DRAWING REGISTER & ISSUE SHEET

Project: St Michaels Church East Coker

MANN WILLIAMS
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Project No. 12680 Sheet No.

Dwg. Nos.	Drawing Title	DWG SIZE		Issue Date				
			D	16	07	29	30	06
			M	06	07	09	09	10
			Y	25	25	25	25	25
				Revision				
9001	New Doorway Structural Proposal			P1	P2		P2	
9002	Existing Structural Survey Notes					P1	P1	
9003	Proposed heater fittings						P1	P2
-	0659.WD.004 Proposed Porch Steps-A1_rev - MWB Markup						-	
-	0659.WD.009 Proposed Porch and New Access-A1_rev - MWB Markup						-	

Distribution		No. of Copies				
Company	F.A.O	X = Issue Sheet D = Disk Ep = EMAIL(PDF) Ed = eMail(DWG)				
b2architects	Michael Hancock	Ep	Ep	Ep	Ep	Ep

C= Construction T=Tender P=Preliminary	Issue Status	P	P	P	P	P
FD = Fianl Design Issue	Issue By	GAM	GAM	GAM	GAM	GAM

12680-MWB-XX-XX-RP-S-0551 Initial Structural review
MNW Job Number 12680

16th June 2025

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Micheal Hancock
B2 Architects
The Borough Studio
Wedmore
Somerset
BS28 4EB

Dear Michael

East Coker, St Micheal and All Angels - Structural survey for Proposed Opening

Mann Williams have been instructed by East Coker PCC to provide structural input for a proposed doorway at the Church of St Michaels and All Angels. The church is Grade II* listed (list entry 1345781). We attended site on Monday 9th June 2025 to review the existing structure. Proposed alterations involve the insertion of a disabled access doorway between the transept and the vestry. The survey was a visual survey with limited opening up comprising strips of plaster removal on both faces of the wall to expose the nature of the masonry where the opening is proposed.

The vestry is at the base of the tower, which is in the Northeast corner of the building. The tower is composed of three stages, with the tower measuring approximately 16.5 m high with a 1.16 m high parapet at the top. The current proposal is for an opening in the West wall of this tower, between the transept and current ground floor vestry. The opening will need to be formed with new back to back lintels with capacity to resist the masonry loading from the tower.

In addition to the masonry loading, this wall supports at least one of the upper stages (bell chamber). The direction of loading for the roof and the floor to the ringing chamber could not be ascertained. The floor directly below the Belfry (housing the clock mechanism), was double boarded with floor beams running North-South and this level is not adding to the load of the West tower wall. The original floor beams for the Belfry also ran North-South, but there has been a later insertion of two steel beams, so this stage is now loading the East and West walls of the tower.

Generally, the tower masonry was observed to be in good condition; there was no visual evidence of structural issues within the walls. Some deterioration was noted in the structural timber floors. The inserted steel beams to the floor supporting the bell chamber indicate previous timber bearing decay and one floor beam was noted as having significant beetle activity, this was the westernmost beam supporting the floor to the bell mechanism room. This is not expected to affect the design of the proposed doorway opening, but it is recommended that the condition of existing timbers in the tower are investigated further.

During the survey, two patches of plaster were removed to enable inspection of the wall construction. The Archaeological consultant, Keith Faxon, was present to record the findings. These patches (1.3 m wide x 0.2 m high) revealed random rubble course stone. The individual stones were approximately 140 to 350 mm long and 100 mm high.

Considering the wall composition and the loading requirements, the recommended solution would require local consolidation of stonework and local stitching around the opening using a combination of Cintec anchors and

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stainless-steel embedded bars to ensure continued integrity (prior to formation of the opening). Precast reinforced concrete lintels back-to-back would be proposed for the head of the new opening carrying the tower wall over.

The foundation construction and founding geology are not known. British Geological Survey online mapping shows the church is likely sited on Cornbrash Limestone although, there is always potential for foundations to have been formed over softer superficial deposits. A linear feature (fault), inferring displacement in the Cornbrash is noted on BGS mapping immediately north of the tower. To avoid settlement caused by local increased concentration of foundation loading, the structural design would aim to maintain the existing ground bearing stresses; to achieve this without the need for remedial foundation works the 1200 mm wide new structural opening will requires a minimum depth of 600 mm of masonry below the base of the opening - given the external levels this seems likely. However, it is recommended that a trial pit is undertaken ensure a depth of masonry greater than 600mm below the base of the opening is present. To prevent disruption to the internal fabric of the church nave, a modest trial pit could be excavated internally to the vestry where the floor will be renovated as part of the works.

Summary

The masonry at St Michaels and All Angels in East Coker is in good condition and it is structurally feasible to insert a disabled access doorway into the ground floor West wall of the tower. A trial pit is required to confirm that remedial foundation works are not needed. The superstructure design includes back-to-back precast concrete lintels and local reinforcement and consolidation of masonry to the perimeter of the opening with Cintec anchors and stainless-steel reinforcement (refer to our attached drawing).

Please should you have any queries or require any further input at this stage do not hesitate to contact us.

Yours sincerely

Grace Morris

Grace Morris

Engineer

Mann Williams

Enc.

