for an appropriate plan for their removal to be established.

Having undertaken these measures a plan for repairing the mosaics should be developed and implemented. This plan is likely to include:

-local fine pointing and securing of tiles showing dry joints

-reattachment of loose or fallen tiles or tesserae
-securing of bulging plaster

7.12 - *Replace suspended timber floors*

The suspended timber floors beneath the pews in the nave and south transept are badly degraded and require replacement. Note that this could be done in conjunction with the installation of a new underfloor heating system (see below).

7.13 - Replace Bell tower roof structure

Priority 4_Desirable. *Work which is desirable but not strictly necessary but might improve the functioning or performance of the building or enhance its architectural or aesthetic qualities.*

7.14 - Mechanical Systems

A new heating system could be installed to avoid extreme changes in temperature. Ronan Mealy Consulting Engineers were commissioned to establish and appropriate method of heating the church. This report found that an air-water heat pump with underfloor heating would be the most feasible option. Please see appendix for full report. It is our opinion that underfloor heating could be installed in the areas under the pews relatively easily, replacing the existing suspended timber floors with a concrete floor slab. However, it is unlikely that this system could be used in the chancel or central aisle without unacceptable damage to the existing decorative tiles.

-An emergency lighting and fire alarm system should also be installed

8.0 Grants Available

8.01 Built Heritage Investment Scheme

The Built Heritage Investment Scheme (BHIS) is for the repair and conservation of structures that are protected under the Planning and Development Acts. This Scheme aims to support a significant number of labour-intensive, small-scale conservation projects across the country and to support the employment of skilled and experienced conservation professionals, craftspeople and tradespersons in the repair of the historic built environment. The fund is provided by the Department for Culture, Heritage and the Gaeltacht and administered through the local authorities, in this case Cork County Council. The allocation for 2019 was up to €2.5 million nationwide, with €79,000 being made available to cork County.

The minimum funding awarded for successful projects last year was €2,500 up to a maximum of €15,000. It is at the discretion of the Local Authority to decide which projects are awarded funding, and to what value. The local authority's overall allocation must be matched by an equal contribution from private funds. For example, if a LA is allocated €10,000, a minimum of €10,000 of private funds must be spent.

Works which are deemed eligible for this fund include repair and renewal of roof structures, coverings and features, repair or replacements of rainwater goods, works to repair external walls, repairs to stained glass windows, and repair and conservation of internal structure and features.

The deadline for applications for 2019 was 31st January. The dates and details for 2020 applications are not yet available. Applications are likely to open in December 2019. Please consult Cork County Council for further details.

This grant cannot be retrospective, i.e., works to be funded cannot commence until after the grant has been awarded.

8.02 The Historic Structures Fund

The Historic Structures Fund is for conservation works to heritage structures. The focus of this fund is on the enhancement of buildings of benefit to the community and the public. The fund is provided by the Department for Culture, Heritage and the Gaeltacht and administered through the local authorities, in this case Cork County Council. The allocation for 2019 was up to €1.82 million nationwide. It is generally offered under two headings. Of relevance to this project would be Stream one, which provides grants of 15,000 to 50,000 and is aimed at refurbishment projects.

The deadline for applications for 2019 was 31st January. The dates and details for 2020 applications are not yet available. Applications are likely to open in December 2019. Please consult Cork County Council for further details.

This grant cannot be retrospective, i.e., works to be funded cannot commence until after the grant has been awarded.

8.03 The Historic Monuments Advisory Committee

The Historic Monuments Advisory Committee is a group established under the National Monuments act 1930 which aims to provide advice and assistance in the preservation and protection of archaeological monuments nationwide. It is composed of Elected Members, invited specialists and relevant Local Authority officers. This committee has awarded funding for the preservation of ecclesiastical buildings in cork in recent years. Applications for funding can be made through the Local Authority (Cork County Council). Funding can be awarded retrospectively, i.e., works to be funded can be completed prior to the grant being awarded.

8.04 The Irish Georgian Society

The Irish Georgian Society provides funding for conservation projects, including works to churches. The resources are relatively limited- In 2019 €50,000 worth of grants were awarded across the country. In general, funding is provided to protected structures and recorded monuments, with priority being given to structures of National importance (note that Timoleague Church meets all of these criteria). Applications can be made to the Society via their application form, available online. The application is a 2 phase process, starting with an expression of interest. In 2019 the deadline for this was 20th March. The details for 2020 have not yet been released.

Except in exceptional circumstances this grant cannot be retrospective, i.e., works to be funded cannot commence until after the grant has been awarded.

8.05 The Heritage Council

In 2018 the Heritage Council provided grants to preserving heritage in community-based projects. This grant scheme was not available in 2019, and it has not yet been announced whether funding will be available in the future.

8.06 The Representative Church Body Church Fabric and Development Fund

Grants from the Church Fabric & Development Funds allow for the restoration of the fabric of a church building which is vested in the RCB. Grants awarded under the Fabric application are intended for the restoration or repair of church bodies. The majority of funding for the work should be parish generated, and the proposed work must be essential and appropriately supervised. Application forms can be found on the RCB website.

8.07 Marshal Beresford's Fund

The Marshal Beresford's Fund, although administered by the RCB, is an external fund under the control of trustees separate to the RCB. It is for grants for repairs to Church of Ireland churches. The allocation of the income is made by the Archbishop of Armagh, supported by the RCB Property department. Grants are allocated in conjunction with fabric grants from the Church Fabric and Development Fund. Application forms can be found on the RCB website.

8.08 Miscellaneous

Further grant schemes may be available from various organisations and/ or Church bodies. James Bourke Architects will continue to monitor this and will update the Vestry of Kilgarriffe Union of Parishes should we become aware of any further potential sources of funding appropriate for Timoleague Church.

Tax relief is available under S.482 of the Taxes Consolidation Act 1997 for expenditure incurred on the repair, maintenance or restoration of certain buildings and gardens determined by the Revenue Commissioners to be of significant horticultural, scientific, historical, architectural or aesthetic interest and to which there is reasonable public access

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Appendix

NIAH Record

Description
Freestanding double-height gable-fronted Church of Ireland church, rebuilt 1802-11, in the Board of First Fruits Gothic Revival style. Two-stage bell tower with pointed pinnacles to front (west), two-bay nave with single-bay transepts to sides (north, south), and later (1863) single-bay chancel to rear (east) having single-storey vestry to side (north). Southern transept added 1890. Pitched slate roofs throughout with rendered gable copings, cast-iron and aluminium rainwater goods. Tooled limestone corner pinnacles and clock (1904) to tower. Rubble stone walls with dressed stone quoins. Pointed arch window openings with tooled limestone sills to side elevations of nave and transepts, having block-and-start surrounds and tooled Y-tracery. Pointed arch window opening to rear elevation of chancel, having tooled limestone sill, surround and three-light intersecting tracery with overlights. Pointed arch window openings with tooled limestone sills and surrounds to front elevation of nave and front and rear elevations of transepts. Pointed arch window opening with rubble stone voussoirs and limestone sill to rear (east) elevation of vestry. Pointed arch window opening with tooled limestone sill and surround to front elevation of bell tower to ground floor, set within former pointed arch door opening. Lead-lined lattice and lead-lined stained glass windows throughout. Eastern chancel window installed in 1865, nave and southern transept windows installed in 1890. Pointed arch louvre openings with tooled limestone surrounds and sills to upper stage of bell tower. Pointed arch door opening with tooled limestone surround to side (south) elevation of bell tower, having rubbles stone voussoirs and double-leaf timber battened doors. Pointed arch door opening to side (north) elevation of vestry having timber battened door. Marble pulpit installed in 1890 to interior of southern transept. Organ, installed in 1890, to north transept. Painted ceiling. Midleton marble panels, mosaic and gold leaf to chancel. Carrera marble font, installed in 1902, to south-western corner of nave. Mosaics to west and north walls of nave and south transept, installed in 1918, and south wall of nave installed c.1925. Graveyard surrounding church, having rubble stone enclosing wall with gate opening to west, having square-profile capped piers and cast-iron gate. Single-pitch outbuilding to north.

Appraisal
This Board of First Fruits style church was rebuilt from the ruins of a medieval church by Lord Riversdale in 1811, having been delayed for nine years by the Continental Blockade during Napoleonic Wars. Although the exterior is typical of this style of church, the interior is exceptionally rich in detail and ornament. The mosaics are of particular note, begun in 1894 by Mr. Robert Augustus Travers of Timoleague House in memory of family members, continued in 1918 by his son Robert in commemoration of his father and brother who were killed at Gallipoli. The last phase of the mosaics was at the expense of the Maharajah of Gwailor, installed as a memorial to his friend and physician, Lt. Col Crofts IMS from Concamore, who had saved the life of his son. The mosaic was completed by Italian workmen in 1925, ten years after the doctor's death. The mosaic, most likely designed by the Church of Ireland architect W.H. Hill, is a blend of the European and the Islamic. The series of stained glass windows include a Warrington over the altar (east window), glass by Lavers, Westlake and also Mayer elsewhere. The image of the crucifixion in the east window was considered 'graven' by the Bishop of Cork, Cloyne and Ross at the time, Dr. John Gregg, who refused to consecrate the new chancel and vestry unless the section of the window was covered up. Parishioners even attacked the window on two occasions. The Italian style Cararra marble font and angel is a sister to the pair in the Catholic church of Tralee. The architect Jeremy Williams wrote in 'A Companion Guide to Architecture in Ireland 1837-1921' that "this building was a monument to a living friendship enshrined in a hidden masterpiece of the Arts and Crafts Movement in Ireland" and that it "transcended the sectarian divide between Irish Catholic and Protestant, The Indian Muslim and Hindu, personal friendship breaking up distinctions of caste and colour".

DAVIDKELLY
PARTNERSHIP
CHARTERED ENGINEERS

Church of the Ascension, Timoleague, Co Cork

STRUCTURAL ASSESSMENT

October 2019 **Job No. 19031**

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INTRODUCTION

The church is located at the northern end of the main street, on the west bank of the Argideen River, south of the site of the former Timoleague House, at the southern end of Castle Lower townland.

This report is prepared to inform a conservation and management plan for the church being prepared by James Bourke Architects. The church was inspected on 30th July and 15th August 2019. The timber suspended ground floor was opened at selected locations for inspection, this was the only opening up carried out for the purposes of this report.

SIGNIFICANCE AND STATUS

Externally, it is a typical Board of First Fruits church in the Gothic Revival style however the interior is richly decorated with mosaics installed in the late 19th and early 20th century and with stained-glass windows by noted stained glass artists of the time.

It is rated of National Importance with architectural, artistic, historical and social special interest in the National Inventory of Architectural Heritage, registration number 2085 6005. The church is a Protected Structure in the Cork County Development Plan 2014, reference number 01375. The site contains three Recorded Monuments, reference numbers CO123-072, -073, -051, namely the graveyard, the present church and the former church on the site.

DESCRIPTION

External

The church is built of coursed, roughly squared rubble sandstone masonry, un-rendered, and comprises a bell tower at the West End, nave, chancel, vestry and North and South transepts. The walls have been repointed externally with cementitious mortar in a variety of styles including raised strap pointing. The window openings have dressed limestone surrounds with pointed arch heads.

The roof is covered in natural slate with plain clay ridge tiles and overlapping dressed stone copings. The rainwater goods comprise cast-iron half round eaves gutters which discharge to gullies at ground level via round cast-iron downpipes.

The windows are a mixture of leaded lattice glazing and cast-iron framed windows.

The bell-tower has a lead sheet covered, flat roof set below a masonry parapet.

The ground immediately outside the south transept and chancel falls away rapidly to the graveyard and eastern boundary wall respectively. The graveyard at the eastern boundary is retained by a substantial masonry retaining wall, part of which is a modern replacement.

Internal

Bell-tower

The bell-tower has a timber floor below the bell accessed via a semi-permanent timber ladder. The bell is supported on a timber frame resting on the external walls.

The flat roof structure comprises timber boards resting on wrought iron joists spanning between the external walls. The ground floor of the bell-tower is solid with a clay tile finish.

Nave, Chancel and South Transept

The roof structure is exposed and comprises hammer beam principal rafters with round bar iron or steel ties at eaves level. There is a single purlin on each roof slope supporting common rafters housed into the purlins. The timber board ceiling is fitted between the rafters. The principal rafters are supported on dressed limestone corbels built into the inner wall face well below eaves level.

The walls of the nave, South transept and chancel are covered with mosaic tile to the eaves cornice above a marble sheet wainscot.

The central aisle of the nave has a solid floor with a geometric and encaustic tile finish. The floor of the chancel is a raised solid floor with a geometric and encaustic tile finish to match that on the central aisle of the nave. The floor under the seating in the nave and South transept is of suspended timber construction with timber square edged boards fixed to continuous shallow timber bearers laid on roughly placed stone filling under the floor. There is no provision for ventilation of the sub-floor voids.

CONDITION

External

The slate roof covering to the nave and transepts is failing with fragments from fallen slates visible on the ground.

The rainwater goods are generally unpainted and are corroding in some areas. Corroding gutter brackets are causing damage to masonry in places.

The cementitious pointing at the external walls is beginning to fail in places, but is intact elsewhere.

There is evidence of movement in the south transept external walls. The south transept was built in 1890 approximately 80 years after the main church was built. The ground level on the southern side of the church and around the southern transept appears to have been raised at some point. It is likely that the movement is due to settlement of the foundations in this area. This movement may have ceased, or it may be on-going. There are a number of low level/partially buried relieving arches visible at ground level at the south wall of the south transept and at the east gable of the chancel.

There is a semi-basement well at the east gable of the chancel, covered by a flagstone and concrete cover. This opening appears to extend under the gable which is supported locally over the opening on an iron beam now severely corroded. There is a slight crack in the stone window frame over this opening and in the masonry which has recently been re-pointed.

Rainwater from the roof discharges to gullies at the external walls. There is no evidence of a piped surface water drainage system around the church which suggests that the gullies may discharge to soakaways. If the soakaways are near the building they may be contributing to the movement visible at the south transept.

Internal

The bell tower roof structure is in poor condition. There is water staining visible on the boarding at the underside of the flat roof and significant corrosion of the iron joists has occurred. The bell frame appears generally in reasonable condition but there is some furniture beetle (woodworm) damage visible on the surface of the timber. The bearing ends of the frame at the external walls may have hidden timber decay and should be checked for soundness.

Ground floor

The suspended timber ground floor in the nave and South transepts is in very poor condition. The filling under the solid floor at the crossing has settled where it was visible during opening up of the suspended timber floor. The marble step at the edge of the chancel floor is loose and will require re-setting. The cause of the movement in the chancel floor is unclear. It may be associated with settlement of fill under the floor. The well under the east gable of the chancel noted above suggests that the ground here may be made up with fill to a significant depth.

Roof

There is water staining to the rafter and purlin ends at the west gable especially at the south side. The purlin end embedded in the wall here is at risk of timber decay and should be checked for soundness.

Walls

The condition of the wall finishes is outside the scope of this report however it was noted that the marble slab wainscot has detached from the wall at the junction of the nave and south transept.

ANALYSIS

The church is built on a sloping site falling generally to the east and south towards the river. The church is built on the site of an older church, some elements of which may be incorporated in the present structure. The chancel and south transept are later additions which extend the original church down-slope. The foundations, in particular of the south transept, may extend to some depth if they are built on original ground. The evidence of movement suggests the walls of the south transept may not be founded on original ground but on an

unconsolidated, weaker layer of made ground. The sloping ground would also have required fill inside the church to maintain the floor level.

RECOMMENDATIONS FOR WORKS

Priority 1 immediate (now)

None

Priority 2 urgent (within 18 months)

1. Address water ingress at the west gable of the nave at the abutment with the southern roof slope;

2. Address water ingress at the bell tower roof;

3. Support the loose marble step at the edge of the chancel floor to prevent damage to the stone;

4. Install monitoring points at the South Transept external walls and begin programme of monitoring;

5. Support or secure the loose marble wainscot at the corner of the nave and south transept;

6. The well or void under the east gable of the chancel should be explored to confirm its extent. This may require specialist confined access equipment.

7. determine the build-up under the floor of the chancel and south transept using non-invasive methods such as ground penetrating radar

8. Clean and repaint rainwater goods and associated brackets

9. Repair / replace the iron beam over the below ground opening in the east gable

10. Develop strategy with adjoining landowner and/or monitor leaning stone retaining wall at east boundary of graveyard

11. Check timber bearing ends of purlins and at the bell frame

Priority 3 necessary (within five years)

1. Replace the bell tower roof structure;

2. Replace the suspended timber floor structure to the nave and transepts;

3. The walls of the South transepts should be monitored over an extended period to determine whether or not movement of these walls has ceased or is ongoing.

4. Remove the cementitious pointing on a phased basis beginning in those areas where it is already failing and replace with a compatible lime mortar designed to replicate the properties of the original mortar.

