ST ANTHONY & OUR LADY OF MERCY RC CHURCH, HULL

REPORT ON VISIBLE DAMAGE TO CHURCH DUE TO WATER INGRESS

Executive Summary:

To be read in conjunction with Garlands roof survey, sketches 1 and 2, photographs pages 1 and 2 and budget cost spreadsheet.

Whilst conducting a roof survey, it was discovered that as well as the roof covering requiring replacing, the reinforced concrete frame was spalling and causing the interior of the church as well as the exterior to degrade.

Repairs to the church can be made and preventative measures taken to delay further deterioration. The costs of doing this (including the roof recovering) will be in the region of £356k. (See attached budget costs.) This cost excludes investigative work and repairs to the main body of the church, as to thoroughly check the portal frames would require complete internal scaffolding and the complete removal of the plaster work surrounding them. There is evidence of one portal frame in an isolated corner suffering corrosion, and an area in the choir loft.

Introduction:

St Anthony & Our Lady of Mercy is situated in the Beverley Road Conservation area of Hull. It was designed by the Architects Williams, Sleight and Company of Hull and opened in 1965. It became a parish in 1976. It is not listed and has not been recommended for listing.

The church is situated to the North of the city centre and sits approximately 0.8 miles away from Our Lady and St Peter Chanel church, 1.8 miles away from St Vincent's church and 2.3 miles away from St Mary Queen of Martyrs Church. Mass attendance figures in 2023 were 182.

The church of St Anthony & Our Lady of Mercy requires re-roofing in its entirety. During the survey on the roof, it was found that there were issues with the reinforced concrete frame and concrete window frames spalling. This led to further investigation into the defects in the structure.

Construction:

The church is fan shaped in plan, with a reinforced concrete wall to the rear which supports all the reinforced concrete portal frames that form the fan shape. The entrance and choir loft are formed from brick walls with decorative concrete clad panelling, a mosaic and a cantilevered canopy. The single storey build to the rear of the church is similarly fashioned and forms the 2 side chapels, the sacristy and meeting room. All the roofs are formed from a reinforced concrete deck with a 25mm thick fibreboard as insulation and either mineral felt or Asphalt roof coverings.

Condition Report:

The building has had a visual survey undertaken to highlight the visible defects. These in turn are shown on the attached location diagrams and photographs and the detailed roof survey report. To undertake a full structural inspection would require full scaffold inside and out and would entail all the plaster ceilings being removed.

The mechanics of spalling concrete are that the concrete is porous and without adequate protection of the steel reinforcing bars within, the steel corrodes. Corrosion entails the steel reinforcing rusting and expanding up to 15 times its original size. This in turn pushes off the concrete cover to the reinforcing therefore allowing more water in and more corrosion. It is clear from the areas of exposed reinforcing that the concrete cover is inadequate; less than the 25mm minimum as required under British Standards for reinforced concrete.

The roof coverings have completely failed. The insulation on the flat roofs (main entrance and rear extension) is saturated, this in turn is allowing water to penetrate the concrete roof deck and corrode the steel reinforcing bars. Evidence of the spalling concrete can be clearly seen on the outside of the structure and by the bowing plasterwork on the undersides of the ceilings within the building, similar to Our Lady Church in Acomb. The bowing plaster ceilings require removal, and the concrete underneath requires repair.

The main support wall has areas of exposed steelwork and evidence of earlier repairs. The loose concrete needs removing, the steel bars treating, repair mortar applied, and a preservative coating applied.

The Bell tower which also acts as a lateral restraint to the main support wall also has exposed reinforcing bars. The loose concrete needs to be removed, the steel bars treated, repair mortar applied, and a preservative coating applied to prevent further corrosion.

The concrete framed windows are spalling and require high build mortar repair.

The underside of the roof overhang around the perimeter of the fan shape has no protective covering and showing signs of failure. There are several large holes at the lower-level joints. The loose concrete requires removal, the steelwork treating, temporary shuttering and high build mortar repairs are required to be followed by a protective coating.

The cantilever canopy has a crack on the underside. This requires repairs and strengthening.

The mosaic is failing, and tiles are missing, this requires stabilising with a clear coating.

The concrete cladding is spalling, this requires the loose concrete removing and a protective coating applying.

Repair Costs:

The estimated repair costs are itemised on the attached spreadsheet and are split into 3 phases:

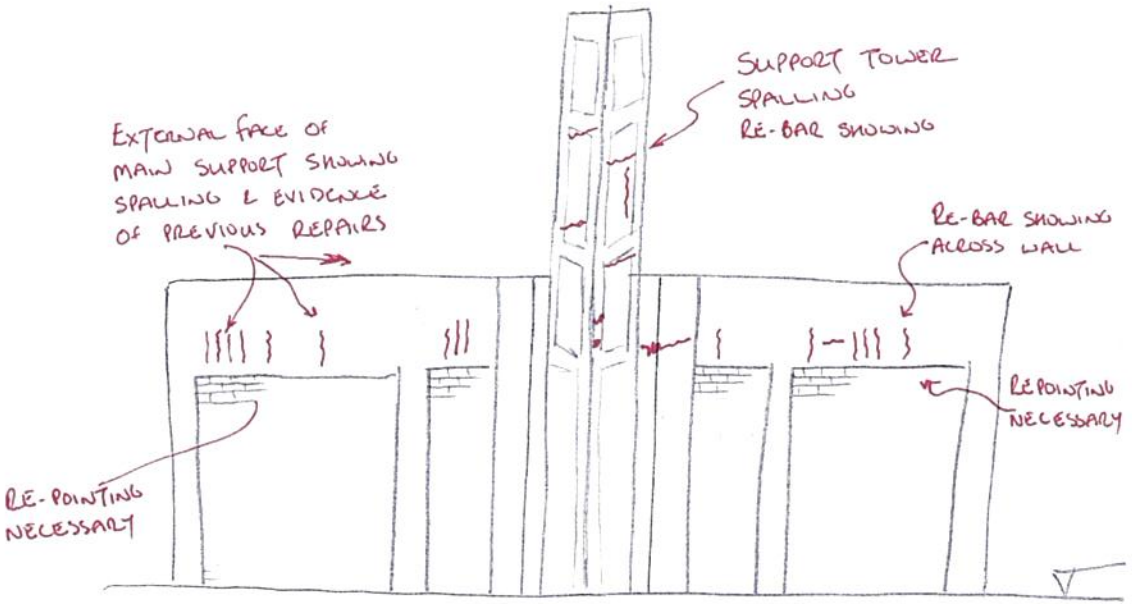
Phase 1: To prevent further water ingress and further deterioration of the structure £264k

Phase 2: To repair the internal areas that are visibly damaged £46k

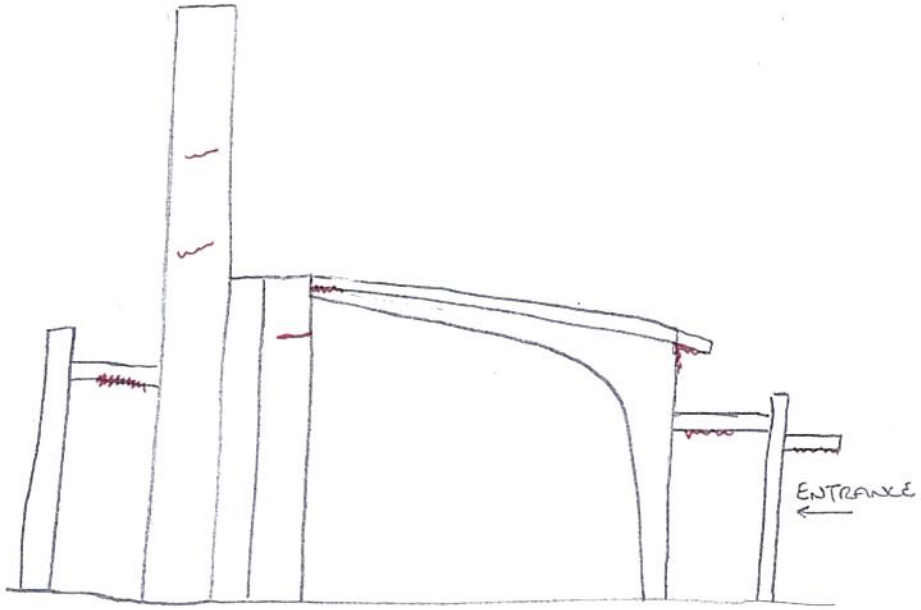
Phase 3: To repair the exterior roof overhang, belltower and windows £46k

The costs do not allow for the repairs to the mosaic at the front and assumes that the scaffold for the roof work is re-used for the phase 3 works.

