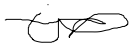
Supporting Documentation
Sandiway St John – Tower roof works

Note to parish

This bundle includes all the supporting documentation to your faculty application as required under Rule 5.5 of the Faculty Jurisdiction (Amendment) Rules 2019.

List of documentation

_____

Caroline Hilton, DAC Secretary  4 August 2022

We petition the Court for a faculty to authorise the following-

Please describe the works or other proposals for which a faculty is sought in the way recommended by the Diocesan Advisory Committee in its Notification of Advice.

SCHEDULE OF WORKS OR PROPOSALS

The 2010 and 2015 Quinquennial Inspections by Graham Holland of Graham Holland Associates and the 2020 Quinquennial Inspection by Duncan Sanderson of Kepczyk Pearce Sanderson reported that :-

a) the reinforced concrete tower roof requires replacement/refurbishment as water ingress and carbonation has caused the reinforcing steel to corrode with consequential wide spread spalling to the concrete
b) other minor refurbishment works are required including Tower rainwater goods and flagpole refurbishment

Further advice was sought in 2021 from a Structural Engineer, GN Booth of WML Consulting who advised that, to ensure the integrity of the Tower and the safety of those accessing the roof, replacement was the only solution. A copy of this report has been uploaded separately

Further investigation into possible solutions showed that :

a) a ‘like for like’ replacement using concrete with an asphalt waterproofing layer would require re - asphalting at approximately 25 year intervals as the asphalt ‘aged’ and cracked. There are also misgivings on possible quality control of the concrete due to the small quantities used in the replacement and the awkward access for delivery to the roof.

b) a timber roof with a lead waterproof layer would last for approximately 125 years without major maintenance and could be constructed with no quality control issues

It is therefore proposed to replace the existing roof with a timber roof with a lead waterproof layer and undertake other works, all as indicated on the Kepczyk Pearce Sanderson's Drawings and Specifications uploaded with this Application

Copies of the Standard Information Form and any drawings, plans, specifications, photographs or other documents showing the proposals must be provided with this petition.

Ref:	2022-073600	**Church:**	Sandiway: St John the Evangelist
Diocese:	Chester	**Archdeaconry:**	Chester
Created By:	Mr James Wren (07/06/2022)	**Contact Tel.:**	01606883955
Status:	Notification of advice		

Statement of Needs

General information

St John the Evangelist Church is located on Norley Road and supports the Sandiway and Cuddington areas with multiple weekly services, weddings and funerals services. As part of its historical commitment, the church is linked and continues to support the local primary schools.

What is needed?

In order to maintain the integrity of the structure of the Church Tower, the Tower Roof needs to be replaced along with some ancillary works to maintain watertightness

The proposal

We propose to demolish the existing Church Tower Roof and construct a wood and lead - covered replacement. Other ancillary works include downpipe replacement and refurbishment, stone repointing and flagpole refurbishment

Why?

The Works are required in order to maintain both the integrity of the structure of the Church Tower, the Tower Roof needs to be replaced along with some ancillary works to maintain watertightness. A recent Structural Engineer's report indicates that this requirement is urgent.

Justification

The proposed Works will have no impact on the external visual appearance of the Tower and the Church. They are required to maintain the watertightness and structural integrity of the Tower.

St John the Evangelist Church, Sandiway

Replacement of Church Tower Roof and Ancillary Work

STATEMENT OF SIGNIFICANCE

Application Reference 2022-073600

Revision O

Section 1.1 St John's Church Building History and Description

St. John the Evangelist, Sandiway is a beautiful village church designed and built by John Douglas in 1903, who was born in the village in 1830. The tower was a later addition being completed in around 1911.

The church is a grade II listed building (list entry number 1287518) and the lychgate is separately listed as grade II (list entry number 1227730).

The church is on the busy Norley Road (CW8 2JU) and is set in a garden surrounded by trees, laurel hedges and rhododendrons. The front boundary either side of the lychgate is separated from the road by an attractive red sandstone perimeter wall. There is no churchyard. The church is also built from Cheshire sandstone and is a significant and attractive landmark in the village. The church is approached through a lychgate to the north facing porch.

Inside the church there are two rows of pews with a single central aisle. John Douglas was part of the Oxford Movement, with a strong focus on the altar and as a result, there is no allowance of space for social interaction or group work and the design of the church conveys an expectation that visitors are expected to sit down and face the altar.

To the front of the church, on the left there is a beautifully carved oak pulpit built by John Sewell of Chester in 1904; on the right side there is a brass eagle lectern made in 1902. The chancel is up two steps and has a bank of ornately carved choir stalls on either side. The Lord's Table is a simple table covered by white cloth and a frontal, separated from the chancel by a plain rail and kneelers. The organ is a two manual pedal organ, electrically blown, built by Wadsworth Bros in Manchester 1902.

The Baptistry at the west end of the church has a carved stone font with oak cover. There is also a Della Robbia plaque in the Baptistry along with brass plates in memory of those from the village lost in World Wars.

Throughout the church there are stained glass windows depicting Biblical characters and events.

There is no internal toilet facility or baby changing facility in the church building. A single toilet is present in the Bier House building located in the church grounds.

The church heating system is dated, inefficient and expensive to run.

Catering facilities located in the Baptistry, are limited to a table with free-standing urn and kettles, without storage space, accessed by a six-inch step. There is no handwashing or washing up facility and no hot water supply present in the church.

The church hall is an 8-minute walk away from the church, across a very busy crossroads. Parts of the pavement enroute to the church hall are narrow and uneven.

Section 1.2 Church Building Overview and Historic England Record

Heritage Category: Listed Building

Grade: II
List Entry Number: 1287518
Date first listed: 18-Jul-1986
Statutory Address: CHURCH OF ST JOHN THE EVANGELIST, NORLEY ROAD

Location

Statutory Address: CHURCH OF ST JOHN THE EVANGELIST, NORLEY ROAD

The building or site itself may lie within the boundary of more than one authority.
District: Cheshire West and Chester (Unitary Authority)
Parish: Cuddington
National Grid Reference: SJ 60579 71144

Details

CUDDINGTON C.P. NORLEY ROAD SJ 67 SW (South Side) Sandiway 4/28 Church of St John the Evangelist - GV II

Church: dated 1902 designed and built by, and partly at the expense of, John Douglas. Tower completed some years later as his memorial. Irregularly coursed tooled red sandstone with ashlar dressings. Lakeland slate roof. 4-bay nave and taller 3-bay chancel, south porch, vestry and 3-stage west tower. Perpendicular style nave. Decorated elements elsewhere. Gabled porch has a carved inscription over a 4-centred arched door.

Nave has pairs of 2-light rectangular windows with panel tracery and a continuous label mould. Between nave and chancel is a triangular headed buttresses with an angel on the face. Chancel has a corbel table and a mixture of simple 2 and 3-light 4-centred arched windows. Figure of St John in niche. 5-light east window with flamboyant but uncusped tracery. The north side has a slightly different pattern of windows.

Tower has diagonal buttresses and a plain 3-light west window above which are 5 strip pilasters that rise to the top of the tower, where they form cusped heads, the central pair being over louvred bell openings. Embattled parapet. On the south side of the tower is a door to a projecting stair turret which ends at the 2nd stage.

Interior: The nave has a moulded cornice and the pairs of nave windows are divided by a freestanding octagonal pier. Arch-braced collar trusses are carried on heavy corbels. Tower arch over an octagonal font and a Della Robbia (Birkenhead) panel in the wall. Chancel has an arcade of Perpendicular openings to the organ console which carries a carved and figured organ case. Quaint 2-seat sedilia and aumbry. Panelled roof with foliage bosses over the sanctuary.

Listing NGR: SJ6057971144

Legacy

The contents of this record have been generated from a legacy data system.

Legacy System number: 402168
Legacy System: LBS

Legal

This building is listed under the Planning (Listed Buildings and Conservation Areas) Act 1990 as amended for its special architectural or historic interest.

Section 1.3 Lychgate Overview and Historic England Record

Heritage Category: Listed Building

Grade: II
List Entry Number: 1227730
Date first listed: 18-Jul-1986
Statutory Address: LYCHGATE TO ST JOHN EVANGELIST'S CHURCH, NORLEY ROAD

Location

Statutory Address: LYCHGATE TO ST JOHN EVANGELIST'S CHURCH, NORLEY ROAD
The building or site itself may lie within the boundary of more than one authority.

District: Cheshire West and Chester (Unitary Authority)
Parish: Cuddington
National Grid Reference: SJ6057371166

Details

SJ 67 SW 4/27
CUDDINGTON C.P. NORLEY ROAD (South Side) Sandiway Lychgate to St. John Evangelist's Church
II
GV

Lychgate: c1902 by John Douglas. Irregularly coursed red sandstone with ashlar dressings. York stone roof. Gabled gateway with broad 2-centred arched entrance under a label mould with a hollow chamfered rib on a simple corbel. Similar opening with squat buttresses to the rear. 4 ribs carry the roof. Small lights to either side are deepened inside to form seats. It contains a pair of wooden gates framed into 2 rectangular panels of diamond sectioned, pointed bars.

Included for group value.

Listing NGR: SJ 60573 71166

Legacy

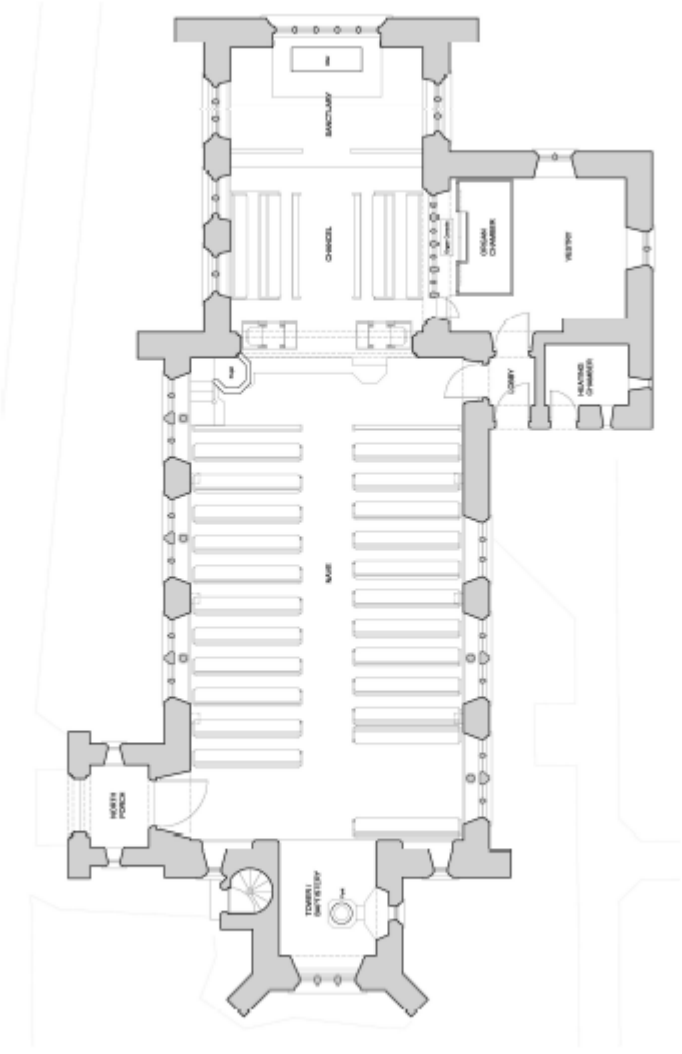
The contents of this record have been generated from a legacy data system.

Legacy System number: 402167
Legacy System: LBS

Legal

This building is listed under the Planning (Listed Buildings and Conservation Areas) Act 1990 as amended for its special architectural or historic interest.

Section 1.4 Existing Church Building Floor Plan View



ST JOHN THE EVANGELIST, SANDIWAY: FLOOR PLAN AND PEW LAYOUT (N.T.S.)

Section 2 Architectural and Historical Significance

St John's is one of 40 churches designed by John Douglas, 33 of which are still in use as churches. It is of moderate significance as an example of his work.

In 1986 the church gained a Grade II listed building status. The listing identifies the following significant features overleaf:

External:

- Irregularly coursed sandstone construction with Lakeland slate roof
- Perpendicular style 4 bay nave and taller 3 bay chancel
- Gabled porch with carved inscription over 4-centred arched door
- Buttresses with angel carving between nave and chancel

Internal:

- In nave, moulded cornice and freestanding octagonal piers between windows
- Arch-braced collar trusses carried on heavy corbels
- Tower arch over octagonal font, with Della Robbia panel on wall
- In chancel, arcade of perpendicular openings to organ console, with carved and figured organ case;2-seat Sedilia and aumbry; panelled roof with foliage bosses over sanctuary

Section 3 Assessment of Impact of Proposals on Significance

The proposed Works will have no impact on the external visual appearance of the Tower and the Church. They are required to maintain the watertightness and structural integrity of the Tower.

Section 4 Sources

Cooper, T. , and Brown, S Ed's. (2011) Pews, benches and chairs: Church Seating in English Parish

Churches from the Fourteenth Century to the Present. The Ecclesiastical Society.

Historic England. Church of St John the Evangelist, List Entry Summary - 1287518.

Hubbard, E. (2014: revised ed.) The Work of John Douglas. Jeremy Mills Publishing.

Pevsner, N. (1971) Cheshire (Pevsner Architectural Guides: Buildings of England). Yale University Press.

Section 5 Architects consulted

The proposed Works have been designed and construction will be overseen by :-

Duncan Sanderson
Kepczyk Pearce Sanderson
Architects, Surveyors & Historic Building Consultants
75 Wilmslow Road
Handforth
Wilmslow
Cheshire
SK9 3EN

Tower Photographs

View from the South East (from 2020 Quinquennial Inspection)

View from the North (courtesy of WML Consulting)

Indicative Roof Damage (from 2020 Quinquennial Inspection. See also WML Consulting Report)

Project:	St John The Evangelist, Sandiway – Tower Roof Slab	
WML reference number:	9899-WML-XX-ZZ-RP-S0001	16th July 2021
Instruction confirmed by:	S Denton – Warden at St John The Evangelist, Sandiway	
Date of survey:	22nd June 2021	
Survey carried out by:	G N Booth BEng (Hons), CEng, MIStructE, MICE	

Address of Property:	St John The Evangelist, Sandiway CW8 2JU
Survey Brief:	Site inspection to assess the deteriorated concrete roof slab to the tower. Report on observations and provide associated structural repair recommendations.
Brief description of building:	Stone tower constructed c1905 – Listed Grade II – architect John Douglas. Roof slab is early use of in-situ reinforced concrete construction.

Survey notes

Observations – see attached sketch plans 9899-SK01, 02, 03 and photographs below

1) The stone masonry of the tower appears to be in fair condition and alignment with no obvious signs of structural movement.

2) Tower walls are nominally 640mm thick sandstone masonry at belfry level and reduce to 240mm thick for the parapet walls. The ledge created by the reduction in wall thickness is used as bearing for the reinforced concrete roof slab.

3) The roof slab is intentionally cast with a slope down to the south east corner where the rainwater outlet is located.

4) There is a roof covering of asphalt directly on the concrete slab. The asphalt appears to be around 25mm thickness and is dressed up the walls to form an upstand / flashing.

5) The concrete slab appears to be around 140mm thickness.

   a) There is a 625 x 625mm access opening at the south west corner.

   b) At the north west corner there is a timber column projecting through the roof slab that provides the base fixing for the flagpole.

   c) There are two integral downstand reinforced concrete roof beams that run west / east (nominal 180mm wide x 150mm downstand).

   d) Steel reinforcement bars for the roof slab run north / south

6) A tactile inspection of the slab soffit was made from below where readily accessible.

   a) Approximately 40% of the soffit area has previous patch repairs.

   b) The soffit was sounded by light tapping with a steel drill bit. A high proportion of the original concrete areas and the previous patch repairs were hollow sounding.

   c) Two very loose patches of spalling concrete were removed by hand. The concrete surface showed limestone aggregate in an open textured sand: cement matrix.

   d) Where exposed the steel reinforcement was estimated to be 12mm square bar but corroded to approximately 10mm diameter equivalent. Cover from the soffit appeared to be around 25mm.

   e) Spot checking of the reinforcement location and cover by a cover meter indicated slab bottom bars at around 170mm centres with cover in the range 15 to 25mm.

7) Similar inspection was carried out to the downstand beams:-

   a) Approximately 40% of the soffit / side area has previous patch repairs.

   b) The beams were sounded by light tapping with a steel drill bit. A high proportion of the original concrete areas and the previous patch repairs were hollow sounding.

   c) One very loose old repair patch to the side face was removed by hand and showed one bar displaced up from the bottom of the beam (construction error).

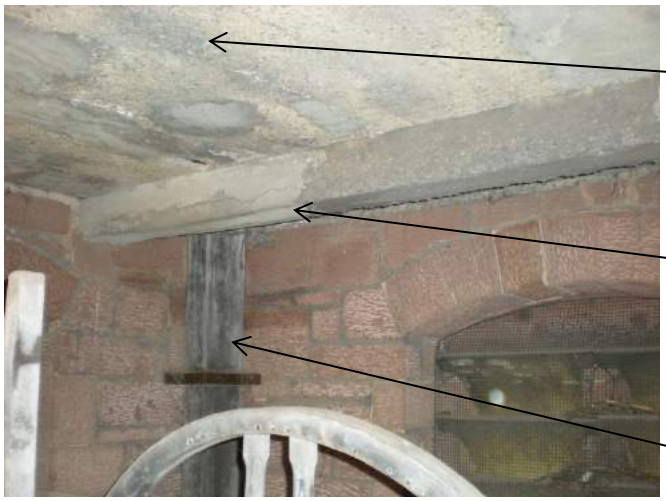
   d) Spot checking of the reinforcement location and cover by a cover meter indicated two beam bottom bars at around 25mm bottom and side cover. The one displaced bar noted in c) had around 90mm bottom cover at mid span of the beam.