Priority 4 desirable

1. Consider rendering the external walls of the church with a lime-based render.

2. Consider rendering the internal face of the bell tower parapet to reduce water ingress

PHOTOGRAPHS

Slate fragment

Rainwater downpipe and gully

Repaired crack at head of arch

Low level arch in south transept gable

Failing pointing

Crack in east gable stone window frame and wall over below ground opening

Corroded iron lintel over below ground opening

Corroded iron lintel over below ground opening

Corroding gutter and bracket with modern repair at wall of damage to masonry from corroding bracket

Open joint at window surround

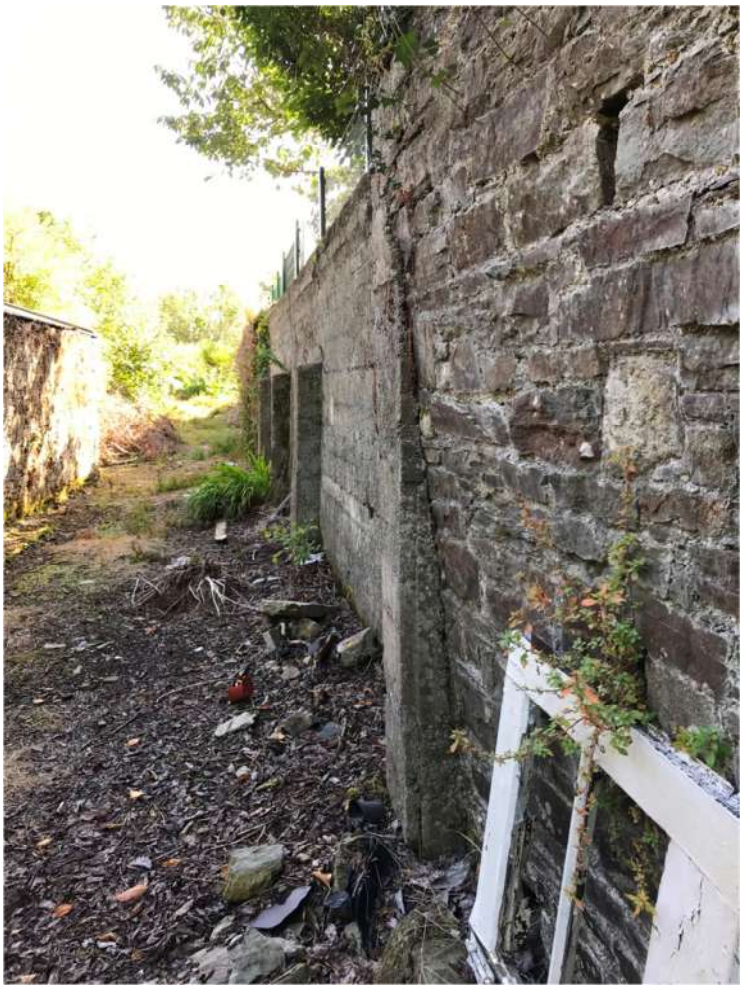
Backfall / ponding in bell tower flat roof at corner

Surface vegetation at bell tower parapet wall

Failed pointing and possible settlement at south-east corner of south transept

Leaning retaining wall at east boundary of graveyard

Failure of repair to masonry pointing



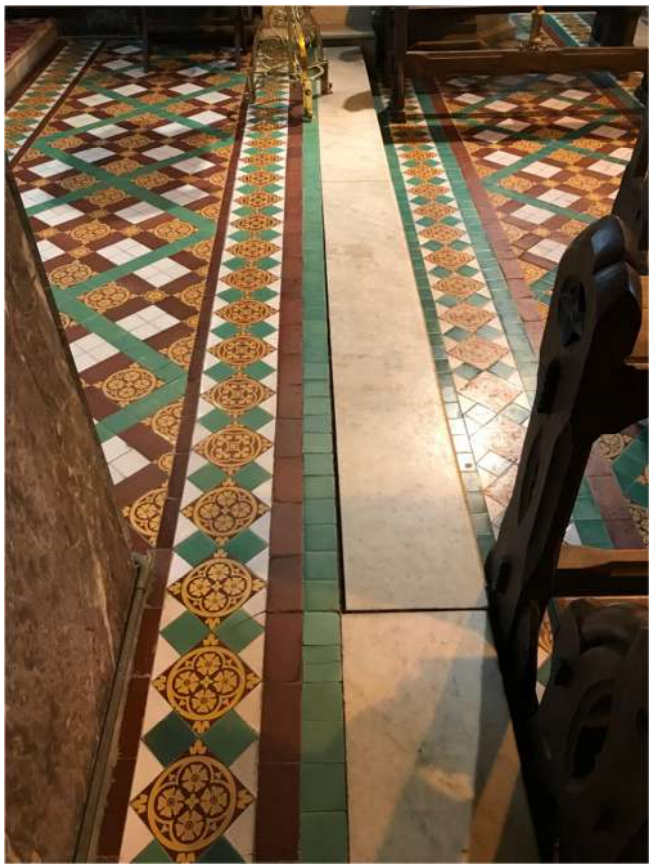
East Boundary wall (note adjoining section has already been replaced)

East Boundary wall (note adjoining section has already been replaced)

Timber decay in suspended floor in nave

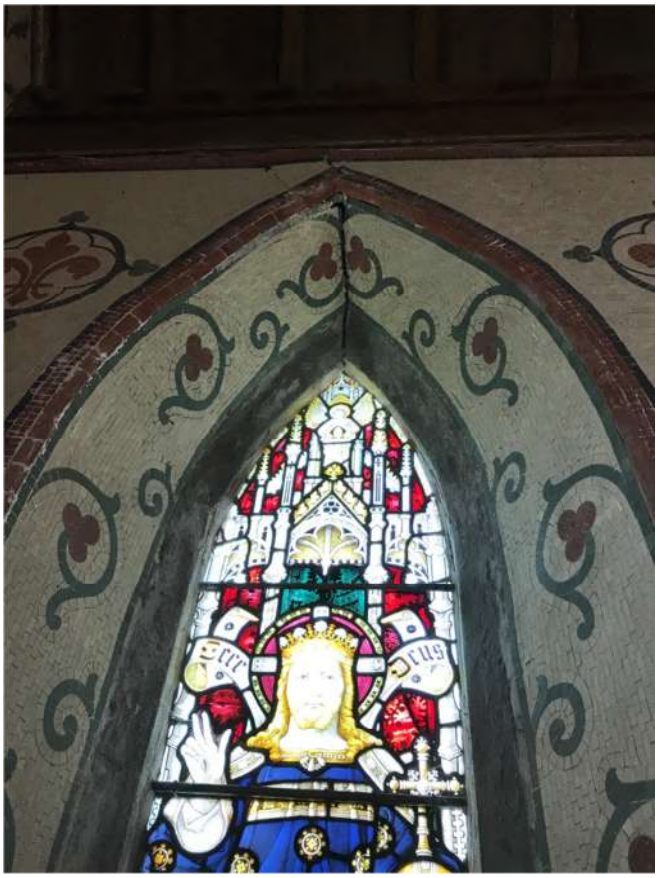
Void due to settlement under solid floor at crossing

Timber decay at purlin end and adjoining rafter



Dislodged marble step at chancel floor edge

Crack at South transept wall



Crack at South transept wall

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Church of the Ascension, Timoleague, Co. Cork

Wall Mosaics Conservation Report

October 2019

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Contents

1. Introduction and Purpose of the Report

This report was prepared at the request of James Bourke Architects. The purpose of the report is to assess the conservation needs of the mosaics crated between 1894 and 1925 within the Church of the Ascension, Timoleague. Co. Cork as part of the development of a conservation plan for the place.

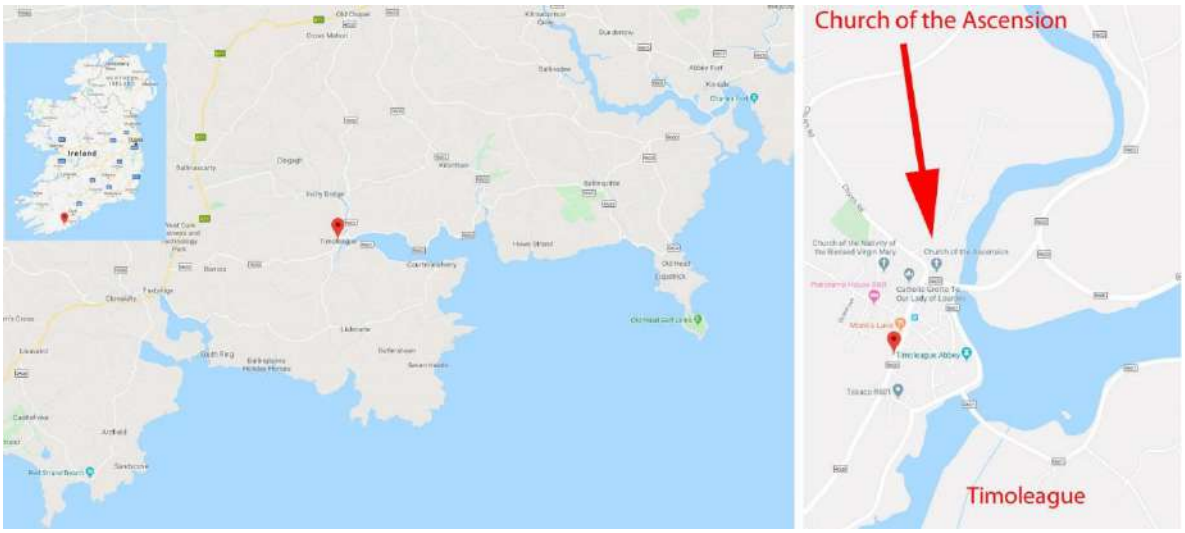

Fig.1: Location of the church overlooking the Ardigeen River

2. Methodology and Limitations of Inspection

The site visit consisted of a visual assessment and recording of the mosaics as well as relevant parts of building, site and environs, combined with a digital photographic record of decay forms and areas of vulnerability. The interior and exterior of the building were examined from ground level only under dry partly overcast conditions. No opening up or other investigative work was undertaken. A portable microscope was used to examine building materials, especially the condition of the surface off the mosaics, the mortars, the substrate and the masonry and pointing mortars seen on the external envelope as we as examining salt effloresence and organic matter *in situ*. However, no samples were taken for any further analysis.

Fig.2: Location of the church overlooking the Ardigeen River

3. Architectural and Historical Context

The church stands within a graveyard overlooking the Ardigeen River and is exposed to the estuary. The cruciform nave-and-chancel church with a western bell tower (see Table 1) was built c.1802-11 on the site of a medieval church building[1], and forms part of the Kilgariffe Union of Parishes. The church is one of c.700 built in the first three decades of the nineteenth century funded by the Board of First Fruits. These were typically "simple gabled hall-and-tower churches, almost exclusively decorated in a superficial Gothic mode"[2]. The interior of the church is decorated on almost all wall surfaces[3] with a series of wall mosaics begun in 1894 and continued 1918-1926 commemorating members of the Travers family and Surgeon-General Alymer Martin Crofts (1854-1915) and funded in part by Maharaja Madho Rao Scindia (1876-1925) of the state of Gwalior, India (Fig.34).

NIAH Description of the Church of the Ascension, Timoleague
Description - Freestanding double-height gable-fronted Church of Ireland church, rebuilt 1802-11, in the Board of First Fruits Gothic Revival style. Two-stage bell tower with pointed pinnacles to front (west), two-bay nave with single-bay transepts to sides (north, south), and later (1863) single-bay chancel to rear (east) having single-storey vestry to side (north). Southern transept added 1890. Pitched slate roofs throughout with rendered gable copings, cast-iron and aluminium rainwater goods. Tooled limestone corner pinnacles and clock (1904) to tower. Rubble stone walls with dressed stone quoins. Pointed arch window openings with tooled limestone sills to side elevations of nave and transepts, having block-and-start surrounds and tooled Y-tracery. Pointed arch window opening to rear elevation of chancel, having tooled limestone sill, surround and three-light intersecting tracery with overlights. Pointed arch window openings with tooled limestone sills and surrounds to front elevation of nave and front and rear elevations of transepts. Pointed arch window opening with rubble stone voussoirs and limestone sill to rear (east) elevation of vestry. Pointed arch window opening with tooled limestone sill and surround to front elevation of bell tower to ground floor, set within former pointed arch door opening. Lead-lined lattice and lead-lined stained glass windows throughout. Eastern chancel window installed in 1865, nave and southern transept windows installed in 1890. Pointed arch louvre openings with tooled limestone surrounds and sills to upper stage of bell tower. Pointed arch door opening with tooled limestone surround to side (south) elevation of bell tower, having rubbles stone voussoirs and double-leaf timber battened doors. Pointed arch door opening to side (north) elevation of vestry having timber battened door. Marble pulpit installed in 1890 to interior of southern transept. Organ, installed in 1890, to north transept. Painted ceiling. Midleton marble panels, mosaic and gold leaf to chancel. Carrera marble font, installed in 1902, to south-western corner of nave. Mosaics to west and north walls of nave and south transept, installed in 1918, and south wall of nave installed c.1925. Graveyard surrounding church, having rubble stone enclosing wall with gate opening to west, having square-profile capped piers and cast-iron gate. Single-pitch outbuilding to north. Appraisal - This Board of First Fruits style church was rebuilt from the ruins of a medieval church by Lord Riversdale in 1811, having been delayed for nine years by the Continental Blockade during Napoleonic Wars. Although the exterior is typical of this style of church, the interior is exceptionally rich in detail and ornament. The mosaics are of particular note, begun in 1894 by Mr. Robert Augustus Travers of Timoleague House in memory of family members, continued in 1918 by his son Robert in commemoration of his father and brother who were killed at Gallipoli. The last phase of the mosaics was at the expense of the Maharajah of Gwailor, installed as a memorial to his friend and physician, Lt. Col Crofts IMS from Concamore, who had saved the life of his son. The mosaic was completed by Italian workmen in 1925, ten years after the doctor's death. The mosaic, most likely designed by the Church of Ireland architect W.H. Hill, is a blend of the European and the Islamic. The series of stained glass windows include a Warrington over the altar (east window), glass by Lavers, Westlake and also Mayer elsewhere. The image of the crucifixion in the east window was considered 'graven' by the Bishop of Cork, Cloyne and Ross at the time, Dr. John Gregg, who refused to consecrate the new chancel and vestry unless the section of the window was covered up. Parishioners even attacked the window on two occasions. The Italian style Cararra marble font and angel is a sister to the pair in the Catholic church of Tralee. The architect Jeremy Williams wrote in 'A Companion Guide to Architecture in Ireland 1837-1921' that "this building was a monument to a living friendship enshrined in a hidden masterpiece of the Arts and Crafts Movement in Ireland" and that it "transcended the sectarian divide between Irish Catholic and Protestant, The Indian Muslim and Hindu, personal friendship breaking up distinctions of caste and colour".

Table 1: NIAH appraisal of the Church of the Ascension[4]. NIAH Ref. No. 20856005

The building is composed of rubble stone masonry with a slated roof. The local bedrock consists of flaser-bedded sandstones, wavy bedded fine-grained sandstones and minor mudstones from the Old Head Sandstone Formation[5]; with cross-bedded sandstone & minor mudstone from the Toe Head Formation To the south, and mud-dominant succession of grey mudstones and sand-lensed mudstones and subsidiary flaser-bedded sandstones. from the Kinsale Formation to the north. The masonry has been repointed (discussed in Section 4.3) and the church is in active use within the Kilgariffe Union of Parishes, Diocese of Cork, Cloyne and Ross.

Fig.2: The south elevation of the Church of the Ascension, Timoleague showing the gabled hall-and-tower Neo-Gothic masonry building standing detached within a graveyard.

