Construction Method Statement
St Marks Coptic Orthodox Church, London, W8 6UX

09.06.2015 – Construction Method Statement – St Mark’s Coptic Orthodox Church - DK

Revision A - 22.09.2015 – DK
Project Ref: 2240

17th Sept 2015

Mr Martin Lomas
Royal Borough of Kensington & Chelsea
Planning & Borough Development Department
Ground Floor
Town Hall
Hornton Street
London
W8 7NX

Dear Mr Lomas,

Re: Proposed Basement – St Mark’s Coptic Orthodox Church, London, W8 6UX.

The Structural Design Philosophy has been prepared by Ed Alexander (B.Eng) and checked by Brian Cochrane (BEng CEng MInstRctE).

The following documents have also been checked and are to be read in conjunction with the above mentioned Structural Design Philosophy;

1. Construction Method Statement,
2. Structural Stability report
3. Executive Summary.

It should be noted that the Site Investigation and Hydrology Report form the basis of the Structural Calculations which have informed the content of the Construction Method Statement and Design Philosophy.

If you have any queries, please do not hesitate to contact us.

Yours faithfully

[Signature]

Brian Cochrane
Contents

1.00 Introduction........................................................................................................................................... 5
2.00 Project Overview...................................................................................................................................... 6
3.00 Site Investigation..................................................................................................................................... 6
4.00 Trial Pit Investigation.............................................................................................................................. 7
5.00 Site Preparation & Enabling Works.......................................................................................................... 7
6.00 Datum Level Orientation.......................................................................................................................... 8
7.00 Underpinning........................................................................................................................................... 8
8.00 Structural Steelwork................................................................................................................................. 9
9.00 Below Ground Drainage.......................................................................................................................... 10
10.00 Basement Floor Slab............................................................................................................................... 10
11.00 De-watering – Construction Phase......................................................................................................... 10
12.00 Water Management – Post Construction............................................................................................. 11
13.00 Padstone & Spreader Plate Installation.................................................................................................. 11
14.00 Installation of Steel Beams..................................................................................................................... 11
15.00 Working Hours..................................................................................................................................... 12
16.00 Temporary Works.................................................................................................................................. 12
Appendices

(i) Architectural Plans
(ii) Engineering Plans
(iii) Structural Calculations
(iv) Site Investigation Report
(v) 2240-267 - Proposed Hoarding and Conveyor Layout (Site Compound Plan)
(vi) 2240-268 - Proposed Hoarding/Conveyor Section
(vii) 2240-269 – Proposed Hoarding Elevation
(viii) TD 05 – Shaft Excavation – Access & Earthwork Support
(ix) Anti-Flood Pump Device
(x) TD 12 – Lateral Bracing
(xi) TD 44, 45 & 46 - Underpin Shaft Excavation
(xii) Not Used
(xiii) TD 20 – Water Pumping Detail
(xiv) TL 001 – Acrow Prop Technical Literature
(xv) TL 002 – Delta Membrane – V3 Drained Cavity Dual Sump
(xvi) TL 003 – Delta Membrane – V3 Foul Sump
(xvii) TL 004 – Delta MS 20 Floor Membrane
(xviii) TL 005 – Delta MS 500 Membrane – Stud Wall Concealed
(xix) TL 009 – RMD Super Prop Soldier Data
(xx) TL 010 – Tecroc A Grout Admixture – Expansive Drypack
(xxi) TL 011 – Trench Sheets
(xxii) Hydrological Report – Prepared by Card Geotechnics Ltd
(xxiii) TD 21 & 22 – Construction Phases Layouts
1.00 Introduction

1.01 This Method Statement has been provided for St Mark’s Coptic Orthodox Church, - for works which are proposed at St Mark’s Coptic Orthodox Church, Allen Street, London, W8 6UX.