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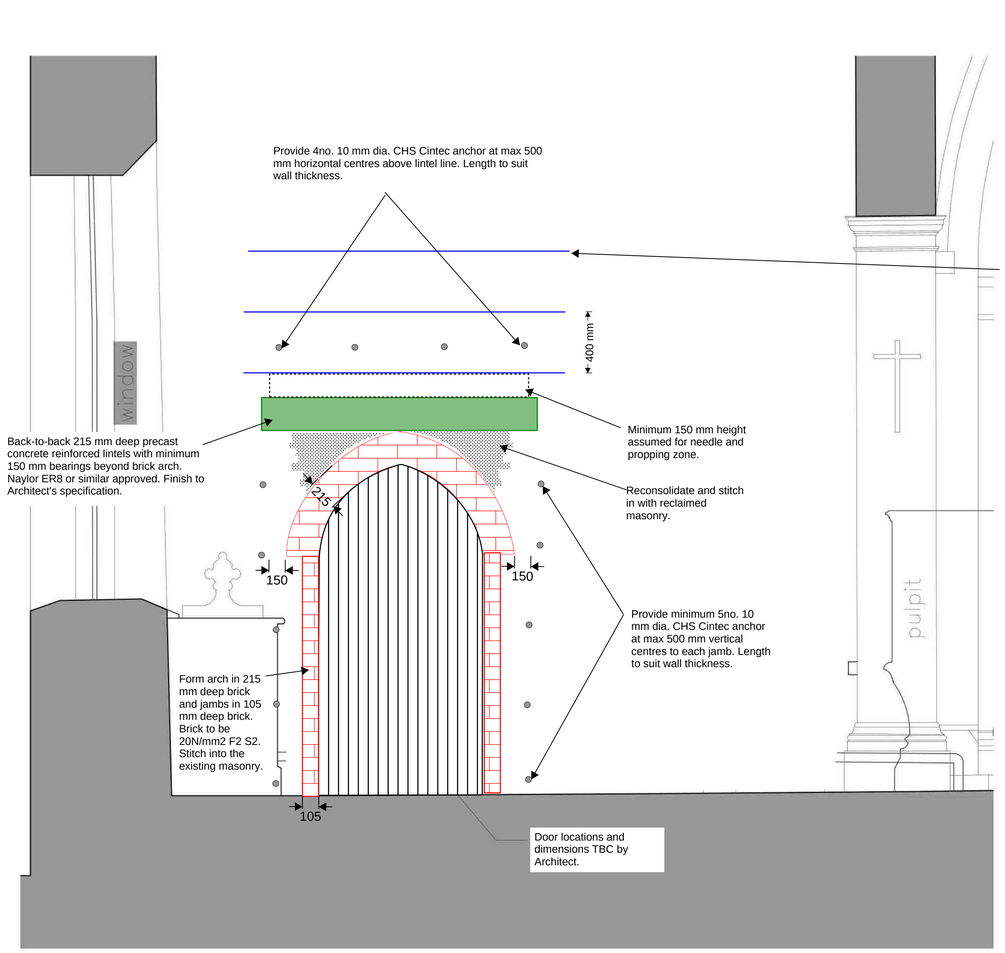
Envisioned sequence of works:

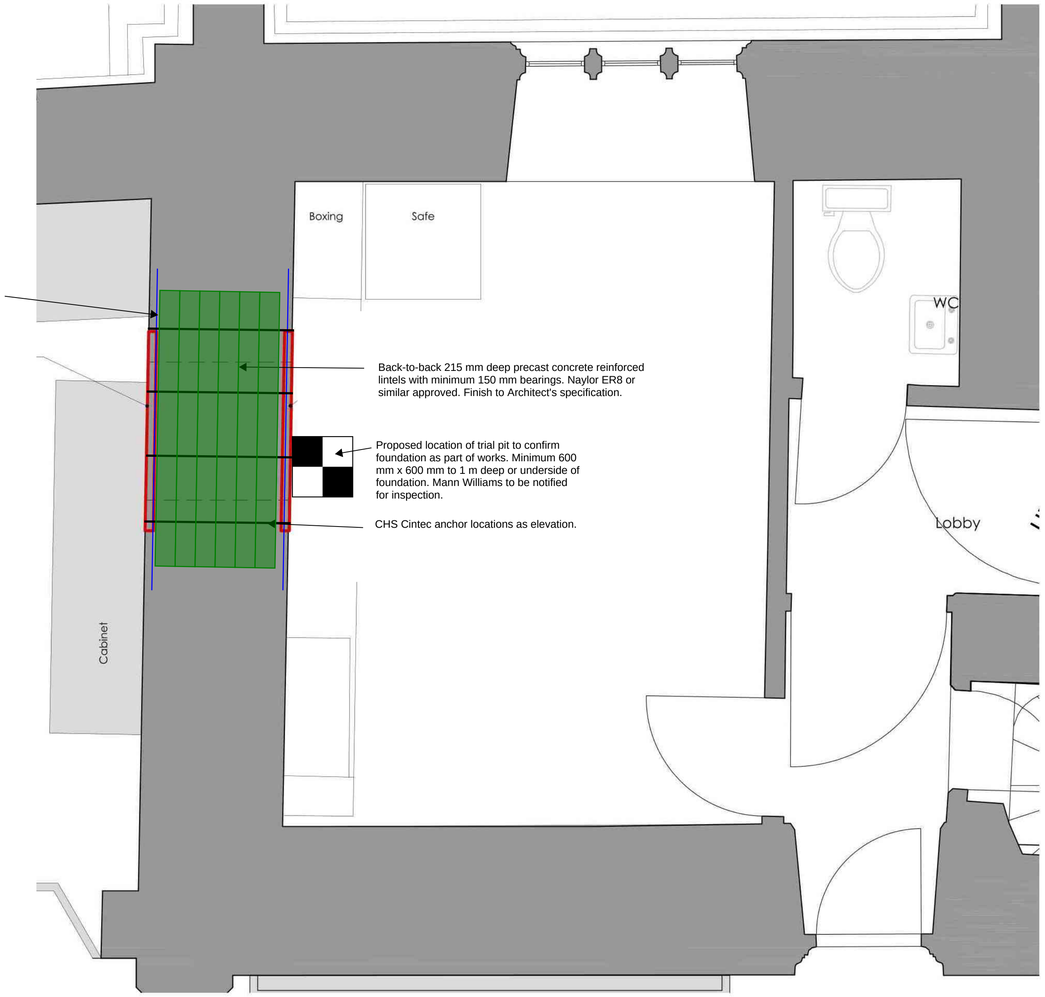
1. Conduct a trial pit to establish the depth and condition of existing foundations.
2. Remove plaster finishes to each face in the location of the proposed doorway to expose masonry.
3. Insert Cintec anchors in the indicated arrangement around the proposed doorway location.
4. Rake out pointing and bed in stainless steel reinforcing bars to each face at the indicated locations.
5. Insert needle and propping (to Contractors design).
6. Locally remove masonry and insert back-to-back reinforced concrete lintels. Ensure minimum 150 mm bearing (consider and account for rubble masonry being removed below the lintel to enable arch forming so that they do not undercut this 150 mm).
7. Remove masonry below the new lintels to form doorway.
8. Form brick arch and jambs, stitch into the existing and fill between Voussoirs and concrete lintels with reclaimed masonry, stitched into existing.
9. Remove needle and propping.
10. Repoint and apply finishes to Architect's details.