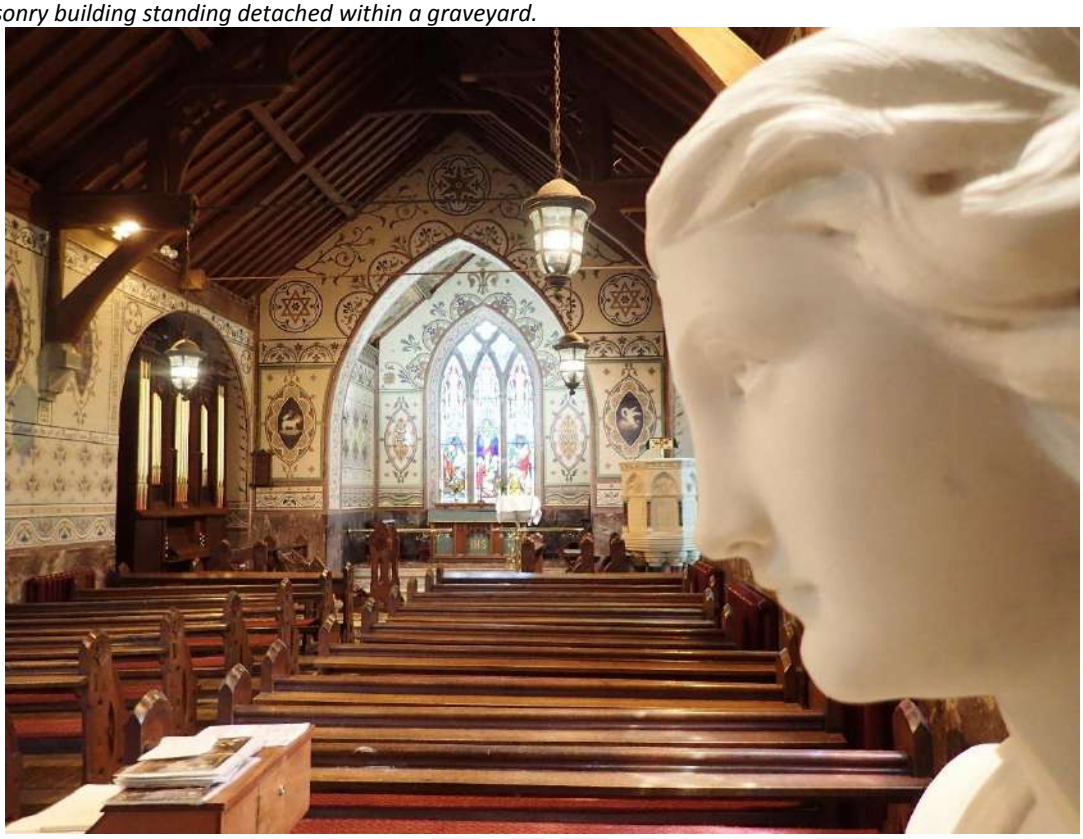

Fig.3: View of the interior of the Church of the Ascension, Timoleague.

4. Findings

The mosaics are a key component in the architectural heritage value of the church, but are vulnerable to the effects of moisture ingress and salt mobilisation which is causing the appearance of salt efflorescence on the surface of the walls, deterioration of the marble and mortars which bind the mosaics, and which most significantly, are affecting the underlying plasterwork which supports the mosaics allowing it to bulge and displace as it begins to detach from the wall.

The exterior of the church has been repointed in the past with a Portland Cement-based paint which is failing (see Section 4.3) and is contributing not only to moisture ingress, but also is likely to prevent moisture evaporation – 'trapping' moisture within the building fabric and encouraging moisture and salts to move to the interior of the church. The roof of the church was outside the scope of this report, but some failures were observed from ground level, and moisture ingress from the roof level also appears to be associated with both moisture and salt related damage.

4.1 Salt Damage: Soluble salts are well-known in the professional literature[6] and are associated with the deterioration of building materials including stone, mortars, plasters and renders. The risks of salt action in a historic building include aesthetic damage, health problems[7], costly recurrent repairs, loss of historic material and structural damage. Salts may appear as:

- **Effloresence** – white needle-shaped crystals appearing on a building surface
- **Sub-effloresence** – crystals forming below the surface resulting in damage and/or detachment of that surface.
- **Stone & Mortar Dissolution** – salts damaging building materials and removed as debris with failed material

Evidence of salt damage (efflorescence, sub-effloresence and stone and mortar dissolution) was found throughout the internal walls of the church on all sides, but is most evident and most visible along the south wall of the nave, chancel and within the south transept. The church walls appear to be of traditional construction (i.e. made of porous hydrophilic materials) built in direct contact with the ground and showing evidence of failure and potential moisture ingress at roof level (see Section 4.4) and through the external masonry walls (see Section 4.3).

The type of salt is not known and more than one form of salt could be present. The most likely salts to be found in historic buildings are sodium chloride (NaCl)[8], nitrates (NO_3)[9], carbonates (CO_3)[10] and sulphates (SO_4)[11].

The key vulnerabilities associated with salt damage within the church were:

- **Salt crystallisation** in the form of clusters of needle-like whitish crystals visible on the surface of the wall, particularly at the mortar joints.
- **Dry joints within the mosaics** indicating loss of mortar and with some tesserae loose to touch with the risk of detachment.
- **'Boasting' of mosaics** where the wall surface is no longer plumb, 'hollow' on sounding and with the risk of detachment of large sections of mosaic from the surface of the walls (discussed in Section 4.2).
- **Detachment of Tiles** where individual tesserae and tiles have been lost from the wall, particularly at angles and interfaces between sections of work.
- **Damage to Marble Plinths** at ground level including opening of natural fractures, salt crystallisation, discolouration and leading to loss of stone material.
- **Indicator of Poor Environmental Conditions** as RH, temperature and air movement are sub-optimal.

4.1.1 Salt crystallisation: White salt crystals can be found on the surface of the walls within the entrance tower and on all internal walls of the church – indicating that problem is not specific to the mosaics but affects the entire building. Salt crystallisation is most visible within the south and east walls at the base of the tower, across the west gable wall of the nave, along the south wall of the nave, within the south transept and on the south wall of the chancel. Salt damage is also present along the north side of the church, but is less well developed.

This distribution of damage suggests that both internal (i.e. the west gable) and external walls are affected. Salt damage is found on both sides of the church, but salt crystals are more visible on the south side. Salts are not restricted to the mosaics and can also be found on painted surfaces and floor tiles (Figs.4-5). The presence of dry joints and 'boasting' of plasterwork on the west gable (see Section 4.3) and north wall of the chancel suggests that the drying conditions may differ – i.e. the more exposed south wall tends to show salt efflorescence on the surface of the walls, whereas the more sheltered internal west gable and north wall probably are affected by sub-effloresence and mortar and stone dissolution[12].

Fig.4: Salts appearing on the surface of the painted wall surface at the base of the tower. This wall is not exposed to the exterior and indicates that the salts are not restricted to the mosaics and suggest that salts are diffuse throughout the masonry fabric.

Fig.5: Salt damage and salt crystallisation (right) on the stone floor at the base of the tower.

Fig.6: Salt typically appears within the mortars between tesserae and especially at angles between walls, at the edges of window opens and the interface between the mosaics and the marble plinth.

4.1.2 Dry joints within the mosaics: These also appear to be closely associated with moisture and salt action. The loss of the jointing mortar between the tiles results destabilises them but also indicates that underlying decay processes continue to be active.

Fig.7: Dry joints in the tesserae along the north wall.

Fig. 9: Salt crystallisation leading to mortar dissolution between the tiles on the west gable of the nave.

Fig.10: Salt crystallisation at the arch surround of the doorway through the west gable, showing needle-like whitish efflorescence and tiles displaced once the mortar is lost (left, arrowed).

Fig.11: Areas of lost mortar joints can be seen throughout individual panels suggesting that the processes causing the loss of the jointing mortars are diffuse throughout the wall fabric and not localised to specific areas. From a distance (left) the joints between the tesserae appear to be more visible, however, on close inspection (let) the mortar has been lost with tiles beginning to shift and destabilise.

Fig.12: Detail of the north wall of the nave adjacent to the north transept showing an area of widespread mortar loss accompanied by salt crystallisation suggesting the two processes are linked.

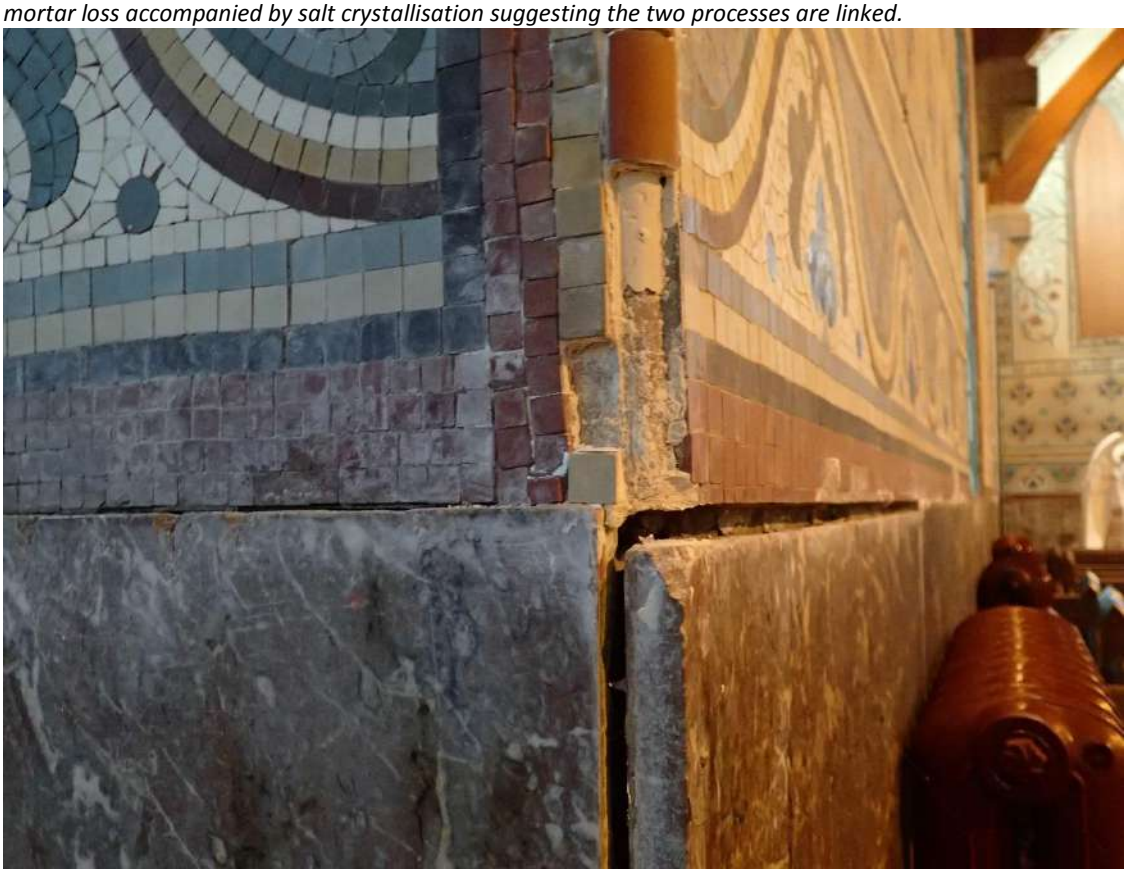

Fig.13: View of the south wall of the nave adjacent to the south transept showing white deposits on the surface of the tiles and the marble, the displacement of the marble plinth and the detachment of tiles at the angle.

4.1.2 Detachment of Tiles: The loss of mortar and salt action appears to combine in some areas leading to the destabilisation and detachment of tiles. This is apparent at the angles of the south (Fig.13) and north (Fig.14) transepts, the south-west corner of the nave, and tiles at windows and door openings.

Fig. 14: Mortar dissolution leading to displacement of angle tiles at the entrance to the north transept. Note salt crystallisation and dissolution of mortars depositing on the surface of the tiles. See also Fig.12.

Fig.15: Loss of angle tiles (arrowed), south elevation of the nave.

Fig. 16: Salt efflorescence and loss of angle tiles within the south transept.

4.1.3 Damage to Marble Plinths: The combined action of moisture and salts leading to salt crystallisation, dry joints, and detachment of tiles is also seriously affecting the marble slabs 'face-bedded' to form the decorative plinth within the chancel and nave (Figs.17-20). While salt action damages the mortar between and underlying the tiles (e.g. Fig.16), salt action is directly more damaging to the marble plinths as it penetrates natural weaknesses in the stone, discolouring the surface of the stone (Fig.16) and enlarging natural fractures (Fig.21) leading to stone decay.

Fig.17: View of discolouration and salt efflorescence of the marble plinth, south wall, chancel.

Fig.18: Salt damage occurs throughout the wall surface. However, in the case of the decorative tiles, salt damage primarily affects the mortar joints and subsequently coats the surface of the tiles. For the marble plinth, salt action is much more damaging as it penetrates and crystallises within natural incipient fractures within the stone, causing not only crystallisation and coating, but damaging disruption of the stone fabric.

Fig.19: Detail of salt crystallisation on the marble plinth at the west end of the south wall of the nave.

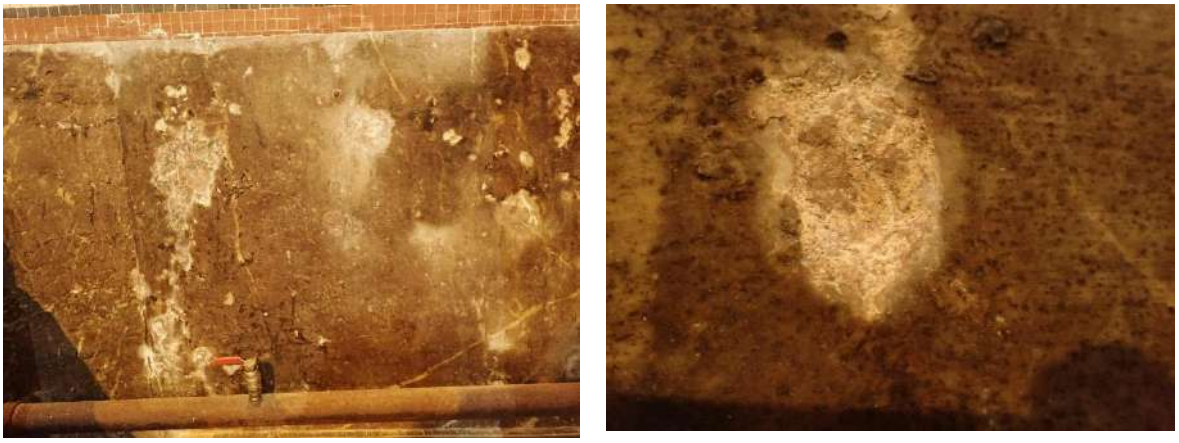

Fig.20: Salt crystallisation on the marble plinth on the south wall of the nave.

Fig.21: Salt efflorescence passing through natural fractures in the marble plinth on the south wall of the nave.

4.1.4 Indicator of Poor Environmental Conditions: Salts can only mobilise and crystalise under specific environmental conditions governed[13] by the chemical characteristics of the salt present, the nature of the porous network, the moisture content within the pores, the relative humidity (RH) and temperature of the ambient air, the temperature of the wall and the rate of evaporation (governed by the movement of air across the surface). Unfortunately, many of the conditions necessary for the crystallisation of salts are also those (high humidity, poor ventilation etc.) which facilitate damp and mould (Fig.22) and are potentially injurious to human health. The interior of the church has little natural ventilation which greatly facilitates salt crystallisation.

Fig.22: Damp and mould in the south-west corner of the nave. These are indicative of the poor environmental conditions found within the church, and the damp conditions of the underlying wall fabric.

4.2 Potential Detachment of Sections of Plasterwork: In addition to salt crystallisation, mortar loss and detachment of individual tiles, some areas show bulging of plasterwork (e.g. Fig.23). This is most noticeable above the doorway on the west gable and along the north elevation, but is beginning to be apparent in other small areas also (e.g. within the south transept).

The bulging of plasterwork poses a significant risk to the mosaics as unlike mortar loss, tile detachment and salt crystallisation which affect individual or small number of tesserae and tiles, the failure of sections of the underlying plaster would result in both loss of the artwork, and potentially poses a risk to any churchgoers.

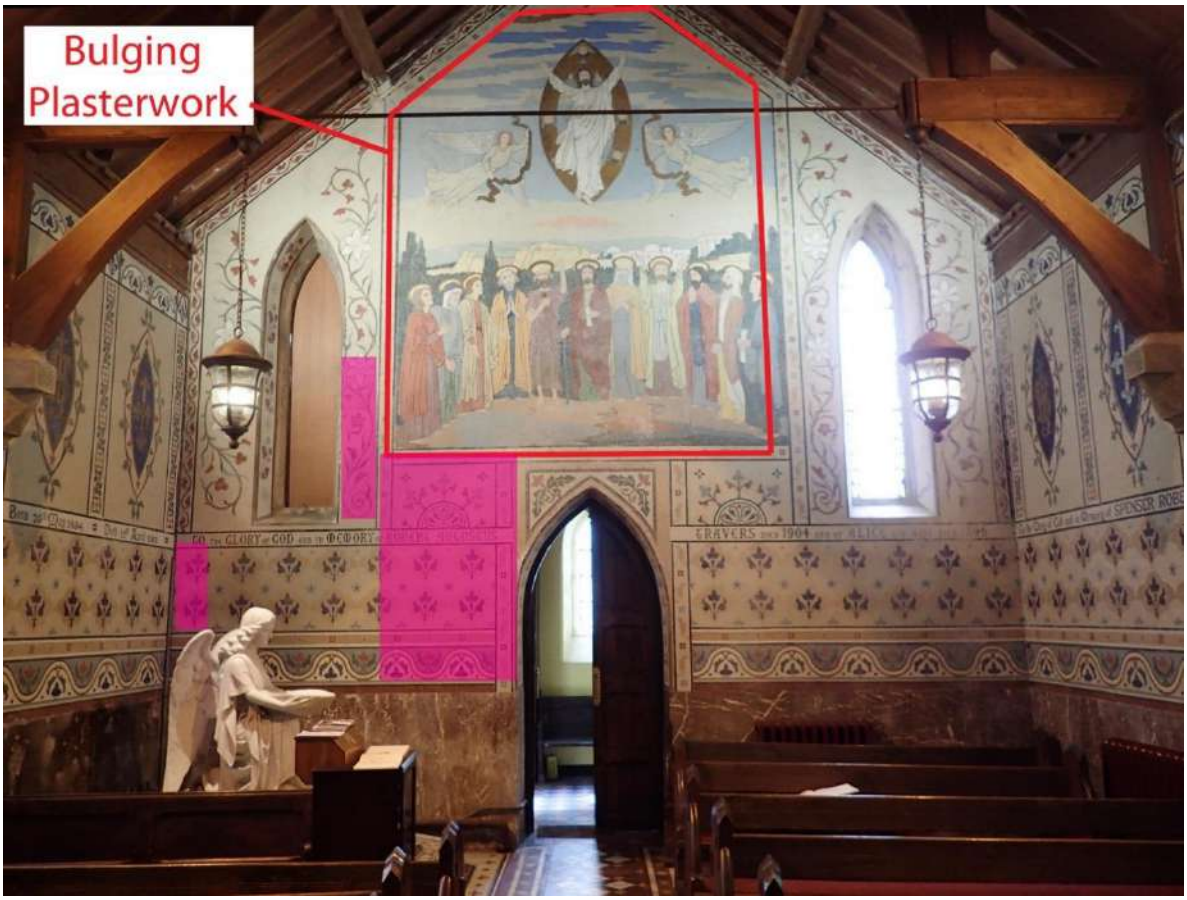

Fig.23: Area of bulging plasterwork supporting the mosaics of the west gable. The pink areas indicate areas showing salt crystallisation (see Fig.10 also).