1.02 The works within this Method Statement refer to the following operations:

- Construction of a basement below the existing building footprint

1.03 This Method Statement is based upon the following architectural plans:

- 2240-202-A - Proposed Lower Ground Floor Layout
- 2240-201-A - Proposed Ground Floor Layout
- 2240-205-A - Proposed Section AA
- 2240-250 - Proposed Site Layout
- 2240-251 - Proposed Block Plan
- 2240-252 - Proposed CTMP Plan
- 2240-267 - Proposed Hoarding Layout
- 2240-268 - Proposed Hoarding Section
- 2240-269 - Proposed Hoarding Elevation

1.04 The following engineering drawings have been relied upon in preparation of this Method Statement:

- 12681-GA/01-P2
- 12681-S/01-P1
- 12681-S/02-P1
- 12681-S/03-P1
- 12681-MS/01-P1
- 12681-MS/02-P1

1.05 The structural and technical details have been produced for the project by Green Structural Engineering, Chartered Structural Engineers.

1.06 The Site Investigation has been carried out by Fastrack Site Investigations who...
produced the following Report;

- St Mark's Coptic Orthodox Church - Site Investigation – Factual Report - 9207

2.00 Project Overview

2.01 St Marks Coptic Orthodox Church was built to designs of J.M. McCulloch in 1869 as a Scottish Presbyterian church but became St Marks Coptic Orthodox Church in 1975.

2.02 The property is constructed over three storeys, comprising the following levels:

- Lower Ground Floor
- Ground Floor
- First Floor Mezzanine

2.03 The building is of traditional construction:

- External walls – sandstone.
- Lower Ground floor concrete slab with finishes.
- Intermediate/Ground floors - suspended timber joists with floorboards.
- Roof - Pitched with traditional tiled roof over.

2.04 This document is part of a Planning Application relating to the proposed works submitted to the Royal Borough of Kensington & Chelsea (RBKC) council.

2.05 As part of the application made to RBKC Council a drawing is to be submitted highlighting the location of a skip and materials storage area on the Public Highway to the front of the subject property.

2.06 There are no obvious structural defects visible upon inspection. The building whilst aged is in generally good condition although as materials reach the end of their natural life-span refurbishment is required.

3.00 Site Investigation

3.01 Fastrack Site Investigations were commissioned to carry out an 8.0m bore-hole investigation.

3.02 The site investigation took place on the 28/01/2015. The bore-hole was located within an area of hardstanding to the side of the building. As identified within the factual report the bore-hole extended to a depth of 8.0m.

3.03 From 0.10m to 1.80m - Mid brown silty sandy gravelly clay.

3.04 From 1.80m to 4.20m - Loose orange sand and gravel.

3.05 From 4.20m to 4.80m - Medium dense orange sand
3.06 From 4.80m to 8.0m - Very stiff mid brown clay - Noted to be grey in colour from 5.60m.

3.07 The borehole ended at 8.0 metres.

4.00 Trial Pit Investigation

4.01 Hand excavated trial pits will be constructed during the party wall stage.

5.00 Site Preparation & Enabling Works

5.01 The building is to continue to be occupied during the construction period. A builder's skip and hoarding will be situated on the street outside the church.

5.02 The hoarding will have an overall height of 2.4m and be painted white.

5.03 Electrically operated lights are to be fitted externally to the hoarding together with chevron high Reflectors so that it is clearly visible during the hours of darkness.

5.04 A metal skip container is to be located within the hoarding structure for temporary storage of waste material pending its removal and clearance from site.

5.05 Temporary water and electrical supply are to be provided for the duration of the construction period and will be retained in a safe condition within the hoarding zone.

5.06 Temporary access will be provided to the front elevation for the location of an electrical conveyor system for the purposes of the removal of excavated spoil which arises during the construction of the basement.

5.07 Install electrically operated 450mm wide conveyor to provide mechanised removal of spoil from the proposed basement zone.

5.08 Initially the conveyor is to be located at floor level and to incline not to exceed 40° to the appropriate discharge height. Discharge is to be directly located over metal waste container/skip.

5.09 Provide a proprietary 110 volt power supply to the conveyor complete with associated cut out fuse and the like.

5.10 Provide flexible tarpaulin protection to the discharge location on the proposed conveyor to limit any dust arising from the works.