8) At the gutter outlet in the south east corner there is a piece of timber built in that appears to be rotted.

9) Two concrete spall areas were tested with phenolphthalein indication solution but showed no colour change reaction i.e. surfaces carbonated.

Photograph 1
Tower Roof SE Corner – Low / Rainwater Outlet

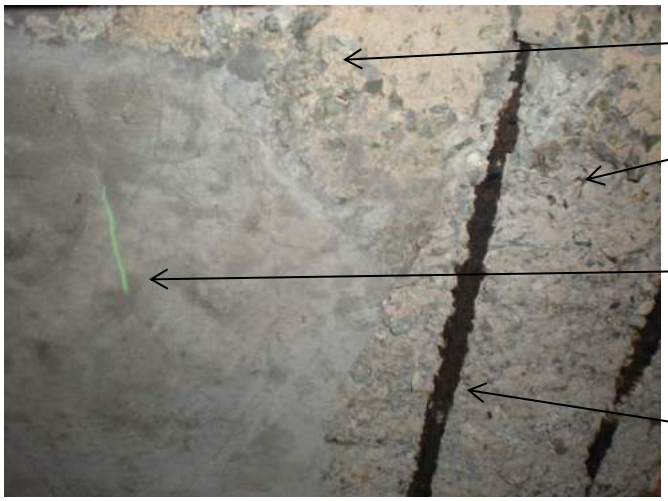
Photograph 2
Soffit SW Corner – Access Hatch



Photograph 3
Soffit NW Corner

Photograph 4
Soffit NE Corner

Photograph 5
Soffit SE Corner



Photograph 6
Typical Slab Soffit

Photograph 7
Slab Soffit at West Edge

Photograph 8
North Beam – Typical Soffit

Photograph 9
South Beam – Side Elevation

Discussion and Recommendations

Refer to sketches 9899-SK01

10) There does not appear to be any significant overall movement or deformation of the roof slab and beams despite to poor condition of the soffits.

11) Deterioration of the soffits is likely to result from the porosity and carbonation of the cover concrete that has allowed atmospheric moisture penetration to reach the embedded reinforcement. Then corrosion and section loss of the reinforcement with high expansion forces generated by the corrosion product which cracks and spalls the concrete. This is evident throughout such that all reinforcement is likely to have been affected.

12) Carbonation checks on the removed loose concrete surfaces indicated that the cement matrix had carbonated to at least the level of the reinforcement. Once carbonated the cement matrix offers no alkalinity protection against corrosion.

13) Approximate design checks have been carried out with estimated material properties assigned to the concrete and steel reinforcement. Steel section loss is assumed to have 10mm diameter equivalent remaining and using mild steel permissible tensile stresses from 1905.

    a) The slab spanning one way between beams has adequate capacity remaining.

    b) The beams are assessed as effective T beams but they do not have adequate capacity with the reduced steel section. It appears that the design capacity would have been about right with the two original 12mm square bars. Also note that the upward deformed bar in the south beam is much less effective and reduces the strength of that beam further (not assessed separately).

    c) If the beams are ignored and the slab is checked as a one way span for the full width then the section is approximately 25% over stressed with full live load (or about at limit with dead load only)

d) The combination of a full spanning slab with some benefit from the two beams in the opposite direction can be interpreted as just about working and would explain why the overall slab and beam system appears not to have significantly deformed.

14) It would be possible to use concrete patch repair methods to treat and reinstate slab and beam soffits (typically a specialist materials system by SIKA is recommended by WML). The whole area would require treatment. Each bar would need to be exposed for cleaning all round so that work must progress slowly (can't do all the bars at once) and temporary propping would need to be in place. Then apply corrosion inhibitor / primer. Then apply patch repair mortar. Additional small diameter reinforcement should be added, particularly to the beams.

a) Sacrificial anodes could be attached to reinforcement for additional protection.

b) It would probably work to leave the initial mortar coat rough – then apply a regulation / fairing coat to all soffits and beam profiles at once for a uniform finish.

c) Corrosion inhibitor could be applied for additional protection.

d) Anti - carbonation coating is recommended as a final coating for enhanced protection.

e) Such works are quite involved and time consuming. The advice and input of a specialist repair system manufacturer (SIKA) is recommended and preferably using one of their approved contractors with inspection by SIKA to give a guarantee.

15) An option is to remove the current concrete roof and cast a new one. A flat soffit slab with two way reinforcement at nominal 150mm thick should be suitable. The restrictions of location for removal and reinstatement are noted.

16) Another option is to remove the current concrete roof and replace with a timber joist and plywood deck alternative. Perhaps the acoustics for the bell would need to be checked. The stabilising action of the ply deck should be sufficient for the tower walls.

17) The options could be costed by a QS or similar. In general it is thought that the timber roof option would be cheapest and quickest.

18) The approximate design assessment discussed in 13) shows that the slab and beam system is getting close to its stability limit with the ongoing corrosion and section loss of the reinforcement and requires more than ongoing concrete patch repairs.

General Notes

It is intended to address the terms of the specific Brief. This Report deals with this matter and it should not be considered as a comprehensive appraisal of the structure and fabric of the property as a whole.

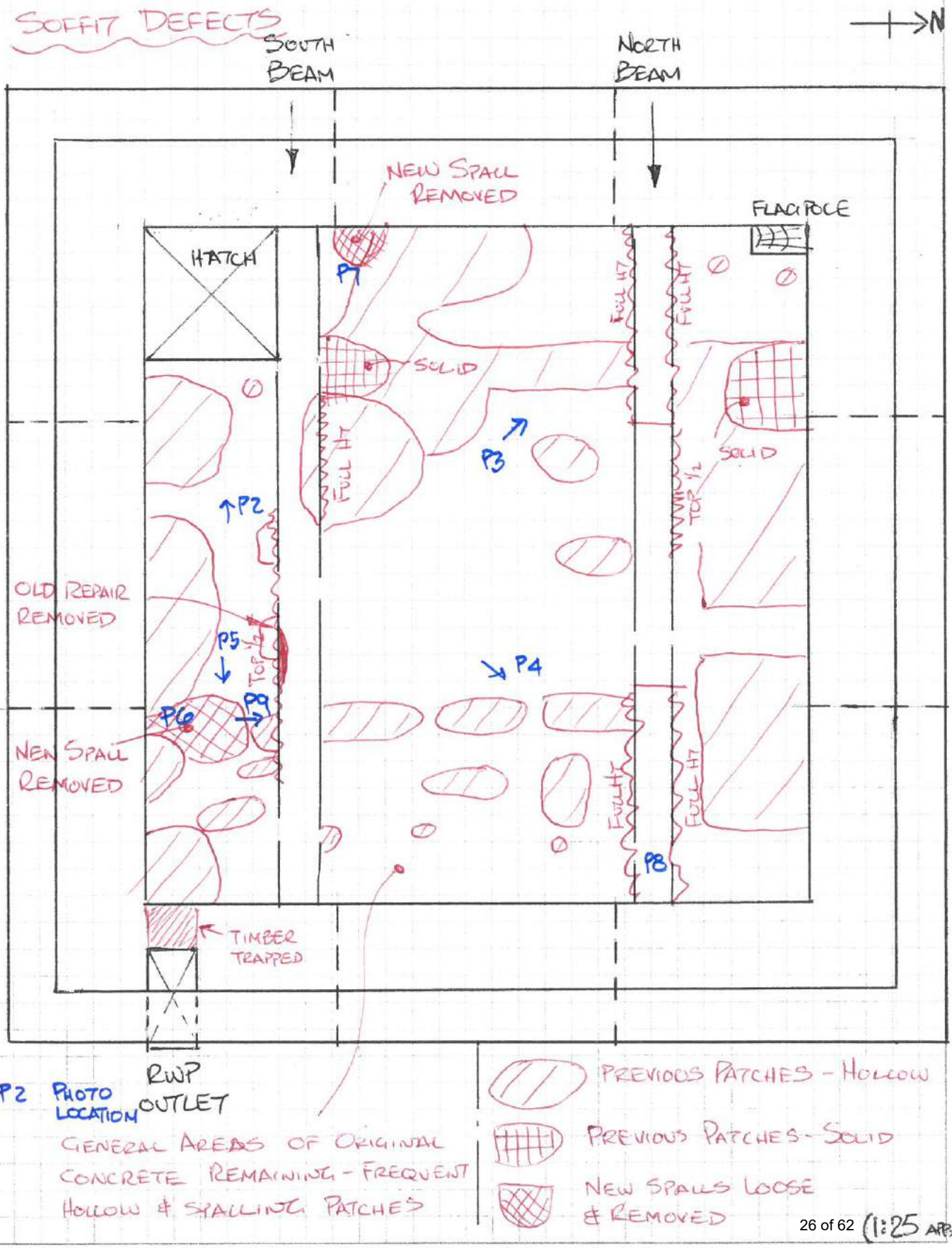
No consideration has been given to the condition of the general fabric of the property, such as window frames, external joinery, internal finishes, rainwater, drainage and soil goods, underground drainage, outbuildings and the like.

No trial hole investigation, exploratory investigation or measured survey was carried out, and the horizontal and vertical alignment was not assessed using optical instruments.

Carpets or floor coverings were not lifted and no removal of furniture, fixtures and fittings was undertaken.
Consideration has not been given to damp-proofing aspects or building services.
Only items relevant to the Brief were examined. It is possible that defects may exist in other areas of the property which were not examined or which were concealed by finishes.
No analysis has been undertaken to verify the structural adequacy of the original construction.
No consideration has been given to potential contamination or asbestos aspects.
This Report has been prepared for the private and confidential use of the Client and their professional advisers, in accordance with the agreed Brief. The Report must not be reproduced in whole or in part, or relied upon by any other party for any purpose, without the express written authority of WML Consulting. In particular, it should not be considered as an appraisal for purchase or investment purposes.

Project Title:	St. John The Evangelist, Sandiway	Project No: 9899	Page No: SK01	Rev:
Calculations / Notes / Meeting Minutes		Made by: GNB	Checked by:	Date: Jul '21 / Scanned:

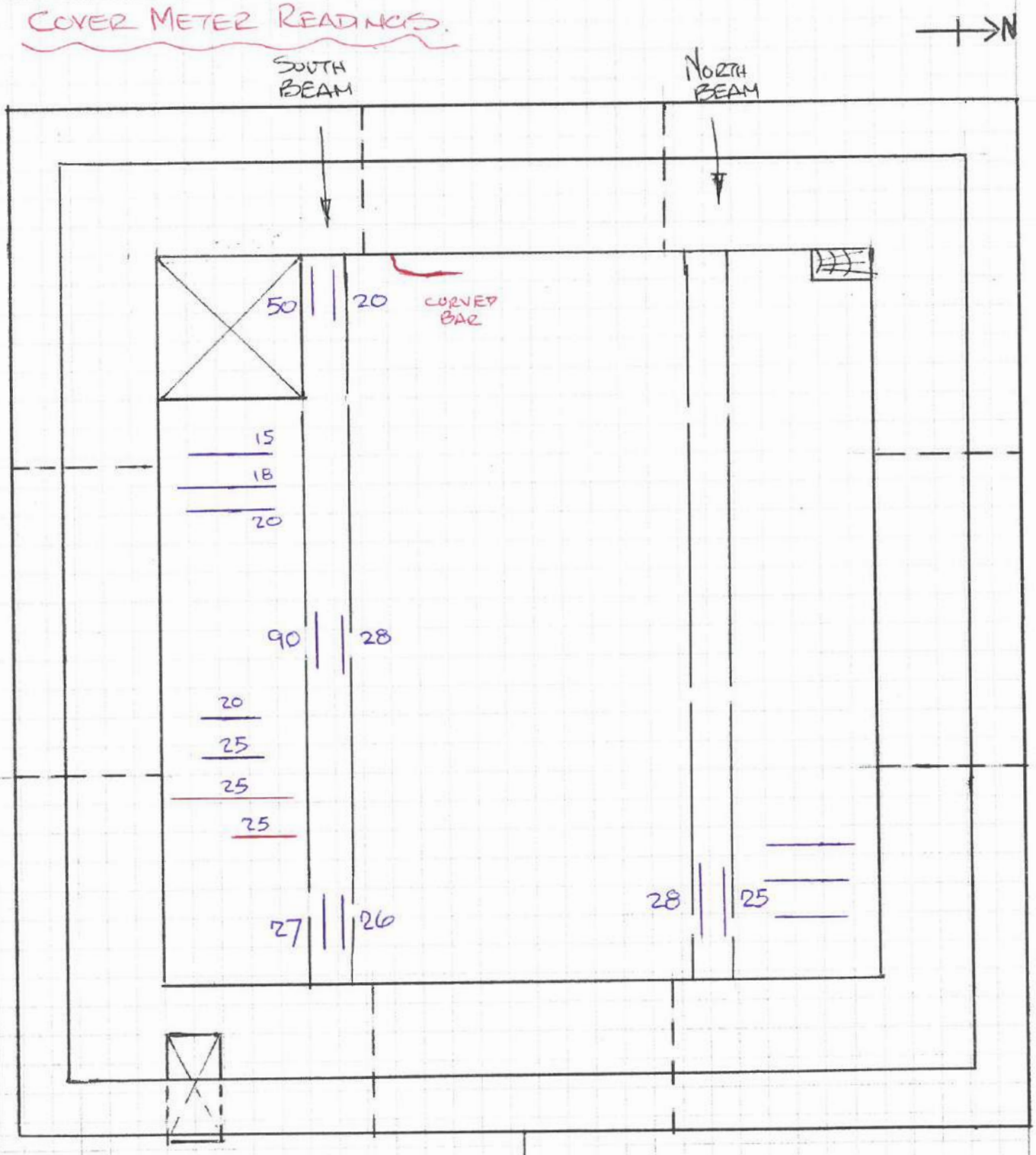
SOFFIT DEFECTS



 (1:25 APPX)

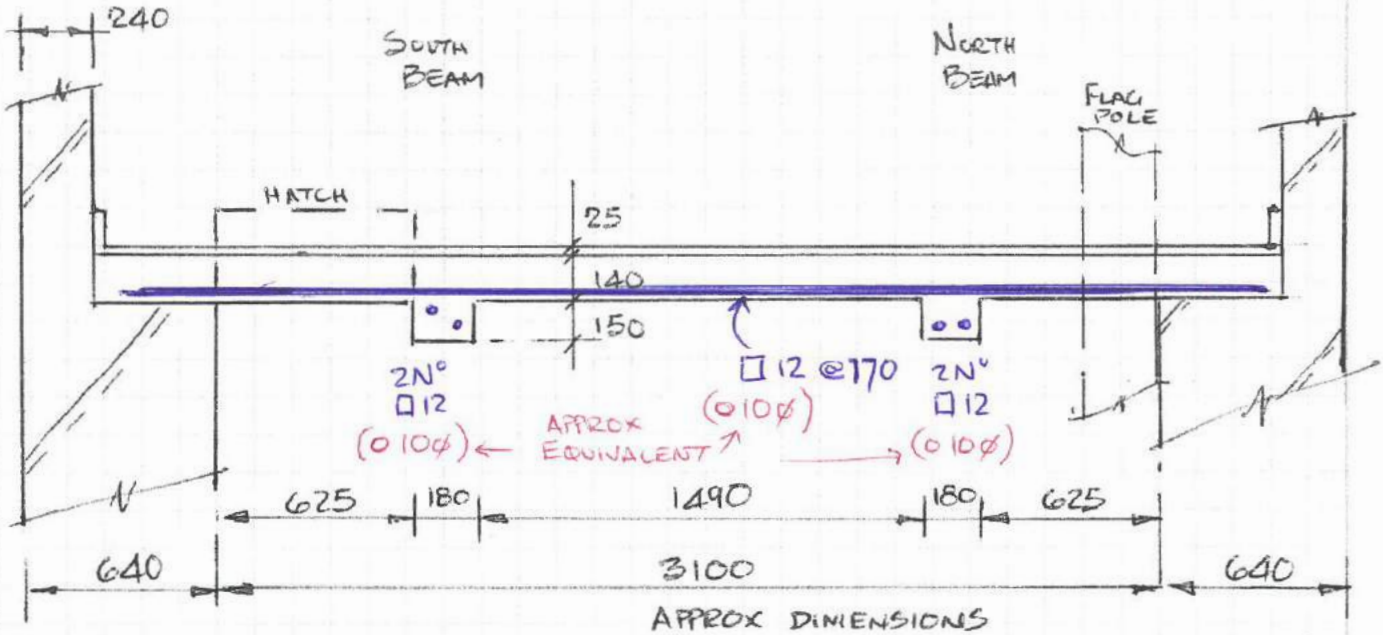
Project Title:	St. John The Evangelist, Sandiway	Project No: 9899	Page No: SK02	Rev:
Calculations / Notes / Meeting Minutes		Made by: GNB	Checked by:	Date: Jul '21 / Scanned:

Cover Meter Readings.