ST ANTHONY & OUR LADY OF MERCY - BUDGET COSTS TO VISIBLE DAMAGE	area m2	rate	cost	VAT	total	Sub Total
PHASE 1: Prevent further water ingress						
Scaffold access and edge protection (exterior), include a level to access underside of overhang	lot		£ 30,000.00	£ 6,000.00	£ 36,000.00	
remove redundant water tank	lot		£ 500.00	£ 100.00	£ 600.00	
divert drainage to external hoppers and new downpipes	lot		£ 15,000.00	£ 3,000.00	£ 18,000.00	
strip off existing roof covering and re-roof entire building, to include external insulation	542	£300.00	£162,600.00	£32,520.00	£195,120.00	
re-point rear wall	99	£ 70.00	£ 6,930.00	£ 1,386.00	£ 8,316.00	
concrete repairs to rear wall - magma build and cladding coat	33	£150.00	£ 4,950.00	£ 990.00	£ 5,940.00	**£263,976.00**
PHASE 2: repair internal areas showing most damage						
R&D asbestos survey	lot		£ 1,200.00	£ 240.00	£ 1,440.00	
tower access to low level ceilings, sacristy, side chapels, meeting room etc at church rear	100		£ 7,500.00	£ 1,500.00	£ 9,000.00	
Remove ceilings (labour plus skip hire) assume all ceilings damaged due to sodden insulation	100	£ 50.00	£ 5,000.00	£ 1,000.00	£ 6,000.00	
Structural Engineer's inspection fees	lot		£ 1,500.00	£ 300.00	£ 1,800.00	
Concrete repairs - Magma build and cladding coat	100	£150.00	£ 15,000.00	£ 3,000.00	£ 18,000.00	
redecorate side chapels, sacristy, meeting room etc	lot		£ 5,000.00	£ 1,000.00	£ 6,000.00	
high level repairs to skylights, lintel above Lady Chapel, high level support rib, choir loft			£ 3,000.00	£ 600.00	£ 3,600.00	**£ 45,840.00**
PHASE 3: Repair roof perimeter, Bell tower, windows and canopy						
note: use scaffold erected for roof repairs				£ -	£ -	
concrete repairs to roof perimeter - include overhead formers	100	£175.00	£ 17,500.00	£ 3,500.00	£ 21,000.00	
concrete repairs to windows	50	£150.00	£ 7,500.00	£ 1,500.00	£ 9,000.00	
repairs and strengthening to cantilever canopy	15	£200.00	£ 3,000.00	£ 600.00	£ 3,600.00	
additional scaffold to bell tower	lot		£ 5,000.00	£ 1,000.00	£ 6,000.00	
concrete repairs to bell tower	140	£150.00	£ 5,000.00	£ 1,000.00	£ 6,000.00	
replace access door to bell tower	lot		£ 300.00	£ 60.00	£ 360.00	**£ 45,960.00**
GRAND TOTAL						**£355,776.00**

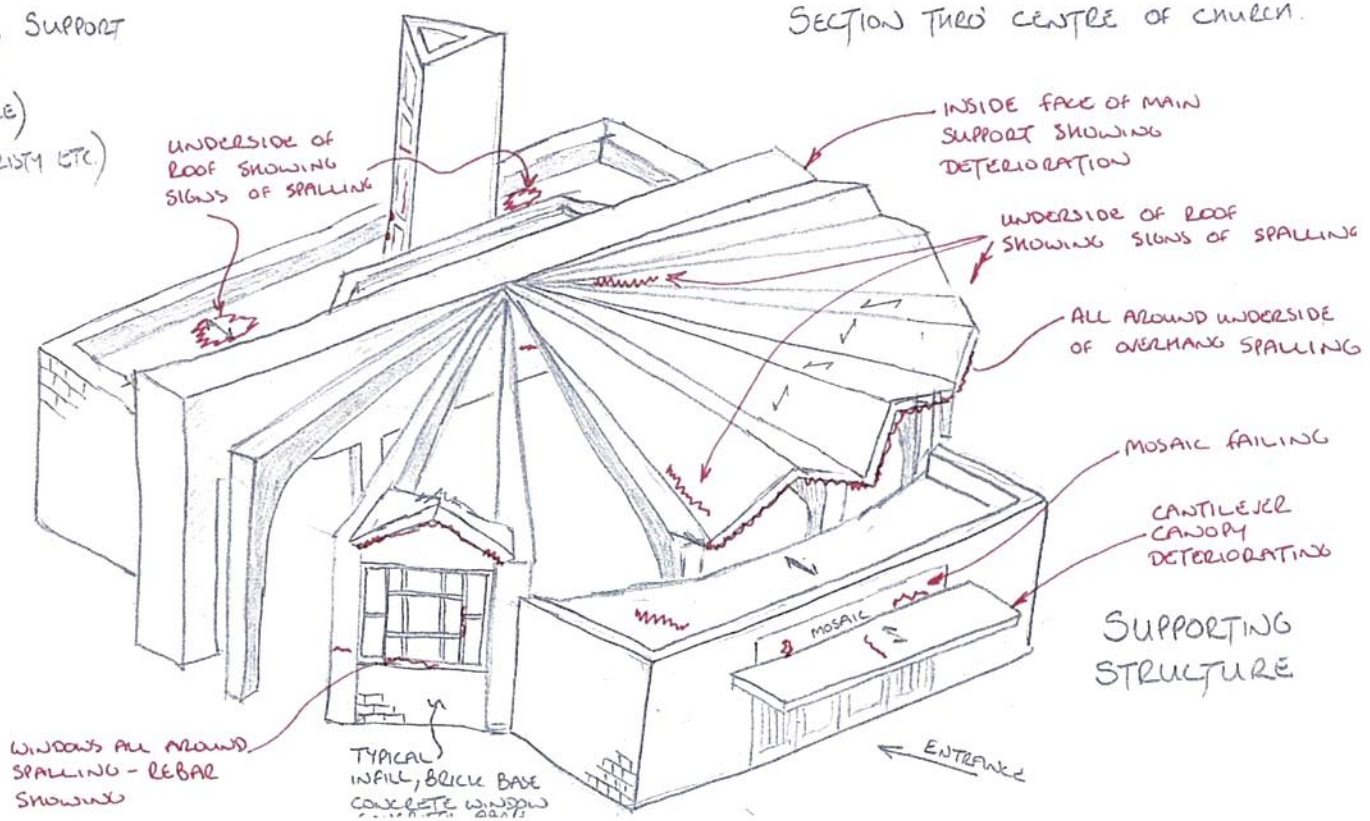


VIEW ON MAIN SUPPORT AT REAR (WEST FACE) (EXCLUDES SACRISTY ETC.)



SECTION THRU' CENTRE OF CHURCH.

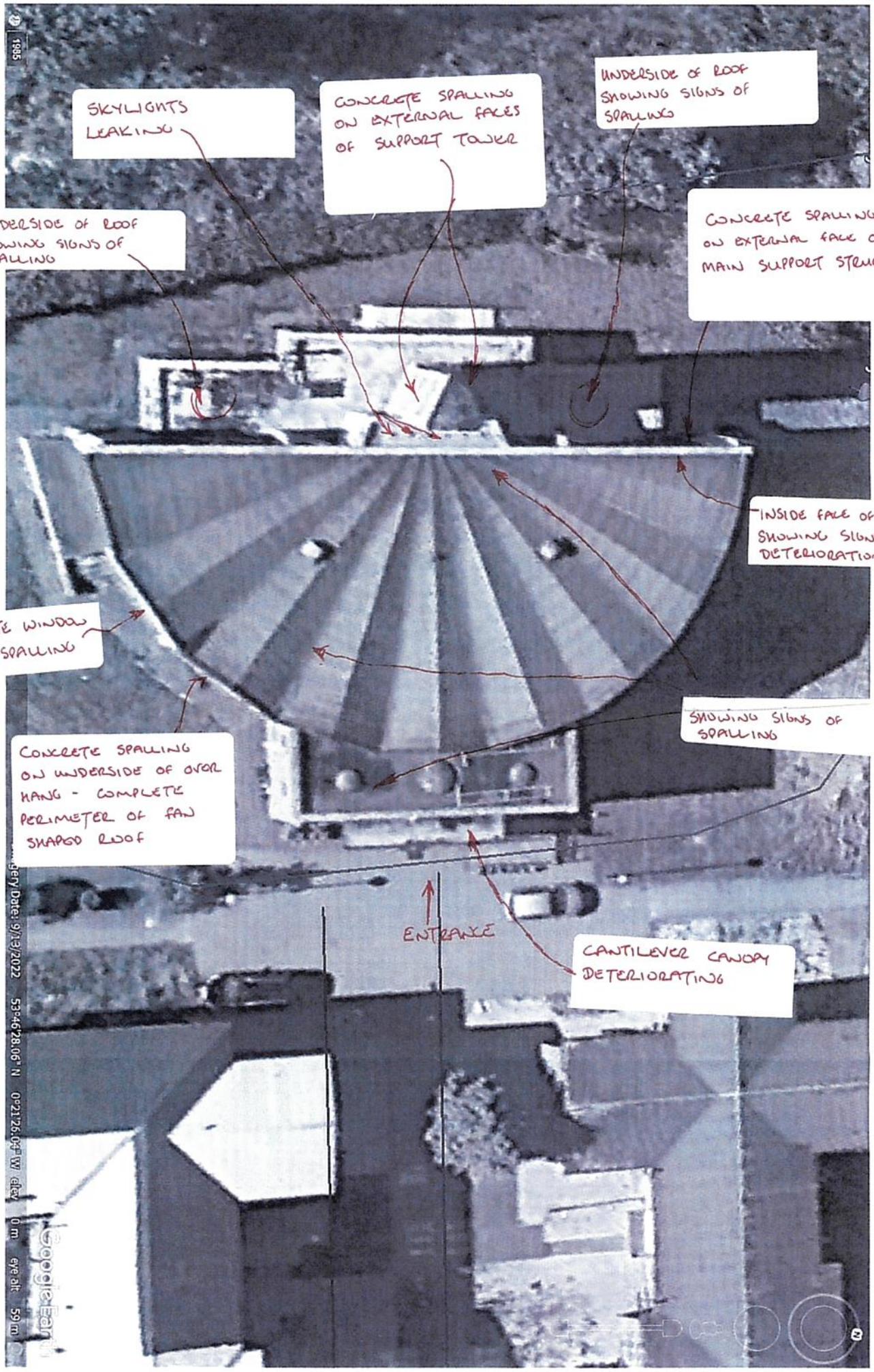
ST ANTHONY & OUR LADY OF MERCY
LOCATIONS OF KNOWN/VISIBLE DEFECTS.



