

## ST PAUL'S BOW COMMON

### Urgent Repairs Project – HLF Development Stage

Outline Schedule of Works for Tender | Document Ref: 201407-500 | **Rev 4** | **29 December 2014**



**Figure 1.** View of St Paul's Bow Common from the South-west

**ISSUE FOR HLF / EH REVIEW AND COMMENT PRIOR TO TENDER [STAGE 3]**

29 December 2014

## 1.0 Introduction and Context of the Project

This urgent repair project was conceived as a direct response to the partial collapse of the ceiling linings to the lantern over the central High Altar at St Paul's Bow Common, which occurred on a very hot July day in 2013.

During the project Development Stage, much work has been done to better understand the nature of the historic wood wool panels which line the inner face of the lantern, giving a unique appearance which is a central part of the character of the interior of the church.

As far as can be determined, the use of wood wool in such a way to achieve a textured, two-tone decorative finish in a post-war building is unique. Prior to the installation of the mosaics by Charles Lutyens, the lantern ceiling and blue painted frames to the structural glazing below provided the main source of colour against the interior backdrop of purple-grey fair-faced brickwork, insitu cast reinforced concrete and neutral tones to concrete pavements where other decorated elements such as flat acoustic panelled ceiling and columns to the aisle were picked out in white emulsion.

The BRE (Building Research Establishment) have carried out monitoring and testing to better understand the physical properties of the material itself, and the particular environmental conditions to which it is subjected.

The results of these studies have informed the proposals for repair contained within the Schedule of Proposed Works in

Section 4.0 of this document.

## 2.0 Outline Statement of Significance

St Paul's Bow Common by Robert Maguire and Keith Murray (1959-60) is a post-war church of great significance, and is the vanguard of the Liturgical Movement in the Anglican Church.

In 2013 this was recognised when it was awarded the best post-1953 church in Britain, following a competition held by the National Churches Trust / Ecclesiastical Architects and Surveyors Association / The C20 Society on the occasion of the 60<sup>th</sup> anniversary of the National Churches Trust.

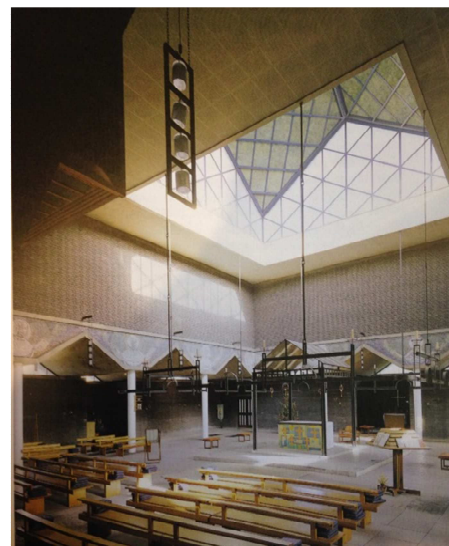


Figure 2. Interior view of St Paul's Bow Common, from E. Harwood, *England – A Guide to Post-war Listed Buildings*, London: Ellipsis, 2003, p 534



Figure 3. Location of wood wool ceiling panels which fell from the high level lantern in July 2013



Figure 4. Fragments of wood wool and plywood battens recovered from the collapsed section of the ceiling

St Paul's Bow Common was the project that launched the practice of Robert Maguire and designer-craftsman Keith Murray, and together they would go on to conceive a remarkable series of churches and other religious buildings including St Matthew's Church, Perry Beeches, Birmingham, All Saints, Crewe in Cheshire and St Mary's Abbey church, West Malling, Kent.

Not only did Maguire and Murray completely re-think the design of churches, but they also are credited with reinventing the typology of both school buildings and student accommodation, with significant projects including the Bow Common Primary School (adjacent to St Paul's Church) and Stag Hill Court student houses. Though small, the design led practice was highly influential within the changing context of post-war architecture in the UK. Their reputation developed for pursuing the intellectual and architectural toughness of the style known as New Brutalism with the humanity and warmth of the Scandinavian tradition

Maguire and Murray were deeply engaged in the New Churches Research Group, through which the Liturgical Movement, originating in Europe between the wars, arrived in England with significant impact and changed the manner of worship in the post-war era. The design for St Paul's Church at Bow Common is considered to be one of the first full and authentic expressions of the ideas of the Liturgical Movement which sought to place the

High Altar centrally within the worship space and to break down perceived or physical barriers between the celebrant of the Eucharist and the worshipping community. An inclusive, more participatory liturgy and inherent flexibility in how the bench seating could be arranged were key aspects of the Brief for the new church which was inspired by the Vicar, Rev Gresham Kirkby.