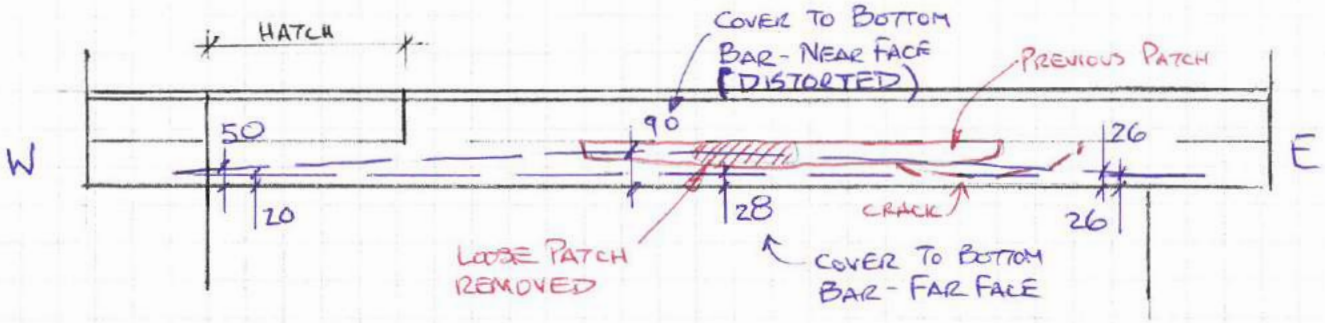


(1:25 Approx)

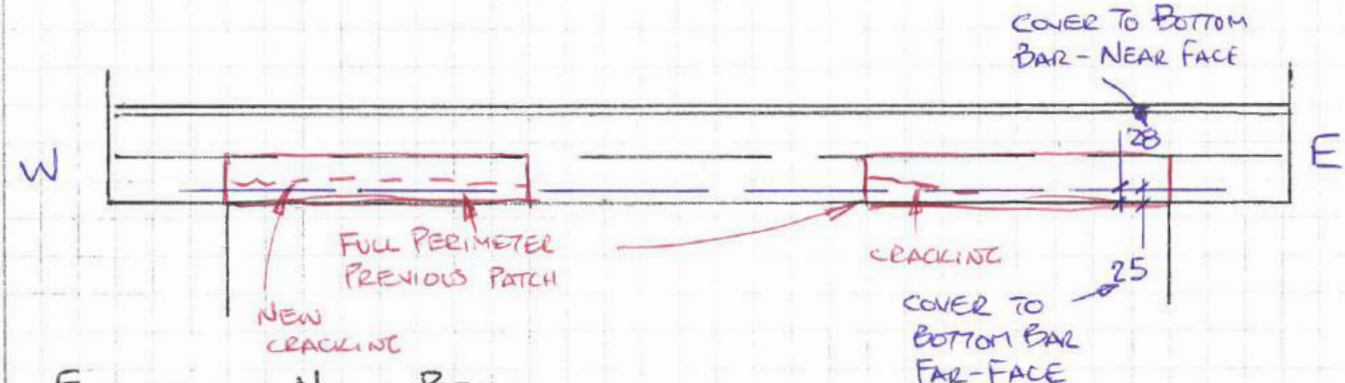
Project Title:	ST. JOHN THE EVANGELIST, SANDIWAY	Project No: 9899	Page No: SK03	Rev:
Calculations	Notes / Meeting Minutes	Made by: CNB	Checked by:	Date: Jul '21 / Scanned:



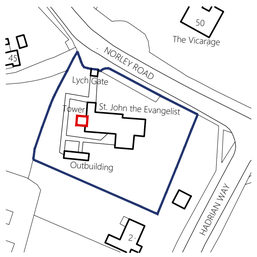
TYPICAL SECTION (1:25)



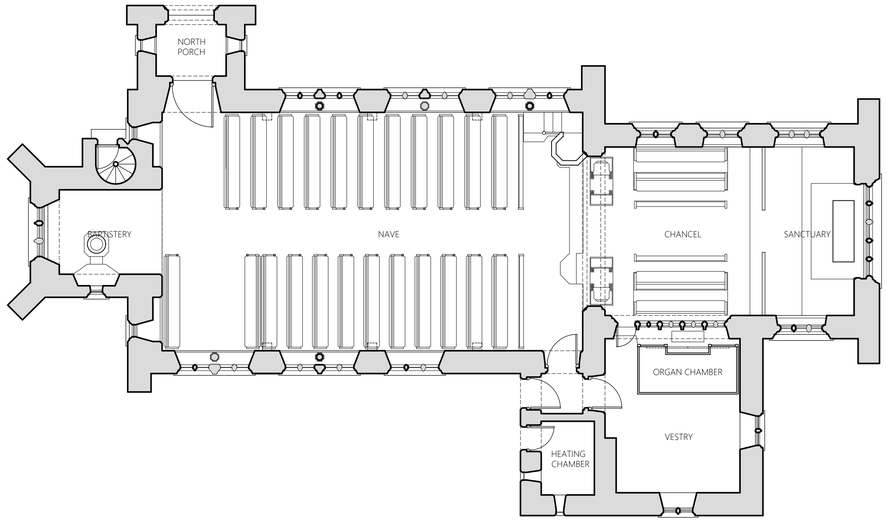
ELEVATION - SOUTH BEAM



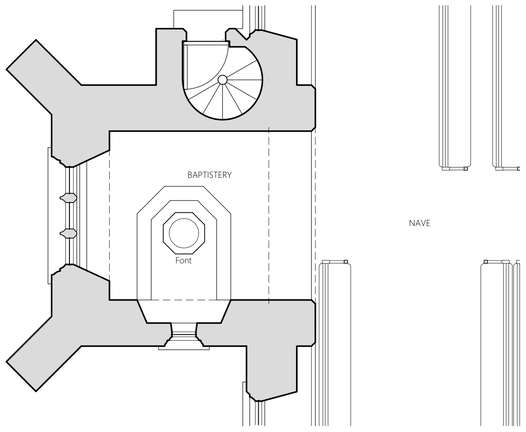
ELEVATION - NORTH BEAM



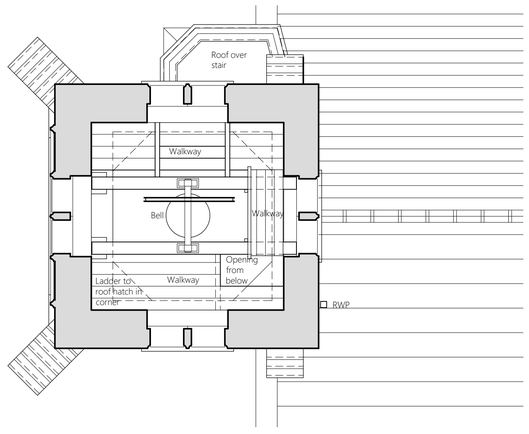
LOCATION PLAN (1:1250)



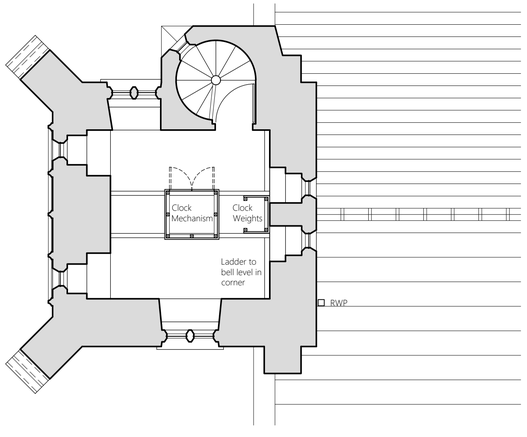
ST. JOHN THE EVANGELIST, SANDIWAY: FLOOR PLAN AND PEW LAYOUT (1:100)



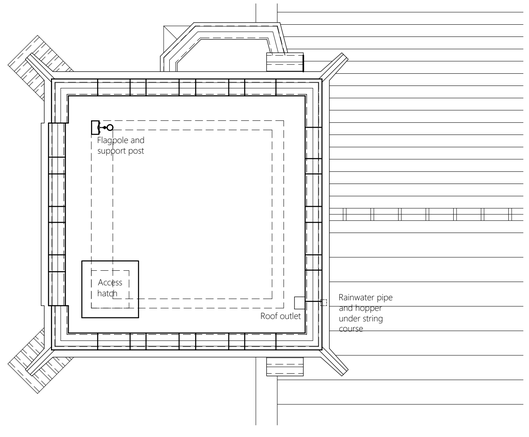
PART GROUND FLOOR PLAN AT WEST END OF CHURCH (1:50)



PLAN AT UPPER LEVEL OF CLOCK / BELL CHAMBER (1:50)



PLAN AT LOWER LEVEL OF CLOCK / BELL CHAMBER (1:50)



ROOF PLAN (1:50)

Wall thickness reduces at parapet level forming 'shelf on which the reinforced concrete slab sits.

Span of roof slab broken by 2 no. reinforced concrete downstand beams integral with the roof slab, and built into the east and west parapet walls.

Existing reinforced concrete roof slab finished with asphalt and overlaid with mineral felt. Slab laid / screeded to fall to outlet towards south end of east parapet, taken through parapet wall in lead spigot discharging without overflow into cast iron hopper and square section rainwater pipe.

Asphalt finishes turned up parapet walls at perimeter and dressed into bed joint in masonry without cover flashings.

GENERAL SCOPE OF PROPOSED WORKS:
Read in conjunction with drawing No. 2053A/02 and 03 for full details.

WORK TO FLAGPOLE / SUPPORT:
Carefully take down existing flagpole and supporting brackets and store for refurbishment / reinstatement. Assess condition of supporting timber post and refurbish / renew as necessary including decoration. Allow for renewal including replacement strap brackets and fixings to masonry in Bell Chamber. Clean / decorate flagpole and refix to refurbished / new post using existing brackets with new fixings to match extg.

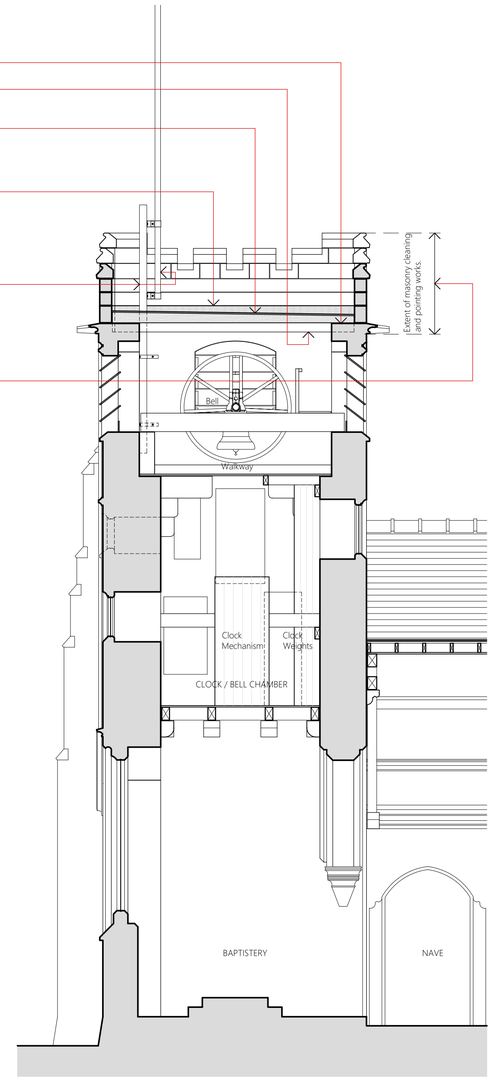
MASONRY / POINTING / CLEANING:
Rake out bed joints and perpends in the masonry to inner and outer faces of parapet walls all round, down to the bed joint beneath the projecting string course at the base of the parapet (where indicated) to a minimum depth of 25mm or twice the height of the joint. Re-point in 1:3 lime (NHL 3.5) / sand or 'hot lime'. Masonry in the same area to be 'DOFF' cleaned, and any more heavily soiled areas of organic growth to be treated with biocide if necessary. Area around the rainwater pipe towards the south end of the east wall to be cleaned down to roof level locally to remove heavy staining.

TOWER ROOF FINISHES: DEMOLITION
Strip off existing mineral felt and asphalt finishes from roof down to existing concrete roof slab, and cart away. Break out existing reinforced concrete roof slab and downstand beams and cart away, allowing for scaffold deck / sheeted protection of bell and clock mechanism in the combined Bell / Clock Chamber below. Make good any pockets in the masonry where ends of downstand beams removed in red sandstone to match existing, bedded and pointed in 1:3 lime (NHL 3.5) / sand mortar / hot lime to agreed mix.

TOWER ROOF FINISHES: REINSTATEMENT
Form new treated timber roof structure as detailed 'Plan of Proposed Roof Structure', drawing 2053A/02, and lay roofing deck of 100x25mm square edged untreated s/w boards with 3mm 'penny' gaps in 2 no. bays to levels and falls as indicated on 'Roof Plan as Proposed' drawing 2053A/02, and finish in Code 7 lead roofing. Lead to be laid with joints in the fall formed over 45mm wood cored rolls @ nominal 675mm c/cs, with 40mm splashlap to overcloak. Lead at perimeter of the roof to be turned up parapet wall to lap min. 75mm with Code 5 lead cover flashings secured into bed joints / chases in the masonry as described elsewhere. Apply a thin coat of chalk slurry to the underside of the lead and allow to dry before laying.

TOWER PARAPET GUTTER:
Form new gutter channel over East 'shelf' of Tower wall by reducing masonry at wall head as necessary and screed flush to build up gutter base to levels and falls as indicated 'Roof Plan as Proposed' and Section B - B Through Parapet Gutter as Proposed', drawing 2053A/02. Supply and fix new Code 7 lead parapet gutter linings with 65mm drips without splashlaps between bays, head fixed with stainless steel plugs and screws into rebates cast in the gutter linings at the top of the steps and laid on Class A Building Paper.

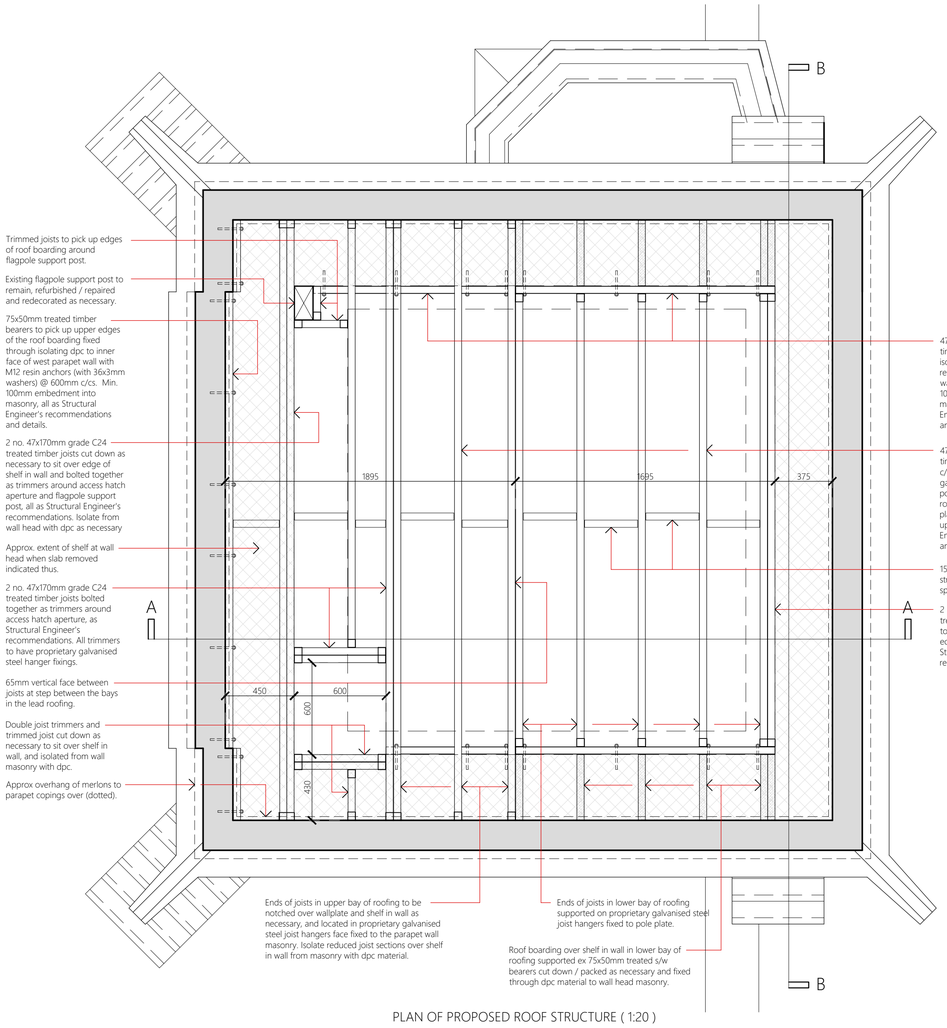
RAINWATER OUTLET TO PARAPET GUTTER:
Cut out existing wall head masonry to form catchpit outlet with 250x175mm aperture through wall beneath string course at the base of the parapet wall. Allow for bridging opening with 6mm stainless steel flat if necessary. Screed sides / base of catchpit smooth to receive Code 7 lead catchpit lining extending through aperture as chute with weir overflow and 100mm square lead welded spigot outlet. Refurbish and redecorate existing ornamental cast iron hopper and refix immediately beneath chute, and fit new 100mm square section cast iron rainwater pipe and side chute to spill discharge over south Nave roof slope (as existing).