As the works extends to a deeper section of the basement provide elongated conveyor sections suitably restrained to enable excavation works to continue.
6.00 Datum Level Orientation

6.01 Establish baseline datum level relative to external ground level to front of the property – This is to be Origination Point.

6.02 Transfer Datum Level from Origination Point to subject property.

6.03 Establish datum transfer points to front and rear of subject property and record levels.

6.04 Datum Transfer points to be a minimum of 1.0m above existing ground floor level.

7.00 Underpinning

7.01 Excavate for underpin bases as indicated on Structural Engineering plans. Individual bases are not to exceed 1.0m in width and no adjacent sections are to be excavated simultaneously.

7.02 The excavation sequence for underpins shall be a traditional 1 to 5 sequence. All by reference to the numbering sequence indicated on plan.

7.03 Underpins are to be constructed in accordance with the numbering sequence in order that opposite faces of underpins are aligned and allow introduction of lateral equilibrium bracing to prevent movement in temporary condition.

7.04 During the excavation phase ensure that the exposed face of the excavation is propped at all times in accordance with details TD 05 using metal trench sheets propped back to the central mound.

7.05 Fix reinforcement in advance of concreting to underpin base.

7.06 Pour concrete forming underpinning base to Engineer's details. Note the site foreman for Cranbrook Basements is to inspect the formation prior to pouring of concrete.

7.07 Upon completion of reinforced concrete base provide temporary formwork to the vertical stem section and install reinforcement as detailed on the engineer's drawing.

7.08 Pour concrete to within vertical stem section to within 75mm of underside of the existing foundation.
7.09 Allow a minimum of 48 hours to lapse between construction of vertical stem section and installation of dry pack.

7.10 Clean the underside of the existing foundation in preparation for installation of dry pack.

7.11 Install 1:3 sharp sand and cement dry pack and thoroughly ram home to space between top of reinforced concrete underpinning stem and underside of existing foundation. The dry pack material is to be enhanced by the addition of Tecroc A Grout Dry Pack Expansive Chemical Additive.

7.12 As underpinning works progress introduce equilibrium bracing on an east-west axis through the basement core incorporating RMD Super Props. Super Props are to be surface fixed to the face of the underpinning in the manner indicated on drawing TD-11.

7.13 The remainder of the central spoil mound is to be retained for localised propping during the underpinning process.

7.14 Upon completion of the east-west underpin the entire process should be repeated for north-south underpins.

7.15 Following completion of underpinning work the remainder of the central spoil mound is to be excavated and removed from site.

7.16 Excavate for reinforced concrete basement slab ensuring that lateral bracing is maintained at all times between opposite faces of underpin stems utilising RMD Super Props.

7.17 Fix reinforcement as specified on Engineer’s drawings.

7.18 Pour concrete forming basement floor slab in permanent condition.

8.00 Structural Steelwork

8.01 During construction of reinforced concrete sections introduce structural steel framework throughout the basement level in accordance with structural engineer's details.

8.02 Column sections are to be installed over locally thickened slab areas.

8.03 All structural connection details, splices and base plates are to be in accordance with requirements of the Structural Engineer's Drawings.

8.04 When installing proposed steelwork under existing masonry wall, the following sequence applies-
   - Position vertical props either side of existing foundation at 1m centres
   - Remove sections of existing foundation at 1m centres and install 25mm thick metal spreader plates bearing onto props each side
   - Once complete remainder of existing foundation can be removed
- Install new beam (refer to section 9.00 below for details)
- Dry pack 25mm voids above steelwork between spreader plates
- Remove vertical props

9.00 Below Ground Drainage

9.01 Prior to the construction of basement floor slab install foul water drainage runs and drained cavity drainage points using 100mm diameter uPVC pipework installed in accordance with the manufacturer's instructions.