SUPPORTING STRUCTURE

SKETCH 1

SKETCH 2


SKYLIGHTS LEAKING
CONCRETE SPALLING ON EXTERNAL FACES OF SUPPORT TOWER
UNDERSIDE OF ROOF SHOWING SIGNS OF SPALLING
UNDERSIDE OF ROOF SHOWING SIGNS OF SPALLING
CONCRETE SPALLING ON EXTERNAL FACE OF MAIN SUPPORT STRUCTURE
INSIDE FACE OF WALL SHOWING SIGNS OF DETERIORATION
CONCRETE WINDOW FRAMES SPALLING
SHOWING SIGNS OF SPALLING
CONCRETE SPALLING ON UNDERSIDE OF OVER HANG - COMPLETE PERIMETER OF FAN SHAPED ROOF
ENTRANCE
CANTILEVER CANOPY DETERIORATING
1985
Image Date: 9/13/2022
53°46'28.06" N 0°21'26.04" W elev 0 m eye alt 59 m
Google Earth

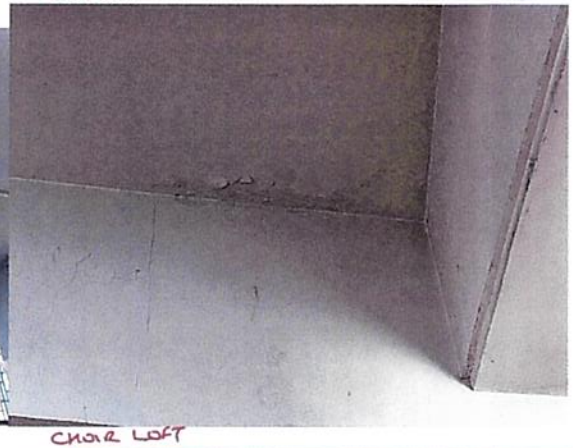
MEETING ROOM

SACRISTY

SACRISTY

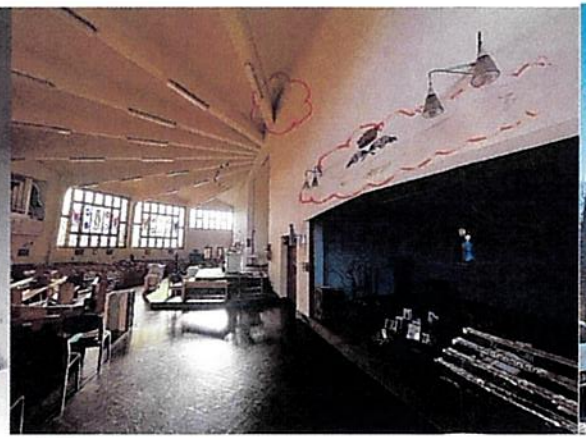
ABOVE TABERNACLE

LADY CHAPEL

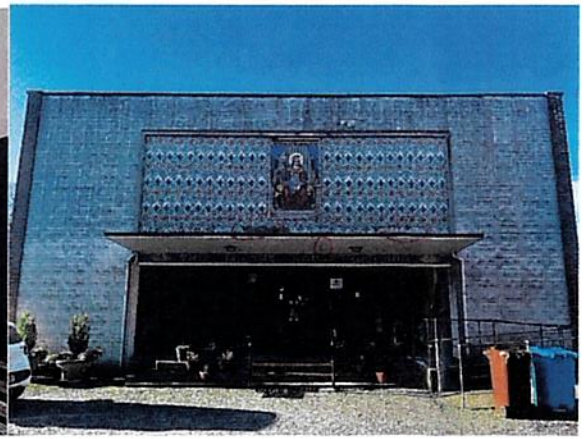


CHOIR LOFT

SANCTUARY

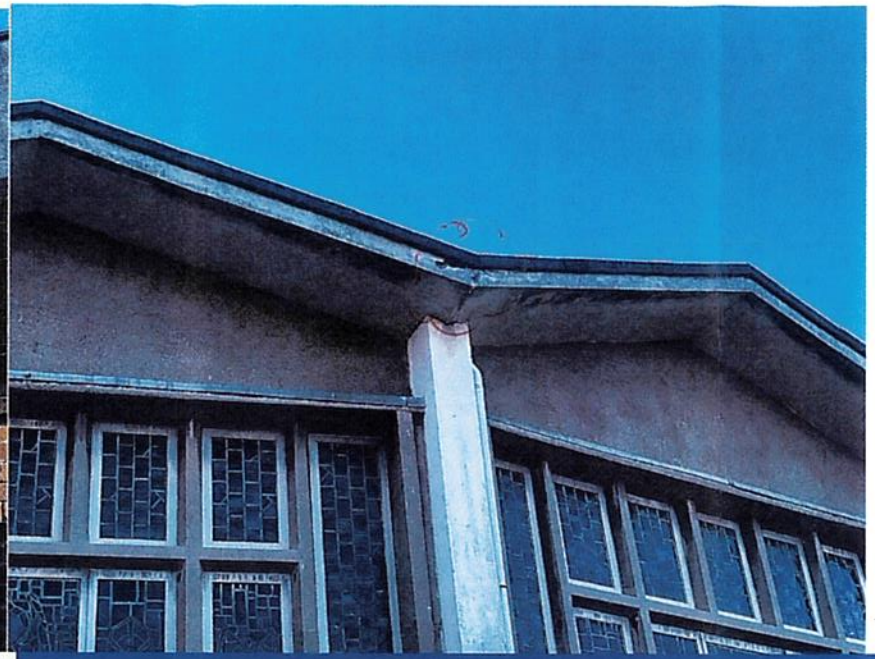


NAVE



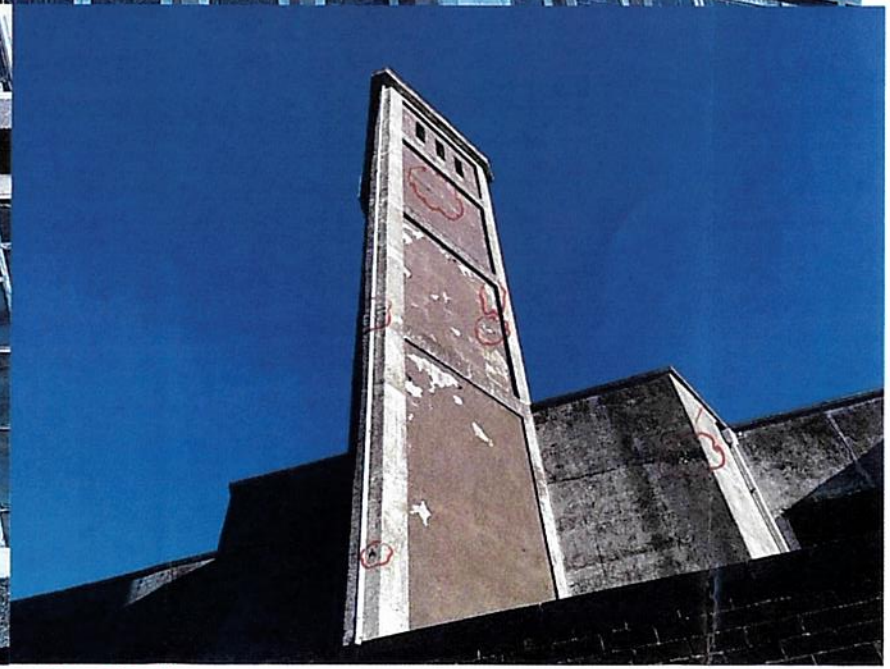
ENTRANCE

MAIN SUPPORTS

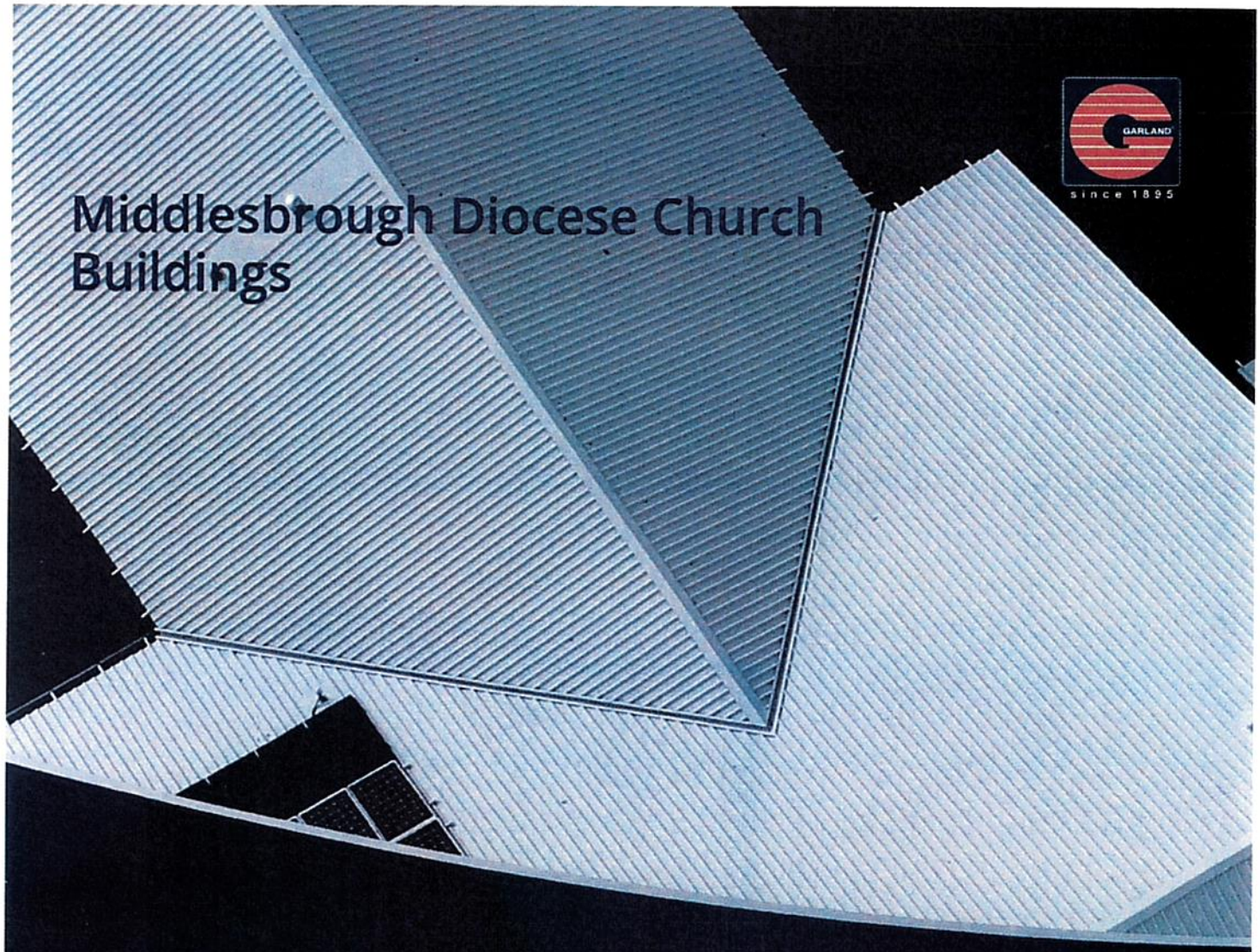


TYPICAL PERIMETER OVERHANG

WINDOWS



BELL TOWER



Middlesbrough Diocese Church Buildings

Garland UK

St Anthonys and Our Lady of Mercy Roof Information

Prepared by: David Campos

Prepared for: Sharon Westcough

Date: 04, July, 2024

Table of Contents

Client Data

MIDDLESBROUGH DIOCESE CHURCH BUILDINGS