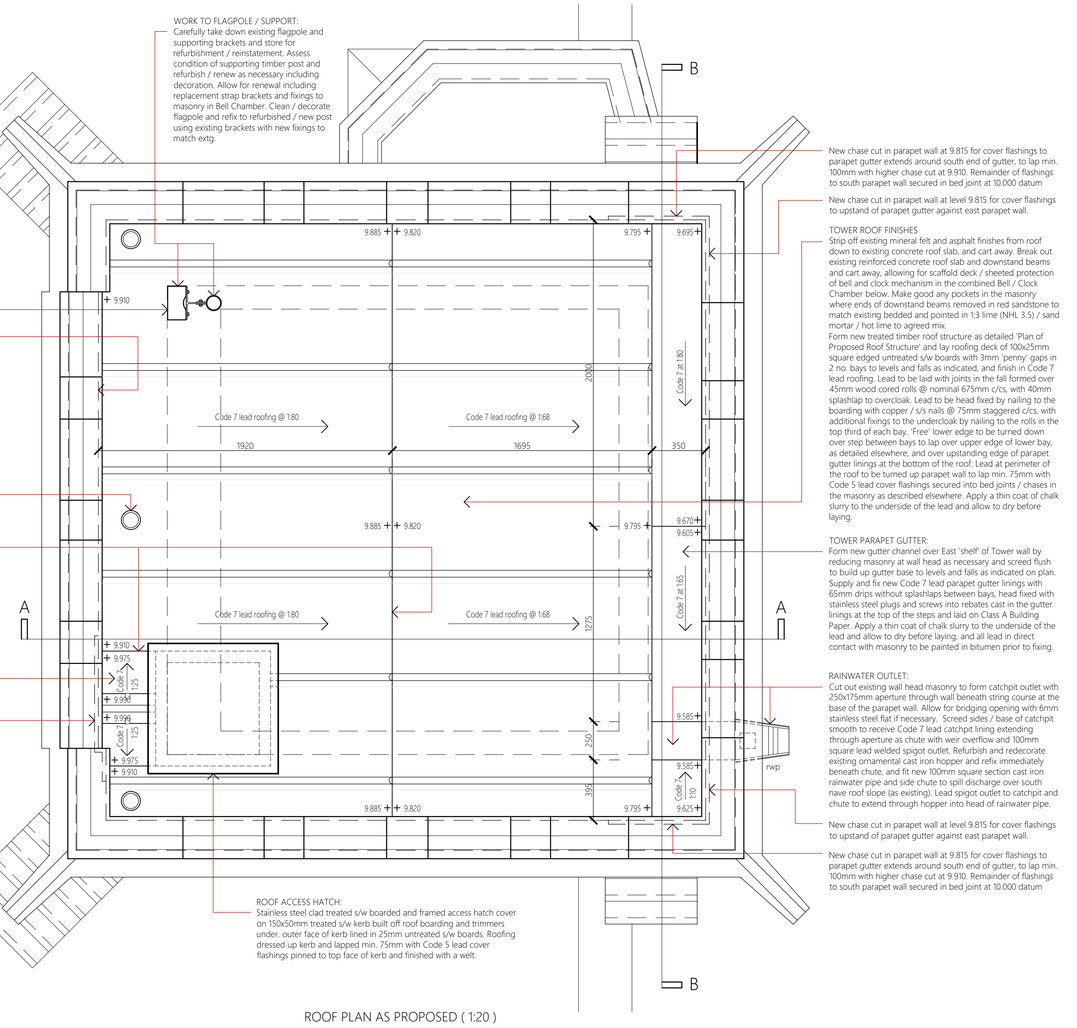
CROSS SECTION THROUGH TOWER LOOKING NORTH AS EXISTING (1:50)

Contract	Proposed Works to Tower Roof	Location Plan, Plans, and Cross Section through Tower as Existing			
Client	The PCC of St. John the Evangelist, Sandiway	Contract No.	2053A	Drawn	FDS
Building / Structure	St John the Evangelist, Sandiway	Date	May 2022	Revision	-
KEPCZYK PEARCE SANDERSON ARCHITECTS, SURVEYORS & HISTORIC BUILDING CONSULTANTS		Address: 75 Wilmslow Road, Handforth, Cheshire SK9 3EN Tel: 01625 400103			

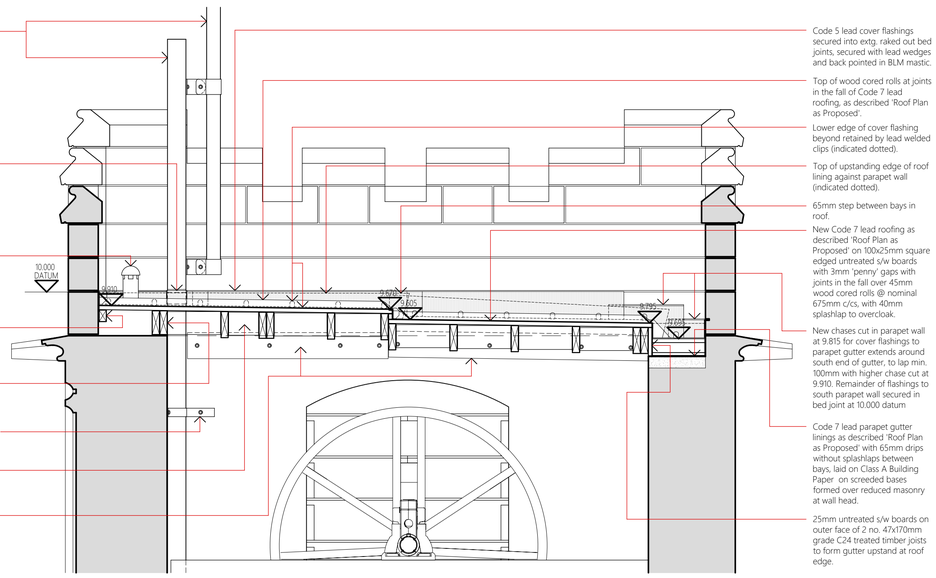
Drawing No. 01
Scale As noted @ A1



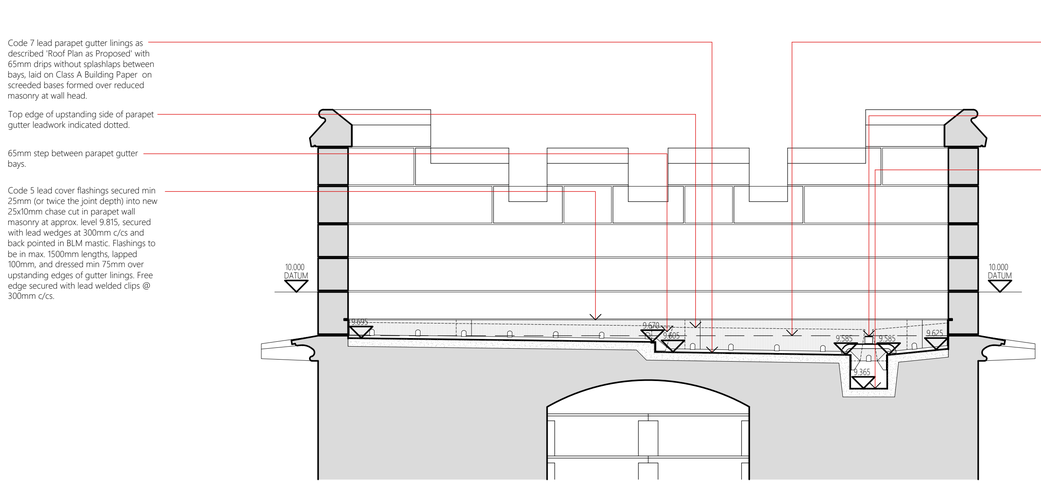
PLAN OF PROPOSED ROOF STRUCTURE (1:20)



ROOF PLAN AS PROPOSED (1:20)

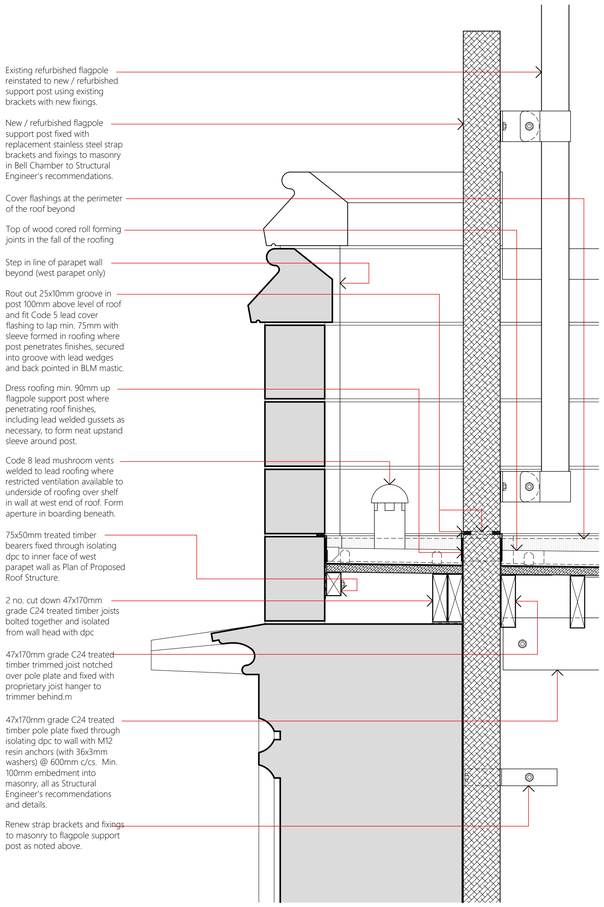


SECTION A - A THROUGH ROOF AS PROPOSED (1:20)

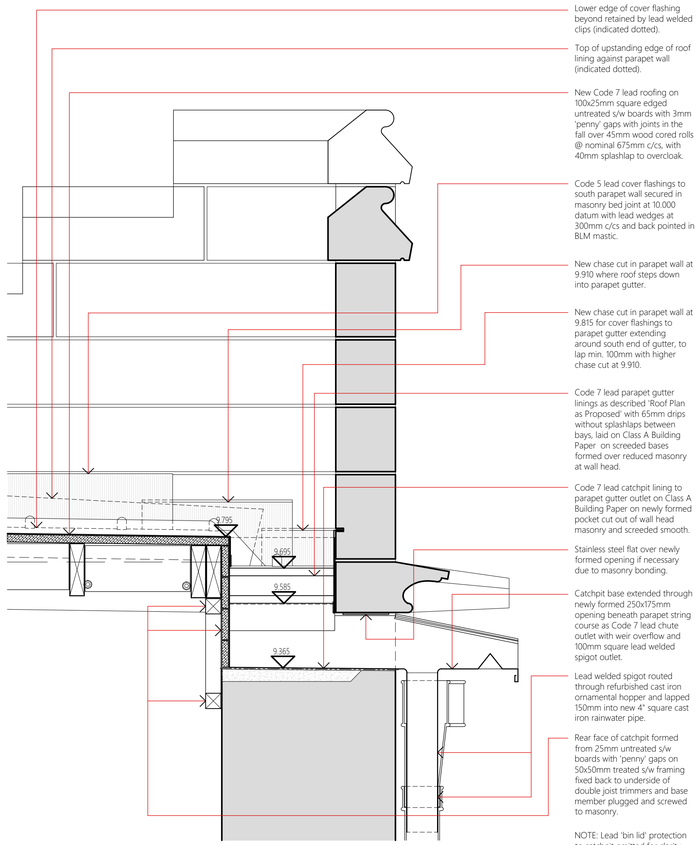


SECTION B - B THROUGH PARAPET GUTTER AS PROPOSED (1:20)

Contract	Proposed Works to Tower Roof	Roof Plans and Sections as Proposed			
Client	The PCC of St. John the Evangelist, Sandiway	Contract No.	2053A	Drawn	FDS
Building / Structure	St John the Evangelist, Sandiway	Date	May 2022	Revision	-
KEPCZYK PEARCE SANDERSON ARCHITECTS, SURVEYORS & HISTORIC BUILDING CONSULTANTS		Drawing No.	02	Scale	As noted @ A1
		Address:	75 Wilmslow Road, Handforth, Cheshire SK9 3EN		
		Tel:	01625 400103		

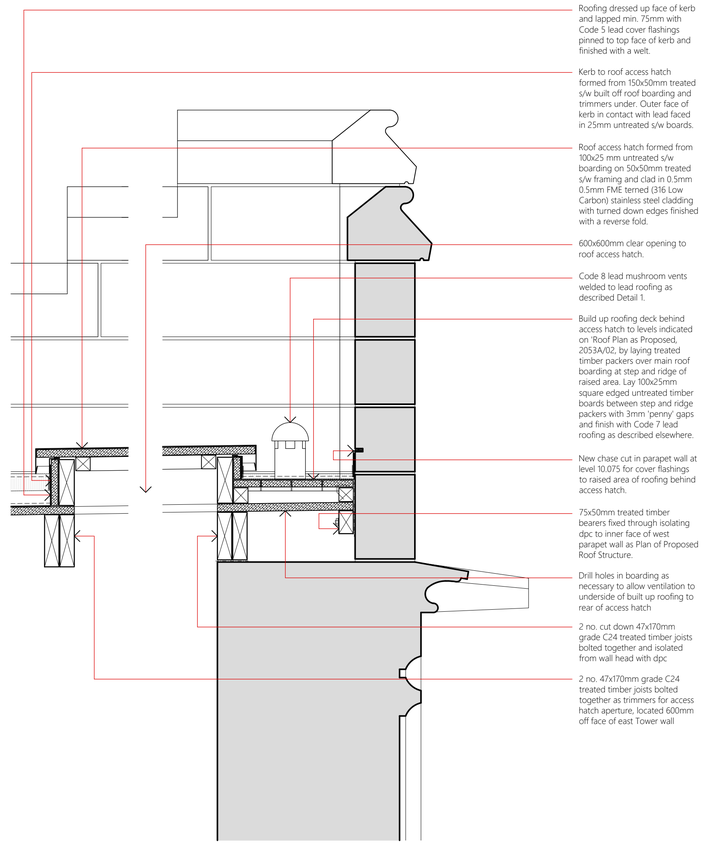


DETAIL 1 (1:10)

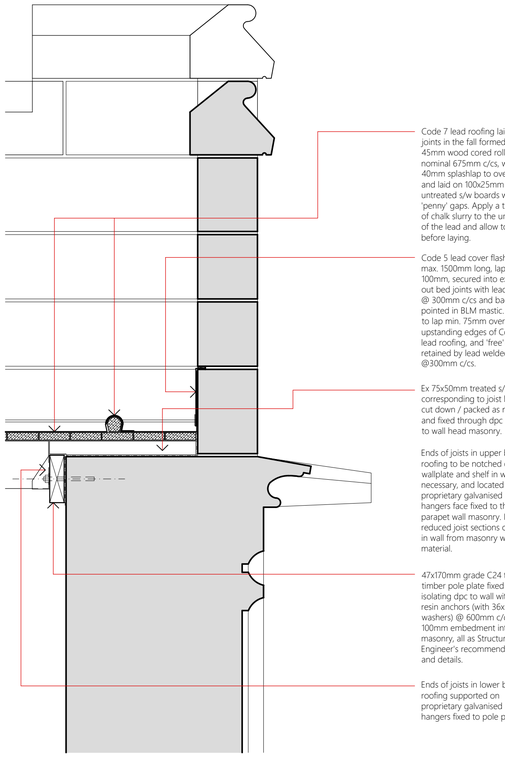


NOTE: Lead 'bin lid' protection to catchpit omitted for clarity.

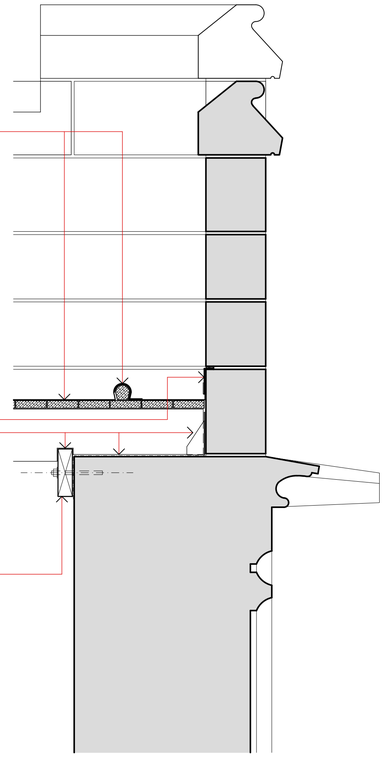
DETAIL 2 (1:10)



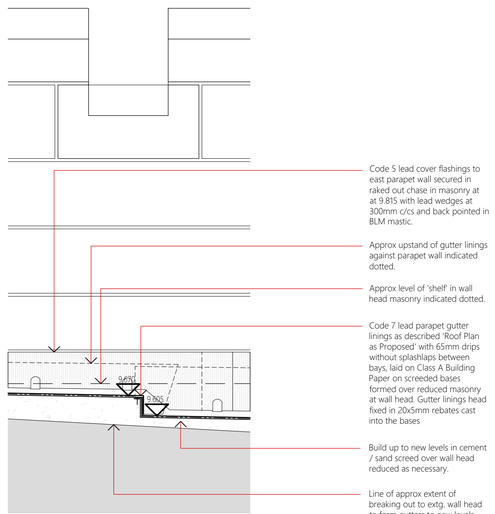
DETAIL 3 (1:10)



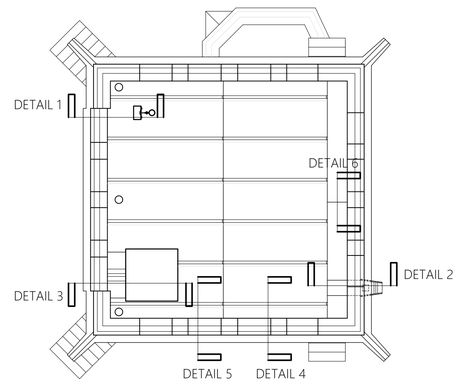
DETAIL 4 (1:10)



DETAIL 5 (1:10)



DETAIL 6: (1:10)



ROOF PLAN LOCATING DETAILS (1:50)

Contract	Proposed Works to Tower Roof	Roof Details as Proposed			
Client	The PCC of St. John the Evangelist, Sandiway	Contract No.	2053A	Drawn	FDS
Building / Structure	St John the Evangelist, Sandiway	Date	May 2022	Revision	-
		Drawing No.	03	Scale	As noted @ A1

KEPCZYK PEARCE SANDERSON
ARCHITECTS, SURVEYORS & HISTORIC BUILDING CONSULTANTS
Address: 75 Wilmslow Road, Handforth, Cheshire SK9 3EN
Tel: 01625 400103

St. John the Evangelist, Sandiway
Works to Tower Roof
Specification
July 2021

KEPCZYK PEARCE SANDERSON
ARCHITECTS, SURVEYORS & HISTORIC BUILDING CONSULTANTS

Table of Contents

Revisions:

A35 SCAFFOLDING

A35 SPECIFIC LIMITATIONS ON METHOD/SEQUENCE/TIMING

140 ACCESS TO THE SITE:

By agreement with the client, the Parochial Church Council of St. John the Evangelist, Sandiway.