⚠ Do not ring bells during the works. Ensure the mechanical ringing mechanism is disengaged.



West elevation on proposed opening
1:20

⚠ Subject to condition and dimensions of existing foundations. To be determined during works.



Ground floor plan on proposed opening
1:20

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REV	DESCRIPTION	BY	DATE
P1	PRELIMINARY ISSUE	GAM	16.06.25
P2	ARCH FORM ADDED	GAM	07.07.25

DRAWING TO BE READ IN COLOUR

PROJECT
ST MICHAEL AND ALL ANGELS, EAST COKER

TITLE
NEW DOORWAY - STRUCTURAL PROPOSAL

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DRAWN	CHECKED	SIZE	SCALE	DATE	MW JOB No.
GAM	SS	A1	1:20	JUN 2025	12680

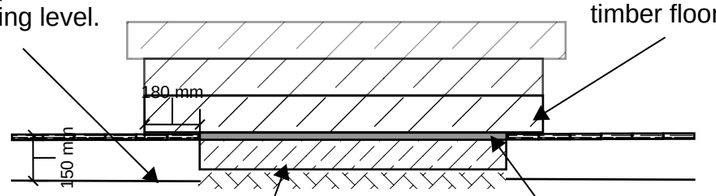
SUITABILITY STATUS: S2 INFORMATION (NOT FOR CONSTRUCTION)

ZONE/SYSTEM	LEVEL	TYPE	ROLE	ORIGINATOR
XX	XX	DR	S	MWB

PROJECT CODE	NUMBER	REVISION
12680	9001	P2

Minimum 150 mm
from top of floorboard
to bearing level.

Lower two steps 1300 mm
wide. Steps cantilever over
timber floor.



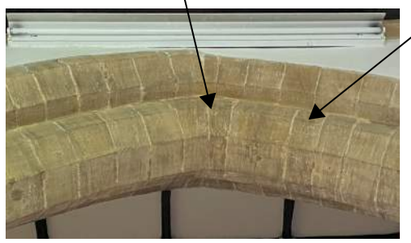
1000 mm wide flagstones.

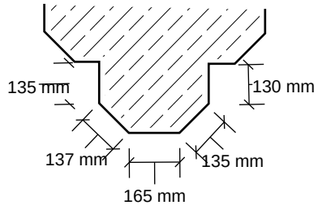
Steps bear on hardcore.

Porch existing steps - Section A-A
1:20

Mortar joint at arch centre pointer.
Thinner voussoirs to each side.

Voussoir width
approx. 250 mm.

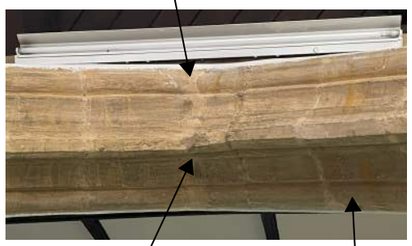


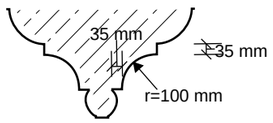


Arch existing profile - Type 1
Section B-B
1:20

Note: Do not scale from this drawing. Measurements taken at the columns and springing points, not the arch crown. Stone to be measured on site for any templating.

Mortar joint at arch centre pointer.
Thinner voussoirs to each side.