In response to this, Maguire and Murray sought to conceive an appropriate modern setting for worship and Maguire in particular looked to the centrally planned churches by Rudolf Schwarz in Rhineland and also the symbolism of the centralised church plans of Renaissance Italy and Rudolf Wittkower's rediscovery of the sacred meaning of their geometry.

Despite the dominance of the centralised plan at St Paul's, the conception of the space includes a rich layering of ideas. Whilst the principal axis extends from the ceremonial west doors through to the articulated Chapel of the Blessed Sacrament, the alternative route through the octagonal Porch (where one enters beneath Ralph Beyer's recessed lettering which proclaims '*... This is the Gate of Heaven*') delivers one from darkness into light, symbolically moving past the baptismal font positioned at the intersection of the northern and western processional routes within the perimeter aisles. This route is set beneath the relatively low, reinforced concrete roof slab which concertinas on all sides of the

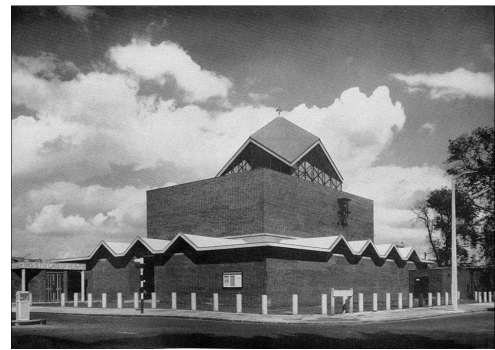


Figure 5. View of St Paul's Bow Common shortly after completion in 1960. All B&W historic images have been sourced from *The Architectural Review*: Volume CXXVIII No 766 Dec 1960; pp 401-5.

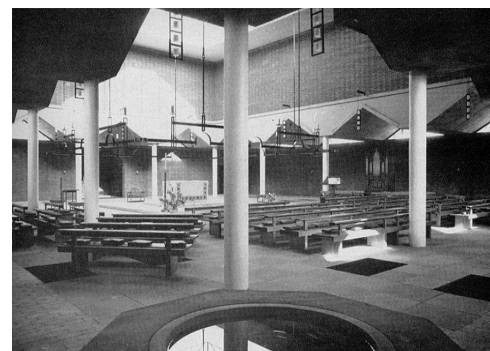


Figure 6. Interior view across the font looking towards the High Altar



church to create intermittent triangular glazed gables above the perimeter brickwork walls. These do allow a degree of daylight into the interior, but the aisles remain dimly lit in contrast to the central worship space which is flooded with daylight from the diamond shaped lantern which is glazed on all four sides such that the incredibly fine roof structure appears to float above the principal cubic volume of the church.

The simple but bold techtonic expression is created through a simple palette of materials and authenticity in construction – lbstock bricks and fair-faced concrete – which embodies the spirit of sacramentalism, that is, ordinary things made special through a transformative process, in this case, inspired design.

In his recent Monograph about the work of Bob Maguire and Keith Murray, Gerald Adler suggests Bow Common is *“the most famous and significant parish church to be built in Britain in the latter half of the twentieth century. It crystallised architectural and theological thinking about the form that the church should assume in the post-war era. It was a highly symbolic project, the one which would bring the practice critical acclaim.”*<sup>1</sup>

### 3.0 Present Condition of St Paul’s Bow Common

As the Church approaches 55 years of age, it remains remarkably intact, however many of the original materials are approaching the end of their serviceable life. For example, pitch-fibre pipework used for below ground drainage and the embedded rainwater pipes concealed within the brickwork cavities to the aisle walls require complete replacement and rehabilitation respectively. In the case of the wood wool ceiling panels, long-term exposure to the particular micro-climatic conditions within the glazed lantern at high level have caused a particular pattern of decay.