50A LINTHORPE AVENUE
MIDDLESBROUGH, CLEVELAND TS5 6QT

Client Data

Name	Middlesbrough Diocese Church Buildings		
Address 1	50A Linthorpe Avenue	**Address 2**	Acklam
City	Middlesbrough	**County**	Cleveland
Postal	TS5 6QT	**Country**	United Kingdom

Facility Summary

MIDDLESBROUGH DIOCESE CHURCH BUILDINGS
50A LINTHORPE AVENUE
MIDDLESBROUGH, CLEVELAND TS5 6QT

FACILITY: St Anthonys and Our Lady of Mercy Hull

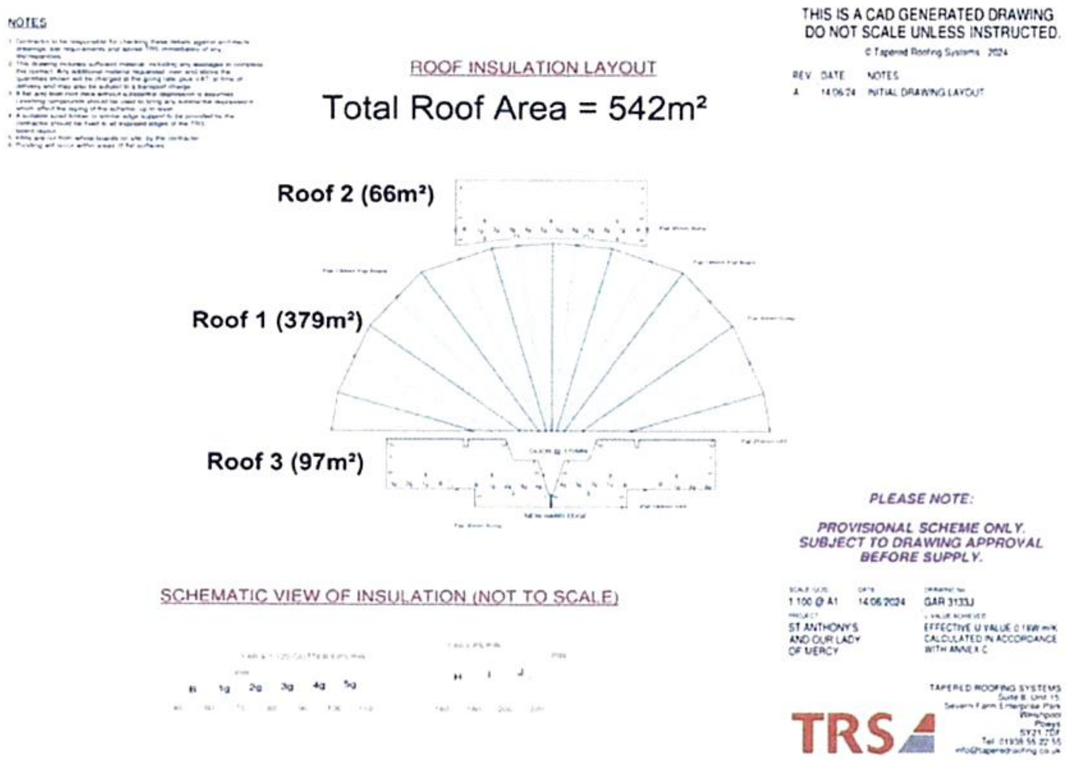
Facility Map

Facility Data

Address 1	50A Linthorpe Avenue
Address 2	Acklam
City	Middlesbrough
County	Cleveland
Postal	TS5 6QT
Type of Facility	Religious

Asset Information

Name	Date Installed	Square Meters	Roof Access
Roof Areas	Unknown	610	Ladder Needed

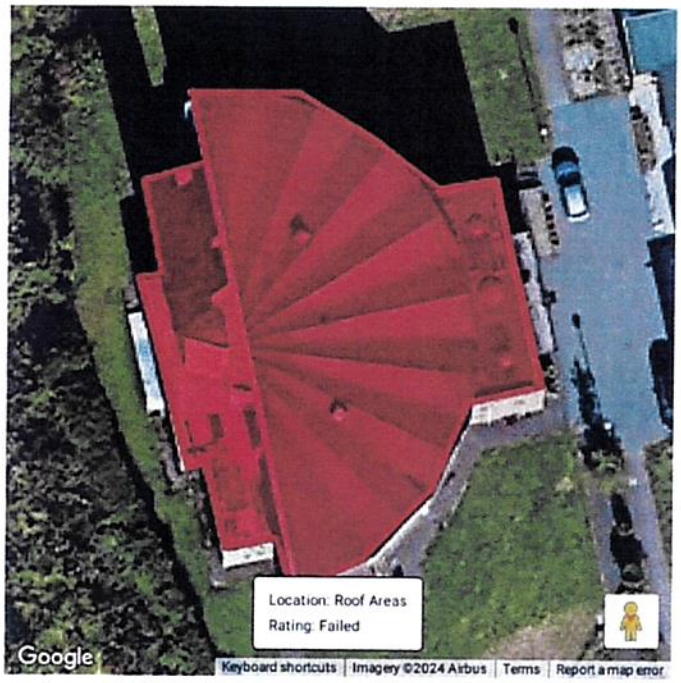

NOTES
ROOF INSULATION LAYOUT
Total Roof Area = 542m²
Roof 2 (66m²)
Roof 1 (379m²)
Roof 3 (97m²)
SCHEMATIC VIEW OF INSULATION (NOT TO SCALE)
THIS IS A CAD GENERATED DRAWING
DO NOT SCALE UNLESS INSTRUCTED.
© Tapered Roofing Systems 2024
REV DATE NOTES
A 14.06.24 INITIAL DRAWING LAYOUT
PLEASE NOTE:
PROVISIONAL SCHEME ONLY.
SUBJECT TO DRAWING APPROVAL
BEFORE SUPPLY.
1:100 @ A1
14.06.2024
GAR 3133J
ST ANTHONY'S AND OUR LADY OF MERCY
CALCULATED IN ACCORDANCE WITH ANNEX C
TAPERED ROOFING SYSTEMS
TRS