Fig.24: The plaster beneath the mosaics is bulging resulting in cracks (e.g. arrowed) appearing in the mosaic above the doorway in the west gable wall of the nave.

Fig.25: The bulging areas have some overlap with areas of salt crystallisation and loss of tiles (e.g. south side of the west gable wall) but should be considered a more serious risk.

4.3 External Pointing Mortars: The church was repointed in the past with Portland Cement-based mortars. These are typically dense, impermeable, durable and inflexible mortars, and are the basis of much modern construction. However, historic buildings were constructed from a much wider variety of building materials than modern buildings, largely drawing on locally available resources. Portland Cement has proved to be incompatible with many of the porous building stones and bricks used in the construction of buildings in the past; and while used for repair with the best of intentions, their incompatibility has led to other failures, and sometimes were not fit-for-purpose for the work at hand.

The tradition building stone in and around Timoleague are drawn from a family of sandstones and mudstones/mudrocks[14] from the Kinsale Formation (See Section 2). Some of these stones are very porous and not resistant to weathering[15] and there are often dramatic examples of building stone degradation and failure in Cork and Waterford due to the incompatibility between traditional stone used in their construction and modern building materials.

Fig.26.: Detail of the base of west elevation of the tower pointed with Portland Cement mortars.

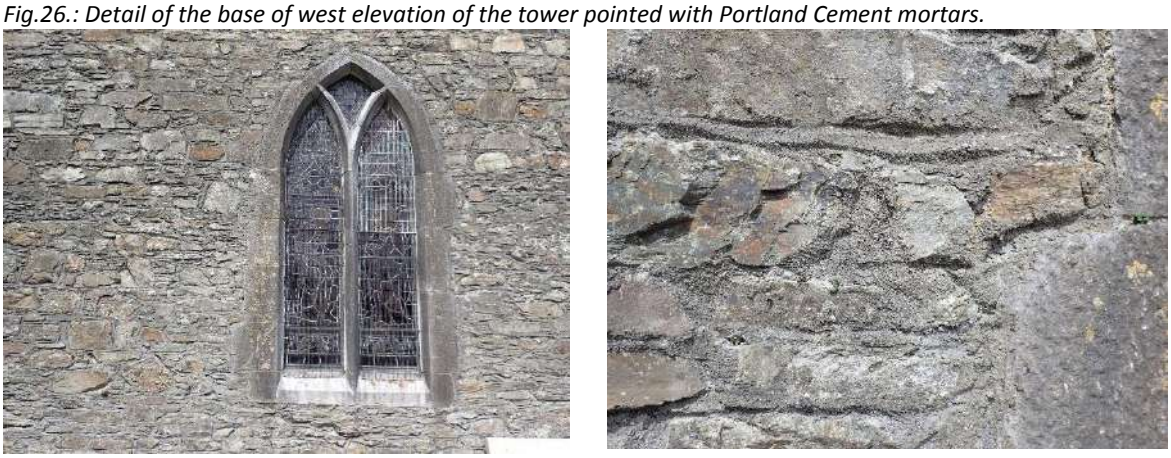

Fig.27: Detail of the south elevation, repointed with Portland Cement-based mortar.

Mudstones such as those found among the masonry envelope of the Church of the Ascension, are not normally used in modern construction, though are found in historic buildings in many parts of Ireland, and are common across Co. Cork, though their use in building construction is generally not advised:

> "Impure sandstones and arkoses: The mudrocks need not concern us, although volumetrically they are far more abundant that the coarser siliclastic rocks, since they are generally unsuitable for use as building stone"[16].

The building stone of the church is in relatively good condition (Figs.26-27) and there are no well-developed decay forms indicating that the Portland Cement-based mortars are not directly incompatible with the stone. However, the function of the pointing mortars are not only to bind the stone, but to protect from moisture ingress and in this regard the Portland Cement repointing has failed. These mortars have lost their bond with the masonry in many locations (Figs.29-30), allowing moisture ingress into the building fabric but preventing evaporation resulting in a very likely saturated fabric. This saturation is indicated by the vegetation growing in the joints of the south transept (Fig.28) and is directly associated with the failures seen on the wall mosaics internally.

Fig.28: Vegetation growing in the failed Portland Cement repointing of the south transept.

Fig.29: Detail of loss of bond between the Portland Cement pointing and the masonry allowing moisture ingress.

Fig.30: Detail of loss of bond between the Portland Cement pointing and the masonry allowing moisture ingress.

4.4 Roof: The roof shows some slipped slate and vegetation growing adjacent and possible beneath the coping stones (Figs.28, 31 & 32). Failure at the roof in combination with the presence of impermeable Portland Cement-based repointing mortars would result in a saturated wall fabric and cause and/or exacerbate the moisture and salt-related damage seen on the mosaics internally.

Fig.31: The church is roofed with natural slate, with some extensions to the roof to accommodate later enlargement of the church.

Fig.32: The roof was not closely examined but slipped tiles and vegetation at the coping stones indicate possible points of moisture ingress and that the roof requires closer inspection.

Fig.33: The south transept also shows structural cracks which exhibit internally also. This suggests that there are multiple routes for moisture to penetrate into the building fabric in this part o the building.

5. Recommendations

The mosaics are a key element in the special architectural heritage interest of the church; and are currently threatened by moisture ingress and salt action which is resulting in:

- Bulging with accompanying risk of detachment/collapse of sections of mosaics on the west gable and the north elevation of the nave.
- Salt crystallisation and loss of the mortar binding the tiles to the wall - resulting in the sporadic failure of individual tiles throughout all internal wall elevations.
- Stone decay damage to the marble plinth at the base of the walls in both the nave and chancel
- Damage to the painted wall surfaces & floor tiles within the entrance at the base of the tower

The mosaics should be considered to be under significant threat of deterioration through the potential collapse of sections of wall surface on the west gable and the north elevation, **and ongoing deterioration and sporadic loss of individual tesserae and tiles elsewhere throughout the interior of the church**.

Fig.34: View of the mosaics on the south wall of the nave commemorating Surgeon-General Alymer Martin Crofts as funded by Maharaja Madho Rao Scindia.

There is a well-established literature and skill-base for the effective repair of wall mosaics[17]. However, it is not yet possible to develop a detailed conservation and repair plan; it is first crucial that the building fabric of the church is stabilised. The conservation of the mosaics will require three steps:

- Improvement of the Building Envelope to reduce moisture ingress and salt mobilisation
- Reduction/Removal of the Salts
- Development of a Detailed Repair Plan for the Mosaics and the Internal Plasterwork

5.1 Improve Building Envelope: It is vital that the building envelope is secured to prevent moisture ingress (and associated salt mobilisation). Any short-term measures to repair the mosaics that do not address the linked problems of moisture ingress and salt mobilisation should be expected to fail. The priority to protect the mosaics for the future is to reduce or remove salt mobilisation, and to prevent water ingress into the building. The most effective ways to undertake this are summarised in Table 2 below.

Problem	Solution
Moisture ingress at roof level	Survey & Repair Roof & Undertake any Repairs
Moisture ingress through the walls	Repoint the church with a matching lime mortar[18]
Internal Environmental Conditions	Improve ventilation

Table 2: Summary of measures to reduce/remove moisture ingress and salt action affecting the mosaics.

It is very likely that there are multiple points of ingress for moisture into the building fabric, and it is **recommended that a thorough and detail visual condition assessment survey of the exterior, roof and tower of the church is undertaken as soon as possible to determine** the nature and extent of any defects, and the extent of any necessary remedial works.

5.2 Removal/Reduction of Salts: It is extremely difficult to effectively remove salts from historic masonry fabric. However, salt damage is part of a process of deterioration (of salt accumulation, mobilisation and recrystallistation) and it is possible to interrupt the process by which salts reach the damaging point of crystallising in a place where they threaten and/or damage historic surfaces. Addressing excessive moisture ingress should have a short-term effect of reducing salt mobilisation. However, this will not entirely remove salts from the masonry fabric[19]. **Following any repairs to the building envelope, it will be necessary to monitor the building for changes to ensure that moisture levels are dropping both internally and within the wall fabric, and to monitor for any changes in salt action** (i.e. salts appearing in new locations).

It is not recommended to attempt to remove the salts in the short-term. There are a wide range of methods, procedures and techniques which are available to address salt attack, but these must be carefully matched to the specific problem and the specific site. Using the wrong method in the wrong circumstances can worsen the damaging impacts of salts.

The first priority should be to reduce the amount of moisture penetrating into the building fabric. Alongside this, **it is recommended that a representative sample of the salts are analysed to determine the type of salt present.** As salts can originate from various sources, it is then possible to work backwards to determine the potential origin(s) of the salts[20]. Depending on the findings, a plan to removal or reduce salts could be developed, or if the salt levels are low and there is no mobilisation, it may be possible to take no direct action and allow the salts to remain not mobilised within the wall fabric.

5.3 Development of a Repair Plan for the Mosaics and Internal Plasterwork: The underlying wall fabric is currently very likely to be both saturated and loaded with salts. The development of a detailed repair plan for the mosaics should be postponed until the steps above have been undertaken.

However, it should be anticipated that repairs will be needed. These should be expected to include:

- Local fine pointing & securing of tiles showing dry joints
- Re-attachment of loose or fallen tiles or tesserae
- Securing of the Bulging Plaster[21]

Dr Jason Bolton

Endnotes

[1] http://cork.anglican.org/tourists/worth-a-visit/church-of-the-ascension-timoleague/
[2] Montague, J. (2014) "Church of Ireland churches in the nineteenth century", in Loeber, R. *et al* Art and Architecture of Ireland, Volume IV: Architecture 1600-2000. Dublin – New Haven – London. Yale University Press. Pp.304-8
[3] The north transept (which holds the organ), the vestry and the entrance hall at the base of the tower are undecorated.
[4] http://www.buildingsofireland.ie/niah/search.jsp?type=record&county=CO&regno=20856005
[5] This Devonian Formation of grey flaser-bedded sandstones, fine grained sandstones and minor mudstones and lenticular bedded mudstones is recognised over a wide area from East Cork to West Cork.
[6] Salt-related damage to historic buildings and building materials are a significant area of research and analysis, with a number of dedicated conferences series aimed at understanding the process of deterioration and exploring methods and processing at mitigating, reducing and removing salts.
[7] The conditions which allow salts to form are also harmful to human health.
[8] Known to accumulate within the interiors of coastal buildings where salts of marine origin through marine fog, seawater spray and marine aerosol accumulate; and can also originate rom groundwater and other sources.
[9] E.g. animal excrement such as bird guano, soils treated with organic fertilizer and microbiological activity.
[10] Can originate from high alkali content materials such as cement mortars.
[11] Can originate from ceramic materials, air pollution and gypsum-bearing materials such as plaster
[12] These two processes are not visible (as they occur beneath the surface of the mosaics) but the 'boasting' of the plaster and the loss of mortar between the tesserae strongly suggest these processes are active. Opening-up and analysis of the building materials would be required to confirm this.
[13] After Odgers, D. & Henry, A. (2012) English Heritage Practical Building Conservation: Stone. Ashgate, Surrey. Pp.66-67
[14] Mudstones are not used in modern construction, though are found in historic buildings in many parts of Ireland and are common in Co. Cork.
[15] The tradition of weatherslating in Cork was to compensate for the weaknesses of the local stone.
[16] Smith. M.R. (1999) Stone: Building stone, rock fill and armourstone in construction. Geological Society Engineering Geology Special Publications No.16. London. The Geological Society.
[17] The conservation of the mosaics as a conservation project is relatively straightforward, and greatly assisted by recent publications on the work of Italian mosaic craftsmen active in Europe during the early twentieth century (who were responsible for the final mosaics at the Church of the Ascension). However, any conservation work for the mosaics will first require the underlying masonry and plaster substrate to be stabilised.
[18] There is a significant literature outlining the procedures for the removal of Portland Cement-based repointing mortars and its replacement with a more appropriate lime-based mortar. However, in the last decade there has been an increasing amount of FL, CL, NHL and hybrid lime mixes used for the conservation and repair or historic buildings and monuments. It should be noted that 'lime' mortars refers to a broad family of building materials, many of which are even stronger and less flexible than the existing Portland Cement mortar. It is strongly recommended that the bedding mortar of the Church of the Ascension be sampled and analysed to determine what the original construction masonry mortar was composed of to determine and guide the specification of a new compatible and appropriate lime-based repointing mortar.
[19] It is not necessary to entirely remove salts from building stone. Indeed, research has shown that buildings stones in Belfast and other urban centres have an inherent salt load accumulated over time. In addition, some salts contain natural salts which can be mobilised by saturation
[20] e.g. from the lime bedding mortar, from the Portland Cement repointing mortars, from the gypsum plaster immediately beneath the mosaics, from marine aerosol etc
[21] There are a number of techniques which can be used to secure the mosaics without dismantling the artwork once the wall has been stabilised as the procedures are very similar to those for the conservation of wall paintings.

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Church of the Ascension
Timoleague, Co Cork
Building Services Report

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1

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1. INTRODUCTION

This report reviews the thermal performance of the building envelope of the Church of the Ascension, Timoleague. It reviews possible improvements that can be made to the performance of the building envelope, taking into consideration nature of the building and its internal finishes.

This report will review a number of heat sources for the building and how this heat can be efficiently distributed into the main body of the church to provide a comfortable interval environment.

Energy-efficient systems and improved thermal performance will save on running costs, maintain comfort and reduce carbon dioxide emissions. However, any alterations or changes to the building services in a traditional building require careful planning to ensure that the proposed work will be effective and beneficial.

When planning alterations, we need to develop a thorough understanding of the types of construction, the materials used and the likely impact of any proposed changes.

Modern materials and techniques can often be incompatible with traditional construction, and careless alterations can cause serious harm to the building fabric, both directly and indirectly.

This report outlines the procedure followed to produce a thermal model of the Church of the Ascension in Timoleague, Co. Cork. This thermal model is used to estimate the energy required to heat the building.

2. THE BUILDING

The site is located in Timoleague, Co Cork.

The building is cross shaped running West-East. The building has a tower to the west. The tower forms the highest point of the building. The total building area is approximately 142 m^2 with an approximate internal volume of 844m^3.

The building is located in a semi-sheltered site situated close to a riverbank, with a graveyard surrounding the church and a variety of trees plotted around the grounds of the church.

The following building structure details are assumed and used in this report.

2.1 External walls

Material	Thickness (mm)	Conductivity (W/(m/K))
Stone	500	0.9600

The U-Value for the External Wall is 1.38 W/m2K.

2.2 Ground Floor

Material	Thickness (mm)
Concrete	250

The U-value for the ground floor slab is 3.12W/m^2K.

2.3 Glazing

Material	Thickness mm	Conductivity W/(m·K)
[STD_INW] Inner Pane	6.0	1.0600

The U-value for the glazing is 5.6W/m^2K.

2.4 External Doors

Material	Thickness mm	Conductivity W/(m·K)
[USWD0000] WOOD - HF-B7	49.8	0.1210

The U-value for the external door is 1.72 W/m^2K.

2.5 Roof

Material	Thickness mm	Conductivity W/(m·K)
[ST] SLATE TILES	13.0	2.0000
[USST0000] STONE - ST01	200.0	1.8020

The U-value for the roof is 3.88 W/m2K.

2.6 Moisture Performance and Air infiltration

Like many historic and traditional buildings, The Church of the Ascension has solid walls and which should have a porous fabric which both absorbs and readily allows the evaporation of moisture

This is often known as the ability of the building fabric to 'breathe', i.e. to have a low vapour resistance.