Additionally, a lack of regular routine maintenance over the years has led to the current backlog of items which now require urgent attention. Consequently the current repair project seeks to repair and make-safe the wood wool ceiling and also address the most urgent of the backlog maintenance items to prevent water ingress into the interior. Please also refer to the most recent Quinquennial Inspection prepared by the previous Inspecting Architect, John Allan of Avanti Architects in 2012.

Modern buildings don’t always age gracefully: a characteristic which is clearly evident in the external appearance of St Paul’s Bow Common. Considerable investment is now required to restore the building to a condition which befits its significance as a grade II\* listed building.



Figure 7. Interior view towards the north aisle shortly after completion



Figure 8. View of the glazed lantern and bell frame of St Paul's from the South-east. The Hall roof fascia and strip glazing can be seen in the foreground

<sup>1</sup> G, Adler, *Robert Maguire and Keith Murray*, London: RIBA Publishing, 2012, p 29.

#### 4.0 Schedule of Proposed Works

The following Schedule of Works is to be read in conjunction with all other drawings and specification sections as indicated on the Document Issue Register.

Please note that the Schedule has been colour-coded to clearly identify the works which form part of the HLF funded repair project, and additional works which may form part of the Contract, subject to securing the requisite funding.

KEY:  HLF URGENT REPAIRS PROJECT

 ADDITIONAL REPAIRS TO BE TENDERED AT THE SAME TIME

Item	Task	References
1.0	<b>SCAFFOLDING AND TEMPORARY ACCESS ARRANGEMENTS</b>	
1.1	<p>Refer to Contract Preliminaries and Structural Engineer's Specification for Access Scaffolding Ref: EJM/CE/REP/15580~scaffold</p> <p>The contractor must provide details of proposed access scaffold and the requirement for any physical fixings into the existing building fabric must be highlighted and justified as unavoidable.</p> <p><b>NOTE ON ACCESS REQUIREMENTS:</b></p> <p>The Client may wish to decorate the underside of the temporary working platform which will cover the entire footprint of the high level lantern.</p> <p>Within their construction phase programme, the main contractor is to include a provisional allowance for installation and dismantling of:</p> <ul style="list-style-type: none"> <li>- temporary lighting beneath the working platform (to be controllable from church floor level</li> <li>- fabric/artwork to be suspended beneath the working platform (all installation to be carried out from above, requiring coordination with the scaffolding subcontractor).</li> </ul> <p>Some elements of the Works will require access into the Vicarage Garden. These Works are to be programmed to ensure the minimum period of disruption and specifically highlighted on the Contractor's Tender Stage Programme for discussion with the CA/Employer.</p> <p>Similarly, where the Works to the Hall and Vestry Roofs may impact upon those using the building, these shall be specifically highlighted on the Contractor's Tender Stage Programme for discussion with the CA/Employer.</p>	