150 USE OF THE SITE:

By agreement with the client, the Parochial Church Council of St. John the Evangelist, Sandiway.

155 SCAFFOLDING:

Ensure that standing scaffolding is erected and dismantled in sufficient time for the works to be carried out in accordance with the contract programme, and to meet any restrictions in terms of usage of the site by the client. The security of the building is paramount at all times.

This specification is to be read in conjunction with the contract Preliminaries, Kepczyk Pearce Sanderson drawings 2053A/01 which shows the contractor's suggested working area and site compound, and the Pre Tender Health and Safety Plan prepared by Donn Management.

The contractor may propose an alternative arrangement for the consideration and approval of the Employer and Design Team.

180 SCAFFOLDING:

The contractor is to submit a brief method statement and outline drawing with his tender which describes the nature and location of the proposed scaffolding, having taken careful consideration of the materials and construction of the church:

- Scaffolding is to be designed and constructed in accordance with appropriate British Standards and Codes of Practice and Health & Safety Executive guidance.
- Cornices, hood moulds and other projecting architectural features, and parapet walls cannot be used for support.
- The use of resin anchors is to be avoided unless the architect's express permission is given. Any such fixing is to be a stainless steel "socket" type. Any fixing must have pull out tests prior to adoption for this project. The fixing loadings are to be determined by the scaffolding designer. Pull out tests must be undertaken prior to erection to confirm design assumptions and adjustments should then be made to the design where necessary.
- It must be the aim of the team including scaffolding operatives to keep physical fixings into the building to an absolute minimum. All fixings are to be removed upon completion and the building fabric properly and sympathetically repaired to the satisfaction of the architect.
- After his appointment and no later than 14 days before commencement on site the contractor shall present his design for the scaffolding to the Architect for approval. The Architect will seek the advice of a structural Engineer to check the design and to require amendments where he considers the design inadequate in terms of location, safety, and serviceability.
- All surfaces used for support must be capable of safely transmitting the loads placed upon them and must be protected against abrasion, impact, or any other damage. All tubes placed within 25 mm of the face of the building are to be fitted with double plastic caps to prevent damage by abrasion, with single caps to tubes within 300mm.

- The contractor shall examine the suitability of the existing ground and structures and must satisfy himself of their ability to support the loads anticipated. Scaffold bases/foundations should be on firm, level ground. Specific agreement will be required from the Architect and Structural Engineer before any scaffolding can be supported / propped from the Tower Chamber floors, Nave roof, or other elements of the church fabric.
- Where scaffold bearing onto roofs is considered to be the only reasonably practicable option allowance should be made for adequately spreading the load and applying loads to suitable structural members, to be agreed with the Structural Engineer and Architect. Proposals are to be submitted for approval, allowing sufficient notice, and the contractor should assume and allow for the need for reasonable adjustments.
- Should access be required over the Nave roof for erecting and dismantling, the scaffold should be designed to avoid loading the roof. Proposals are to be submitted for approval.
- Adequate protection is to be provided to roofs and roof finishes where access is unavoidable, or in the vicinity of adjacent works. Particular attention should be paid to protection against damage to roofs and the safety of persons below.
- Temporary weatherproof enclosures are required to areas exposed during the works. All rainwater must be directed away from the building using temporary gutters, rainwater pipes. As the existing roof finishes and deck are to be removed a temporary roof should be considered, if not the contractor should submit proposals for keeping the structure weathertight throughout the duration of the works.
- The base of the scaffold it is to be secured to a height of 5.0m from the ground level to prevent unauthorised access by steel sheeting, 'Hoardtek', 18mm plywood sheeting, or other agreed material, secured at all edges.
- Ensure that all ladders from ground level to a height of 5 m are removed and locked away at the end of each working day.
- The scaffold should be alarmed, see 'Prevention of Unauthorised Access to the Scaffolding', drawing 2053A/01.
- All scaffolding must also be protected with green debris netting or other approved. The scaffolding is to be designed to take account of the sheeting.
- It will be necessary to use the scaffold for hoisting materials to the required level and as a working platform upon which items can be stored after dismantling and/or prior to reincorporation.
- Agree design loading with contractor or greater if required by contractor.
- Lifting gear should be capable of safely carrying objects up to 500 kg in weight.
- The use of 'ladder' or 'unit' beams is permitted provided they conform to the manufacturer's recommendations and the Structural Engineer approves of their use. Such beams should be adequately braced and restrained.
- Allow for erecting, adapting and dismantling the scaffold as work proceeds to meet the contract programme.
- Proprietary couplers must be used between any wall channels and scaffold units.
- The contractor shall ensure that a competent person inspects all materials to be used for any scaffold prior to erection and inspect the completed scaffolding within seven days of erection and prior to use. Further inspections shall be carried out within seven days of any alteration to the scaffolding and prior to use. Regular inspections are to be carried out whilst the scaffold is in use and all statutory requirements are to be satisfied.
- Working platforms will be required around all elevations of the Church Tower, with sufficient lifts to enable full repointing and masonry cleaning down to the base of the string course around the parapet, and, on the south side of the east face, down to roof level to allow replacement of rainwater goods and cleaning of staining from the masonry.
- Ladder accesses are to be built within the scaffold to the full height.
- The contractor is to ensure safe access and egress to the buildings is maintained, specifically to

the North Porch.

180A NON STANDARD OR COMPLEX SCAFFOLDS

For non-standard or complex scaffolds

NB for the purpose of this clause, non-standard or complex scaffolds are scaffolds that do not conform to any nationally recognised configuration.

1. The scaffold provider shall deliver preliminary drawings to the Architect and Structural Engineer prior to erection starting on site. Drawings issued for this purpose shall not be classed as contract drawings. These drawings shall be marked preliminary for information only ("preliminary drawings"). All such preliminary drawings shall include a plan and elevation of each face of the scaffold with:
   - The loads in each standard clearly shown;
   - All tie positions and the load to be applied at each tie position clearly shown;
   - The number of working lifts and the maximum permissible load on each working lift clearly stated; and
   - Details of the support for the scaffold at its base or, in the case of slung or suspended scaffolds, details of the support at the point from which it is slung or suspended, and details of the proposed tying and restraint method or methods.
2. The scaffold provider shall not assume:
   - that any surface that the scaffold is supported from is capable of taking the loads to be applied by the scaffold; and
   - That any roof or suspended slab is capable of supporting scaffolding or access loading, and
   - That any façade is capable of providing the necessary resistance required for tying the scaffold to the facade.

Where the requirements for the scaffold stated on the drawings cannot be verified by the design team, the scaffold provider shall make all the necessary arrangements to obtain the information necessary to support any assumptions made in the design and amend the design accordingly.

The Architect and Structural Engineer undertake to review these drawings and provide comments within 5 working days of receipt.

The scaffold provider shall provider shall review and incorporate where appropriate the design team's comments and reissue the drawings marked up as working drawing. The design remains the responsibility of the scaffold provider at all times.

3. The scaffold provider is to comply with the requirements of design checking by an independent competent person in accordance with BS5975:2008.

NOTE: A working platform will be required in the Bell Chamber to facilitate removal of the existing reinforced concrete roof slab and integral downstand support beams, installing the new timber roof structure, and forming the parapet gutter along the 'shelf' at the head of the east parapet wall. It should be noted that the chamber contains a single bell with walkways around, over which operatives installing the scaffold will have to work.

Given the difficulties with this, together with the fact that the upper internal chamber of the Tower is on 2 no. levels and space is restricted, the contractor and scaffolding sub-contractor are advised to visit site to ensure they have a full understanding of what will be required when tendering for the works.

C20 DEMOLITION

5 SURVEY

- Scope: Before starting work, carry out a survey and submit a report and method statement covering the following:
  - Form, condition and details of the structures, site and surrounding area. Extent: As indicated and noted on drawing No. 2053A/01.
  - Condition and demolition methods and sequences for the structures.
  - Removal methods of hazardous materials.
  - Form, location and removal methods of materials for reuse or recycling.
  - Type and location of adjoining or surrounding premises which may be adversely affected by the Works.
  - Type and location of features of historical, archaeological, geological or ecological importance.
  - Identification, location, disconnection and removal of services.
  - Arrangements for protection of personnel and the public.
  - Arrangements for control of site transport and traffic.
  - Special requirements: Structural calculations in support of method statements.
- Format of report: paper submission, with supporting dilapidations photographs. Photographs to be issued on disc to the client / CA.

10A EXTENT OF DEMOLITION

- General: Remove existing roof finishes and asphalt 'skirts' against parapet walls and demolish existing reinforced concrete roof slab, including existing integral downstand beams (2 no.). as indicated on drawing No. 2053A/01, and cart away. Take down existing flagpole and store for refurbishment and reinstatement, and support post for refurbishment / renewal. Remove the existing cast iron hopper surmounting the rainwater pipe and store for refurbishment, and cart away existing corroded cast iron rainwater pipe beneath (see 'Roof Plan as Proposed, 2053A/02 and 'Detail 2' 2053A/03), to allow forming new chute outlet through the parapet wall with lead spigot connection through the reinstated refurbished hopper direct to the head of the new rainwater pipe.

15 BENCH MARKS

- Unrecorded bench marks and other survey information: Give notice when found.

- Do not remove or destroy.

20 FEATURES TO BE RETAINED

- General: In addition to features to be removed and reinstated as identified Clause 10A keep in place and protect the following: All existing ornamental stonework to the Tower parapets.

25 LOCATION OF SERVICES

- Services crossed by the Works: Locate and mark positions.
- Mains services: Arrange with the appropriate authorities for locating and marking positions.

30 DISCONNECTION OF SERVICES ARRANGED BY CONTRACTOR

- Responsibility: Before starting demolition arrange with the appropriate authorities for disconnection of services and removal of fittings and equipment.

35 DRAINS IN USE

- General: Protect drains and fittings still in use and keep free of debris.
- Damage: Make good damage arising from demolition work. Leave clean and in working order at completion.

40 BYPASS CONNECTIONS

- General: Provide as necessary to maintain continuity of services to occupied areas of the same and adjoining properties.
- Notice: Give adequate notice to occupiers if shutdown is necessary.

45 SERVICES WHICH ARE TO REMAIN

- Damage: Give notice and notify the service authority or owner of damage arising from the execution of the Works.
- Repairs: Complete to the satisfaction of service authority or owner.

50 WORKMANSHIP

- Standard: Demolish structures in accordance with BS 6187.
- Operatives: Appropriately skilled and experienced for the type of work. Holding or in training for relevant CITB Certificates of Competence.
- Site staff responsible for supervision and control of work: Experienced in the assessment of risks involved and methods of demolition to be used.

55 SITE HAZARDS

- Precautions: Prevent fire or explosion caused by gas or vapour: Prevent.
- Dust: Reduce by periodically spraying with an appropriate wetting agent.
- Site operatives and general public: Protect from vibration, dangerous fumes and dust arising during the course of the Works.

60A ADJOINING BOUNDARY WALLS

- Temporary support and protection: Provide at each stage.
- Damage: Prevent. Promptly repair. Leave no unnecessary or unstable projections.
- Support to foundations: Do not disturb.
- Defects: Report when defects exposed or becoming apparent.

65 STRUCTURES TO BE RETAINED

- Parts which are to be kept in place: Protect.
- Extent of work: Cut away and strip out the minimum necessary.

70 PARTLY DEMOLISHED STRUCTURES

- General: Leave partly in a stable condition, with adequate temporary support at each stage to prevent risk of uncontrolled collapse. Keep safe outside working hours.
- Debris: Prevent from overloading scaffolding platforms.
- Unauthorized persons: Prevent access.

71 DANGEROUS OPENINGS

- General: Illuminate and protect as necessary.

76 ASBESTOS CONTAINING MATERIALS

- Discovery: Give note immediately of suspected asbestos containing materials discovered. Avoid disturbing such materials and submit details of methods for safe removal. Arrange for 'Refurbishment and Demolition' survey of the work area prior to commencement

78 UNFORESEEN HAZARDS

- Unrecorded voids, tanks, chemicals, etc discovered during demolition: Give notice.
- Method for safe removal: Submit proposals.

85 SITE CONDITION AT COMPLETION

- Debris: Clear away and leave the site tidy on completion.
- Special requirements: Set aside remnants of removed features to inform replacement.

91 EMPLOYER'S PROPERTY

- Components / materials to remain the property of the Employer: Description: Existing feature stonework etc.
- Protection: Until removed by the Employer, reused in the Works or end of the Contract.
- Specific limitations: None.

C40 CLEANING MASONRY / CONCRETE

GENERAL/ PREPARATION

110 SCOPE OF WORK

Cleaning of organic growth from the parapet stonework down to the bed joint beneath the string course, and, on the east elevation, around areas of heavy staining around the rainwater pipe, as identified and noted on drawing No. 2053A/01.

120 RELATED REPAIR AND REMEDIAL WORKS

Work to be carried out before cleaning work: Execute any necessary repairs to stonework as identified at a site review following installation of the access scaffolding, and to the techniques as described in Section C41. All pointing to be carried out following completion of the cleaning works.

142 REMOVAL OF FITTINGS

- Timing: Before commencement of cleaning work.
- Disturbance to surfaces: Minimize.
- Items for disposal: Any bird protection measures from ledges, bracketry and other redundant fixings, cable clips, bobbins etc.
- Items to be kept for reuse: Brackets associated with features / fittings to be retained, including any bird protection fittings to be refixed to the building.

160 PROTECTION

- Surfaces not designated for cleaning: Prevent damage, including marking and staining.
- Openings: Prevent ingress of water, cleaning agents, and detritus.
- Vents and grilles: Seek instructions before sealing up.
- Temporary mechanical fastenings:
  In masonry: Locate in joints.
- In other surfaces: Seek instructions.
- Additional protection: Stained and other glass in leaded lights: Contractor to submit proposals / method statements for CA approval.

175 CONTROL AND DISPOSAL OF WASH WATER AND DETRITUS

- Disposal: Safely. Obtain approvals from relevant Authority.
- Control of wash water: Collect and divert to prevent ingress and damage to building fabric and adjacent areas.
- Above and below ground drainage systems: Keep free from detritus and maintain normal operation.

190 CLEANING GENERALLY

- Operatives: Appropriately trained and experienced for each type of cleaning work.

Evidence of training: Submit on request.
- Control of cleaning: Confine cleaning processes and materials to designated areas. Prevent wind drift.
- Detritus: Remove regularly. Dispose of safely.
- Monitoring: Frequently check results of cleaning compared to approved trial samples. If results established by trials are not achieved, seek instructions.
- Modifications to cleaning methods and materials: Seek instructions.

215 RECORD OF CLEANING WORKS
- Written report: Record cleaning methods and procedures used for each type of surface and deposit.
  Content: Relevant attributes of cleaning methods used including:
  - Equipment and settings.
  - Dwell times.
  - Number of applications.
  - Ambient temperatures.
- Additional documentation: Mark cleaned areas on drawings for record purposes and bind into report.
- Submission: At completion of cleaning works.

230 TRIAL SAMPLES
- Trial sample reference: To be confirmed on site.
- Surface: Pennine grit Sandstone to Chapel gable and clay common brickwork to Chapel north wall.
- Location/ Size: To be confirmed on site by CA.
- Type of soiling: Moss, algae, lichen and other organic growth, Bird detritus, localised areas where carbon deposits have built up.
- Cleaning methods: Steam ('DOFF' system), possibly followed by other (chemical poultice) in localised areas where calcium from bird detritus has drawn into the stone.
- Records: Maintain written records for each trial area, including cleaning methods and conditions, to enable replication of results elsewhere.

PRODUCTS/ EQUIPMENT

312 SURFACE BIOCIDES
- Types: Registered by the Health and Safety Executive (HSE) and listed on the HSE website under non-agricultural pesticides.
- Compatibility with surface: Free from staining or other harmful effects.

352 STEAM CLEANING EQUIPMENT
- Manufacturer: Contractor's choice of suitable licensed products / applicators to CA approval.
  Product reference: 'DOFF' system to be used throughout.

362 CHEMICAL AGENTS PACKS / POULTICES
- Manufacturer: Stonehealth.
  Product reference: 'Calcimex'.

APPLICATION

412 REMOVAL OF LOOSELY ADHERED DEPOSITS
- Timing: Before commencement of other cleaning methods.
- Surfaces: Prevent damage, including abrasion.

482 STEAM CLEANING
- Surfaces: Prevent damage, including abrasion.

• Equipment settings (including nozzle type and distance from surface): Adjust regularly to achieve optimum cleaning performance for each surface.

500 CHEMICAL CLEANING

• Surfaces: Prevent damage, including discolouration, bleaching and efflorescence.
• Product variables (including concentrations, dwell times and number of applications): Adjust for each surface to achieve optimum cleaning performance.
• Application: To wetted surfaces.
- Drying out: Prevent unless recommended otherwise by cleaning product manufacturer.
• Removal of chemicals and neutralization: As recommended by product manufacturer, including rinsing with clean water.
- Additional treatment: Where water rinsing is insufficient to neutralize surface, apply compatible neutralizing agent.
- Surfaces and joints: Minimize absorption of chemicals. Prevent damage, including abrasion.