There is a complex relationship between building services, energy efficiency, air and moisture movement and the conservation of the existing building. If only one part of this is considered (e.g. building services, historic buildings or energy efficiency) the oversimplified view can lead to potential dangers to the building, the historic fabric and the environment.

Even apparently familiar things should not be taken for granted. For example, some case studies have shown that many people would have expected the old single-glazed windows to have been the main source of high air infiltration and have wanted to upgrade or replace them. In fact, most of the excess air came through the fabric, especially the walls.

An older building uses evaporation and ventilation to reduce the moisture in the walls to an acceptable level, i.e. one that does not cause decay, mould growth, or damage to decorations. In contrast, many modern insulation techniques include impervious vapour control layers, designed to stop moisture from indoors diffusing out through the insulation and leading to interstitial condensation. However, if these same impervious layers are used in a traditional building, they can trap the moisture already in the wall and stop it evaporating, making the wall damper and more prone to decay.

In traditional buildings, there can often be too much air infiltration, causing discomfort and wasting energy. However, reducing air infiltration too much can be damaging for both the building and the health of the occupants.

Traditional buildings need ventilation not just to dilute pollutants and remove the normal moisture generated by the metabolism and activities of the occupiers, but also to carry away the moisture that evaporates internally from a 'breathing' structure.

The air infiltration or ventilation rate of the building is not known. We recommend that a fan pressurisation test is conducted to assess how air tight the building is.

A large calibrated fan is sealed to an external opening (usually a door) and operated over a range of pressures between inside and outside, typically from 10 to 60 Pa (1 to 6 mm of water). To measure the leakage through the building fabric itself, it is normal to seal up any purpose-made ventilation openings such as fans, passive stacks etc. before carrying out the test.

Typical figures from low-energy buildings at 1 $m^3/h\ m^2$ to very leaky Victorian terraces with timber ground floors at 25 $m^3/h\ m^2$.

It is estimated that the average air leakage rate is around 10-15 $m^3/h\ m^2$. For the purposes of the thermal model a value of 15 $m^3/h\ m^2$ has been used.

It was noted that the building has been pointed with Portland cement which does not allow the fabric to breathe and mosaic tiling internally can be seem with large levels of condensation.

2.7 Images of the Thermal Model

Figure 1: North View

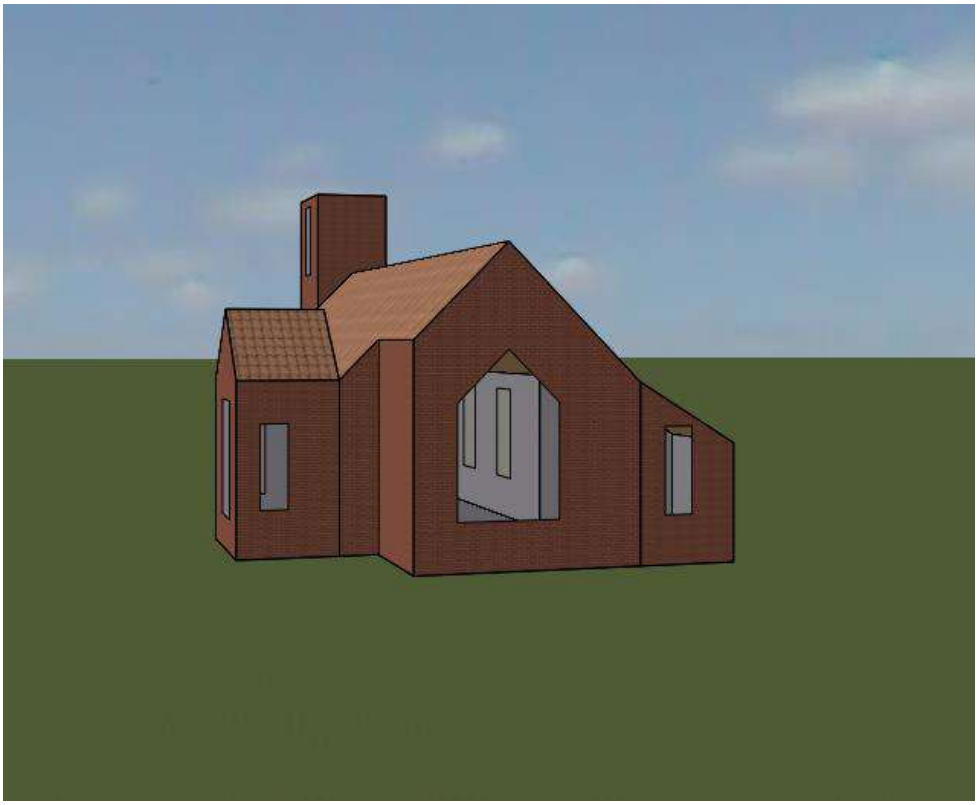


Figure 2: East View

Figure 3: South View

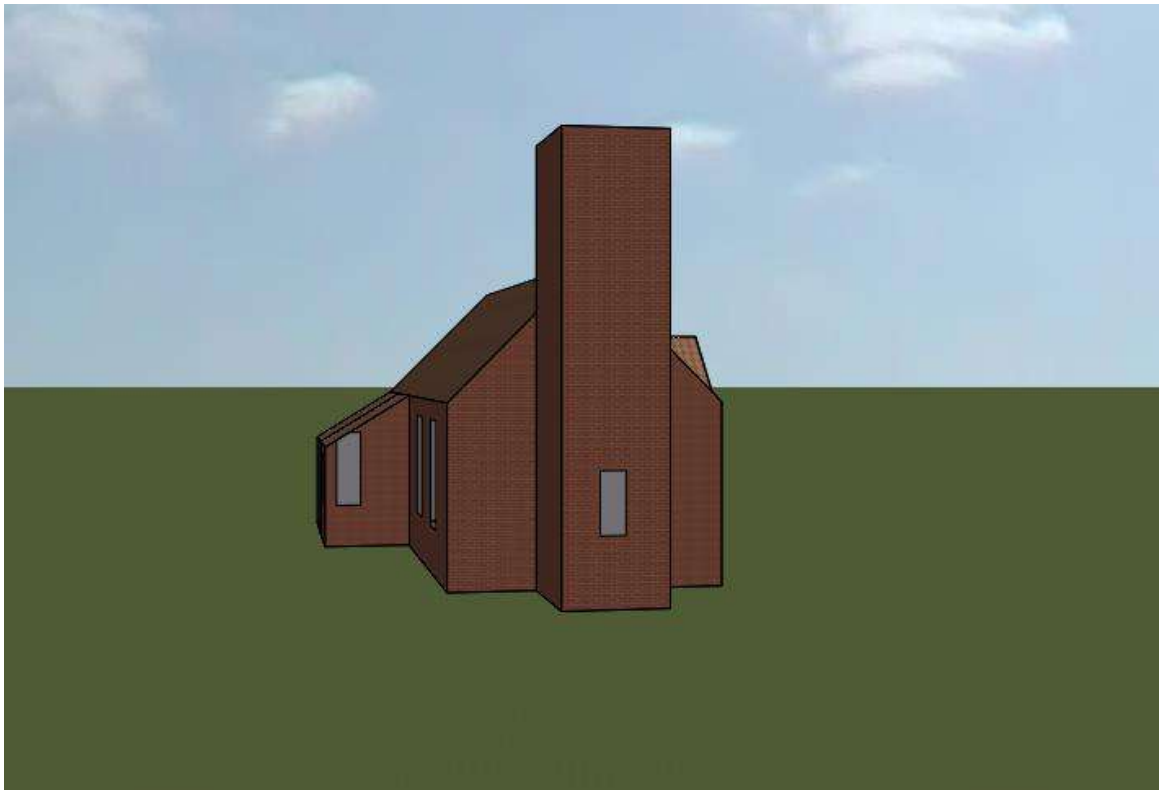


Figure 4: West View

3. CONSERVATION HEATING

Cycles of rising and falling relative humidity can be very damaging, by causing re-crystallisation of salts and for objects made of mixed materials which expand and contract at different rates.

If a building does not have to be heated for comfort, is of significant historic value and contains fixtures, fittings or contents that are sensitive to changes in moisture content, then one should consider the option of controlling the heating to keep relative humidity within a relatively narrow range.

This usually means raising the average internal temperature by about 5ºC above the average outside. In the summer this is often achieved by solar gain; in winter heat needs to be added.

The amount of energy required is typically about one-third of that for comfort heating. To further energy consumption further, an upper temperature can be applied. There is often also a lower temperature limit to protect the building against freezing. The National Trust has been using this technique since the 1980s.

Its specification calls for:

- relative humidity set point between 50 and 65%, depending on the conditions to which the building has acclimatised;
- alarms at 40 and 75%;
- minimum room temperature 5°C; and
- maximum room temperature for heating: 18°C in winter and 22°C from April to October.

Conservation heating provides useful protection for objects and for the fabric of the building. It is particularly useful in storage areas and in buildings that are closed to the public in winter, where temperatures of about 10°C may be specified. It is more difficult to use for buildings open to visitors in the winter because internal temperatures are normally low — a problem for the staff.

For the purposes of the thermal model a heating temperature of 14ºC has been specified.

4. RESULTS OF THERMAL ANALYSIS

The most applicable and local weather file that can be used to represent Timoleague in IES-VE is Cork. The external winter design temperature is set to -4ºC dry bulb.

The building's internal spaces are set to 16ºC during occupied periods 8am to 6pm and is set back to 12ºC at all other times.

The existing heating system consists of an oil-fired boiler that is assumed to be 89% efficient.

The following heating loads are obtained for the three separate sections within the Church

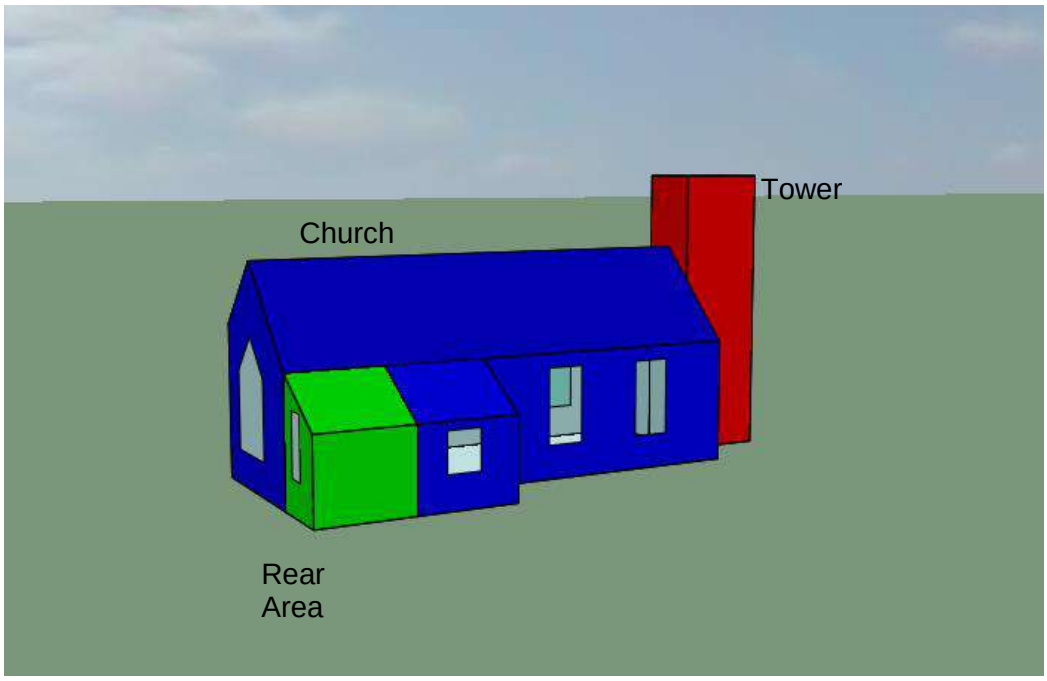


Figure 5: Library in green, Church in blue and Tower in red.

Location	Heat Loss (W)	Area (m2)	Volume (m3)	W/m2	W/m3
Tower	2,537	7.52	78.2	338	32
Sacristy	3,088	8.4	30.5	368	101
Church	45,263	126	736	360	62

Total Heat Loss	**50,888**	W

Table 1: Total Heating Loads for the Church

The results show that the building total heating demand is 50.9 kW when the set temperature is 16ºC.

The heat loss occurs through a combination of conduction gain through the building external fabric and infiltration loss due to the high air change rate. As shown below:

Location	Infiltration loss (W)
Tower	778
Sacristy	863
Church	12,975

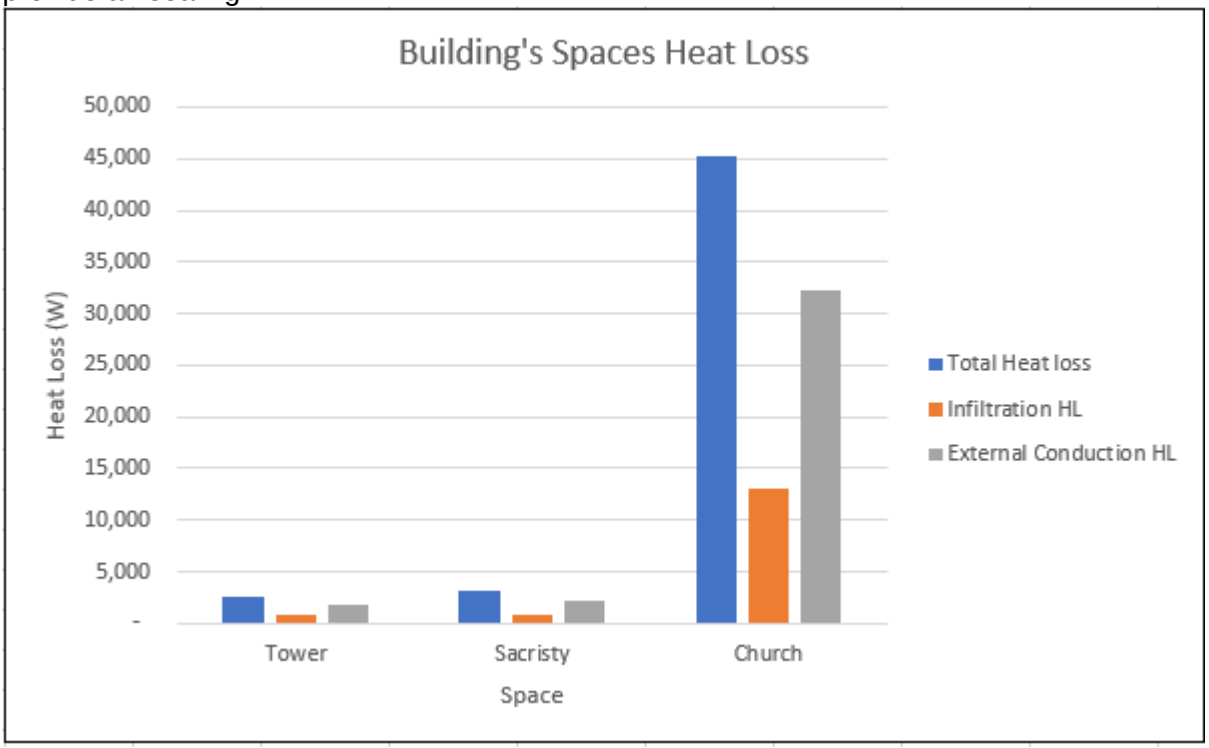
Table 2: Infiltration heat loss of the building spaces

Location	External conduction loss (W)
Tower	1,759
Sacristy	2,225
Church	32,288

Table 3: External conduction heat loss of the building's spaces

The analysis shows that external conduction heat loss forms the main source of heat demand for the building's largest space, the church, accounting for 71% of the total heat loss for that space. Infiltration heat loss is another major concern which accounts for 29% for the church.

External conduction heat loss accounts for 71% of the building's total heat loss. This highlights the need for insulation in the building. The large infiltration heat loss also highlights the need for an air tightness test for the building to identify leakage issues and provide air sealing



Graph 1: Heat loss breakdown for the building's spaces

5. HEATING SOURCES AND DISTRIBUTION

A space heating system consists of:

- Energy source (fuel)
- Heat generator (boiler, heat pump etc.)
- Heat emitters (radiators, unit heaters etc.)
- Heat distribution medium (air, water etc.)

Selection of the most appropriate system will involve a number of decisions considering each of the above, though not necessarily in the order indicated. The factors to be considered can be loosely grouped into two areas relating to practical system installation and to performance and use factors. Installation factors include:

- Fuel availability
- Space required for fuel, heat generating plant and heat distribution system
- Potential plant room locations
- Capital cost of installation
- Ease of installation
- Ease of replacement, especially of large plant
- Suitability for this type of building

Performance factors include:

- Running costs
- Environmental impact
- Ability to meet internal design conditions specified
- Limits on exposed surface temperatures
- Zonal control
- Speed of response
- Ease of use by occupants.