2.0	<b>TEMPORARY PROTECTIONS</b>	
2.1	<p>Where reroofing and/or reglazing works are required, the contractor is to provide and maintain effective protections against the ingress of dust, debris or water into the interior of the building, or into any rwp.</p> <p>Provide temporary covers and drainage as required to keep unfinished areas of the roof dry and to ensure the effective interim disposal of rainwater whilst repairs to the embedded rwps are being carried out.</p>	
2.2	The Contractor is to provide all Risk Assessments and Method Statements to the Contract Administrator for review and comment prior to commencement of the works.	
2.3	Protections to the pipework of the organ are to be specified and installed by Manders who are responsible for regular servicing.	
3.0	<b>REPAIR OF WOODWOOL CEILING LINING TO LANTERN</b>	
	<p><i>Interpretation of the BRE's environmental monitoring data and materials testing results suggests that the existing wood wool panels may have become friable at the edges where they bear on the structural steel framing to the lantern. This may have been caused over the longer-term by condensation collecting on the upper face of the bottom flange to the steel channels, and eroding the cement binder to the panel, or being absorbed by the wood fibres themselves. Failure of degraded bearing edge/s of the wood wool panels may have caused the panel to fall in July 2013, and this assumption has guided proposals for new mechanical fixings of the panels and the introduction of a separating strip between panels and the upper face of the steels.</i></p>	
3.1	<p><b>OPTION A: Subject to further evaluation once all wood wool panels can be removed and tested</b></p> <p><b>'Retain as much of the original wood wool as possible'</b></p> <p>Carry out joint inspection of existing wood wool slabs with Architect and schedule all panels to be removed and replaced due to inadequate bearing, friable edges to wood wool panels and/or excessive deflection across the panel width.</p> <p>Assume 15% replacement and record the location of all new panels. However, if site testing reveals that replacement of more than 35% of the existing wood wool is required, it will be more cost-effective to replace all the wood wool, and OPTION B will apply.</p> <p>NOTE: All existing woodwool panels are to be carefully removed in sequence from the lantern apex down to the eaves. Working with 1 structural bay at a time, one 'diamond' at a time, to label and set-aside panels in sequence to ensure they are returned to the correct location upon reinstatement. Contractor to prepare a method statement for comment prior to commencement of any works.</p> <p>As part of testing prior to reinstatement, weigh down each wood wool</p>	<p>Drawing 201409-120 + 121</p>

	<p>panel exhibiting distortion across its length (decorated side up) to determine potential to counter historic deflection when refixing.</p> <p>Whilst the wood wool panels are removed, carry out a comprehensive condition survey of the underside of the 'Hyrib' aluminium roof sheeting and its fixing brackets.</p> <p>Provide and install new softwood sub-frame on 60 x 40 x 60 BAT angle brackets shot fired into existing steel purlins, across entire of lantern ceiling to provide support framework for mechanical fixing of the existing and new wood wool panels.</p> <p>Where new wood wool panels are required to match existing: source 50mm thick Celenit A panel (Ecobiocompatible Grey Cement), [Contact: Celenit Spa: 35019 Onara di Tombolo – PD – Via Bellinghiera, 17 – Italy. Ph +39 049.5993544 E: <a href="mailto:info@celenit.com">info@celenit.com</a> W: <a href="http://www.celenit.com">www.celenit.com</a>]</p> <p>Cut full panels (600 x 2000) down to size (as shown on dwg 201407-116). Decorate one side of the panel only with 2-tone colour scheme to match original as M60. Prepare samplework for Architect's approval.</p> <p>Prior to installation, fix new black silicon rubber strip (15 x 5/6mm) along short ends of each wood wool panel, pinned/screwed into position.</p> <p>Reinstate lower panels first, working systematically upwards towards the apex. Fixings to long edges of panels at top and bottom to be 3 no wood screws and proprietary washers (min. dim 20mm dia.) or wide headed screws (min. dim 15mm dia.)</p> <p>Allow to decorate the panels and all screw heads/washers to tone with the green/blue colour scheme (two consecutive coats, two colour ways) to match the appearance of the original panels.</p>	
3.2	<p><b>OPTION B: Should inspections reveal that more than 35% of the wood wool actually requires replacement</b>  <b>'Replace all existing wood wool with new'</b></p> <p>Remove all existing wood wool panels and plywood battens from ceiling. Set aside 3 no. pieces of wood wool to be used in interpretation panel/display.</p> <p>Provide and install new softwood sub-frame on 60 x 40 x 60 BAT angle brackets shot fired into existing steel purlins, across entire of lantern ceiling to provide support framework for mechanical fixing of the new wood wool panels in accordance with Manufacturer's specification.</p> <p>New wood wool panels are to be: 'Heraklith' standard wood wool roof board 600 x 2000 x 50 from Marmox (UK) Ltd, Caxton House 101-103, Hopewell Drive, Chatham, Kent, ME5 7NP ph 01634 835 290. Surface</p>	