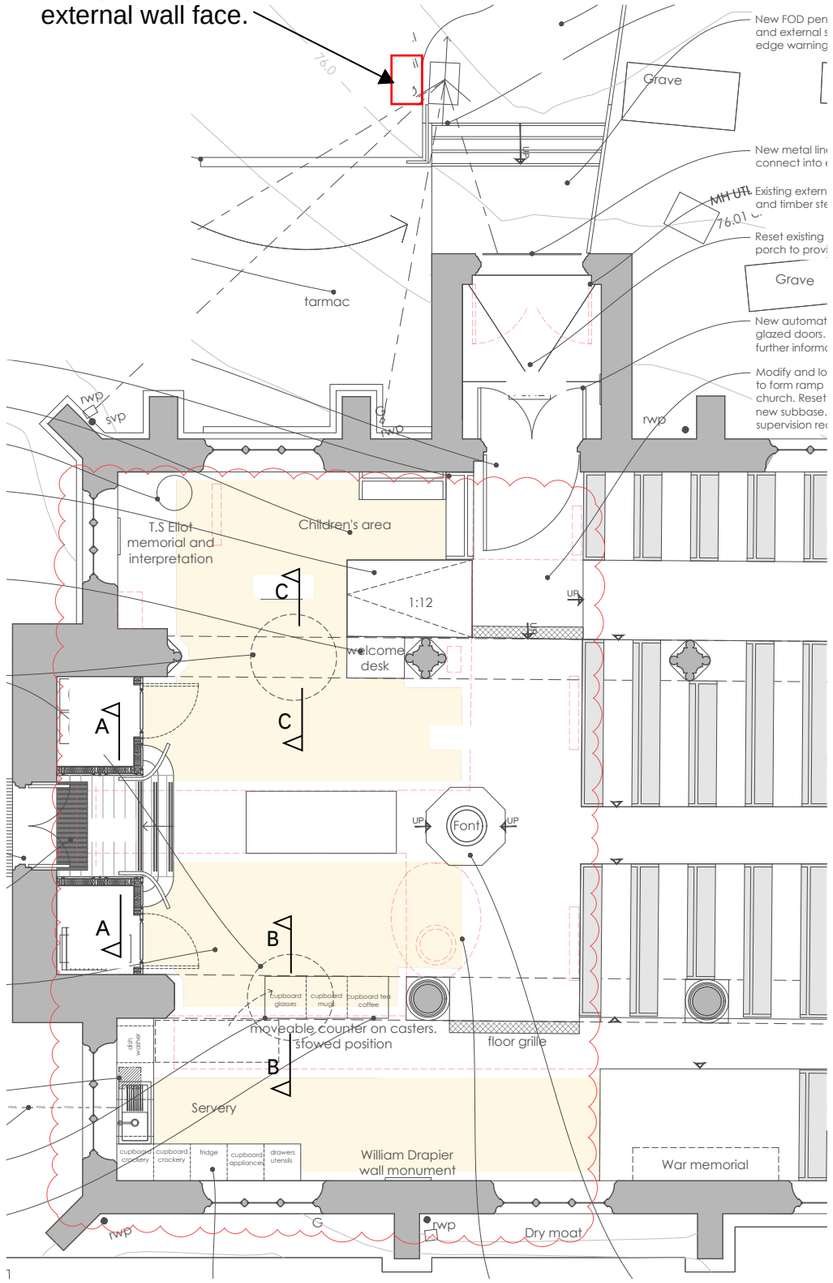


Arch existing profile - Type 2
Section C-C
1:20

Stone waning
towards arch crown.
Possibly thinner
towards arch crown.

Voussoir width
approx. 300 mm.

Exiting MH appears
to align with porch
external wall face.



Key plan - Proposed
NTS

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REV	DESCRIPTION	BY	DATE
P1	PRELIMINARY ISSUE	GAM	29.09.25
P2	SCALE CORRECTED	GAM	30.09.25

PROJECT

ST MICHAEL AND ALL ANGELS, EAST COKER

TITLE

EXISTING STRUCTURAL SURVEY NOTES

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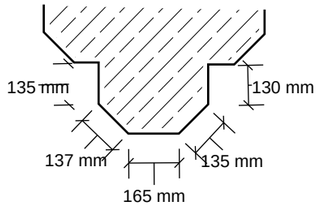
DRAWN	CHECKED	SIZE	SCALE	DATE	MW JOB No.
GAM	SS	A3	1:20	SEP 2025	12680

SUITABILITY STATUS:
S2 INFORMATION
(NOT FOR CONSTRUCTION)

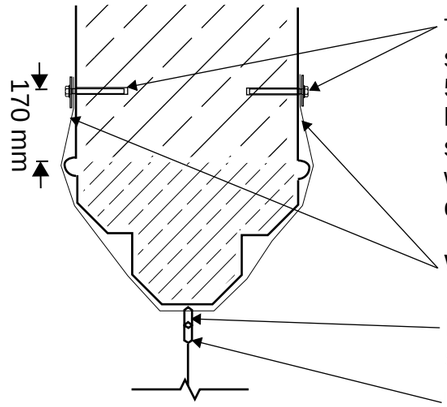
ZONE/SYSTEM	LEVEL	TYPE	ROLE	ORIGINATOR
XX	XX	DR	S	MWB

PROJECT CODE	NUMBER	REVISION
12680	9002	P2

See 12680-MWB-XX-XX-DR-S-9002 for section locations.



Arch existing profile - Type 1
Section B-B
1:20



To each face: 1no. M16 Hilti HIS-RN internally threaded sleeve with 170 mm embedment. Resin fix using Hilti HIT-RE 500 V4 to manufacturer's recommendations. Partner with full length M16 stainless steel A4-80 bolt with oversized stainless steel washer. Secure wire system through tightening bolt and washer snug to wall. Washer diameter to exceed factory loop diameter (e.g. 100 mm dia washer for 90 mm dia loop).

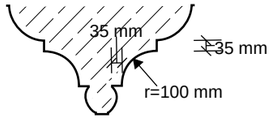
Wire factory looped ends to 100 kg safe working load.

Factory installed stainless steel carabiner to suit stainless steel wire diameter. Safe working load 100 kg.

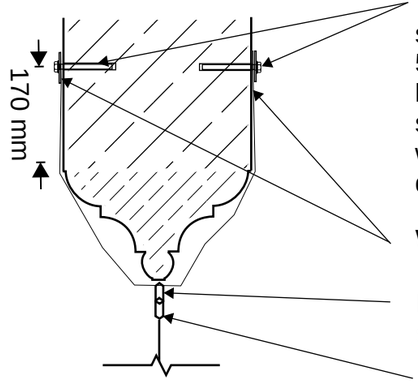
Factory installed Halo heater eyebolt.

Fitting proposed - Type 1
Section B-B
1:20

Note: Do not scale from this drawing. Measurements taken at the columns and springing points, not the arch crown. Stone to be measured on site for any templating.