This section gives an overview of the type of heating systems available together with their characteristics and applications to assist in the selection of the most appropriate system for this project. This section deals in more detail with fuels, heat generators and the plant, equipment and method of heat distribution associated with each principle type of heating system

Listed buildings and other buildings of historical importance can present a challenge as these may have been originally designed with limited or no heating systems.

5.1 Air source heat pump

An air source heat pump uses refrigeration technology to efficiently produce energy in the form of heat. It uses electricity to power a compressor to extract heat from the outside air at low ambient air temperatures.

There are many manufacturers of commercial heat pumps. The image below is an example of a commercial heat pump.

An efficient heat pump can produce up to and often exceeding three units of heat energy for every unit of electrical energy.

The heat pump needs to be externally located and should be piped to a buffer tank, which would be located in the existing oil boiler room.

Existing pipework in the church would be replaced and underfloor heating installed to distribute the heat from the heat pump throughout the church.

For this type of project, it is recommended that the heat pump is kept running constantly to maintain the set temperature, with a nighttime setback to 12°C. This is due to the nature of construction (stone). The stored temperature in the stone needs to be maintained to prevent longer heat up time of the church.

The running costs of heat pumps are discussed in section 6 of this report.

5.2 LPG Gas boiler

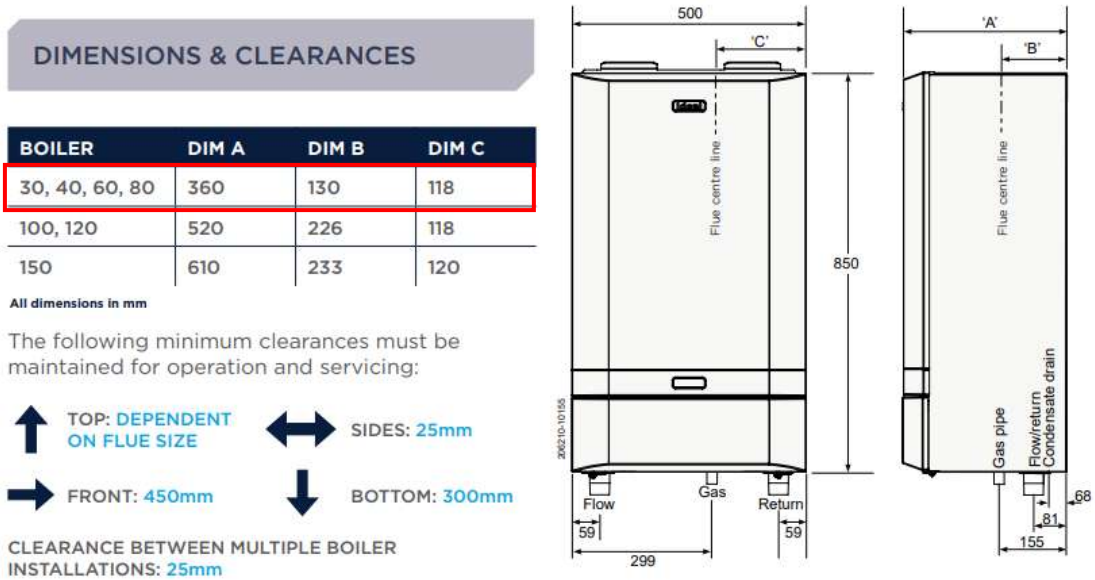
Boilers are available in a large range of types and sizes and almost all non-domestic heating systems rely on one or more boilers.

Gas boilers are available in a large range of types and sizes for use with both natural gas and liquefied petroleum gas (LPG).

Boilers are versatile, cheap and easy to install, maintain and replace. The space requirements for a boiler system in a plantroom is low. Boilers are also easy to control for an untrained occupant.

The church consists mainly of the church. Therefore, it can be considered a single heating zone. For this type of project, it is recommended that the boiler(s) are kept running constantly to maintain the set temperature, with a nighttime setback to 12ºC. This is due to the nature of construction (stone). The stored temperature in the stone needs to be maintained to prevent longer heat up time of the Church.

A gas fired condensing boiler appropriate for this project is Ideal EvoMax. The boiler has a part load efficiency of 95%, Below are the space requirement for this type of boiler:



BOILER	DIM A	DIM B	DIM C
30, 40, 60, 80	360	130	118
100, 120	520	226	118
150	610	233	120

Figure 6: Boiler dimensions and clearances required

To provide fuel to the boiler, an LPG tank size for this building is a Flogas 1 tonne bulk tank with dimensions 2m diameter x 4m long. The base size is 2.6m deep x 4.6m long. LPG tanks have the following clearance distances that must be provided:

An industrial type fence is required, e.g. open mesh or palisade types, which: ensures adequate ventilation, is at least 1.8m high and is at a distance not less than 1.5m from the storage vessels. Fences should have at least two means of exit, gates should open outwards and should not be self locking.

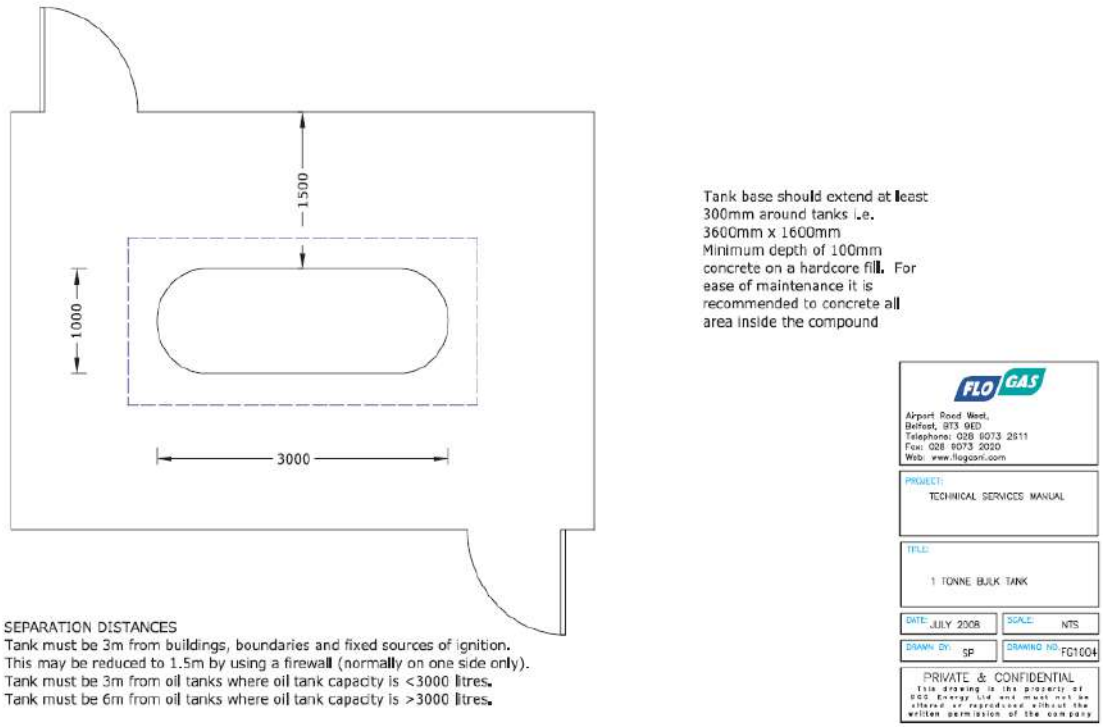


Figure 7: Above ground LPG tank clearance distances

The location of the tank on site needs to be agreed with the client and the architect. It is difficult to find an appropriate location for the tank around the Church as there is a graveyard around it. The other option is to install a below ground 1 tonne LPG tank with the following tank dimensions and clearances:

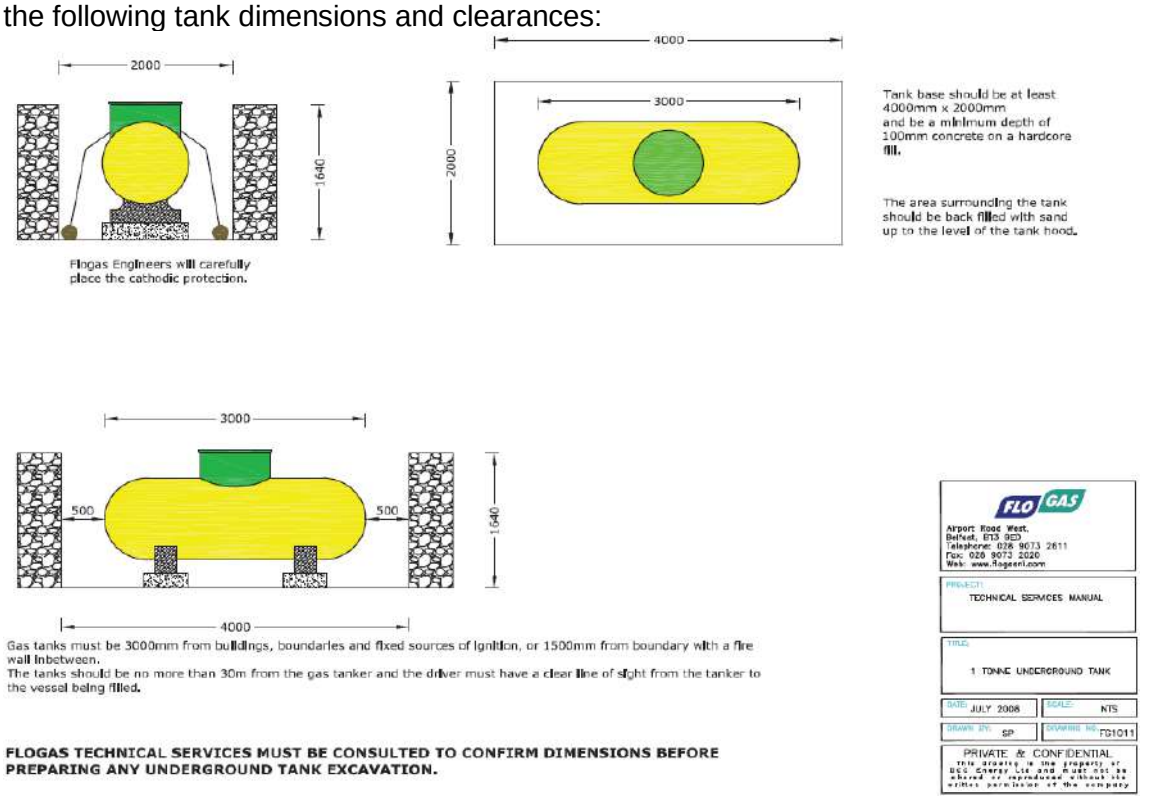


Figure 8: Below ground LPS tank clearance distances

The location of the underground tank for this project can be problematic, due to the graveyard around the Church. This proposal needs to be agreed with the client and the architect in advance.

The LPG tank may require filling on a monthly basis.

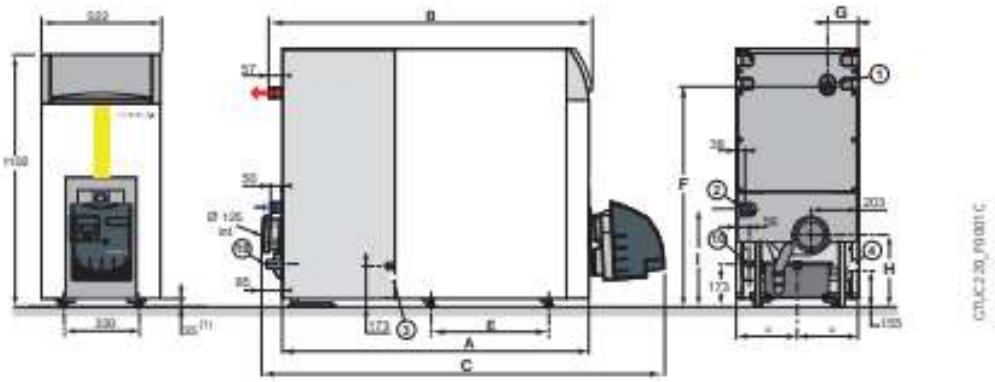
LPG can be used to operate boilers that can use radiators as heat emitters in a LPHW system. LPHW systems are recommended to heat historical places thanks to their high efficiency due to boilers running in condensing mode and reliability.

5.3 Oil Fired Boiler

Same as with LPG boilers, oil fired boilers have the same points discussed in the previous section, except the fuel type.

A De-Dietrich GTU C 226 cast iron oil boiler with an output of 60 kW can achieve an efficiency of 96% while new.

The boiler size in the plantroom is as follows:



(mm)	A	B	C	E	F	G	H	I
GTU C 225	1310	1382	1734	507	953	116	311	418
GTU C 226	1437	1509	1921	634	959	114	314	420
GTU C 227	1564	1636	2068	761	959	114	314	420

Panel	A	B	C	D	H
standard	130	105	45	738	1297
B3, K3 and DIEMATIC-m 3	355	190	45	755	1387

GTU C	P	F (without MD 218)	F (with MD 218)	L
334	490	554	704	2297
335	650	554	704	2457
336	810	554	704	2617

Figure 9: oil fired boiler dimensions

The oil boiler can be located inside the existing stone boiler plantroom. The piping will need to be replaced and connected to the new underfloor heating.

6. RUNNING COSTS ANALYSIS

The building has the following heating demand per month and the total yearly heating demand:

Date	Heating Loads (kWh)
Jan 01-31	14,858
Feb 01-28	13,826
Mar 01-31	10,851
Apr 01-30	5,891
May 01-31	1,763
Jun 01-30	418
Jul 01-31	222
Aug 01-31	97
Sep 01-30	1,509
Oct 01-31	6,499
Nov 01-30	7,776
Dec 01-31	14,450

Table 4: Building heating demand

The following table outlines the running costs for each of the systems proposed above. The figures in the running costs per kWh of energy source are as per SEAI's latest rates, which can be found in Appendix I.

System	Efficiency/COP	Energy Source	Heating demand	Energy input	Energy cost	Annual running cost
	%		kWh/annum	kWh/annum	€/kWh	€
ASHP*	300	Electricity	78,157	26,052.33	0.13	3,484.50
LPG Boiler	95	LPG	78,157	82,270.53	0.121	9,965.16
Oil Boiler	96	Oil	78,157	81,413.54	0.091	7,408.25

Table 5: Running cost comparison of different systems

*ASHP: Air source heat pump

The cost analysis shows that running the ASHP is the cheapest option.

7. ELECTRICAL SERVICES

7.1 Lighting

We understand that the existing wiring in the church was recently replaced. As a result, and subject to a Periodic Inspection report we suggest that the existing wiring is retained.

The existing pendant lights in the church have a beautiful aesthetic but we suggest that the existing lamps are replaced with new LED lamps to reduce running costs and provide longer lamp life (up to 50,000hours).

There is no emergency lighting located in the building and we recommend that a emergency lighting system is installed.

The purpose of emergency lighting will provide for a clear indication of the escape route from the building in the event of a fire or power failure, providing for illumination along the route to allow the safe movement of people, and to ensure that the fire alarm call points, first aid and fire fighting equipment, where provided, can be easily located.

Emergency escape lighting would be installed in accordance with IS 3217: 2013 + A1 2017. This standard indicates the required lighting levels and distances between such emergency lights required, as well as showing the following as key points of emphasis (indicated in Section 8.5.1 of IS 3217) for ensuring there is appropriate emergency lighting;

Emergency lighting is available in several forms for different applications. Examples of emergency lighting fittings that would be most suitable for use within the church are shown below;

7.2 Fire Alarm System

There is no fire detection and alarm system in the building. We recommend that the building is fitted with a fire detection & alarm system.

7.3 Audio Visual Installation

We suggest that, when the existing floors in the church are being replaced, a series of 50mm ducts are installed within the new floor.

These ducts can be used to accommodate the future installation of audio and visual wiring.

8. RECOMMENDATIONS

8.1 Heating system

The building's large volume to area ratio and stone structure means that the heating system will require an early start-up time so that the building's set temperature is reached by occupancy time. It is recommended that the underfloor heating system is never turned off to maintain the thermal storage in the walls. During non-occupancy, the building heating system can be setback to 12ºC instead of 16ºC by means of a central control system.

Conduction heat loss forms the main component of heat loss in the building. There is little scope to improve the thermal insulation of the external walls of the building without affecting the internal mosaic tiling and the external stone finish. Additional insulation can be added to the roof structure and thermal insulation installed in the new floor.

Infiltration heat loss is also an issue, which highlights the need for an air tightness test for the building to identify leakage issues and provide air sealing as appropriate.

The Air-Source Heat Pump option, as discussed in Section 5.1, is the most realistically feasible option due to the lower running costs and minimal internal plant space required for the heat exchanger and controls to supply the underfloor heating.

8.2 Lighting & Fire Alarm

It is recommended that there is an emergency lighting installed within the church that complies with IS 3217. Such an installation will ensure the provision of safe exit from the church for any occupants in the event of a fire or power failure.

We also recommend the installation of a fire detection and alarm system to comply with IS 3218:2009.

The internal lighting in the church can be upgraded to use LED lamps instead of halogen or incandescent bulbs. We also suggest some improvements are made to the lighting at the approach to the church from the entrance gates to the main entrance of the church.