	<p>finish: 'Fine'.</p> <p>Cut full panels (600 x 2000) down to size (as shown on dwg 201407-121). Decorate one side of the panel only with 2-tone colour scheme to match original as M60. Prepare samplework for Architect's approval.</p> <p>Prior to installation, fix new black silicon rubber strip (15 x 5/6mm) along short ends of each wood wool panel, pinned/screwed into position.</p> <p>Reinstate lower panels first, working systematically upwards towards the apex. Fixings to long edges of panels at top and bottom to be 3 no wood screws and proprietary washers (min. dim 20mm dia.) or wide headed screws (min. dim 15mm dia.)</p> <p>Allow to decorate the panels and all screw heads/washers to tone with the green/blue colour scheme (two consecutive coats, two colour ways) to match the appearance of the original panels.</p>	
4.0	<b><u>CREATE NEW TRICKLE - VENTILATION DETAIL AT FASCIA and APEX OF LANTERN</u></b>	
	<i>There is currently no means of passive or mechanical ventilation to the interior of St Paul's Bow Common. At high level this may be contributing the problem of condensation within the lantern, and so a new detail to introduce background passive ventilation is proposed.</i>	
4.1	<p><b>Works to the Existing Fascia</b></p> <p>Carefully drill 2 no. 15mm wide slots approximately 100mm long in the existing 5/8" plywood fascia at the apex on each elevation. Contractor to propose method (but it is assumed that fascia boards will be taken out of position and then refixed in place following alterations. Allow for 50% replacement of existing plywood with new WBP of equivalent dimensions).</p> <p>Fix fine gauge insect mesh to inside face of the fascia board and decorate external face to match the colour of the fascia [Ref: 10YR 12/375], prior to refixing in position.</p>	<p>Drawings 201409-117 201409-118</p>
4.2	<p><b>Works to the flashing to the finial at the apex of the lantern roof</b></p> <p>All details to be confirmed following removal of existing roof coverings. Remove existing non-original flashing to base of crucifix finial at apex of the lantern roof and replace with new base flashing section fabricated to an increased height to accommodate a ventilation detail.</p> <p>Carefully remove existing finial and base connection (existing method of fixing is not known but brackets bolted to primary steels at the apex of the lantern is assumed).</p> <p>Weld a new square section to the base of the finial to extend its length</p>	<p>Drawing 201409-119</p>



	<p>by 75mm, to match all original details including the materials (presumed aluminium).</p> <p>Re-fix new base on brackets into original location. Provide and install new profiled aluminium 'skirt' with perimeter upstand around base of finial, to deflect the passage of any wind-driven rain up the plane of the roof.</p> <p>Reinstate crucifix on new extended base section and house new profiled aluminium capping with insect mesh backing into position.</p> <p>The Contractor is to provide metal-worker's shop drawings for Architect's review and comment prior to the commencement of manufacture.</p>	
5.0	<b><u>GLAZING REPAIRS TO THE LANTERN</u></b>	
	<p><i>There are a number of existing slim double glazed units to the lantern which have been broken, however, the inner panes remain intact and appear to be weather-tight. There are also a number of units where the seal to the cavity has failed, allowing condensation to form within. Whilst repair is highly desirable as broken units are filling with water, the damage is not currently allowing water ingress directly into the interior, so may be considered slightly less urgent than the other repairs scheduled.</i></p> <p><i>Rather than propose a like-for-like replacement of the existing defective double glazed units (at a cost of around £25K), it is considered desirable to improve the specification to achieve better thermal performance of the building envelope in this location. The objective is to moderate the internal environment within the lantern (and therefore the church) and to reduce the range of temperature variation caused by uncontrolled solar gain as well as heat loss through the glass.</i></p> <p><i>The nature of the structural glazing dictates that this cannot be done in a piecemeal fashion, and at a minimum could only be phased one façade at a time. Accordingly, works to holistically upgrade the glazing to the lantern have been deferred from this HLF Project Scope. Tenders will be sought so that the works can be instructed as and when future grant funding permits.</i></p>	
5.1	<p><b>Complete reglazing of the lantern to improved specification:</b></p> <p>Remove all existing double glazed units (4mm:6mm:4mm) and replace with new improved specification as proposed by Pilkington Technical (refer attached Specification Section L40).</p> <p>Type 1 – Equilateral triangular units 1650 x 1650 x 1650</p> <p>Type 2 – Isosceles triangular units 1650 x 1275 x 900</p>	<p>Drawings 201407-111 to 201407-115</p>