C41 REPAIRING / RENOVATING / CONSERVING MASONRY

110A SCOPE OF WORK

- Schedule: Refer to drawing 2053A/01. Parapet masonry is to be raked out and repointed, and whilst no required masonry repairs are readily discernible the need for any local indent repairs to weathered / damaged stones will be reviewed when scaffold access is afforded.

120 SITE INSPECTION

- Purpose: To confirm type and extent of repair/ renovation/ conservation work shown on drawings and described in survey reports and schedules of work.
- Parties involved: Contract administrator.
- Timing: At least 10 working days before starting each section of work.
- Instructions issued during inspection: Confirm in writing, with drawings and schedules as required, before commencing work.

130 REMOVAL OF PLANT GROWTHS FROM MASONRY

- Plants, root systems and associated soil/ debris: Carefully remove from joints, voids and facework.
- Removal of roots: Where growths cannot be removed completely without disturbing masonry seek instructions.
- Unwanted plants close to masonry: Where removal of root system is not possible or desirable, cut through stem as close to the ground as possible. Remove bark from stump and apply herbicide paste. Leave stump to wither.

WORKMANSHIP GENERALLY

150 POWER TOOLS

- Usage for removal of mortar: Permitted only with prior approval.

180 WORKMANSHIP

- Skill and experience of site operatives: Appropriate for types of work on which they are employed.
- Documentary evidence: Submit on request.

185 ADVERSE WEATHER

- General: Do not use frozen materials or lay masonry units on frozen surfaces.
- Air temperature: Do not bed masonry units or repoint:

- In cement gauged mortars when ambient air temperature is at or below 3°C and falling or unless it is at least 1°C and rising, unless mortar has a minimum temperature of 4°C when laid and the masonry is adequately protected.
- In hydraulic lime:sand mortars when ambient air temperature is at or below 5°C and falling or unless it is at least 3°C and rising.
- In nonhydraulic lime:sand mortars in cold weather, unless approval is given.

- Temperature of the work: Maintain above freezing until mortar has fully set.
- Rain, snow and dew: Protect masonry by covering during precipitation, and at all times when work is not proceeding.
- Hot conditions and drying winds: Prevent masonry from drying out rapidly.
- New mortar damaged by frost: Rake out and replace.

190 CONTROL SAMPLES

- General: Complete an area of each of the following types of work, and arrange for inspection before proceeding with the remainder:

Repointing – for each different type of mix/ pointing profile/ finish prepare sample areas of approximately one square metre; first stage approval – after preparation; second stage approval – after repointing. Pointing sample to include a 1:3 lime (NHL 3.5) : Sand (Nosterfield / Waddington Fell or Leighton Buzzard) for consideration. Alternatively consider a suitable hot lime mix

MATERIAL/ PRODUCTION/ ACCESSORIES

215 MATERIAL SAMPLES

- Representative samples of designated materials: Submit before placing orders.

- Designated materials: Sands for bedding and pointing. New stone.

- Retention of samples: Unless instructed otherwise, retain samples on site for reference. Protect from damage and contamination.

220 RECORDING PROFILES

Profiles: Take measurements from existing masonry units, as instructed, to allow replacements to be matched accurately.

Recording in situ: If there are no suitable joints for inserts, seek instructions.

Drawings and templates: Prepare as necessary, clearly and indelibly marked to identify use and location.

240A STONE FOR GENERAL WALLING, FEATURES, AND CARVED WORK

Type: Red sandstone.

Requirements: Free from vents, cracks, fissures, discolouration, or other defects which may adversely affect strength, durability or appearance. Thoroughly seasoned, dressed and worked in accordance with shop drawings prepared by the supplier.

Finish: Smooth Ashlar.

Supplier: Contractor to submit samples to CA for approval to match as closely as possible the original

245A REPLACEMENT STONE UNITS

Minimum bed depths and agreed face lines in relation to existing work: Maintain. Make suitable allowances for any final finishing carried out in situ.

Sizes and profiles: To match existing masonry; existing joint widths maintained.

Sinkings for fixings and joggles: Accurately aligned and positioned in relation to existing masonry. Provide sinkings for lifting devices.

Marking: Each block/ dressing clearly marked on a concealed face to indicate the natural bed and position in the finished work. Stones are to be cut so that they are laid on bed and at right angles to the line of thrust in arches. Face bedded units are not permitted without prior consent of the CA.

255 ASHLAR BLOCKS/ DRESSINGS

Cutting and dressing stone: To true and regular surfaces, free from hollow or rough areas.

281A FIXINGS FOR REPLACEMENT STONEWORK

Procurement: Selected by the specialist contractor/ supplier. Submit details of proposed fixings and agree with structural engineer if considered necessary.

Material: All dowels and cramps to raking copings to be austenitic stainless steel.

Type, size, strength and number: As necessary to resist all loads likely to occur during the life of the lodge, and to prevent any lateral displacement or pulling apart of the construction.

REPLACEMENTS AND INSERTIONS (IF NECESSARY)

330 PREPARATION FOR REPLACEMENT MASONRY

Defective material: Carefully remove to the extent agreed. Do not disturb, damage or mark adjacent retained masonry.

Existing metal fixings, frame members, etc: Report when exposed.

Redundant metal fixings: Remove completely.

Recesses: Thoroughly clean to remove loose material and leave joint surfaces in a suitable condition to receive replacement units. Protect from adverse weather.

340A REPLACEMENT OF STONE: PLAIN ASHLAR, FULL BLOCK

Stone: Plain ashlar sandstone, repair Type A, and as clause 240A.

Bedding depths: To match existing, assume 150 - 200mm.

Mortar: As section Z21.

- Mix: As clause 320.
- Sand source/ type: As clause 320.

Fixings: Stainless steel dowels / cramps if considered necessary, as clause 281.

Joints: As clause 320.

Other requirements: Carefully cut out walling stone / ashlar block, in one piece if possible, and insert new stone on 1:3 lime sand mortar bedding and backing. Keep mortar back from face 25mm for later repointing

340B REPLACEMENT OF STONE: CARVED WORK, FULL BLOCK

Stone: Red Sandstone, repair Type F, and as clause 240A.

Bedding depths: To match existing, assume 150 - 200mm.

Mortar: As section Z21.

- Mix: As clause 320.
- Sand source/ type: As clause 320.

Fixings: Stainless steel dowels / cramps if considered necessary, as clause 281.

Joints: As clause 320.

Other requirements: Carefully remove all mouldings, copings etc in one piece, and insert new stone on 1:3 lime sand mortar bedding and backing. Keep mortar back from face 25mm for later repointing.

340C REPLACEMENT OF STONE: PLAIN ASHLAR, PART BLOCK

Stone: Red sandstone, repair Type B, and as clause 240A.

- Bedding depths: To match existing, assume 150 - 200mm.
- Mortar: As section Z21.
  - Mix: As clause 320.

- Sand source/ type: As clause 320.

Fixings: Stainless steel dowels / cramps if considered necessary, as clause 281.

Joints: As clause 320.

Other requirements: Carefully cut back existing block to an agreed line full depth, and hand dress the remaining section to a sharp arris. Insert new stone on 1:3 lime sand mortar bedding and backing. Keep mortar back from face 25mm for later repointing.

350B STONE INSERTS PLAIN ASHLAR, PART FACE

Stone: Red sandstone. Repair Type D, and as clause 240A.

Finish: Flush and to match existing.

Preparation and insertion: As clause 395.

Mortar: As section Z21.

- Mix: As clause 320.
- Sand source/ type: As clause 320.

Fixings: As clause 320, if considered necessary.

Joints: Fine.

Other requirements: No resin / adhesives are to be used as a bonding material for inserts, although such use is permitted for securing to dowels. A positive 3 - 5mm mortar pointed joint should be formed between the insert and surrounding masonry, and similarly mortar should be used as a bedding and backing material.

350C STONE INSERTS: CARVED WORK, PART FACE REPLACEMENT

Stone: Red sandstone, Repair Type E, and as clause 240A.

Finish: Flush and to match existing.

Preparation and insertion: As clause 395.

Mortar: As section Z21.

- Mix: As clause 320.
- Sand source/ type: As clause 320.

Fixings: As clause 320, if considered necessary.

Joints: fine.

Other requirements: Part block or indent replacement of projecting, weathering or other detailed work such as window reveal stones etc. No resin / adhesives are to be used as a bonding material for inserts, although such use is permitted for securing to dowels. A positive 3 - 5mm mortar pointed joint should be formed between the insert and surrounding masonry, and similarly mortar should be used as a bedding and backing material.

385 LAYING REPLACEMENT MASONRY

Exposed faces of new material: Keep to approved face lines.

Faces, angles and features: Accurately align. Set out carefully to ensure satisfactory junctions with existing masonry and maintain existing joint widths.

Joint surfaces: Dampen to control suction as necessary.

Laying: On a full bed of mortar, all joints filled.

Exposed faces: Keep clear of mortar and grout.

395A STONE INSERTS

Pockets to receive inserts: Cut out accurately. Undercut sides of pocket where necessary to provide space for bonding material. Adjust depth so that insert stands proud of existing stone for finishing in situ. Clean out thoroughly.

Inserts: Cut to the smallest rectangular shape necessary to replace the defective area and provide a firm seating. Install accurately and securely.

Exposed faces: Keep clear of mortar. NOTE: No resin / adhesives should be used as bonding materials, all inserts should be bedded backed and pointed in mortar, as clause 320, 350, and Section Z21.

Existing joint widths: Maintain. Do not bridge joints.
Replacement cramps: From new shoulders as required.

405 BONDED DOWELS FOR STONE INSERTS

Dowels: 6mm diameter austenitic stainless steel. Secured into clean, dry holes with adhesive. Do not use adhesive to bond stones at joints unless agreed otherwise.

Adhesive: Epoxy resin to contractor's choice.

Additional requirements: NOTE: No resin / adhesives should be used to bond inserts to retained material. All inserts should be bedded, backed, and pointed in mortar, as clause 320, 350, and Section Z21.

Holes: Drilled in the background and the rear of the replacement/ insert to receive dowels and adhesive. Aligned to allow accurate positioning of the replacement/ insert.

410A CORRODED FIXINGS

Removal: Cut out carefully, causing the least possible disturbance to surrounding masonry. Remove associated rust debris.

POINTING/ REPOINTING

810 PREPARATION FOR REPOINTING

Removing mortar: Work from the top of the wall downwards. Remove carefully and without damaging adjacent masonry, arrises or widening joints.

Recess for repointing: Form a neat recess of depth not less than 25mm minimum or twice the thickness of the joint When mortar beyond this depth is loose and friable and/ or cavities are found seek instructions.

Dust and loose debris. Remove. Dampen joints to control suction as necessary.

820 POINTING BRICKWORK AND STONEWORK GENERALLY

Preparation of joints: Rake out (if soft) or chop back (if hard) to a clean depth of 25mm minimum or twice the width of the joint. The old mortar is to be left with a square face, and the arisses lightly dressed to exclude water traps. The use of power tools is forbidden, all work is to be carried out by hand.

Mortar: As section Z21.

Mix: 1:3 Hydraulic Lime (NHL 3.5) : Sand. (Alternative use hot lime to agreed mix)

Sand source/ type: Well graded crushed stone pointing sand to approved sample, 4 parts course to 5 parts fine.

Joints: Conservation flush joints: The cleaned joint is to be flushed out with clean water and ironed in with a pointing iron, bringing the mortar out of the joint slightly. After the initial set has taken place the mortar face is to be knocked off, then hit back with a stiff bristle brush to compact the mortar within the joint thoroughly, while also exposing the aggregate.

Other requirements: Any loose or flaking masonry is to be dressed back lightly by hand.

840 POINTING WITH TOOLS/ IRONS

General: Press mortar well into joints using pointing tools/ irons that fit into the joints, so that they are fully filled.

Face of masonry: Keep clear of mortar. Use suitable temporary adhesive tape on each side of joints where necessary. Finish joints neatly.

860 BRUSHED FINISH TO JOINTS

Timing: After initial mortar set has taken place remove laitance and excess fines by brushing, to give a coarse texture. Do not compact mortar.

G20 CARPENTRY / TIMBER FRAMING / FIRST FIXING

GENERAL

150 STRENGTH GRADING OF TIMBER

- Grader: Any company currently registered under a third party quality assurance scheme operated by a certification body approved by the UK Timber Grading Committee.

160 GRADING AND MARKING OF SOFTWOOD

- Timber of a target/ finished thickness less than 100 mm and not specified for wet exposure:

Graded at an average moisture content not exceeding 20% with no reading being in excess of 24% and clearly marked as 'DRY' or 'KD' (kiln dried).

- Timber graded undried (green) and specified for installation at higher moisture contents: Clearly marked as 'WET' or 'GRN'.
- Structural timber members cut from large graded sections: Regraded to approval and marked accordingly.

PRODUCTS

210 STRUCTURAL SOFTWOOD (GRADED DIRECT TO STRENGTH CLASS) FOR SUPPORTING STRUCTURE TO NEW TOWER ROOF DECK / STRUCTURAL USE GENERALLY

- Grading standard: To BS 4978 or BS EN 519 or other national equivalent and so marked.
- Strength class to BS EN 338: C24, or to Structural Enginer's recommendations.
- Treatment: Fire retardant impregnation to NBS section Z12 and British Wood Preserving and Damp-proofing Association Commodity Specification FR3, Type C.

270 UNGRADED SOFTWOOD FOR INTERNAL NON STRUCTURAL USE

- Quality of timber: Free from decay, insect attack (except pinhole borers) and with no knots wider than half the width of the section.
- Surface finish: Regularized.
- Treatment: Fire retardant impregnation to NBS section Z12 and British Wood Preserving and Damp-proofing Association Commodity Specification FR3, Type C.

WORKMANSHIP GENERALLY

401 CROSS SECTION DIMENSIONS OF STRUCTURAL SOFTWOOD AND HARDWOOD

- Dimensions: Dimensions in this specification and shown on drawings are target sizes as defined in BS EN 336.
- Tolerances: The tolerance indicators (T1) and (T2) specify the maximum permitted deviations from target sizes as stated in BS EN 336, clause 4.3:
  - Tolerance class 1 (T1) for sawn surfaces.
  - Tolerance class 2 (T2) for further processed surfaces.

402 CROSS SECTION DIMENSIONS OF NONSTRUCTURAL SOFTWOOD

- Dimensions: Dimensions in this specification and shown on drawings are finished sizes.
- Maximum permitted deviations from finished sizes: As stated in BS EN 1313-1:
  - Clause 6 for sawn sections.
  - Clause NA.2 for further processed sections.

420 WARPING OF TIMBER

- Bow, spring, twist, cup: Not greater than the limits set down in BS 4978 or BS EN 519 for softwood.

440 PROCESSING TREATED TIMBER

- Cutting and machining: As much as possible before treatment.
- Extensively processed timber: Retreat timber sawn lengthways, thicknessed, planed, ploughed, etc.
- Surfaces exposed by minor cutting and/ or drilling: Treat with two flood coats of a solution recommended by main treatment solution manufacturer.

450 MOISTURE CONTENT

- Moisture content of wood and wood based products at time of installation: Not more than:
  - Covered in generally unheated spaces: 24%.
  - Covered in generally heated spaces: 20%.
  - Internal in continuously heated spaces: 20%.

510 PROTECTION

- Generally: Keep timber dry and do not overstress, distort or disfigure sections or components during transit, storage, lifting, erection or fixing.
- Timber and components: Store under cover, clear of the ground and with good ventilation. Support on regularly spaced, level bearers on a dry, firm base. Open pile to ensure free movement of air through the stack.
- Trussed rafters: Keep vertical during handling and storage.

550 EXPOSED TIMBER

- Planed structural timber exposed to view in completed work: Prevent damage to and marking of surfaces and arrises.

JOINTING TIMBER

570 JOINTING/FIXING GENERALLY

- Generally: Where not specified precisely, select methods of jointing and fixing and types, sizes and spacings of fasteners in compliance with section Z20.

630 BOLTED JOINTS

- Bolt spacings (minimum): To BS 5268-2, table 81.
- Holes for bolts: Located accurately and drilled to diameters as close as practical to the nominal bolt diameter and not more than 2 mm larger.
- Washers: Placed under bolt heads and nuts that would otherwise bear directly on timber. Use spring washers in locations which will be hidden or inaccessible in the completed building.
- Bolt tightening: So that washers just bite the surface of the timber. Ensure that at least one complete thread protrudes from the nut.
- Checking: At agreed regular intervals up to Completion. Tighten as necessary.

670A ANTICORROSION FINISHES FOR FASTENERS

- All fixings to be stainless steel.

ERECTION AND INSTALLATION

760 TEMPORARY BRACING

- Provision: As necessary to maintain structural timber components in position and to ensure complete stability during construction.

780A WALL / POLE PLATES

- Position and alignment: To give the correct span and level for trusses, joists, etc.

- Bedding: Fully in fresh mortar.
- Joints: At corners and elsewhere where joints are unavoidable use nailed half lap joints. Do not use short lengths of timber.

784 JOISTS GENERALLY
- Centres: Equal, and not exceeding designed spacing.
- Bowed joists: Installed with positive camber.
- End joists: Positioned approximately 50 mm from masonry walls.

786 JOISTS ON HANGERS
- Hangers: Bedded directly on and hard against supporting construction. Do not use packs or bed on mortar.
- Joists: Cut to leave not more than 6 mm gap between ends of joists and back of hanger. Rebated to lie flush with underside of hangers.
- Fixing to hangers: A nail in every hole.

791 PROPRIETARY JOIST HANGERS TO ROOF FRAMING.
- Manufacturer: Contractor's choice to CA / Structural Engineer's approval, if considered necessary.
  - Product reference: As above.
- Material/ finish: Hot dip galvanized steel plate.
- Size: To suit joist, design load and crushing strength of supporting construction.