Construction Details

MIDDLESBROUGH DIOCESE CHURCH BUILDINGS
50A LINTHORPE AVENUE
MIDDLESBROUGH, CLEVELAND TS5 6QT

FACILITY: St Anthonys and Our Lady of Mercy Hull	ROOF SECTION: Roof Areas

Asset Map



Asset Photo

Information

Year Installed	Unknown	**Square Meters**	610
Slope Dimension	Flat < 5°	**Eave Height**	Approx 9m
Roof Access	Ladder Needed	**System Type**	Built Up Roof (BUR)

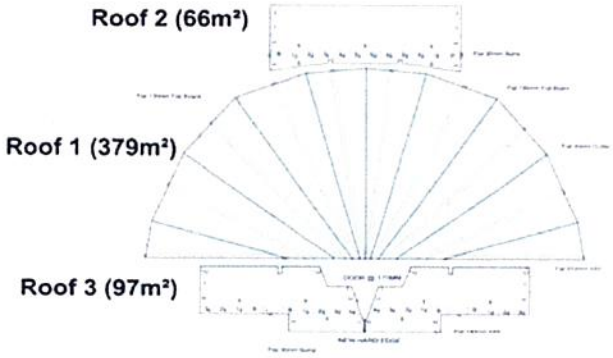
NOTES

THIS IS A CAD GENERATED DRAWING
DO NOT SCALE UNLESS INSTRUCTED.

REV	DATE	NOTES
A	14/06/24	INITIAL DRAWING LAYOUT

ROOF INSULATION LAYOUT

Total Roof Area = 542m²



SCHEMATIC VIEW OF INSULATION (NOT TO SCALE)

PLEASE NOTE:

PROVISIONAL SCHEME ONLY.
SUBJECT TO DRAWING APPROVAL
BEFORE SUPPLY.

SCALE SIZE	DATE	DRAWING No.
1:100 @ A1	14/06/2024	GAR 3133J

PROJECT
ST ANTHONY'S
AND OUR LADY
OF MERCY

U VALUE ACHIEVED
EFFECTIVE U VALUE 0.18W/m²K
CALCULATED IN ACCORDANCE
WITH ANNEX C

TAPERED ROOFING SYSTEMS
Suite B, Unit 15,
Severn Farm Enterprise Park,
Welshpool,
Powys,
SY21 7DF
Tel: 01938 55 22 55
info@taperedroofing.co.uk

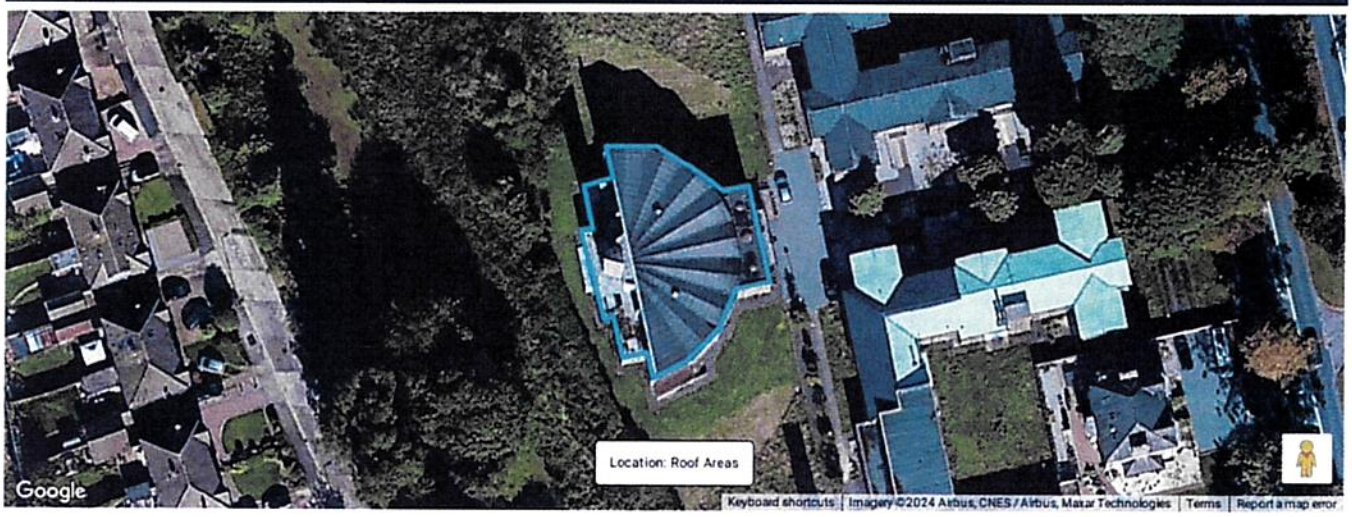
TRS

Photo Report

MIDDLESBROUGH DIOCESE CHURCH BUILDINGS
50A LINTHORPE AVENUE
MIDDLESBROUGH, CLEVELAND TS5 6QT

FACILITY: St Anthonys and Our Lady of Mercy Hull	ROOF SECTION: Roof Areas	TITLE: Condition Report Photos	DATE: 02/07/2024

Map



Core sample taken revealed fibreboard insulation 25mm R1

Existing parapet capping to be removed and boarded over with plywood

Core sample to R2 showed saturated insulation over concrete deck

Core to gutter area showed no insulation

Gutter section

6

Existing outlets travel through the building this should be taken external

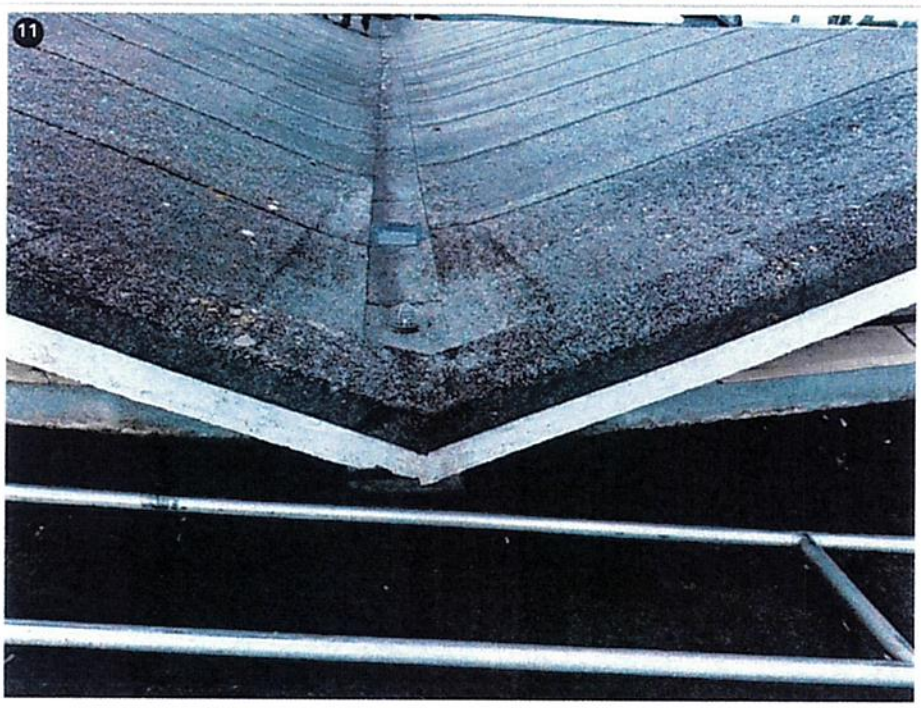
7

R2 Roof Area

Existing parapet to R2

As previous

Poor condition of rooflights

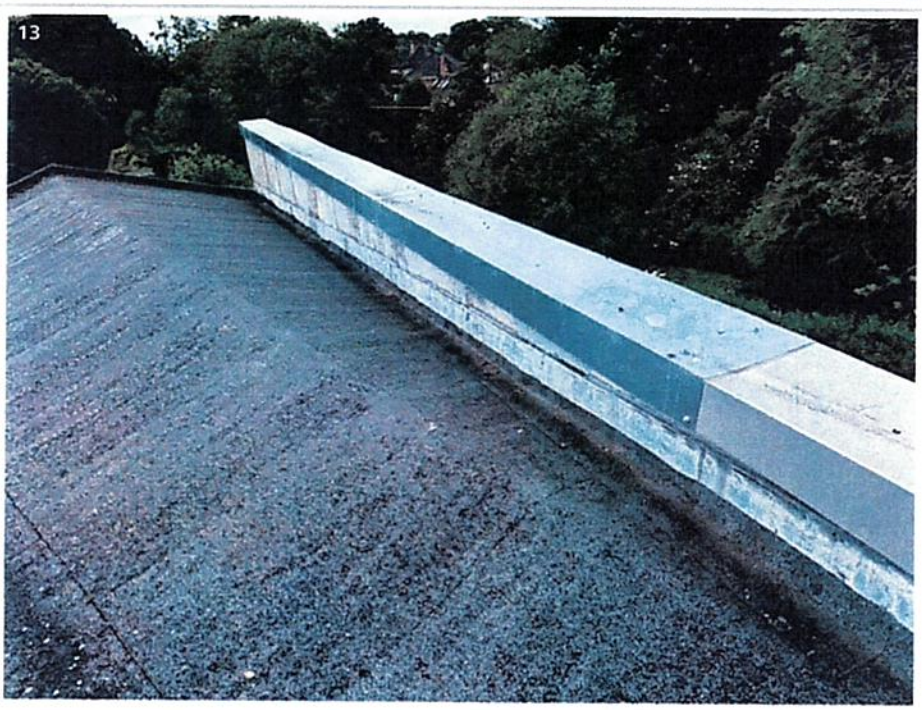


Further example of internal outlet detail where water is travelling through the building