Arch existing profile - Type 2
Section C-C
1:20



To each face: 1no. M16 Hilti HIS-RN internally threaded sleeve with 170 mm embedment. Resin fix using Hilti HIT-RE 500 V4 to manufacturer's recommendations. Partner with full length M16 stainless steel A4-80 bolt with oversized stainless steel washer. Secure wire system through tightening bolt and washer snug to wall. Washer diameter to exceed factory loop diameter (e.g. 100 mm dia washer for 90 mm dia loop).

Wire factory looped ends to 100 kg safe working load.

Factory installed stainless steel carabiner to suit stainless steel wire diameter. Safe working load 100 kg.

Factory installed Halo heater eyebolt.

Fitting proposed - Type 2
Section C-C
1:20

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REV	DESCRIPTION	BY	DATE
P1	PRELIMINARY ISSUE	GAM	30.09.25
P2	FITTING LOCATION AND ARRANGEMENT CHANGED	GAM	06.10.25

PROJECT

ST MICHAEL AND ALL ANGELS, EAST COKER

TITLE

PROPOSED HEATER FITTINGS

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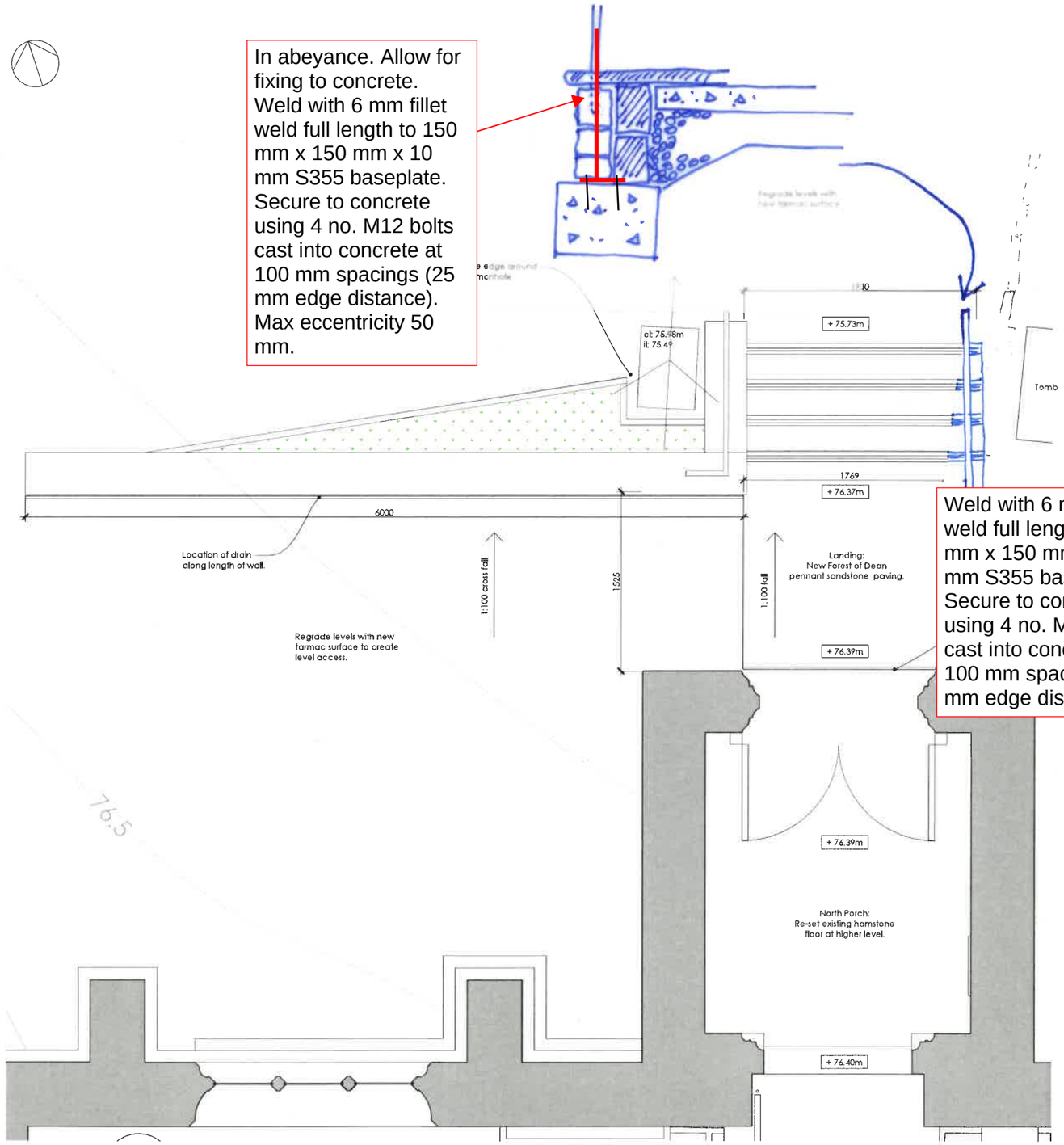
DRAWN	CHECKED	SIZE	SCALE	DATE	MW JOB No.
GAM	SS	A3	1:20	SEP 2025	12680

SUITABILITY STATUS:
S2 INFORMATION
(NOT FOR CONSTRUCTION)