	<p>TO ALL ELEVATIONS:</p> <p>Replace 28 no. Type 1 units with new [13.5 -16-6]</p> <p>Replace 8 no. Type 2 units with new [13.5-16-6]</p> <p>Existing 22mm x 22mm steel angle beads to be retained and reused: Specialist Contractor to carry out trial sample installation to agree methodology.</p> <p>Fill all existing holes in beads and frames with a metal filler (Unibond Epoxy Repair : Metal). Tap new holes through both and screw fix with 5mm machine screws x 12mm long @ 250mm centres.</p> <p>Following removal of existing glazing, carry out joint condition survey with Structural Engineer to confirm scope of the repairs as described on the drawings. Allow to comprehensively treat all evidence of surface corrosion to existing steel frame.</p> <p>Prepare and redecorate steel frame to match colour of original coatings as Structural Engineer's Specification G20 / M60 [Leigh's Paints 3 coat system. Final Coat: Resistex C13732 Colour Reference: To architect's selection based upon analysis of original paint coatings]</p> <p><b>PROVISIONAL ALLOWANCE</b></p> <p>Carry out analysis of the original blue paint coatings to obtain a colour match, and there is a discrepancy with the colour of the top coat which is a different shade of blue (suggest Catherine Hassell).</p>	
6.0	<b><u>REPAIRS TO VESTRY ROOF</u></b>	
6.1	<p>Carry out localised repairs to existing mastic asphalt coverings to Vestry Roof as follows:</p> <ul style="list-style-type: none"> <li>- Repair split along fillet to upstand on south and western abutments with brickwork wall to church. Approximate length: 3m</li> <li>- Incorporate new movement detail with lead over asphalt upstand as per Architect's detail.</li> </ul>	Drawing 201407-104
6.2	<p>Strip out existing temporary protections and weatherings to 2 no. 8ft x 2ft rooflights to Vestry as C20.</p> <p>Replace with new rooflights as Architect's drawings and specification. Insulate upstands with 60mm Celotex closed cellular flat panel insulation in conjunction with these works.</p> <p><i>NOTE: Original 4 no. small square roof lights over the wcs to be retained as they are not leaking, and could be easily accessed for replacement in the future as and when necessary.</i></p>	<p>Drawing: 201407-116</p> <p>Specification C20/10</p>
6.3	Locally remove and replace rotten sections of the original softwood T&G boards to the Vestry ceiling and replace any ceiling framing where	

	<p>this has also been damaged by long-term water ingress. Replace to match existing original materials and details (100mm wide boards). Allow 2.0m<sup>2</sup> area.</p> <p>Redecorate T&amp;G boards to Vestry ceiling complete.</p> <p><i>NOTE: Water staining to the internal brickwork walls (to both the Vestry and Aisles of the Church) will be addressed under a subsequent contract following a period of drying-out.</i></p>	
7.0	<b>REPAIRS TO HALL ROOF</b>	
7.1	<p><b>Resolve ponding at the east end of the existing flat roof: Create new outlet and install down pipe to the north-east corner of the hall</b></p> <p>Retain existing ¾" asphalt roof coverings as installed.</p> <p>Form new sump 300mm x 300mm with outlet in the north-west corner of the roof to the Hall, breaking out existing screed and wood wool slabs as necessary. Location governed by position of rwp below.</p> <p>On new WBP plywood formwork, dress new asphalt coverings into existing to ensure a waterproof lining.</p> <p>Install new rain water pipe [Allow SS square section pipe 100 x 100] secret-fixed to the existing brickwork walls and form new connections with existing below ground drainage runs in the Vestry Garden which are to be replaced.</p> <p><i>NOTE: Consideration may be given to harvesting the rainwater gathered from this pipe for watering gardens / future grey water recycling scheme.</i></p>	Drawing: 201407-105
7.2	<p>Provisional allowances: Locally build-up roof to improve falls with mastic asphalt, should Contractor's level survey reveal a 'dip' in the east end of the flat roof.</p>	Refer to Drawing 105
7.3	<p>Fully replace rotten plywood fascias to west and south sides of roof with new external grade WBP plywood to match existing and decorate.</p> <p>Include provisional allowance for replacement of any rotten timber framing behind fascia.</p>	
8.0	<b>RENEWAL OF ROOF COVERINGS TO THE PORCH</b> <b>with associated concrete repairs</b> (Item 9.1 below)	
	<i>Like-for-like replacement of the original mastic asphalt roof coverings is not considered critical in this location. It is not visible from any key view of the Church, and neither the original choice of material, nor the material itself is considered to have any significance. Single ply roofing</i>	