12

Area of moss growth indicating ponding water

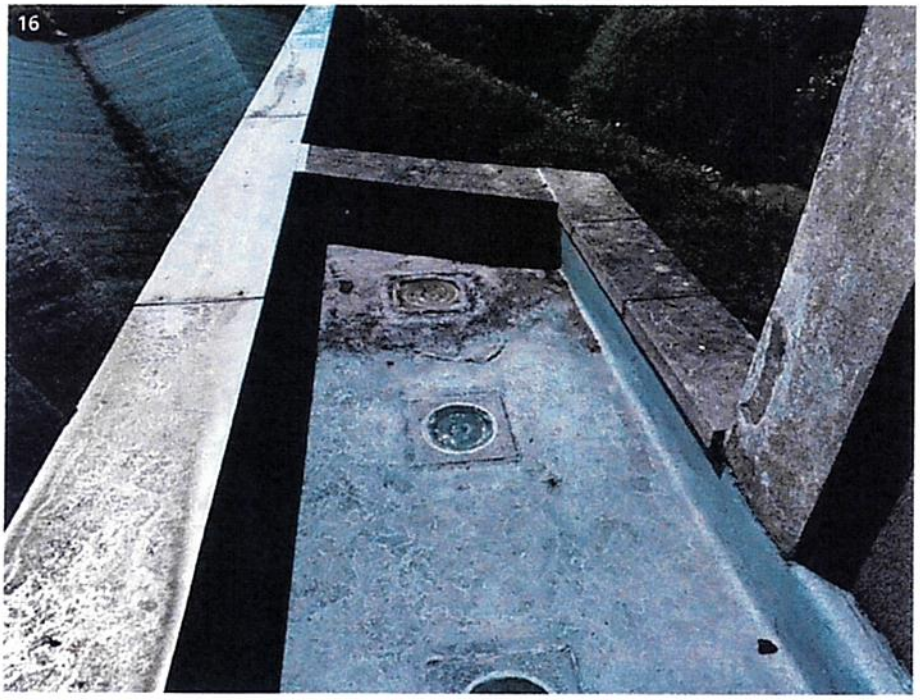
13



Further parapet capping to R1

Previous repairs have been carried out

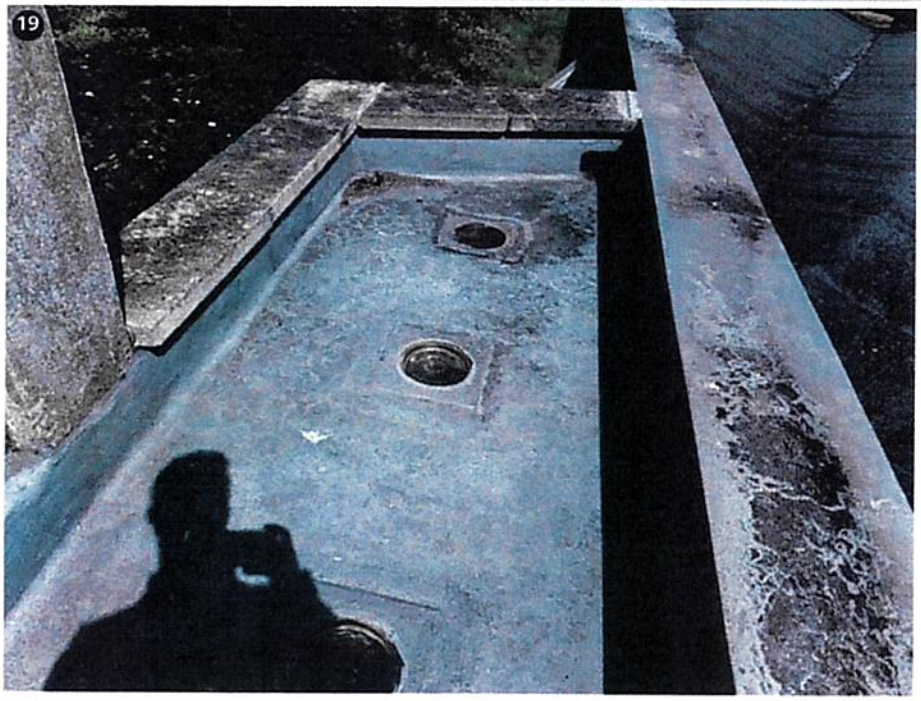
Visible splits starting to show



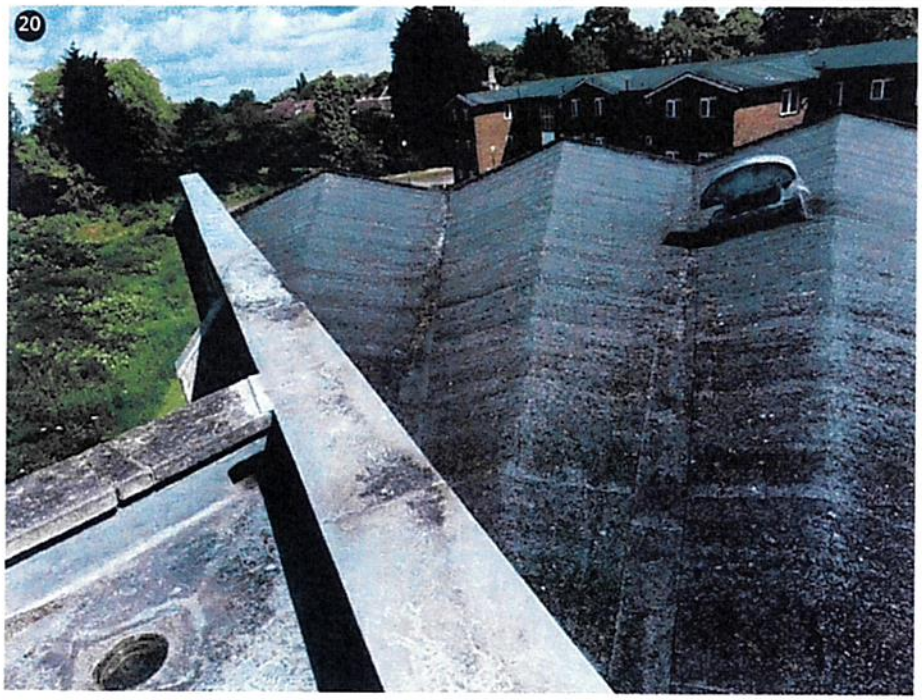
Glass bock glazing will need individual rooflights over the top of the glazing with permanent trickle vents to avoid condensation.