ZONE/SYSTEM	LEVEL	TYPE	ROLE	ORIGINATOR
XX	XX	DR	S	MWB

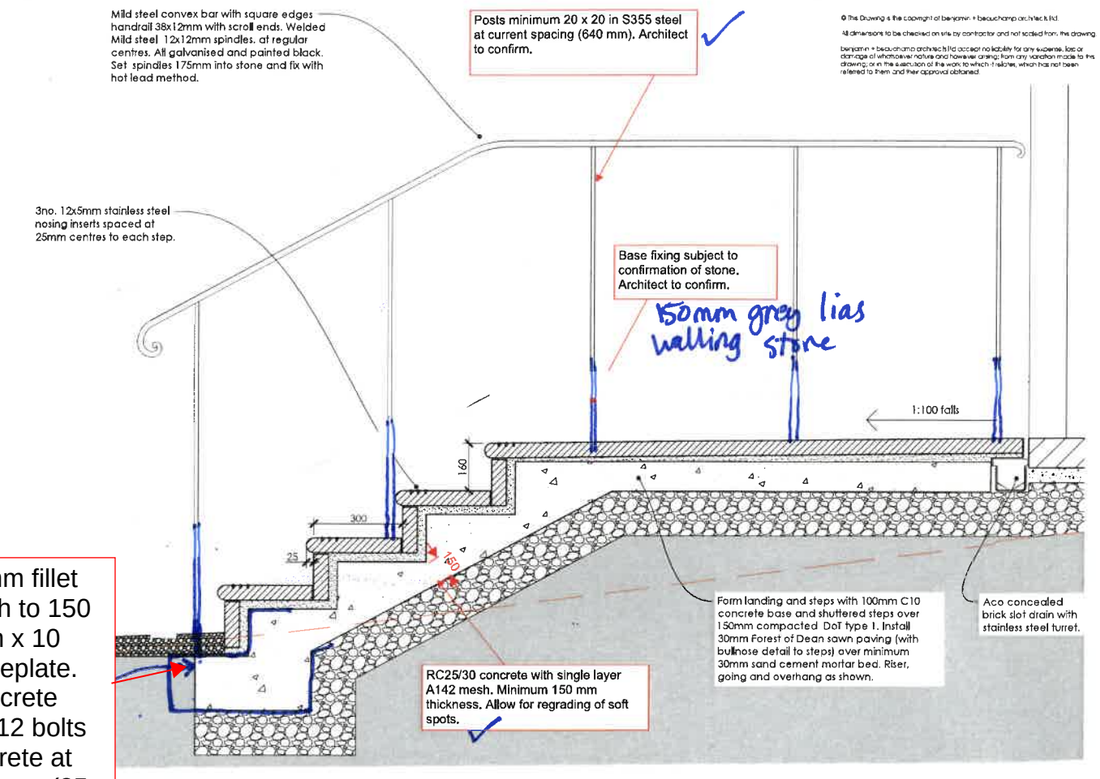
PROJECT CODE	NUMBER	REVISION
12680	9003	P2

In abeyance. Allow for fixing to concrete. Weld with 6 mm fillet weld full length to 150 mm x 150 mm x 10 mm S355 baseplate. Secure to concrete using 4 no. M12 bolts cast into concrete at 100 mm spacings (25 mm edge distance). Max eccentricity 50 mm.

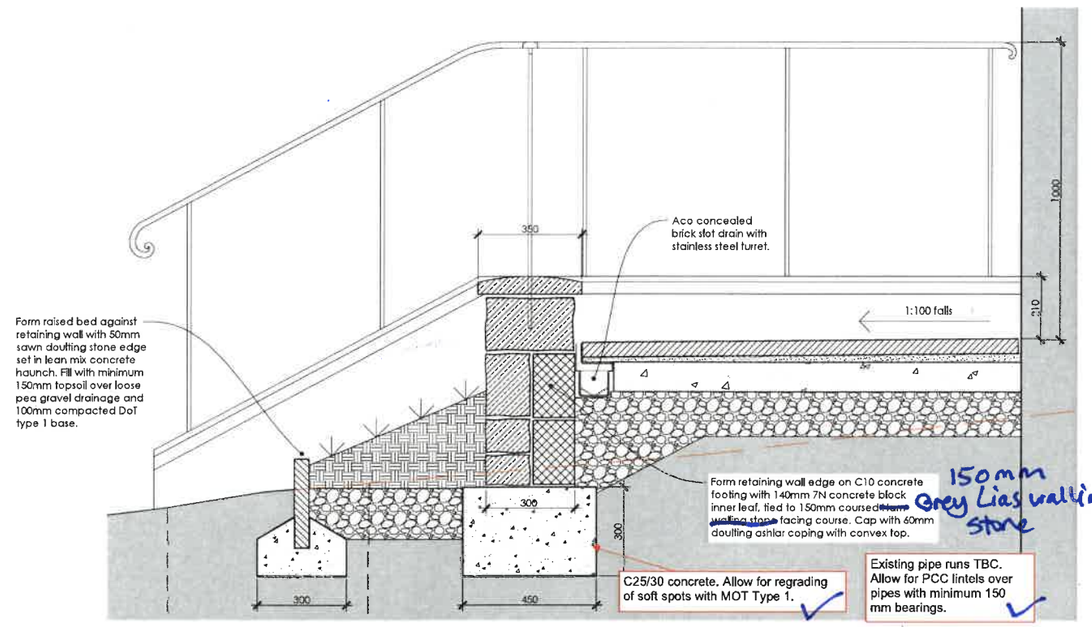


PLAN 1:20

Weld with 6 mm fillet weld full length to 150 mm x 150 mm x 10 mm S355 baseplate. Secure to concrete using 4 no. M12 bolts cast into concrete at 100 mm spacings (25 mm edge distance).