9.02 In the agreed location install 1No. Delta Dual V3 Sump and pump system to the serve the drained cavity membrane.

9.03 In the agreed position install 1No. Delta Foul V3 Retrofit Sump to serve the foul water drainage installation.

9.04 Both sumps are to be installed in accordance with the manufacturer's recommendations.

10.00 Basement Floor Slab

10.01 Excavate Basement Floor Slab to levels indicated on Structural Engineers Plans.

10.02 Compact base and install reinforcement ensuring adequate concrete cover is achieved.

10.03 Install Concrete Basement Slab.

10.04 Allow 48 Hours for initial concrete cure and remove lateral props.

11.00 De-watering – Construction Phase

11.01 Based upon information contained within the factual Site Investigation Report it is unlikely that significant quantities of water will be encountered during the excavation phase.

11.02 In the event that ground water is encountered during the course of excavation a localised excavated sump of size 1m x 1m x 1m is to be formed at a level lower than the progressive base of the excavation that is being carried out.

11.03 A timber perforated plywood shell is to be constructed to support the perimeter of the temporary working sump and placed within the excavated zone.

11.04 Any ground water that is present will naturally pour within the sump area and that point a 50mm diameter Semi Trash Water pump unit is to be introduced with a 50mm discharge hose.
11.05 For works located adjacent to excavation level sump the hose is to be routed to the nearest adjacent manhole for discharge.

11.06 Following the de-watering of the excavated zone concrete is to be poured and the process is to be repeated in the next work zone.

12.00 Water Management – Post Construction

12.01 Water penetration within the reinforced concrete basement structure is to be designed to meet the requirements of BS 8102 Table 2 Grade 3 for habitable basements. This is to be achieved via a drained cavity membrane.

12.02 Install Delta membrane in MS20 To all basement floor surfaces.

12.03 Install Delta Membranes MS500 to all basement wall surfaces.

13.00 Padstone & Spreader Plate Installation

13.01 Where indicated on the Engineer’s Drawings structural steel bearings or padstones are to be introduced to the party wall.

13.02 In the position indicated carefully drill sequential holes to create a honeycomb effect within the existing brickwork.

13.03 Using hand held hammer and steel chisel carefully remove the honeycomb brickwork to create a recessed pocket suitable for installation of padstone/steel spreader.

13.04 Install padstone/steel spreader over a thin bed of 1:1 sharp sand levelling compound in preparation to receive steel beam

13.05 Following installation of the steel beam carry out brickwork making good to surround steel work and to close up the pocket formed to within the party wall for the padstone/steel bearing plate.

14.00 Installation of Steel Beams

14.01 In locations identified on structural Engineers drawings prepare for Steel Beam Installation.

14.02 Provide 102 x 102 Steel needles through masonry wall at 500mm centres.

14.03 Install adjustable steel props to both sides of the wall below each needle.
14.04 In the event that masonry is loose then additional strong boy wide platform props are to be introduced to aid stability.

14.05 Clean underside of masonry to receive steel beam.

14.06 Install steel beam tight to underside of masonry and resting on padstones.

14.07 Point any small gaps that may remain with Tecroc Expansive Grout to ensure a tight fit between beam and supported structure.

14.08 Make good to beam ends where penetrating the end bearing.

15.00 Working Hours

15.01 Works that are associated with the Party Wall Act shall be carried out as permitted by planning consent.

16.00 Temporary Works

16.01 RMD Kwikform super props are to be installed horizontally at maximum 1500mm centres. RMD Kwikform super props to be used as wailing beams at every 2m vertically with horizontal propping at each wailing level.
Appendix (i)

Architectural Plans
Existing Lower Ground Floor Layout
Existing Ground Floor Layout

Client: St Mark's Coptic Orthodox Church
Project: Allen Street
London
W8 6UX

Drawing: Existing Ground Floor Layout

Scale: 1:100 @ A3
Date: 31 June 15

© CRANBROOK BASMENTS 2015. All rights reserved. No part of this drawing may be reproduced without the prior written consent of Cranbrook Basements. All dimensions are to be checked on site or in the workshop prior to commencing any work. Work will be carried out in accordance with the Architect's drawings and specifications.
Existing First Floor Layout
Existing & Proposed North Elevation