Core sample revealed asphalt over concrete deck

Poor upstand detail



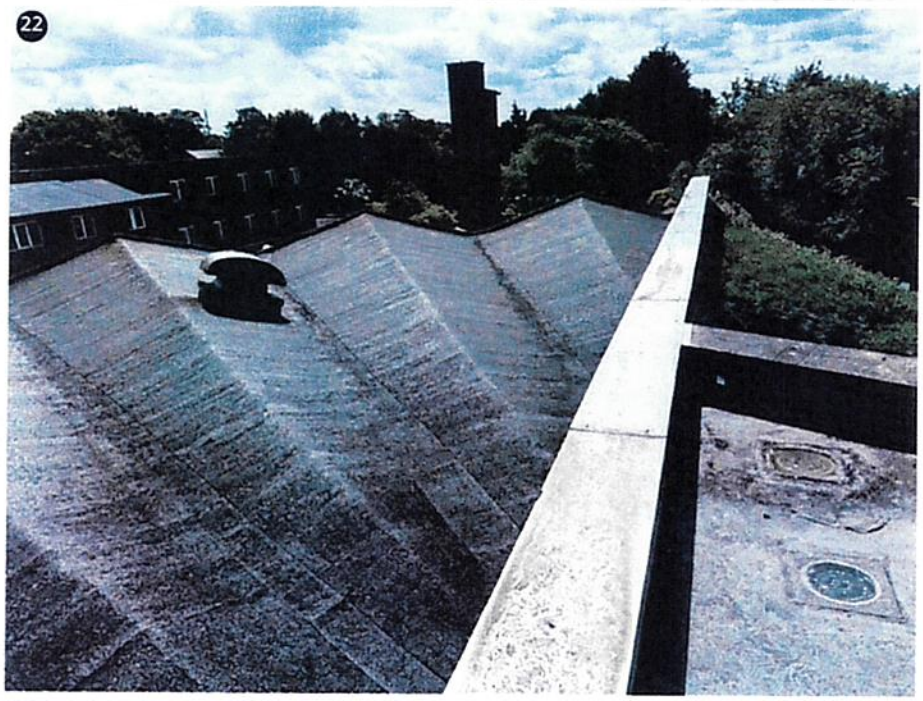
Overview



Overview

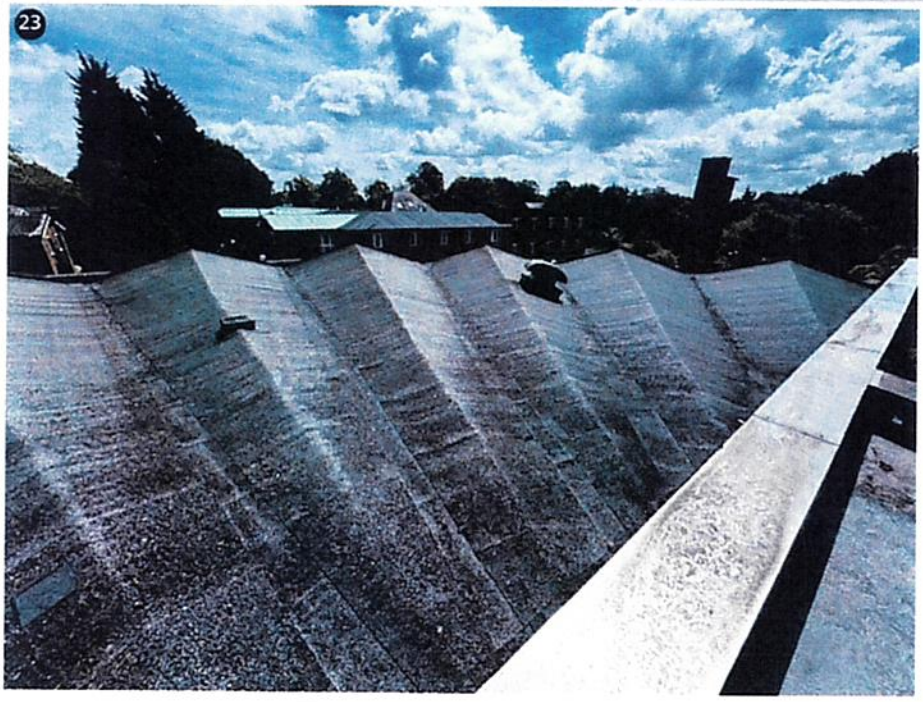
Existing membrane showing signs of mineral loss and deterioration

22



Overview

23



As previous

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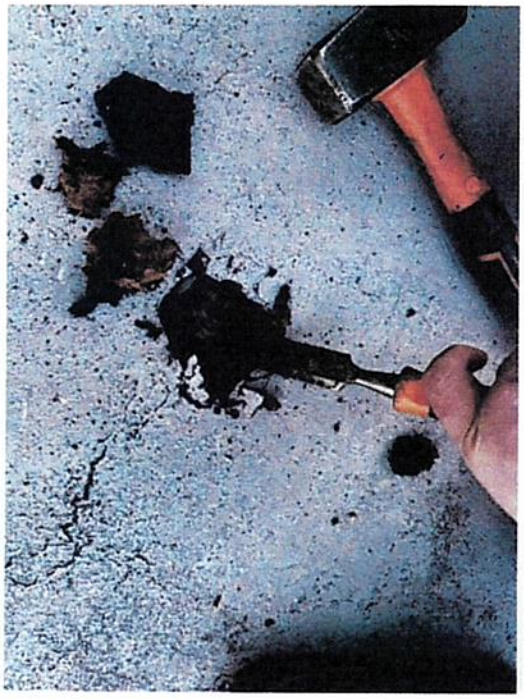
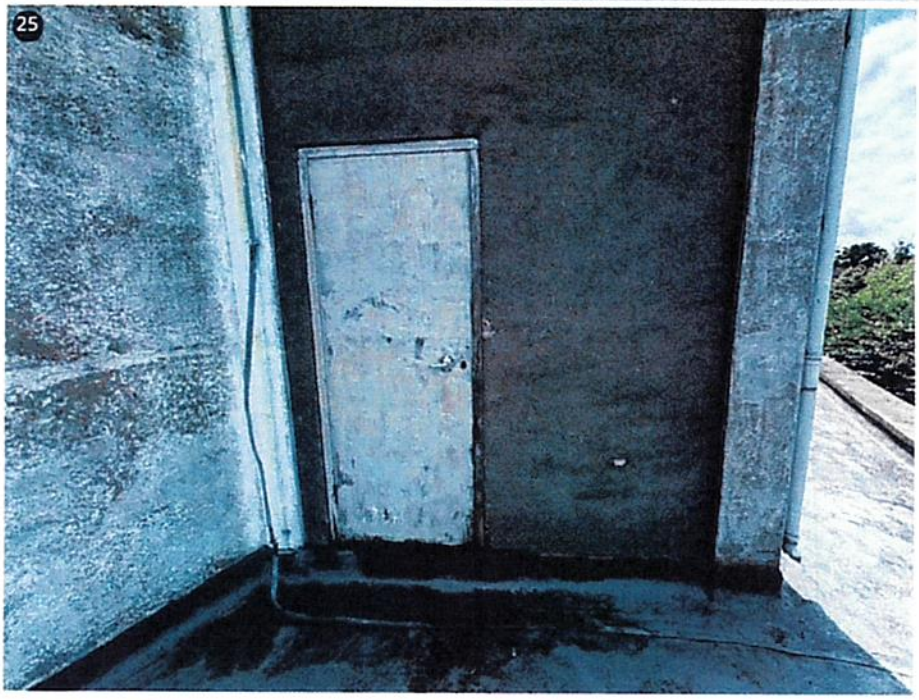
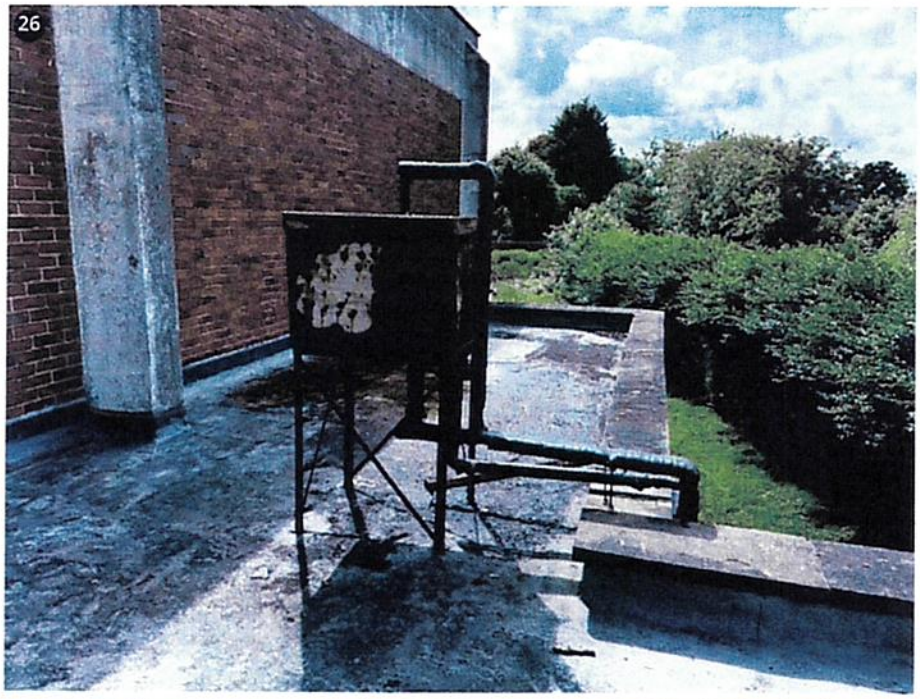