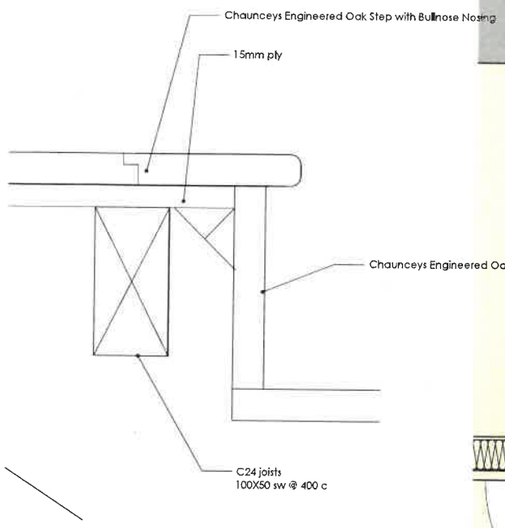
SECTION THROUGH STEPS 1:10



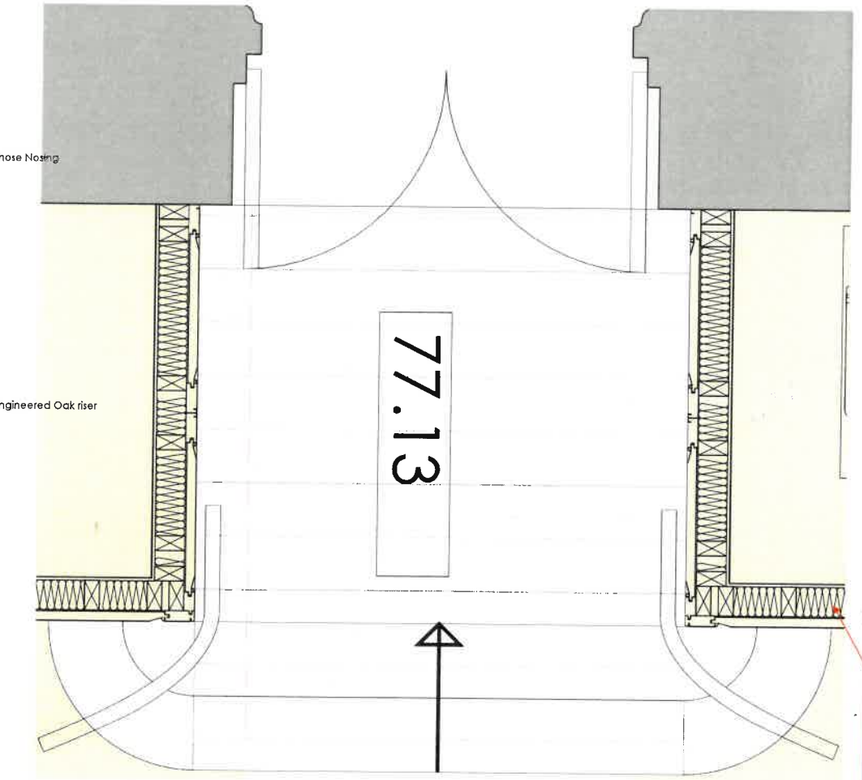
SECTION THROUGH RETAINING EDGE 1:10

Mann Williams
Structural Comments
30/09/2025

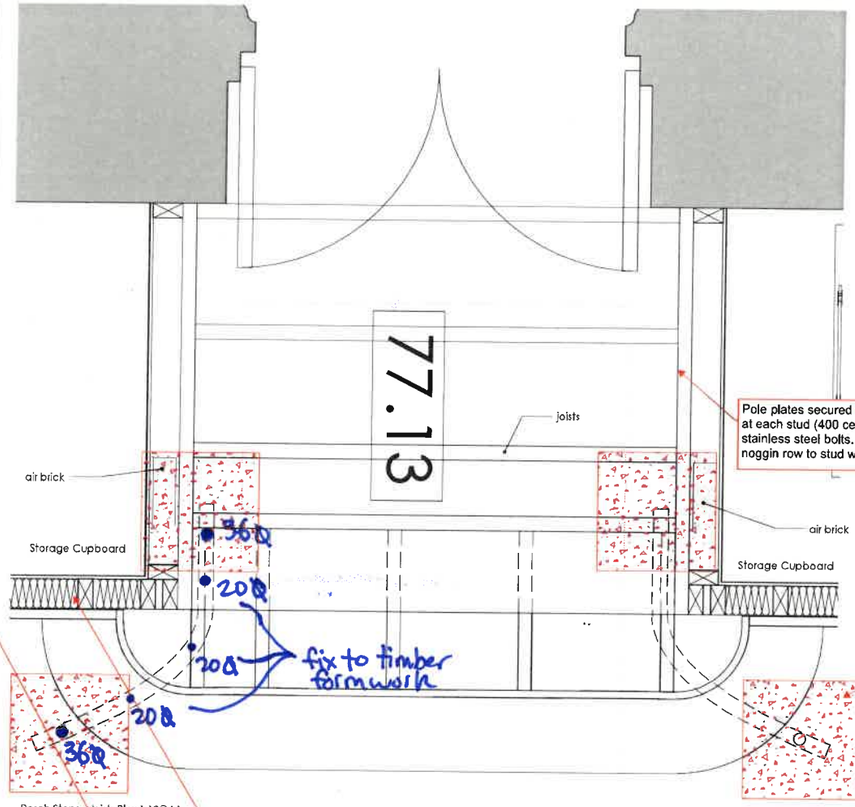
EAST COKER St Michael and All Angels	WORKING DRAWING		0659.WD.009 -
Proposed Porch and New Access	mh	24.09.25	varies at A1