APPENDIX I: SEAI ENERGY RATES

Fuel	Form	Unit of Supply	Average Price per Unit (€)[1]	Gross Calorific Value (kWh/unit)	Delivered Energy Cost cent/kWh
Peat[2]	Briquettes, Baled	**Bale**	4.50	67.0	6.72
Coal[3]	Nuggets (Lignite)	**Tonne**	425.00	5763.5	7.37
	Premium Coal, bulk	**Tonne**	475.00	8267.2	5.75
	Premium Coal, bag[4]	**40 kg Bag**	19.66	330.7	5.95
	Standard Coal, bulk	**Tonne**	437.50	7900.0	5.54
	Standard Coal, bag[4]	**40 kg Bag**	18.66	316.0	5.91
	Standard Anthracite	**Tonne**	550.00	8735.2	6.30
	Grade A Anthracite	**Tonne**	625.00	8960.0	6.98
	Ovoids (Low Smoke), bulk	**Tonne**	500.00	8850.0	5.65
	Ovoids (Low Smoke), bag[4]	**40 kg Bag**	20.87	354.0	5.89
Oil[5]	Gas Oil (schedule)[6]	**Litre**	0.96	10.55	9.11
	Gas Oil (typical discounted price)[7]	**Litre**	0.85	10.55	8.07
	Kerosene (schedule)[6]	**Litre**	0.93	10.18	9.18
	Kerosene (typical discounted price)[7]	**Litre**	0.81	10.18	7.97
L.P.G.	Bulk L.P.G.[8]	**Litre**	0.86	7.09	12.16
	Bottled Butane	**11.35 kg Cylinder**	31.77	155.7	20.41
	Bottled Propane	**34 kg Cylinder**	100.50	471.0	21.34
	Bottled Propane	**47 kg Cylinder**	138.23	651.0	21.23
Natural Gas[9]	Band D1: <5,556 kWh per annum	**kWh**	0.069	1.0	6.94
	Band D2: >=5,556 <55,556 kWh per annum	**kWh**	0.063	1.0	6.32
	Band D3: >=55,556 kWh per annum	**kWh**	0.060	1.0	6.04
Electricity[10, 11]	Band DA: <1,000 kWh per annum	**kWh**	0.38	1.0	38.42
	Band DB: >=1,000 <2,500 kWh per annum	**kWh**	0.31	1.0	30.62
	Band DC: >=2,500 <5,000 kWh per annum	**kWh**	0.24	1.0	23.69
	Band DD: >=5,000 <15,000 kWh per annum	**kWh**	0.20	1.0	19.58
	Band DE: >=15,000 kWh per annum	**kWh**	0.16	1.0	16.17
	Night rate[12]	**kWh**	0.09	1.0	8.94
Wood[13, 14]	Pellets Bulk Delivery[15]	**kg**	0.31	4.8	6.51
	Pellets Bagged	**kg**	0.36	4.8	7.45
	Briquettes	**kg**	0.39	4.8	8.10
	Hardwood, Small Bag, 20% moisture, Collected	**kg**	0.47	4.16	11.27
	Softwood, Small Bag, 25% moisture, Collected	**kg**	0.38	3.86	9.93
	Hardwood, Full Pallet, 20% moisture, Delivered	**kg**	0.40	4.16	9.62
	Softwood, Full Pallet, 25% moisture, Delivered	**kg**	0.31	3.86	8.02
	Softwood, Bulk (loose), 25% moisture, Delivered	**kg**	0.22	3.86	5.57

ISSUE REGISTRATION:

Project Title: Timoleague Church **Project No:** 19K102

Rev	Date	Purpose of Issue/Nature of Revision	Prepared by	Issue Authorised by
1	10/10/19	Preliminary	JG	RM

This document takes into account the particular instructions and requirements of our Client. It is not intended for and should not be relied upon by any third party and no responsibility is undertaken to any third party.

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4 October 2019

James Burke Arch.
Distillery Lane,
Main St,
Midleton, Co. Cork

cc
Darren Platts

Re: Survey Church of the Ascension, Timoleague.

Dear James,

I hope that you are keeping well.

The following is a survey of the condition of the stained windows in the Church of the Ascension, Timoleague, Co. Cork and estimates for their conservation.

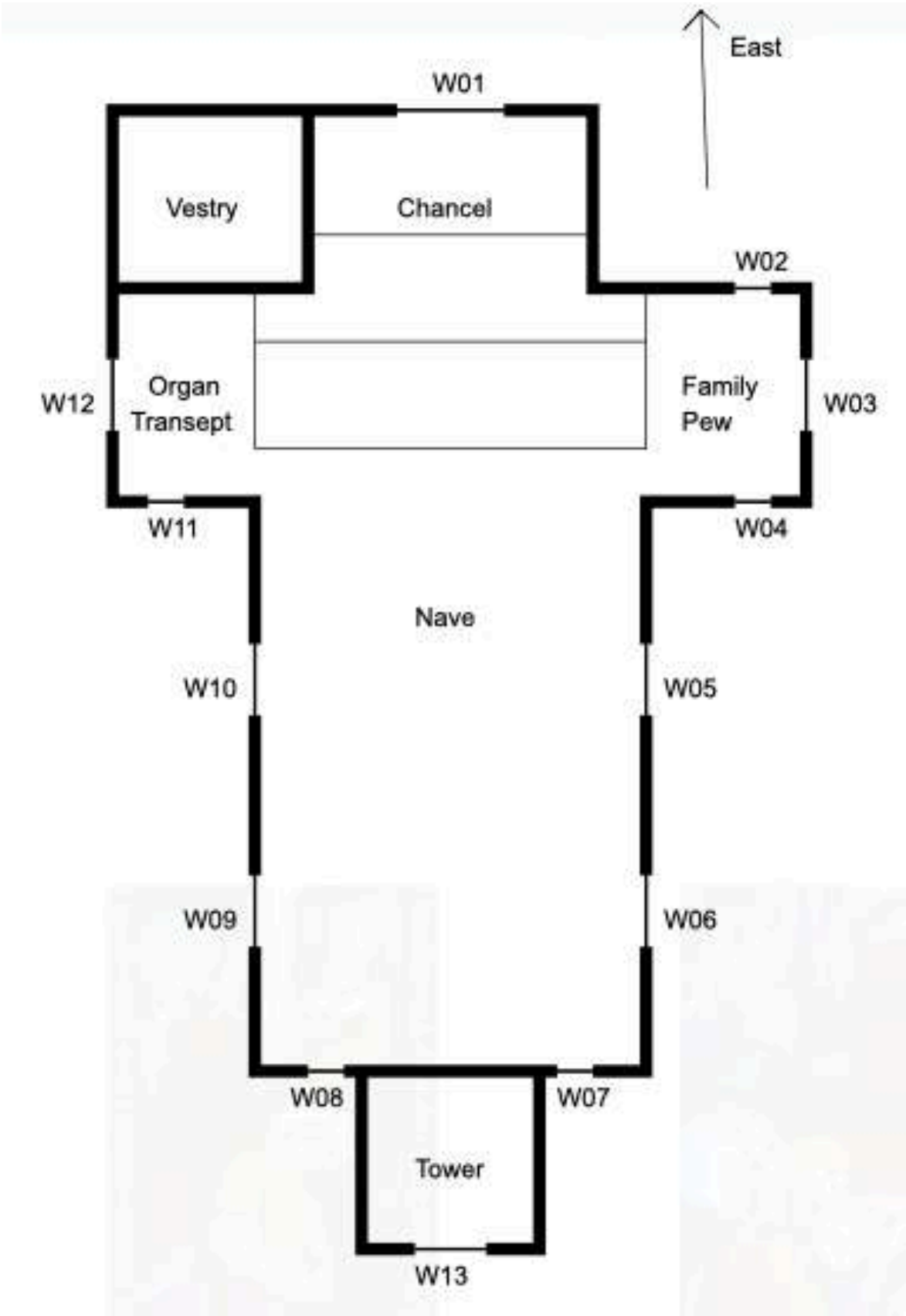
The windows in the church come from a number of very well-known and respected historical studios, namely William Warrington & Sons, Clayton and Bell, Lavers, Barraud & Westlake Mayers of Munich as well as Thomas Williment. Dr. David Lawrence has been able to identify a couple of the artists responsible for the design of the windows. These are the renown George Daniels and Nathaniel Hubert John Westlake.

Our survey was conducted at the end of August, 2019. On the days leading up to and on the day of the survey the weather had been quite good. Therefore it is difficult to ascertain which of the windows would or would not be able to keep the building dry. One would assume by the state of the mortar that there would be a considerable amount of water ingress into the church depending on the direction of the wind.

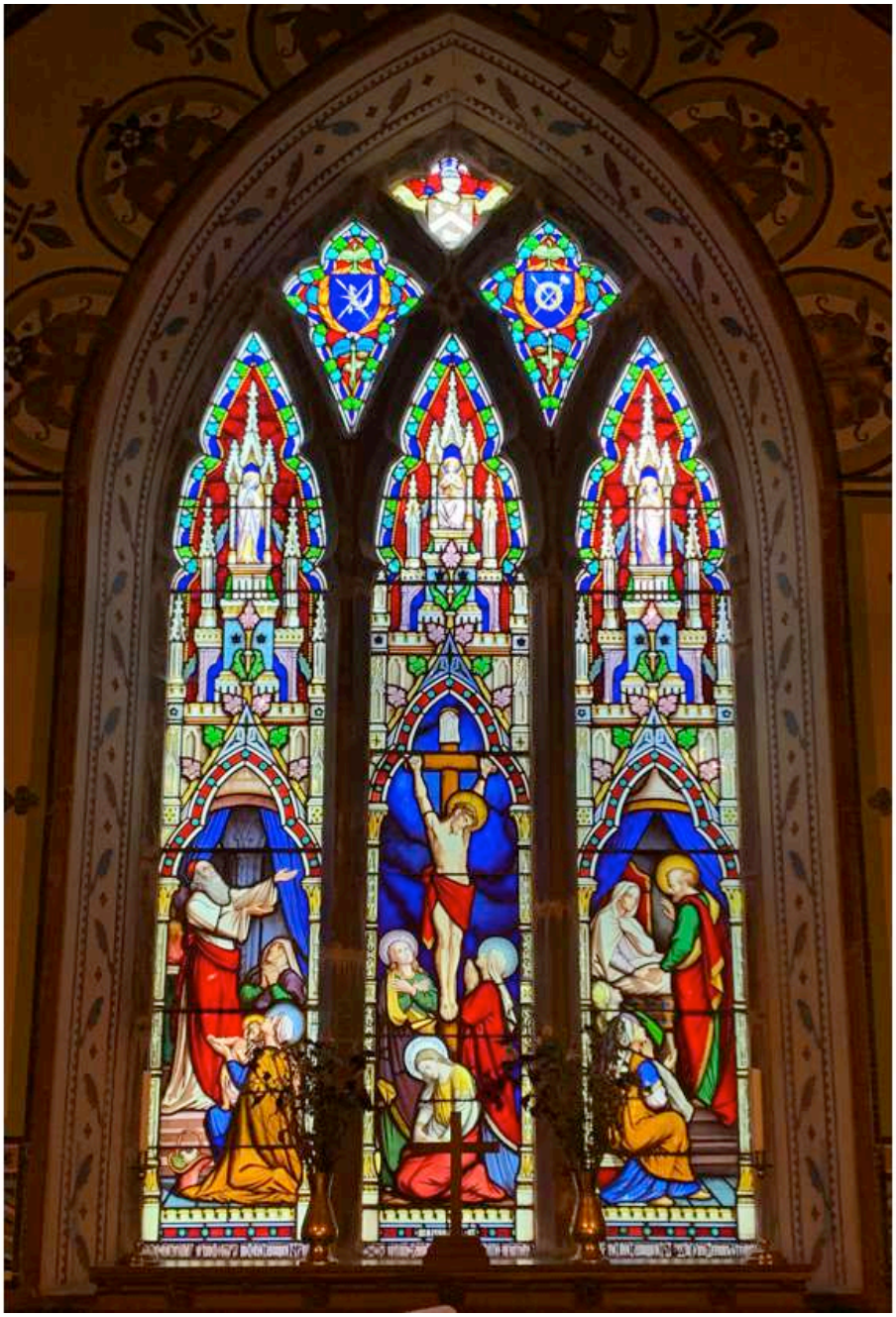
The prices quoted below for the conservation of the windows are for guideline purposes only. Although the bench cost of conserving a window is fairly stable, the accommodation costs could vary greatly depending on the season. The prices are also based on the conservation of one window at a time. There would be a slight savings if windows could be grouped together. And of course the cost of conservation will increase with the passage of time as other related variable costs increase.

The following floor plan and window numeration adheres to the plan employed by Dr. David Lawrence and can be viewed on the Church of Ireland website www.gloine.ie.[1]

[1] https://www.gloine.ie/search/building/3225/timoleague


East
W01
Vestry
Chancel
W02
W12
Organ
Transept
Family
Pew
W03
W11
W04
Nave
W10
W05
W09
W06
W08
W07
Tower
W13

W1 East. This window is the work of William Warrington & Sons circa 1865. It is the second set of windows installed in the Chancel opening. The first set, by Thomas Williment, have been rehoused in the west gable and behind the organ. From left to right, the window depicts Peter raising Dorcas, the Crucifixion of Jesus and the Presentation of the infant Jesus in the Temple.

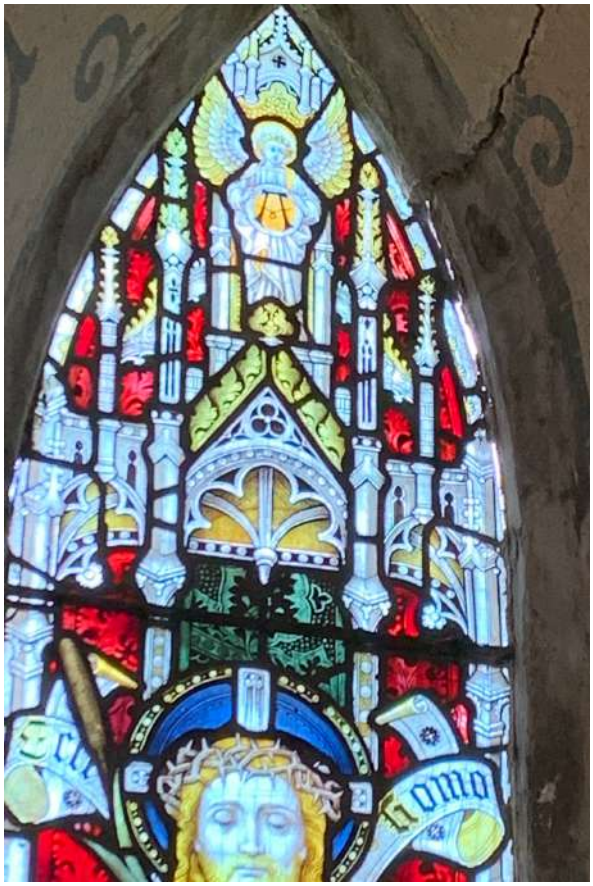


W1

Aria Stained Glass conserved this window about twenty years ago. As part of the conservation the original ferrous metal support bars were replaced with solid brass. All cracked panes of glass were repaired with conservation grade epoxy resin. Natural hydraulic lime mortar was employed to point the window to the stone. The conservation measures appear to be holding well. No further conservation is required at this time.

W2 South Transept, East Return. The window is from the studio of Clayton and Bell and was designed by the renown and prolific stained glass designer George Daniels circa 1901. Daniels was one of the most prolific freelance artists of his time. He worked for several studios including Mayers of Munich before establishing his own company. The window depicts Christ Condemned. It is in memory of Maud Travers. The approximate size of the window is 47cm x 208cm. This window is in need of major conservation work.

W2


W2 Con't.

Note crack in stone on the upper right hand side as well as detachment of lead from the stone in the same area.

Support Bars
The support bars are made of ferrous metal. They are progressively rusting. In order to prevent damage via rust expansion, these bars should be replaced with nonferrous metal like brass or even stainless steel.

Stone
There is a large crack in the stone at the right hand side of the apex of the window. This stone will have to be dealt in conjunction with the overall conservation of the window.

Lead
The lead is in poor condition. The lead is separating from the glass and stone reveal along the edge of the window. This condition places the highly decorative glass in danger of breaking or being lost.

Glass
There are a few hairline cracks.

Paint
The paint appears stable at this time.

Cost of conservation €6,650 inclusive of vat @13.5%.

W3 South Transept. This window is also from Clayton and Bell. It is not mentioned whether the window was designed by George Daniels or not. The window is comprised of two lancets and a quatrefoil. The left hand lancet depicts Jesus as The Good Shepard and the right as The Light of the World. The quatrefoil depicts an Angel with a scroll with the words, Sanctus, Sanctus, Sanctus. The approximate size of the lancets are 47cm x 229cm. This window is in need of conservation.


W3

Mortar.
The mortar securing the leaded window is very brittle and covered in fungal growth. One could assume that the mortar is no longer watertight.