Core sample to lower area R3 showed fibre board over concrete

25



Existing door should either be removed or replaced



Water tank (guessing redundant) should be removed

Upstand to wall area

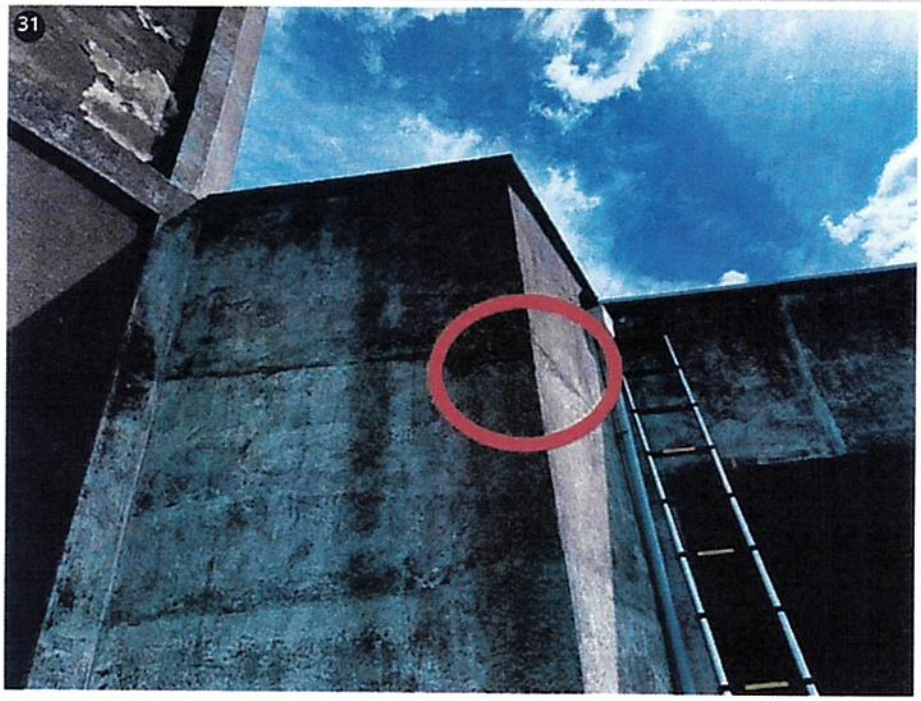
28

Evidence of spalling

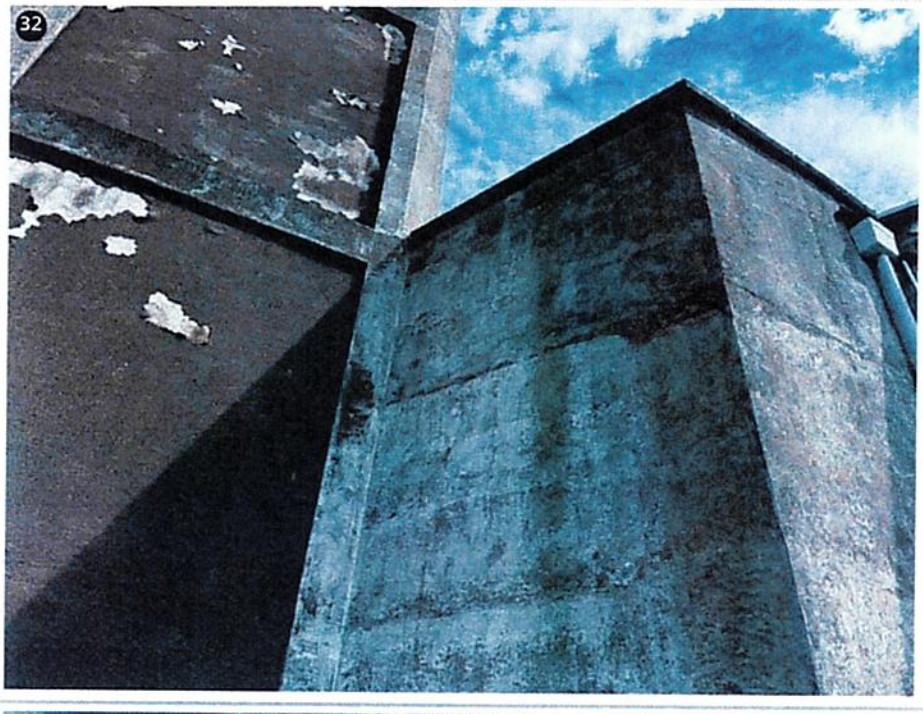
29

As previous

Spalling to vertical section

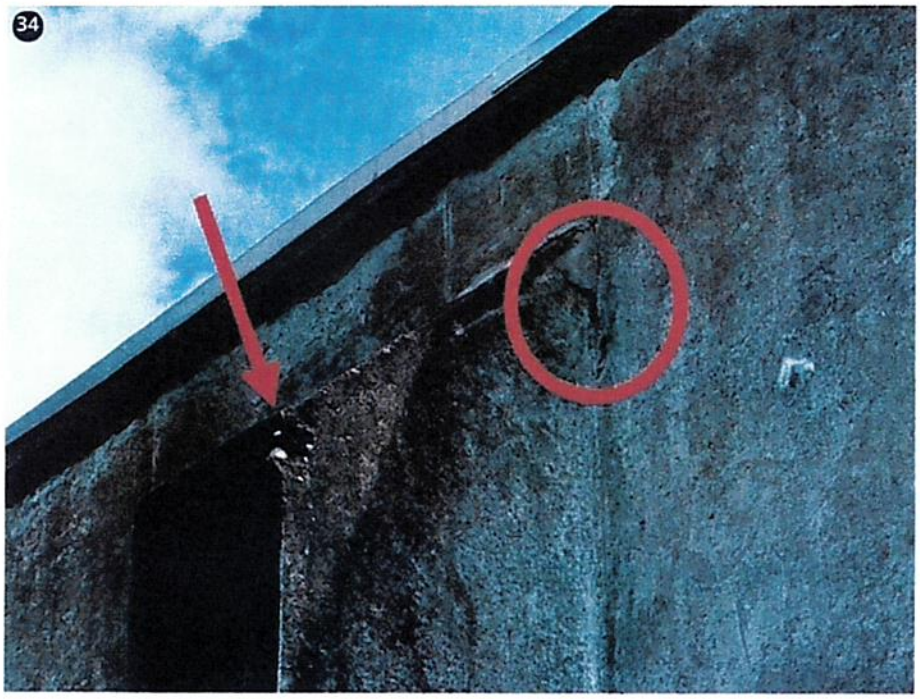


Location



Further image

Existing condition of tower - This could be cladded to encapsulate or treated



Further evidence of spalling

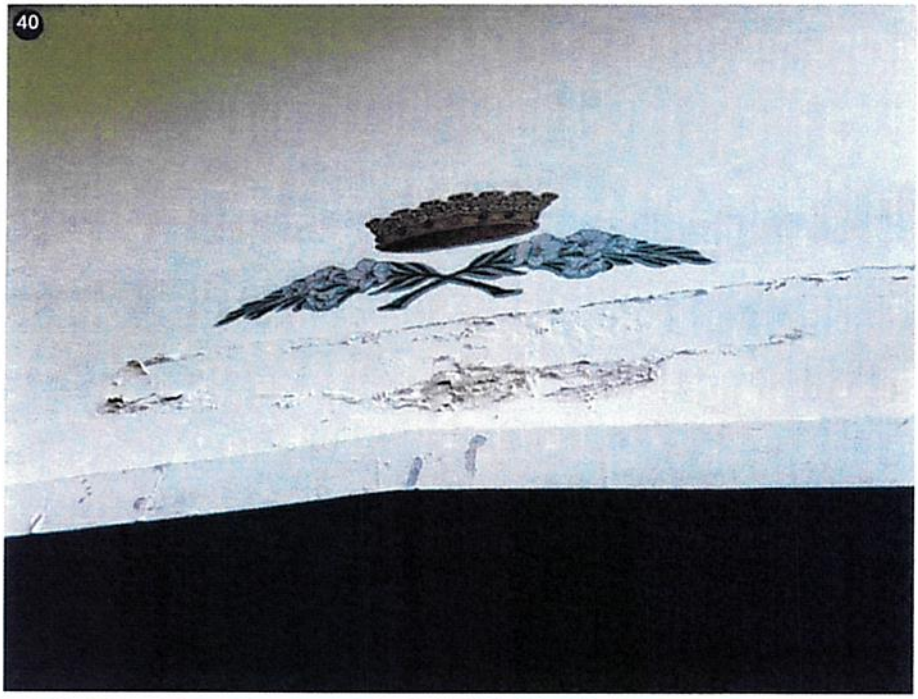
Poor detailing noted to upstands

Overview showing ponding

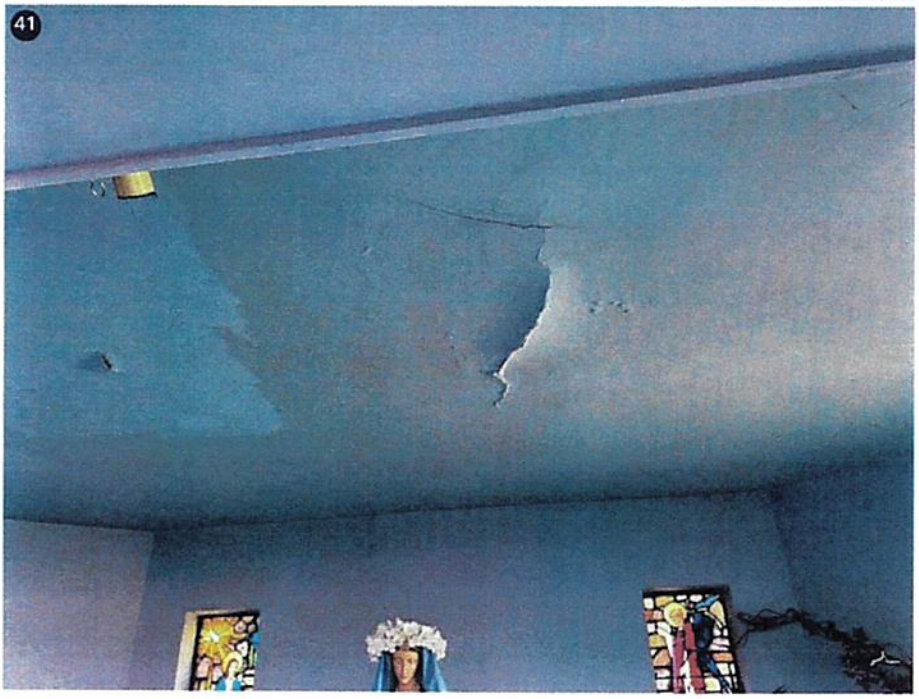
Blockage

Failed section to parapet

Lower sections are in reasonable condition



Internal damage



As previous

Further water ingress damage

As previous

44

Water damage

45

External

As previous - ideally the outlets should discharge off the end of the roof into hoppers and swan neck to avoid any water passing through the roof