H71 LEAD SHEET COVERINGS / FLASHINGS

TYPES OF LEADWORK

110A ROOFING TO SOUTH SLOPE, TOWER ROOF
- Substrate: New 100x25mm untreated s/w square edged roof boards with 'penny' gaps between, fixed to new roof structure beneath, as detailed on 2053A/02.
- Preparation: Demolish existing roof structure and supply and fix new as detailed on the above-mentioned drawing.
- Underlay: None required.
  - Type of lead: Rolled as clause 520.
  - Thickness: 3.15mm, (Code 7).
- Pretreatment: Apply a thin coat of chalk slurry to the underside of the lead and allow to dry before laying.
- Longitudinal joints: Wood cored rolls at nominal 675mm c/cs, with 40mm splash lap.
  - Spacing: 675mm.
- Eaves detail: Dress into lead lined parapet gutter over the head of the east Tower wall, with 'free' edge dressed down min. 100mm to lap min. 75mm over upstanding gutter side, and retained by lead welded clips to the upstanding gutter linings at 300mm c/cs.
- Cross joints: 65mm step between bays in the roofing, as 'Roof Plan as Proposed' 2053A/02.
  - Spacing: As indicated 'Roof Plan as Proposed, 2053A/02.
- Intermediate fixings: Copper / stainless steel nails at 50mm c/cs into wood cored rolls in the top third of each bay only.
- Ridge/ Hip detail: None required.
- Other requirements: Upper bay of lead roofing to be head fixed in the upstand with stainless steel plugs and screws into west parapet wall at 75mm staggered c/cs, fixings concealed by the overcloak of the Code 5 lead cover flashings. Lower bay of the roofing head fixed with stainless steel / copper nails at 50mm c/cs in 20x5mm groove cut in the roof boarding at the top of the step between each

bay. Side edges of the roofing turned up north and south parapet walls min 100mm to lap min 75mm with Code 5 lead cover flashings. Roofing to be cut, formed and welded as necessary to form a sleeve where the flagpole support post penetrated the roof finishes to form a continuous 100mm upstanding collar, to be weathered min 75mm by Code 5 lead cover flashings secured into rebated joint in the post, as 'Detail 1' 2053A/03.

110B ROOFING TO RAISED ROOF AREA BEHIND ACCESS HATCH

- Substrate: New 100x25mm untreated s/w square edged roof boards with 'penny' gaps between, built up off new roof boarding and structure beneath, as detailed on 2053A/02.
- Preparation: Demolish existing roof structure and supply and fix new as detailed on the above-mentioned drawing.
- Underlay: None required.
  - Type of lead: Rolled as clause 520.
  - Thickness: 3.15mm, (Code 7).
- Pretreatment: Apply a thin coat of chalk slurry to the underside of the lead and allow to dry before laying.
- Longitudinal joints: None necessary.
- Eaves detail: Front edge of lead dressed over and down 65mm step detail in roofing to lap with upstanding edge of lower roofing leadwork.
- Cross joints: None required .
  - Spacing: n/a .
- Intermediate fixings: None necessary.
- Ridge/ Hip detail: Wood cored roll, with Code 7 lead weathering extending min. 150mm over head of roofing each side, in a single length, and with 'wings' retained by lead clips welded to the roofing @ 300mm c/cs.
- Other requirements: Lead roofing to be head fixed with 2 no. rows of copper / stainless steel nails at 75mm staggered c/cs concealed by ridge weathering overcloak. Edges of roofing dressed up parapet wall to the west and access hatch kerb to the east to be weathered min. 75mm by Code 5 lead flashings / weatherings.

200A PARAPET GUTTER LINING TO TOWER ROOF

Substrate: Existing masonry 'shelf' formed by the change in thickness at the head of the east Tower wall at the base of the parapet, which is continuous around all 4 no. sides of the Tower forming a ledge on which the reinforced concrete slab (to be removed) bearings. The east ledge masonry is to be reduced as necessary to form bases to new levels and falls in sand / cement screed as indicated 'Section B – B Through Parapet Gutter as Proposed, drawing No. 2053A/02.

Preparation: Remove existing finishes and concrete roof slab and cart away, and form new roof structure as detailed 2053A/02. Break out wall head masonry / scabble surface of 'shelf' to form a key for new screed laid to levels as noted above.

Underlay: Class A Building Paper to BS 1521.

Type of lead: Rolled as clause 520.

Thickness: 3.15mm (Code 7).

Pretreatment: Apply a thin coat of patination oil to underside of lead and allow to dry before laying. All faces of lead in direct contact with masonry to be painted with a thick coat of bituminous paint.

Longitudinal joints: 65mm steps without splashlap, as 'Detail 6', 2053A/03.

Spacing: As indicated on drawing No. 2053A/02.

Cross joints: None required

Spacing: N/A

Outlets: Break out wall head masonry around existing outlet to form deeper catchpit, including forming 250x175mm aperture through wall immediately beneath parapet string course for combined lead chute / catchpit lining.

Fixing: Head fix by plugging and s/s / copper screwing in 20x5mm recess cast in top of step, concealed by overcloak of upper bay of lead gutter lining where dressed over step. See 'Detail 6', drawing No. 2053A/03. Plugs to be polyamide or similar plastic, unaffected by moisture.

420A COVER FLASHINGS TO ROOF AND PARAPET GUTTER UPSTANDS AGAINST PARAPET WALLS

- Lead: As clause 520.
- Thickness: 2.24mm Code 5 .
- Dimensions:
  - Lengths: Not more than 1500 mm.
  - End to end joints: Laps of not less than 100 mm.
- Cover: Overlap to upstand of not less than 75 mm.
- Fixing: Secured into existing bed joints / 25 x 10mm new chases cut in parapet wall masonry where necessary (see drawing No. 2053A/02 for location and approximate levels) with lead wedges @ 300mm c/cs, as Clause 770, and back pointed in BLM mastic. Free edge of flashings retained by lead clips welded to roof / gutter upstand at 300mm c/cs. Ensure min. 75mm lap over upstanding lead of roof and gutter sides. NOTE: Coat surfaces of lead in direct contact with masonry in bitumen .

430A COVER FLASHINGS TO ROOF ACCESS HATCH KERB

Lead: As clause 520.
Thickness: 2.24mm Code 5.
Dimensions:
Lengths: Not more than 1500 mm, (single shorter lengths to be used).
End to end joints: Laps of not less than 100mm, see clause 477A.
Overlap to upstand: Not less than 75mm.
Cover to roof: Not less than 75mm, tbc.
Fixing: flashings dressed up and over top of access hatch kerb, fixed with stainless steel / copper nails at 50mm c/cs, and finished with a welt. Free / bottom edge retained by lead clips welded to the roofing upstand against the access hatch kerb (1 no. per side) as clause 715. Sheet width to allow min. 75mm cover to roof upstand. See 'Detail 3' 2053A/03.

454A COVER FLASHINGS TO ROOF SLEEVE AROUND FLAGPOLE SUPPORT POST

Lead: As clause 520.
Thickness: 2.24mm, Code 5.
Dimensions:
Lengths: As necessary.
End to end joints: Laps of not less than 100 mm to one side of post only.
Cover: Overlap to sleeve formed in roof upstand of not less than 75mm.
Fixing: Lead wedges into continuous chase (10x25mm) routed out of the timber flagpole support post, secured with lead wedges (1 no. per side), and back pointed in BLM mastic.

482A LEAD 'MUSHROOM' VENTS TO VOID OVER MASONRY 'SHELF' WEST PARAPET OF TOWER

- Lead: As clause 520.
- Thickness: 3.55mm (Code 8).
- Position: Refer to 'Roof Plan as Proposed', drawing No. 2053A/02 for location.
- Dimensions:
  - Base: 100mm diameter welded to gutter sole.
  - Upstand: Not less than 225mm, with castellations at the top permit ventilation, and finished with conical cover. Base of castellations to be min. 150mm above sole of gutter.

483 CATCHPIT WITH LEAD CHUTE OUTLET, TOWER PARAPET GUTTER

Lead: As clause 520.

Thickness: 3.15mm (Code 7).

Position: Refer to 'Roof Plan as Proposed', drawing No. 2053A/02 for location.

Dimensions: Base: Approx 350mm wide x 220mm deep x 250mm long, with base extended some 325mm from the face of the wall in the form of a chute outlet immediately under the projecting stone string course at the base of the parapet. The existing outlet is to cut out, and a catchpit formed at the gutter collection point, extending down to a level approximately 175mm below the base of the string course. Form new 250mm wide x 175mm deep outlet through the external wall at this point with s/s flat over if necessary due to bonding of the projecting moulding. Edges of lead at overhang to be folded over 8mm diameter stainless steel reinforcing bars, and base to have weir at open end to act as overflow. 100mm square spigot outlet welded to gutter sole behind weir to discharge through refurbished hopper into new 4" square cast iron rainwater pipes. Refer to 'Detail 2', 2053A/03.

484 LEAD 'BIN LID' COVER TO PARAPET GUTTER CATCHPIT OUTLET

- Lead: As clause 520.
- Thickness: 3.15mm (Code 7).
- Position: Over catchpit outlet to east parapet gutter. Refer to drawing No. 2053A/02 for details and location.
- Dimensions:
  - Plan size: Approx 350mm wide x 350mm long, to rest on parapet gutter base each side of catchpit and span over catchpit. Exact configuartion of cover and support to 'lid' to be determined on site. 'Lids' to be approx. 60mm high, with 30mm apertures all 4 No. sides to allow drainage into outlet, and prevent build up of debris and nesting in sump. Lead weld strap handle for lifting to clear and maintain gutters.

GENERAL REQUIREMENTS/ PREPARATORY WORK

510A WORKMANSHIP GENERALLY

- Standard: To BS 6915 and latest editions of 'The Lead Sheet Manual' and Updates published by the Lead Sheet Association.

- Fabrication and fixing: To provide a secure, free draining and weathertight installation.
- Operatives: Trained in the application of lead coverings/ flashings and intricate lead detailing. Submit records of experience on request.

The Contractor / Sub Contractor executing the work must be a member of the Lead Contractors Association, and their work guaranteed, insurance backed and underwritten under the terms of their membership of that organisation.

- Measuring, marking, cutting and forming: Prior to assembly wherever possible.
- Marking out: With pencil, chalk or crayon. Do not use scribers or other sharp instruments without approval.
- Bossing and forming: Straight and regular bends, leaving sheets free from ripples, kinks, buckling and cracks.
- Solder: Use only where specified.
- Sharp metal edges: Fold under or remove as work proceeds.
- Finished work: Fully supported, adequately fixed to resist wind uplift but also able to accommodate thermal movement without distortion or stress.
  - Protection: Prevent staining, discolouration and damage by subsequent works.

516 LEADWELDING

- In situ welding: Is permitted, subject to completion of a 'hot work permit' form and compliance with its requirements.

520 LEAD SHEET

- Production method:
  - Rolled, to BS EN 12588, or
  - Machine cast, Agrément certified and to code thicknesses with a tolerance (by weight) of ±5%, or
  - Sand cast, from lead free from bitumen, solder, other impurities, inclusions, laminations, cracks, air, pinholes and blowholes; to code thicknesses but with a tolerance (by weight) of ±10%.
- Identification: Labelled to show thickness/ code, weight and type.

610 SUITABILITY OF SUBSTRATES

- Condition: Dry and free of dust, debris, grease and other deleterious matter.

620 PREPARATION OF EXISTING TIMBER SUBSTRATES

- Remedial work: Adjust boards to level and securely fix. Punch in protruding fasteners and plane or sand to achieve an even surface.
- Defective boards: Give notice.
- Moisture content: Not more than 22% at time of covering. Give notice if greater than 16%.

640 TIMBER FOR USE WITH LEADWORK

- Quality: Planed, free from wane, pitch pockets, decay and insect attack (ambrosia beetle excepted).
- Moisture content: Not more than 22% at time of covering. Give notice if greater than 16%.
- Preservative treatment: CCA as section Z12 and British Wood Preserving and Damp- proofing Association Manual - Commodity Specification C8.

FIXING LEAD

705 HEAD FIXING LEAD SHEET

- Top edge: Secured with two rows of fixings, 25mm and 50 mm from top edge of sheet, at 75 mm centres in each row, evenly spaced and staggered.
- Sheets less than 500 mm deep: May be secured with one row of fixings, 25 mm from top edge of sheet and evenly spaced at 50 mm centres.

710 FIXINGS

- Nails to timber substrates: Copper clout nails to BS 1202-2, or stainless steel (austenitic) clout nails to BS 1202-1.
  - Shank type: Annular ringed, helical threaded or serrated.
  - Shank diameter: Not less than 2.65 mm for light duty or 3.35 mm for heavy duty.
  - Length: Not less than 20 mm or equal to substrate thickness.
- Screws to concrete or masonry substrates: Brass or stainless steel to BS 1210, tables 3 or 4.
  - Diameter: Not less than 3.35 mm.
  - Length: Not less than 19 mm.
  - Washers and plastic plugs: Compatible with screws.
- Screws to composite metal decks: Self tapping as recommended by the deck and lead manufacturer/ supplier for clips.

715 CLIPS

- Material:
  - Lead clips: Cut from sheets of same thickness/ code as sheet being secured.
  - Copper clips: Cut from 0.7 mm thick sheet to BS EN 1172, temper designation R220 in welts, seams and rolls, R240 elsewhere; dipped in solder if exposed to view.

- Stainless steel clips: Cut from 0.46 mm sheet to BS EN 10088, grade 1.4301(304) terne coated if exposed to view.
- Dimensions:
  - Width: 50 mm where not continuous.
  - Length: To suit detail.
- Fixing clips: Secure each to substrate with two fixings not more than 50 mm from edge of lead sheet.
- Fixing lead sheet: Welt clips around edges and turn over 25 mm.

770 WEDGE FIXING INTO JOINTS/ CHASES

- Joint/ chase: Rake out to a depth of not less than 25 mm.
- Lead: Dress into joint/ chase.

- Fixing: Lead wedges at not more than 450 mm centres, at every change of direction and with at least two for each piece of lead.

- Sealant: As section Z22: Lead sealant / mastic by British Lead Mills .

780 WEDGE FIXING INTO DAMP PROOF COURSE JOINTS

- Joint: Rake/ cut out under damp proof course to a depth of not less than 25 mm.
- Lead: Dress lead into joint.

- Fixing: Lead wedges at not more than 450 mm centres, at every change of direction and with at least two for each piece of lead.

- Sealant: As section Z22: Lead sealant / mastic by British Lead Mills .

JOINTING LEAD

810 FORMING DETAILS

- Method: Bossing or leadwelding except where bossing is specifically required.
- Leadwelded seams: Neatly and consistently formed.
  - Seams: Do not undercut or reduce sheet thickness.
  - Filler strips: Of the same composition as the sheets being joined.
  - Butt joints: Formed to a thickness one third more than the sheets being joined.
  - Lap joints: Formed with 25 mm laps and two loadings to the edge of the overlap.
- Bossing: Carried out without thinning, cutting or otherwise splitting the lead sheet.
  - Details where bossing must be used: WHERE REQUIRED .

845 WOOD CORED ROLL JOINTS WITH SPLASH LAP

- Core: Timber as clause 640.
  - Size: 45 x 45 mm round tapering to a flat base 25 mm wide.
  - Fixing to substrate: Brass or stainless steel countersunk screws at not more than 300 mm centres.
- Undercloak: Dress three quarters around core.
  - Fixing: Nail to core at 150 mm centres for one third length of the sheet starting from the head.
- Overcloak: Dress around core and extend on to main surface to form a 40 mm splash lap.

865 DRIPS WITHOUT SPLASH LAPS

- Underlap: Dress into rebate along top edge of drip.

- Fixing: One row of nails at 50 mm centres on centre line of rebate.

- Overlap: Dress over drip to just short of lower level.

880 WELTED JOINTS

- Joint allowance: 50 mm overlap and 25 mm underlap.
- Copper or stainless steel clips (clause 715): Fix to substrate at not more than 450 mm centres.
- Overlap: Welt around underlap and clips and lightly dress down.

970 FINISHING

- Patination oil: As soon as practical, apply a smear coating evenly in one direction and in dry conditions, to: ALL LEAD.

M60 PAINTING / CLEAR FINISHING

COATING SYSTEMS

130A GLOSS PAINT TO NEW AND REFURBISHED CAST IRON RAINWATER GOODS

Manufacturer: Dulux

Product reference: Weathershield Exterior High Gloss.

Surfaces: New cast iron rainwater pipe and refurbished ornamental hopper.

Preparation: None required to new rainwater pipe. Existing rainwater hopper is to be abrasive cleaned to remove existing loose and flaking paint, cleaned and degreased ready for priming, and coating. Refer to manufacturer's Product Advice Sheets for full details.

Initial coats: Dulux Trade Metal Primer Undercoat.

Number of coats: One, dipped on site.

Undercoats: Dulux Weathershield Exterior Undercoat.

Number of coats: One, dipped on site.

Finishing coats: Dulux Weathershield Exterior High Gloss.

Number of coats: Two, dipped on site prior to installation of systems. Brush down each coating following dipping to prevent paint runs and touch up any scratches / damage by hand following installation.

130A GLOSS PAINT TO NEW / REFURBISHED TIMBER FLAGPOLE SUPPORT POST

• Manufacturer: Dulux Ltd., or equal / approved.

- Product reference: Weathershield Exterior High Gloss, or alternative manufacturer's equivalent oil based gloss.

• Surfaces: Existing refurbished / new timber flagpole support post.