Lead
The lead looks weak. The surface of the windows gives way when pressed.

Support bars
The ferrous metal support bars are progressively rusting away.

Glass
There are a few hairline cracks.

Cost of conservation €11,996 inclusive.

W4 South Transept, North Return.
This is a single lancet from Clayton and Bell designed by George Daniels. The window depicts Christ the King. It is in memorial to Kate Travers, 1884.

Aria Stained Glass also conserved this window about twenty years ago. At that time the original ferrous metal support bars were replaced with solid brass. Natural hydraulic lime mortar was employed to point the window to the stone. All cracked panes of glass were repaired with conservation grade epoxy resin. The window appears to be aging well. No further conservation is required at this time.


W4

W5 South Nave, East Most. This window is the work of Lavers, Barraud & Westlake, London. The design is attributed to Nathaniel Hubert John Westlake. The window is in memorial to Robert Travers, 1875. The window is comprised of two lancets and a quatrefoil. The lancets measure 47 cm x 229cm. The left lancet depicts Jesus walking on the water, the right, the disciples in their boat. The window is in need of conservation.


W5

Lead
The lead is very weak. The lead is actually detached at the apex of the window.

Mortar
The mortar is brittle and unlikely watertight.

Glass
The glass is relatively good condition. There are a few hairline cracked panes.

Paint
The painted surface of the glass is stable.

Support Bars
The support bars are made of a ferrous metal. They are progressively rusting and threaten the surrounding stone and glass.

Cost of conservation €11,996 inclusive of vat.

W6 South Nave, West Most. This window is the work of the world renown German studio Mayers of Munich & Co. It is comprised of two lancets and a quatrefoil. The window depicts Jesus healing the Centurion's servant. It is in memorial to Richard Henry Travers and his wife Caroline circa 1880. The size of the lancets are 47 cm x 229cm. The window is in need of conservation.


W6

Mortar
The mortar is brittle and unlikely to be watertight.

Stone
The stone column is cracked due to rust expansion from support bars.

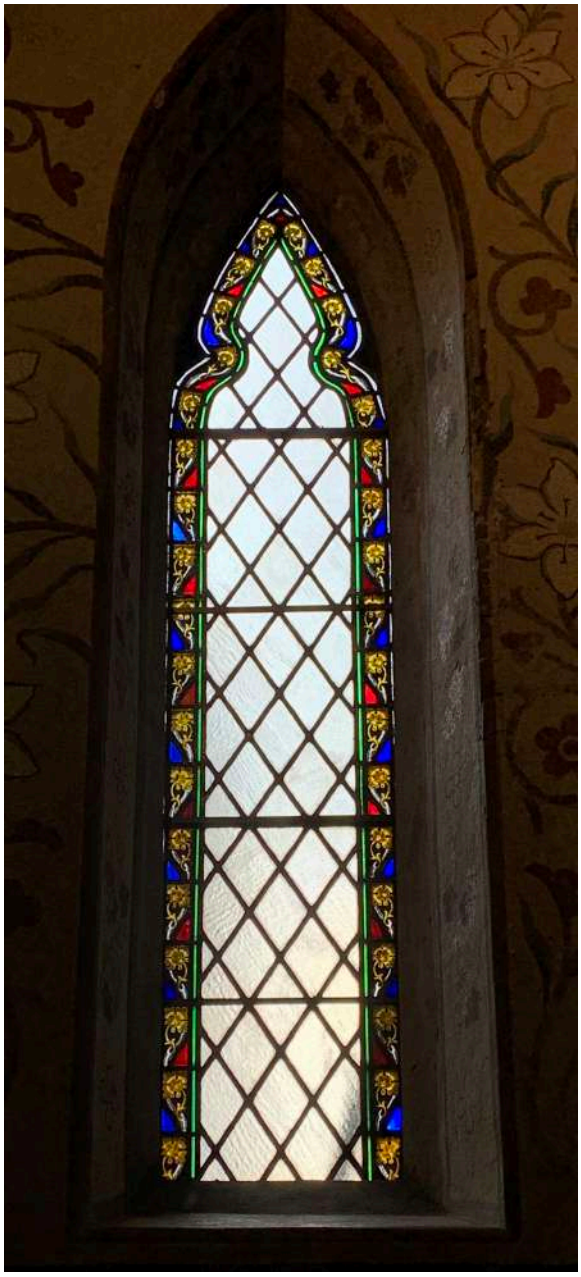
Glass
The glass is in good condition.

Paint
The painted surface of the glass is stable.

Cost of conservation €11,996 inclusive.

W7 West Gable, South Most. This is most likely the work of Thomas Williment circa 1811. The window and others like it, were most likely part of the original Altar windows until the church's renovation in 1865.

It is comprised of a diamond quarry background with lightly decorated borders. This window has just been conserved by Aria Stained Glass were all of the original glass has been retained. Cracked panes have been sealed with epoxy resin, previously poorly painted replacement glass was replaced by our resident artist Marija Kovac. Each replacement piece was signed and dated on its edge. The window was releaded using lead that matched the profile of the original lead. We replaced the ferrous metal bars with stainless steel. The window was sealed using natural hydraulic lime mortar. It is approximately 47cm x 229cm.



W7

W8 West Gable, North Most. This window is also most likely the work of Thomas Williment and one of the original Alter windows. It is in very poor condition. It has been repaired previously in places with temporary crude stop-gap repairs. The window sits askew in the opening and presents quite an eyesore. It is approximately 47cm x 229cm. The window is in dire need of conservation.


W8

Lead
The lead is very weak and needs to be replaced.

Glass
There are a few cracked panes and poorly painted replacement pieces.

Support Bars
The support bars are made of ferrous metal and will require replacement along with the windows conservation.

Paint
The painted surface of the original pieces looks slightly worn. This window may be the cause of dampness in this area of the church.

Cost of conservation €6,696 inclusive.

W9 North Nave, West Most. This is the first window of the north elevation surveyed. Like the many of the other windows it is very old and in need of conservation. However, typical of windows on the north side of churches it receives less inclement weather than the other elevations and can therefore be considered less of a priority than the east, south or west elevation windows.

This window is the work of Lavers, Barraud & Westlake, London. The design is attributed to Nathaniel Hubert John Westlake circa 1881. The window depicts the miracle of the loaves and fishes. The window is in memorial to Sampson Beamish. It is comprised of two lancets and quatrefoil. The size of the lancets are approximately 47 cm x 229cm.


W9

Lead
The lead of both lancets is worn, but slightly better than the lead of the other elevations.

Glass
The glass is in good condition.

Support Bars
The support bars are made of ferrous metal and are progressively decaying.

Paint
The paint on the surface of the glass is stable at this time.

Cost of conservation €11,996 inclusive.

W10 North Nave. This window is the work of Lavers, Barraud & Westlake, London. The design is attributed to Nathaniel Hubert John Westlake circa 1883. The window depicts The Sermon on the Mount. The window is in Memorial to Rev. Henry William Stewart. It is comprised of two lancets and quatrefoil. The size of the lancets are approximately 47 cm x 229cm.


W10

Lead
The lead is worn, but stable.

Glass
The glass is in good condition.

Support Bars
The support bars are made of ferrous metal and are progressively decaying.

Paint.
The paint on the surface of the glass is stable at this time.

Cost of conservation €11,996 inclusive.

W11 North Transept, West Return. This is a single lancet window. It is the work of Thomas Williment, like the West Gable Windows. It has been previously restored by Aria Stained Glass. The size of the lancet is approximately 47 x 229cm. This window is structurally sound and not in need of conservation at this time.


W11

Lead
The lead is in good condition.

Glass
There are cracked panes of glass that have been sealed using conservation grade epoxy resin.

Support Bars.
The support bars are made of solid brass.

Paint
The paint on the surface of the glass is stable at this time.

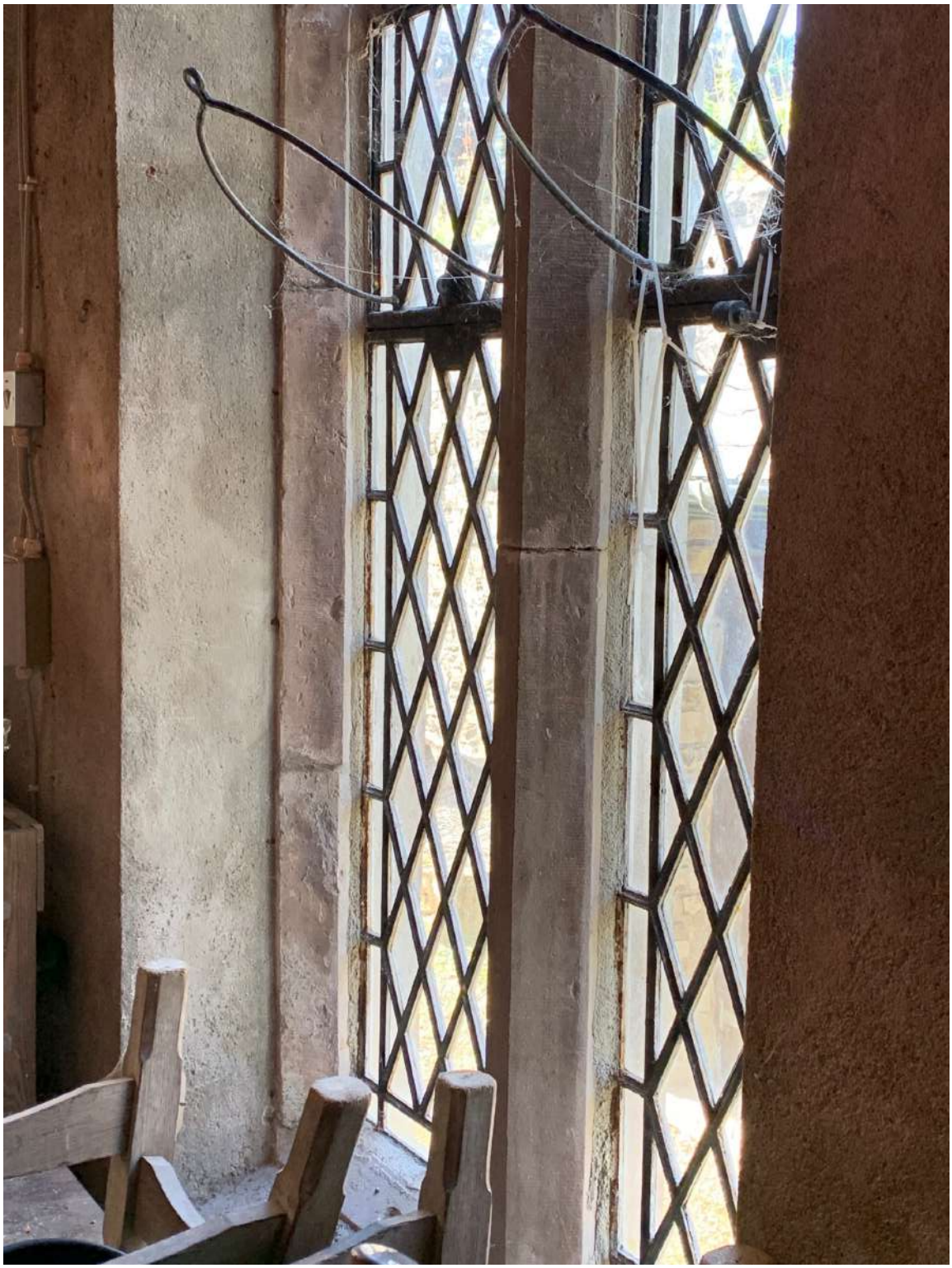
No conservation is required at this time.

W12, North Transept. This is a cast iron window. There are two lancets and a stained glass quatrefoil. The quatrefoil looks like it may be part of a Thomas Williment window. It is a Dove descending, a sign of the Holy Spirit.

W12

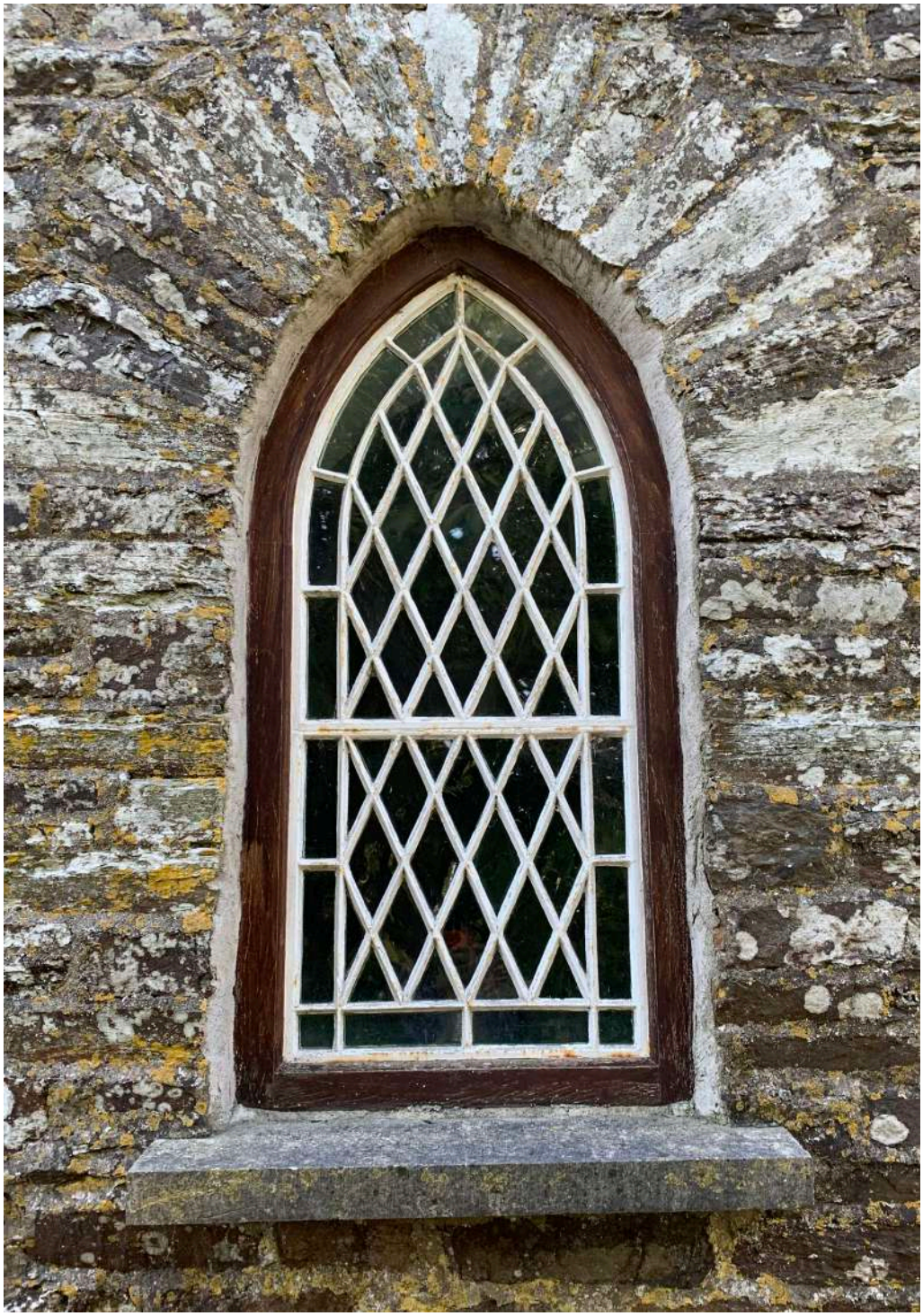
The quatrefoil probably dates back to circa 1812. It looks weak. Some of the background glass is cracked and loose. This section should be attended to as soon as possible. Otherwise a historical piece of painted glass may be lost.

Cost of conserving the quatrefoil in conjunction with other works €750 inclusive.


W12, cast iron section.

The cast iron section is in pretty good condition. However, it could use a coat of paint.

W14, Vestry. This is a cast iron window set into a timber frame. It is structurally sound, although the wood and metal could use a coat of paint.



Vestry

W13, Porch. This is a decorative leaded light without painted detail. It is in good condition. There are ferrous metal bars that could be treated with Owatrol as a primer and a couple coats of a good quality metal paint to prevent damage through rust expansion.

There is very neat and fancy lead work turning the outer yellow glass into a stylised fleur des lis.


W13

Summary

The windows in the church that have not been conserved in the past are now in need of conservation. The windows along the south, west and east elevations are in worse condition than those on the north and should be prioritised. The conservation of W3, along the south transept, east return, will require stone repairs in conjunction with the conservation of the stained glass. The other window surrounds appear to be structurally intact. The north elevation windows do not receive the same degree of inclement weather, so therefore are marginally better preserved than the other windows.

Due to the proximity to the town the windows should be protected with some sort of protective glazing or stainless steel grills. The black powder coated stainless steel grills appear to be doing a great job and compliment the church well.

If there are any questions regarding the above survey and quotation please feel free to contact me at your convenience.

Kindest regards

Dr. Richard Kimball

Aria Stained Glass