Client: St Mark's Coptic Orthodox Church
Project: Allen Street
London
W8 6UX

Scale: 1:100 @ A3

Designer: Cranbrook Basements
26-28 Hammersmith Grove,
Hammersmith,
London, W7 7BA
T +44 (0)208 551 5555
F +44 (0)208 551 1580
admin@cranbrook.co.uk
www.cranbrook.co.uk
Existing & Proposed East Elevation

Client: St Mark’s Coptic Orthodox Church
Project: Allen Street
London
W8 6UX

Drawing: Existing & Proposed East (Allen Street) Elevation

Scale: 1:100 @ A3

Date: 31 June 2015

© 2015 CRANBROOK BASEMENTS. Issued solely as may occur in reproducing in publication this work of art. Any reproduction or reproduction in publication this work of art. Any reproduction or reproduction of any portion of said drawing, without the written consent of the Architect, is hereby prohibited. All dimensions are to be checked on site or in the workshop prior to commencing any work. Only to be used for the purpose for which it was issued. Any discrepancies are to be reported to the Architect.
Proposed Ground Floor Layout

Client: St Mark's Coptic Orthodox Church
Project: Allen Street
London
W8 6UX

Drawing: Proposed Ground Floor Layout

Scale: 1:100 @ A3
Date: 21 Apr 15

Cranbrook Basements
26-28 Hammersmith Grove,
Hammersmith,
London, W7 7BA
T +44 (0)208 551 5555
F +44 (0)208 551 1580
admin@cranbrook.co.uk
www.cranbrook.co.uk

Without their prior written consent. All dimensions are to be checked on site or in the workshop prior to commencing any work. Work will be carried out in accordance with the Architect's instructions. Any discrepancies are to be reported to the Architect.

Scale: 0 - 5 METRES

No. Date Amendment

A 05.08.15 Lift and disabled WC added to layout.

DK

Details

ALLEN STREET
St Mark's Coptic Orthodox Church

Allen Street
London
W8 6UX

Cranbrook Basements
26-28 Hammersmith Grove,
Hammersmith,
London, W7 7BA
T +44 (0)208 551 5555
F +44 (0)208 551 1580
admin@cranbrook.co.uk
www.cranbrook.co.uk

03 March 15

© THE CLIENTS OF THE CHURCH OF ST MARK'S COPTIC ORTHODOX CHURCH LIMITED. No part may be reproduced without the written consent of the architect. All dimensions are to be checked on site or in the workshop prior to commencing any work, and are to be taken as guidelines only. Any discrepancies are to be reported to the architect.

No. Date Amendment Initials

Client: St Mark's Coptic Orthodox Church

Project: Allen Street
London
W8 6UX

Drawing: Proposed Section A-A

Scale: 1:100 @ A3

Date: 03 March 15

No.

Date

Amendment

Initials

Proposed Section A-A
Basement Temporary Propping Layout

Temporary Propping Cross Section

Client: St Mark’s Coptic Orthodox Church
Project: Allen Street
London
W8 6UX

Drawing: Proposed Temporary Propping Layout

Scale: 1:100 (A3)

Date: 24 Apr 15

No. Date Amendment Initials

 Clients

© CRANBROOK BASEMENTS 2015. RIGHTS RESERVED. prints are to be used at one's own risk. Any dimensions are to be checked on site or in the workshop prior to commencing any work. Dimensions and specifications are to be verified by the Architect.
Appendix (ii)

Engineering Plans
BASEMENT LAYOUT WITH SUGGESTED UNDERPIN SEQUENCE

NON-COMPRESSIBLE WATER RESISTANT CEMENTITIOUS BOARD LINER TO BACK OF ALL UNDERPIN SUPPORTING WALLS

UNDEPPINS WILL NOT BE STABLE WHILST UNDER CONSTRUCTION. CONTRACTOR MUST PROVIDE ADEQUATE LATERAL SUPPORT TO ALL Pins UNTIL BASEMENT SLAB HAS BEEN CAST.