- Preparation: Remove all loose and defective coatings from existing surfaces, if post does not require renewal, including stripping back to bare wood if necessary. Remove and treat any mould, algae, lichen or moss with 'Weathershield Fungicidal Wash'. Replace rotten wood and areas of troublesome knots etc with new timber to match existing species, spliced in as necessary. Refer to manufacturer's Product Advice Sheets for full details.

• Initial coats: Dulux 'Weathershield Aquatech Preservative Basecoat', or alternative manufacturer's equivalent.

- Number of coats: one, brush applied.

- Undercoats: Dulux 'Weathershield Exterior Undercoat', or alternative manufacturer's equivalent.

- Number of coats: Two, brush applied.

• Finishing coats: Dulux 'Weathershield Exterior High Gloss', or alternative manufacturer's equivalent.

- Number of coats: One, brush applied.

GENERALLY

215 HANDLING AND STORAGE

Coating materials: Deliver in sealed containers, labelled clearly with brand name, type of material and manufacturer's batch number.

Materials from more than one batch: Store separately.

240 SURFACES NOT TO BE COATED

External masonry generally.

280 PROTECTION

'Wet paint' signs and barriers: Provide where necessary to protect other operatives and general public, and to prevent damage to freshly applied coatings.

PREPARATION

400 PREPARATION GENERALLY

Standard: To BS 6150, Section 4.

Preparation materials: Types recommended by their manufacturers and the coating manufacturer for the situation and surfaces being prepared.

Substrates: Sufficiently dry in depth to suit coating.

Efflorescence salts: Remove.

Dirt, grease and oil: Remove. Give notice if contamination of surfaces/ substrates has occurred.

Surface irregularities: Abade to a smooth finish.

Joints, cracks, holes and other depressions: Fill with stoppers/ fillers. Work well in and finish off flush with surface. Abrade to a smooth finish.

Dust, particlaes and residues from abrasion: Remove.

Water based stoppers and fillers: Apply before priming unless recommended otherwise by manufacturer. If applied after priming: Patch prime.

Oil based stoppers and fillers: Apply after priming.

Doors, opening windows and other moving parts:

Ease, if necessary, before coating.

Prime resulting bare areas.

440 PREVIOUSLY COATED SURFACES GENERALLY

Preparation standard: To BS 6150, Section 6.

Removing coatings: Do not damage substrate and adjacent surfaces or adversely affect subsequent coatings.

Loose, flaking or otherwise defective areas: Carefully remove to a firm edge.

Alkali affected coatings: Completely remove.

Contaminated surfaces: Give notice of:

- Coatings suspected of containing lead.
- Substrates suspected of containing asbestos.
- Significant rot, corrosion or other degradation of substrates.

Retained coatings: Thoroughly clean to remove dirt, grease and contaminants.

Gloss coated surfaces: Abrade to provide a key.

Partly removed coatings:

Additional preparatory coats: Apply to restore original coating thicknesses.

Junctions: Abrade to give a flush surface.

Completely stripped surfaces: Prepare as for uncoated surfaces.

456 PREVIOUSLY COATED SURFACES: BURNING OFF

Risk assessment and action plan: Prepare, and obtain approval before commencing work.

Adjacent areas: Protect from excessive heat and falling. scrapings.

Exposed resinous areas and knots: Apply to coats of knotting.

Removed coatings: Dispose of safely.

622 ORGANIC GROWTHS

Dead and loose growths and infected coatings: Scrape off and remove from site

Treatment biocide: Apply appropriate solution to growth areas and surrounding surfaces.

Residual effect biocide: Apply appropriate solution to inhibit re-establishment of growths.

APPLICATION

711 COATING GENERALLY
Application standard: To BS 6150, Section 5.
Conditions: Maintain suitable temperature, humidity and air quality during application and drying.
Surfaces: Clean and dry at time of application.
Thinning and intermixing of coatings: Not permitted unless recommended by manufacturer.
Overpainting: Do not paint over intumescent strips or silicone mastics.
Priming coats:
-Thickness: To suit surface porosity.
-Application: As soon as possible on same day as preparation is completed.
Finish:
-Even, smooth and of uniform colour.
-Free from brush marks, sags, runs and other defects.
Cut in neatly.

740 CONCEALED METAL SURFACES
General: Apply additional coatings to surfaces that will be concealed when component is fixed in place.
Components: Gutter Brackets and rainwater goods fixing 'ears'.
Additional coatings: One undercoat.

R10 RAINWATER PIPEWORK / GUTTERS

TYPES OF PIPEWORK/ GUTTER

130A CAST IRON PIPEWORK FOR EXTERNAL USE: RAINWATER PIPE TO TOWER ROOF
Pipes, fittings and accessories:
- Standard: To BS 460.
- Manufacturer: J & J W Longbottom Ltd., Bridge Foundry, Holmfirth, Nr. Huddersfield, HD7 1AW. or equal / approved.
- Type: Rainwater Pipe Single Socket with Ears, A.601.
- Nominal sizes: 4" square.
- Finish as supplied: Dipped primed for painting.
- Finish / Colour: Apply 2 No. undercoats and 1 No. gloss by site dipping prior to installation. Hang vertically and brush down each coat to avoid paint runs. Touch up any damage / scratches when fixed.
- Accessories: A.603 Side Shoe (left hand) with ears, and any other components necessary to complete the installation as existing pipe drop.
- Fixing: Stainless steel fixing screws through HW timber bobbins to plugs into masonry.
- Jointing: Sealed socketed joints.
- Fixing: Cast Iron Brackets to timber fascias.

Other Requirements: None envisaged.

INSTALLATION

400 PREPARATION
- Timing: Before commencing work specified in this section.
- Work to be completed:
- Below ground drainage. Make arrangements for the temporary disposal of run off from the Tower roof into the underground system via the Nave roof. Contractor to agree method with C/A prior to commencing works.

410 INSTALLATION GENERALLY

- Discharge of rainwater: Complete, and without leakage or noise nuisance.
- Components: Obtain from the same manufacturer for each type of pipework/ guttering.
- Electrolytic corrosion: Avoid contact between dissimilar metals where corrosion may occur.
- Plastics and galvanized steel pipes: Do not bend.
- Protection:
  - Fit purpose made temporary caps to prevent ingress of debris.
  - Fit access covers, cleaning eyes and blanking plates as the work proceeds.
- Fixings/ Fasteners: As section Z20.

450 RAINWATER OUTLETS

- Fixing: Securely, before connecting pipework.
- Junctions between outlets and pipework: To accommodate movement in structure and pipework.

460 FIXING PIPEWORK

- Pipework: Fix securely at specified centres plumb and/ or true to line.
- Branches and low gradient sections: Fix with uniform and adequate falls to drain efficiently.
- Externally socketed pipes/ fittings: Fix with sockets facing upstream.
- Additional supports: Provide as necessary to support junctions and changes in direction.
- Vertical pipes:
  - Provide a loadbearing support at least at every storey level.
  - Tighten fixings as work proceeds so that every storey is self-supporting.
  - Wedge joints in unsealed metal pipes to prevent rattling.
- Wall and floor penetrations: Isolate from structure.
  - Pipe sleeves: As Section P31.
- Allowance for thermal and building movement: Provide and maintain clearance as fixing and jointing proceeds.
- Expansion joint pipe sockets: Fix rigidly to building. Elsewhere, use brackets/ fixings that allow pipes to slide.

465 JOINTING PIPEWORK/ GUTTERS

- General: Joint using materials, fittings and techniques which will make effective and durable connections.
- Jointing differing pipework/ gutter systems: Use adaptors recommended by manufacturers.
- Cut ends of pipes/ gutters: Clean and square with burrs and swarf removed. Chamfer pipe ends before inserting into ring seal sockets.
- Jointing or mating surfaces: Clean, and where necessary lubricated, immediately before assembly.
- Junctions: Form using fittings intended for the purpose.
- Jointing material: Strike off flush and remove surplus. Do not allow to project into bore of pipes, fittings and appliances.
- Surplus flux, solvent, cement: Remove.

510 ELECTRICAL CONTINUITY - PIPEWORK

- Joints in metal pipes with flexible couplings: Use clips (or suitable standard pipe couplings) supplied for earth bonding by pipework manufacturer to ensure electrical continuity.

570 GUTTER TEST

- Preparation: Temporarily block all outlets.
- Testing: Fill gutters to overflow level and after 5 minutes closely inspect for leakage.

Z10 PURPOSE MADE JOINERY

110 FABRICATION

- Standard: To BS 1186-2.
- Sections: Accurate in profile and length, and free from twist and bowing. Formed out of solid unless shown otherwise.
- Machined surfaces: Smooth and free from tearing, wooliness, chip bruising and other machining defects.
- Joints: Tight and close fitting.
- Assembled components: Rigid. Free from distortion.
- Screws: Provide pilot holes.
- Screws of 8 gauge or more and screws into hardwood: Provide clearance holes.
- Countersink screws: Heads sunk at least 2 mm below surfaces visible in completed work.

120 CROSS SECTION DIMENSIONS OF TIMBER

- General: Dimensions on drawings are finished sizes.
- Maximum permitted deviations from finished sizes:
- Softwood sections: To BS EN 1313-1:- Clause 6 for sawn sections.

Clause NA.2 for further processed sections.

- Hardwood sections: To BS EN 1313-2:- Clause 6 for sawn sections.

Clause NA.3 for further processed sections.

130 PRESERVATIVE TREATED WOOD

- Cutting and machining: Completed as far as possible before treatment.
- Extensively processed timber: Retreat timber sawn lengthways, thicknessed, planed, ploughed, etc.
- Surfaces exposed by minor cutting and/ or drilling: Treat with two flood coats of a solution recommended by main treatment solution manufacturer.

140 MOISTURE CONTENT

- Wood and wood based products: Maintained within range specified for the component during manufacture and storage.

250 FINISHING

- Joinery surfaces: Smooth, even and suitable to receive finishes.
- Arrises: Eased unless shown otherwise on drawings.
- End grain in external components: Sealed with primer or sealer as section M60 and allowed to dry before assembly.

Z11 PURPOSE MADE METALWORK

310 METAL PRODUCTS

- Standards: Generally, as specified in the following clauses.
- Fasteners: Generally, same metal as component, with matching coating and finish.

510 PREPARATION FOR APPLICATION OF COATINGS

- General: Complete fabrication, and drill fixing holes before applying coatings.
- Paint, grease, flux, rust, burrs and sharp arrises: Remove.

515 FABRICATION GENERALLY

- Contact between dissimilar metals in components: Avoid.

- Finished components: Rigid and free from distortion, cracks, burrs and sharp arrises.
- Moving parts: Free moving without binding.
- Corner junctions of identical sections: Mitre.
- Prefinished metals: Do not damage or alter appearance of finish.

535 WELDING AND BRAZING GENERALLY
- Surfaces to be joined: Clean thoroughly.
- Tack welds: Use only for temporary attachment.
- Joints: Fully bond parent and filler metal throughout with no inclusions, holes, porosity or cracks.
- Surfaces of materials that will be self-finished and visible in completed work: Protect from weld spatter.
- Flux residue, slag and weld spatter: Remove.

545 WELDING OF STAINLESS STEEL
- Method: TIG welding to BS EN 1011-3.
- Butt welds: Double bevel.

565 FINISHING WELDED AND BRAZED JOINTS VISIBLE IN COMPLETE WORK
- Butt joints: Smooth, and flush with adjacent surfaces.
- Fillet joints: Neat.
- Grinding: Grind smooth where indicated on drawings.

Z20 FIXINGS / ADHESIVES

To be read with Preliminaries/ General conditions.

110 FIXINGS GENERALLY
- Integrity of supported components: Types, sizes and quantities of fasteners/ packings and spacings of fixings selected to retain supported components without distortion or loss of support.
- Components/ substrates/ fasteners of dissimilar metals: Fixed with isolating washers/ sleeves to avoid bimetallic corrosion.
- General usage: To recommendations of fastener manufacturers and/ or manufacturers of components, products or materials fixed and fixed to.
- Appearance: As approved samples.

130 FASTENER DURABILITY
- Fasteners in external construction:
- Fasteners not directly exposed to weather: Of corrosion resistant material or with a corrosion resistant finish.
- Fasteners directly exposed to weather: Of corrosion resistant material.

140 FIXINGS THROUGH FINISHES
- Penetration of fasteners/ plugs into substrate: To achieve a secure fixing.

150 PACKINGS
- Function: To take up tolerances and prevent distortion of materials/ components.
- Materials: Noncompressible, noncorrodible, rot proof.
- Locations: Not within zones to be filled with sealant.

160 CRAMP FIXINGS

• Cramp positions: Maximum 150 mm from each end of frame sections and at 600 mm maximum centres.
• Fasteners: Cramps fixed to frames with screws of same material as cramps.
• Cramp fixings in masonry work: Fully bedded in mortar.

230 PELLETED COUNTERSUNK FIXINGS
• Finished level of countersunk screw heads: Minimum 6 mm below timber surface.
• Pellets: Cut from matching timber, grain matched and glued in to full depth of hole.
• Finished level of pellets: Flush with surface.

510 ADHESIVES
• Storage/ Usage: In accordance with manufacturer's and statutory requirements.
• Surfaces: Clean. Regularity and texture adjusted to suit bonding and gap filling characteristics of adhesive.
• Finished adhesive joints: Fully bonded. Free of surplus adhesive.

Z21 MORTARS

10 MORTAR MIXES
• Specification: Proportions and additional requirements for mortar materials are specified elsewhere.

25A SAND FOR LIME : SAND MASONRY MORTARS
• Type: Cefn Graianog Zone 2 well graded washed sand, Nosterfield, Leighton Buzzard, or contractor's choice to CA approval. Fuel Ash may also be required depending on analysis of existing mix.
- Quality, sampling and testing: To BS EN 13139.
- Grading/ Source: As specified elsewhere.

30A LIME FOR GAUGED MASONRY MORTARS
• Standard: To BS EN 998-2.
• Lime: St. Astier NHL 3.5.
• Mortar Mix ratio 1:3.
50 ADMIXTURES FOR SITE MADE MORTARS
• Air entraining (plasticizing) admixtures: To BS EN 934-3 and compatible with other mortar constituents.
• Other admixtures: Submit proposals.
• Prohibited admixtures: Calcium chloride, ethylene glycol and any admixture containing calcium chloride.

60 MAKING MORTARS GENERALLY
• Batching: By volume. Use clean and accurate gauge boxes or buckets.
• Mix proportions: Based on dry sand. Allow for bulking of damp sand.
• Mixing: Mix materials thoroughly to uniform consistency, free from lumps.
- Mortars containing air entraining admixtures: Mix mechanically. Do not overmix.
• Contamination: Prevent intermixing with other materials.

70 MAKING HYDRAULIC LIME:SAND MORTARS
• Mixing hydrated hydraulic lime:sand: Follow the lime manufacturer's recommendations for each stage of the mix.
- Water quantity: Only sufficient to produce a workable mix.

Z22 SEALANTS

31 JOINTS WHERE LEAD CHASED INTO MASONRY

- Primer, backing strip, bond breaker: Types recommended by sealant manufacturer.

EXECUTION

61A SUITABILITY OF JOINTS

- Before commencing, check that:
- Joint dimensions are within limits specified for the sealant.
- Surfaces are smooth and undamaged
- Preparatory work which must be done before assembly of the joint has been carried out, Inform CA if joints are not suitable to recieve sealant and submit proposals for rectification.

62 PREPARING JOINTS

- Surfaces to which sealant must adhere:
  - Remove temporary coatings, tapes, loosely adhering material, dust, oil, grease, surface water and contaminants that may affect bond.
  - Clean using materials and methods recommended by sealant manufacturer.
- Vulnerable surfaces adjacent to joints: Mask to prevent staining or smearing with primer or sealant.
- Backing strip and/ or bond breaker installation: Insert into joint to correct depth, without stretching or twisting, leaving no gaps.
- Protection: Keep joints clean and protect from damage until sealant is applied.

63 APPLYING SEALANTS

- Substrate: Dry (unless recommended otherwise) and unaffected by frost, ice or snow.
- Environmental conditions: Do not dry or raise temperature of joints by heating.
- Sealant application: Fill joints completely and neatly, ensuring firm adhesion to substrates.
- Sealant profiles:
  - Butt and lap joints: Slightly concave.
  - Fillet joints: Flat or slightly convex.
- Protection: Protect finished joints from contamination or damage until sealant has cured.

Sandiway St John the Evangelist - Correspondence with parish and others

Attachments are listed according to the numbering on the supporting documents list

- Attachments in blue are included within the proposals section
- *Attachments in black italics are superseded and not included within the application*

Date	Message
01/06/2022 To: Katy Purvis From: Jim Wren	We now have drawings and a specification for the tower roof repairs and I have asked Duncan Sanderson to obtain tender prices for the work. I would like to start the Faculty process at the same time/alongside and realised a cost estimate is required as part of the submission, usually based on contractors' tenders. We have a cost estimate from a QS firm as part of our process and wondered whether, to save time, this would suffice for the cost estimate?
01/06/2022 To: Jim Wren From: Katy Purvis	Hi Jim, that's fine, the DAC don't usually consider the cost of proposals, it is a legal requirement that there is an estimate, but it is often not provided until after a recommendation, so only seen by the registry and chancellor. The dac are much more concerned with what is being done, why and how, and trust parishes to decide whether they can fund the works
01/07/2022 To: Ruth Mock From: Caroline Hilton	I am writing to let you know that at its meeting of 24 June 2022 the DAC considered the proposals for the works to the tower roof and it resolved, subject to you submitting a faculty application to recommend the scheme with the following proviso: a. The works to be under the direction and subject to the inspection of the Scheme Architect This means once you have submitted the faculty application on the Online Faculty System I will be able to raise the Notification of Advice, which will allow you to proceed with the public notice period. If you have any queries please do let me know.