Porch Steps - Detail 1:2@A1

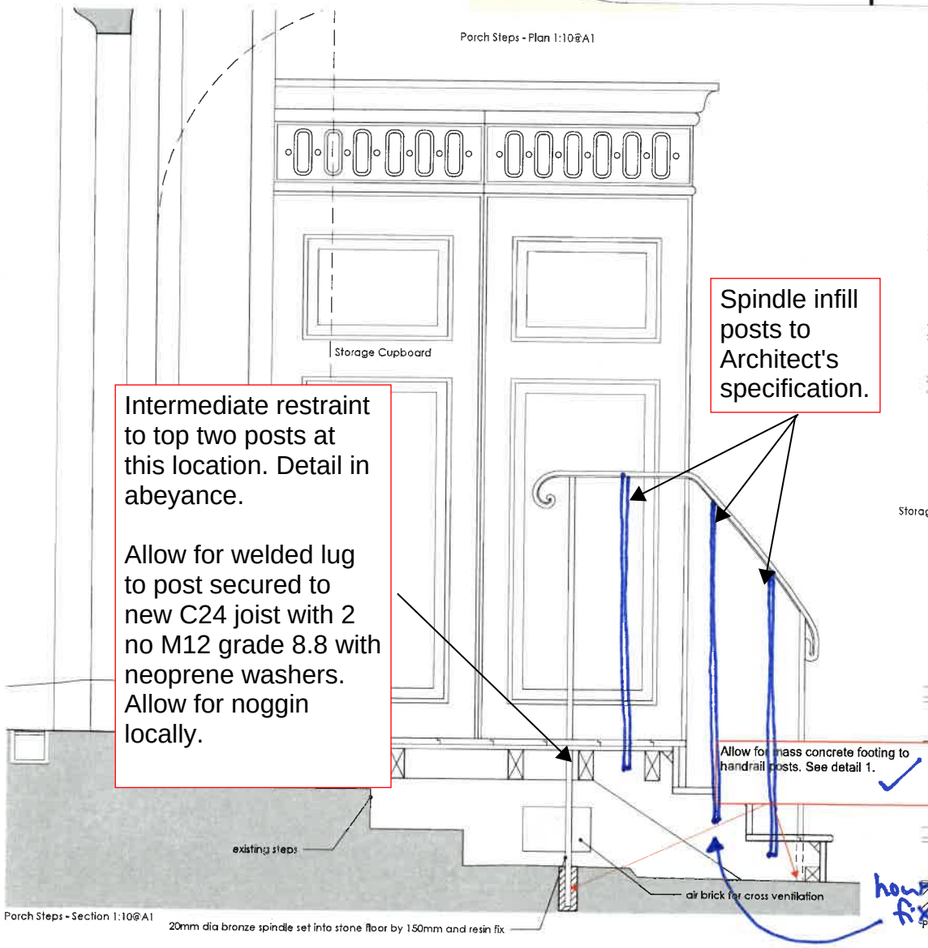


Porch Steps - Plan 1:10@A1



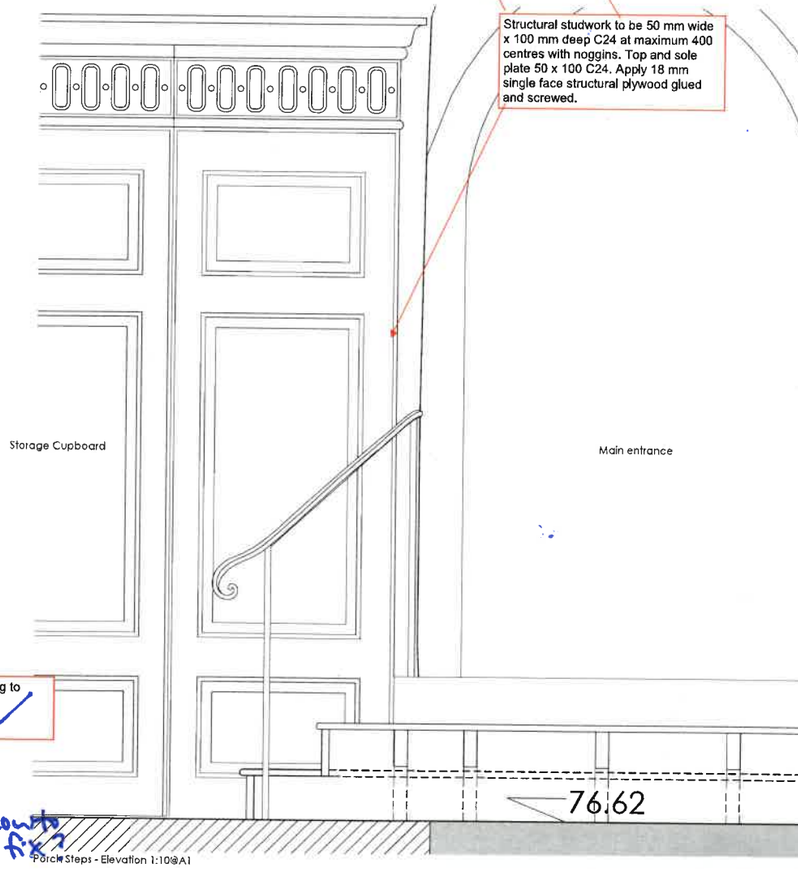
Porch Steps - Joists Plan 1:10@A1

Structural studwork to be 50 mm wide x 100 mm deep C24 at maximum 400 centres with noggins. Top and sole plate 50 x 100 C24. Apply 18 mm single face structural plywood glued and screwed.

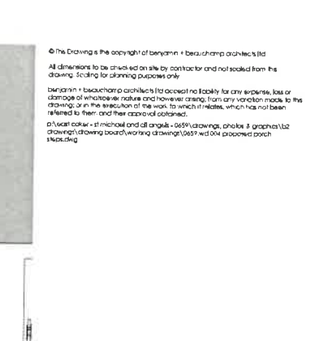


Porch Steps - Section 1:10@A1

20mm dia bronze spindle set into stone floor by 150mm and resin fix



Porch Steps - Elevation 1:10@A1



DRAFT

1:2
mm 100 200

1:10
mm 200 400 600 800 1000

Storage Cupboard

EAST COKER -
St Michael and All Angels

Proposed Staircase Joinery

PRELIMINARY

Mann Williams
Structural Comments
30/09/2025