	<i>membranes were not available at the time St Paul's Bow Common was constructed, but arguably, had they been, Bob Maguire would have embraced this technology which brings with it considerable cost benefits with the same materials warranty as an asphalt covering.</i>	
8.1	<p>Carefully strip back all existing, original <math>\frac{3}{4}</math>" asphalt roof coverings to enable full inspection of the existing screed to the concrete roof slab of the Porch. Remove all arisings from site.</p> <p>Carry out level survey to establish falls to the roof deck are adequate in the direction of the outlet in the SE corner (to achieve a minimum finished fall of 1:80).</p> <p>Coordinate with Specialist Concrete Repairs Contractor to allow access to survey and repair slab wherever necessary in accordance with Martech's specification.</p> <p>Include provisional allowance for removal of screed, if required. Include provisional allowance for patch repairs to the screed. Include provisional allowance for re-grading the screed to achieve minimum 1:80 falls towards the outlet position</p> <p>Include provisional allowance for concrete repairs to the slab. Allow for introduction of corrosion inhibitors [Margel pellets] into the concrete slab from the top side, and making good holes with proprietary repair mortar, all as Martech's Concrete Repair Specification. [NOTE: Contractor's Risk Assessment and Proposals for temporary protections are to evaluate any risk to Ralph Beyer's inscription to 3 sides the fascia prior to the commencement of any works.]</p> <p>To the east parapet upstand, core-drill new 75mm diameter overflow, set 50mm from the base of the gutter. Agree precise set out with Architect on site to ensure effective discharge of rainwater should outlet become blocked. Introduce new overflow pipe within cored hole to contain passage of water and dress single ply membrane into the pipe to form a waterproof junction. Refer to Architect's detail no 5.</p> <p><i>[OPTION: Subject to the degree of improvement which can be achieved with the single existing outlet: Form new additional outlet in the concrete slab, immediately below the new over-flow on the east side of the roof.]</i></p>	<p>Drawing 201407-103</p> <p>Refer to the Concrete Repair Specification Section 1.2.3 prepared by Martech</p> <p>Refer to Drawing 103</p>
8.2	<p>Following concrete repair, install new Kingspan 120mm flat board insulation to full extent of roof, excluding 300mm wide set-down along the east side of the roof to form a new gutter. Install 80mm Kingspan flat board insulation to the gutter.</p> <p>Clean inside face of concrete parapet to remove soil/vegetation. Install new 12mm WBP plywood backing to perimeter upstand and top</p>	



	<p>of parapet following any required concrete repair works. Upstand dimension varies in height from 250mm – 320 mm.</p> <p>Install Sika Sarnafil G410-12ELF Light Grey single ply roofing membrane to roof plane and parapets over new vapour control layer, all in accordance with manufacturer's recommendations and best practice installation guidelines. Roofing subcontractor must be on the list of Sika's Approved Installers.</p>	
8.3	<p>Carefully remove and set-aside for reuse the existing profiled aluminium cappings to all parapets. Following reroofing works, refix cappings to ensure original appearance is preserved. Contractor to ensure a waterproof detail when cappings are reinstated over Sarnafil coatings.</p>	
8.4	<p>Replace down pipe to north side of Link building between Porch and Church, where previously this has been removed. New rwp to be continuous flat rectangular section with anti-climb paint/smartwater, with secret fixings into brickwork.</p> <p>Form new connection to below ground drainage runs along north side of church. Allow to carefully lift and reinstate existing concrete pavements following excavations to install drain runs (Subject to negotiation of permissions from Tower Hamlets Council.)</p>	
8.5	<p>Replace 3 no broken 4mm glass panes between brickwork walls and u/s of concrete slab:</p> <p>Option A: Like-for-like replacement 4mm clear float glass pane set into existing rebate in concrete slab</p> <p>Option B: Upgrade to slimline double glazed unit such as Histoglas or equal approved (no solar gain properties, low iron glass).</p>	
9.0	<b>CONCRETE REPAIRS</b>	
9.1	<p>Prepare sample work of concrete repair techniques and materials as prescribed by Martech's Specification (if not carried out in the Development Phase) for approval by Architect, Structural Engineer and English Heritage.</p> <p>Prepare samples of:</p> <ol style="list-style-type: none"> <li>1) insitu patch repair (north-east corner) to review proposed facing mix as per Martech's specification;</li> <li>2) Sandtex coating to closely match the colour/appearance of the existing fair-faced concrete</li> <li>3) Sikagard Clear Glaze 680s Anti-carbonation coating</li> <li>4) Facing repair mix based upon composition of original concrete mix</li> </ol> <p>Carry out patch repairs to the fair-faced insitu-cast reinforced concrete slab over the Porch in connection with re-roofing works as noted in</p>	Refer to Martech's Specification