BELOW GROUND DRAINAGE BY OTHERS

The contractor is responsible for ensuring all sub-contractors are fully informed of the above information.
STAGE 7
COMPLETE EXCAVATION TO FORMATION LEVEL

STAGE 8
CAST BASEMENT SLAB AND LET CURE

STAGE 9
ALL PROPS REMOVED
APPENDIX A

SITE INVESTIGATION REPORT
**BOREHOLE LOG**

**Property Address:** St Mark's Coptic Church, Allan Street, Kensington, W8 6UX  
**Client Claim Ref:** St Mark's Coptic Church  
**Survey date:** 28/01/2015  
**Operative:** SE1  
**Borehole ID:** BH1  
**Hole Type:** FA  
**Scale:** 1:45  

<table>
<thead>
<tr>
<th>Water Strikes Type</th>
<th>Depth (m)</th>
<th>In situ Tests Type</th>
<th>Results Depth (m)</th>
<th>Legend</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0.10</td>
</tr>
<tr>
<td>1.00</td>
<td></td>
<td>MP</td>
<td>11/75mm</td>
<td>80mm Concrete onto Rubble</td>
</tr>
<tr>
<td>1.08</td>
<td></td>
<td>MP</td>
<td>11/75mm</td>
<td>Mid brown sandy gravelly CLAY</td>
</tr>
<tr>
<td>1.15</td>
<td></td>
<td>MP</td>
<td>12/75mm</td>
<td></td>
</tr>
<tr>
<td>1.23</td>
<td></td>
<td>MP</td>
<td>13/75mm</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>1.80</td>
<td>2.00</td>
</tr>
<tr>
<td>2.00</td>
<td></td>
<td>MP</td>
<td>16/75mm</td>
<td>Loose orange SAND and GRAVEL</td>
</tr>
<tr>
<td>2.08</td>
<td></td>
<td>MP</td>
<td>16/75mm</td>
<td></td>
</tr>
<tr>
<td>2.15</td>
<td></td>
<td>MP</td>
<td>18/75mm</td>
<td></td>
</tr>
<tr>
<td>2.23</td>
<td></td>
<td>MP</td>
<td>20/75mm</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>3.00</td>
<td>3.00</td>
</tr>
<tr>
<td>3.00</td>
<td></td>
<td>MP</td>
<td>23/75mm</td>
<td></td>
</tr>
<tr>
<td>3.08</td>
<td></td>
<td>MP</td>
<td>25/75mm</td>
<td></td>
</tr>
<tr>
<td>3.15</td>
<td></td>
<td>MP</td>
<td>27/75mm</td>
<td></td>
</tr>
<tr>
<td>3.23</td>
<td></td>
<td>MP</td>
<td>31/75mm</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>4.20</td>
<td>4.00</td>
</tr>
<tr>
<td>4.00</td>
<td></td>
<td>MP</td>
<td>33/75mm</td>
<td>Medium dense orange SAND</td>
</tr>
<tr>
<td>4.08</td>
<td></td>
<td>MP</td>
<td>35/75mm</td>
<td></td>
</tr>
<tr>
<td>4.15</td>
<td></td>
<td>MP</td>
<td>36/75mm</td>
<td></td>
</tr>
<tr>
<td>4.23</td>
<td></td>
<td>MP</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>4.80</td>
<td>5.00</td>
</tr>
<tr>
<td>5.00</td>
<td>V</td>
<td>140.00</td>
<td></td>
<td>Very stiff mid brown CLAY</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>6.00</td>
</tr>
<tr>
<td>6.00</td>
<td>V</td>
<td>140.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>7.00</td>
</tr>
<tr>
<td>7.00</td>
<td>V</td>
<td>140.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>8.00</td>
</tr>
<tr>
<td>8.00</td>
<td>V</td>
<td>140.00</td>
<td>8.00</td>
<td>End of Borehole at 8.00 m</td>
</tr>
</tbody>
</table>

**Key:**  
- Water Strike  
- D: Disturbed Sample  
- V: Insitu vane test (kPa)  
- MP: Mackintosh Probe Test  

**Remarks:** Borehole was closed at 8.00m as requested. Borehole was noted to be dry on completion.  

**N.b.** Unless otherwise stated small vane paddle used. To convert MP to SPT divide average blows for 75mm by 1.5