	<p>Section 8.1 above.</p> <p>Carry out patch repairs to concrete slab soffit and edge upstand to the West (Main Entrance) Façade.</p>	
9.2	<p>OPTION B: Carry out full schedule of repairs to include concertina concrete slabs to the aisle roofs and edge upstands to all sides of the Church.</p>	<p>Refer to Martech's Specification and Bill of Quantities</p>
<b>10.0</b>	<b><u>REPAIR CAST-IN PITCH FIBRE RAINWATER PIPES</u></b>	
10.1	<p>All as recommended in the Drainage Consultant's Report:</p> <p>Re-line all 15 no. original pitch fibre rainwater pipes with cast-iron collars set in voids within the low level brickwork walls to the aisles of the church and within the external SE column to the porch.</p> <p>Install Cure-in-Place resin liners by Metro-Rod as per high level repairs project of 2005 (to avoid damage to the appearance of the fair-faced brickwork walls.</p> <p>In addition to the above works, break out and reform bends at base of pipes to X no RWPs. Provisionally allow for 5 no. TBC by Shakespeare Pullen &amp; Slade's Schedule of Works (still awaited).</p>	
<b>11.0</b>	<b><u>BELOW GROUND DRAINAGE</u></b>	
11.1	<p>All as recommended in the Drainage Consultant's Report:</p> <ol style="list-style-type: none"> <li>1) Break out existing pitch fibre drainage runs and replace complete.</li> <li>2) Retain but clear out existing manholes and form new connections with pvc drainage runs</li> <li>3) Jet out all existing cast iron rainwater pipes to remove build-up of scale etc</li> </ol>	
<b>12.0</b>	<b><u>External Works in connection with renewal of below ground drainage runs</u></b>	
12.1	<p>OPTION A ['de minimus' scope of work]: Replenish gravel to re-establish levels and improve general appearance of the Forecourt</p> <p>Reinstate loose gravel surface to forecourt / carpark to improve surface water run-off.</p> <p>Contractor to source a suitable match to the existing, and present to Architect for approval.</p>	

	Re-distribute existing gravel and mix evenly with new mix to ensure an even appearance overall, and level surface.	
12.2	<p>OPTION B [Preferred scope of work to be carried out in conjunction with excavations required to replace below ground drainage runs in any case, in order to achieve best value for money]</p> <p>Locally excavate made-up ground where levels have increased above the dpc of the external brickwork walls to:</p> <ol style="list-style-type: none"> <li>1) East side of Lady Chapel</li> <li>2) West side of the Lady Chapel (outside site boundary on open park land owned by Tower Hamlets)</li> <li>3) Against north wall of the Vestry</li> </ol> <p>Confirm with Vicar any plants to be salvaged for replanting, and dig up/ protect root ball and set aside for replanting.</p> <p>Following reduction of levels, provisionally allow for a layer of new top-soil (depth to be confirmed), and replanting of any salvaged plants.</p> <p>To Area 2 make good and reinstate / lay new turf to replace that which was removed.</p>	