

## Thatched Cottage, Church Street, Bampton OX18 2NA

### Structural Engineer's Report for Basement Works



#### Contents

- 1 Introduction
- 2 Historical Background
- 3 Description of the Existing Site & Drainage
- 4 Description of the Existing Basement Structure
- 5 Discussion
- 6 Conclusions / Recommendations

#### Appendices

Appendix A: Trial Pit Records

Appendix B: Proposed Structural Details

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**Job Number:** 165

<b>Revision:</b>	<b>Date:</b>	<b>Notes:</b>
1	Sep 2023	For Information

## 1 Introduction

Mike Taylor and Ria Dankin-Potts of MEDA asked Mike Wilford Associates to inspect the building at Church Street, Bampton to investigate the current structural fabric with focus on the basement with a view to refurbishment of the listed structure. The site was visited on 23<sup>rd</sup> June 2023. Trial pits had been dug that morning during bright and dry conditions and access was readily available. The inspection was limited to the visible parts of the buildings.

No damp meter readings were taken and no timber was inspected for rot or worm. If you need a report on these matters you should contact a timber and/or damp proofing specialist (eg. Joe Lovelock at Hutton & Rostron tel: 01483 203221).

## 2 Historical Background

The Thatched Cottage in Bampton is a Grade II listed building thought to date to the early 17<sup>th</sup> century with some early 18<sup>th</sup> century alteration and later renovated in 1963. The building is of coursed limestone rubble walls with timber framed internal structure. The roof is of thatch.

The original building is thought to be formed of two separate cottages which were remodelled in 1963. Photographic records held by the client show the original structure at that time.



Figure 1 – The Thatched Cottage in 1963 showing two doors and earlier thatch



Figure 2 – Rear of the building in 1963. The basement is below this rear outshot

The basement is only under part of the building thought to be the 18<sup>th</sup> century extension at the rear of the cottage and below the current kitchen.

### **3 Description of the Existing Site & Drainage**

The building is situated off Church Street near to St Marys Church, Bampton. The site is generally level with a basement under part of the building to the rear. Access to the rear garden is through the house.

British Geological Maps suggest that the site is in an area of Summertown-radley Sand and Gravel Member over Oxford Clay Formation and West Walton Formation.

Rainwater is shed directly to the ground. No below ground drainage investigations were carried out during our inspection.

### **4 Description of the Existing Basement Structure**

The walls of the basement are of coursed rubble limestone. The thickness of these walls are unknown but they would typically be around 500mm wide. The basement floor is stone flags of 75-100mm thickness laid directly on the ground.

A trial pit investigation was carried out on the 23<sup>rd</sup> June 2023 when two pits were dug to identify the nature and depth of the basement wall footings and the soil at founding level.

The perimeter walls were founded at shallow level some 75-100mm below the top of the existing basement floor. There was no corbel to the base of the footings. The base of the stone walls coincided with the underside of the stone flag floor.

The ground in both pits was a sand and gravel, typical of the Summertown-radley Sand and Gravel Member. No ground water was encountered during the investigation.

Details of the trial pit investigation are included in Appendix A of this report.

## 5 Discussion

It is proposed to provide modern tanking to the basement walls and floor to bring these spaces into useable rooms for modern use by installation of a drained cavity system and insulation. The new floor level will be set at approximately the same level as the current floor.

To provide a modern floor base and to allow a suitable floor for the drained cavity system a new concrete slab is proposed. This slab will be of 200mm deep GEN3 concrete with steel mesh top and bottom with a cast in drain around the perimeter along the base of the walls. The drain will lead to a sump and pump. All cavity drainage will be to specialist details and specifications.

The slab will be cast in 1.0m wide strips and will be cast under the walls, in an underpinning type sequence. A 75mm gap between concrete and base of wall will allow drypack to be rammed in tight to the underside of the wall to the full depth of the wall.

This method of construction ensures the listed stone walls are not undermined and remain supported through much of the work and to limit affect on the historic fabric.

Details of these proposals are included in Appendix B of this report.

## 6 Conclusions / Recommendations

It is proposed to tank and insulated the walls and floor of the basement and install a new ground bearing concrete slab. The slab would be installed in an underpinning type method sequence ensuring the historic fabric remains supported throughout the work using known techniques to limit effect on the listed structure.

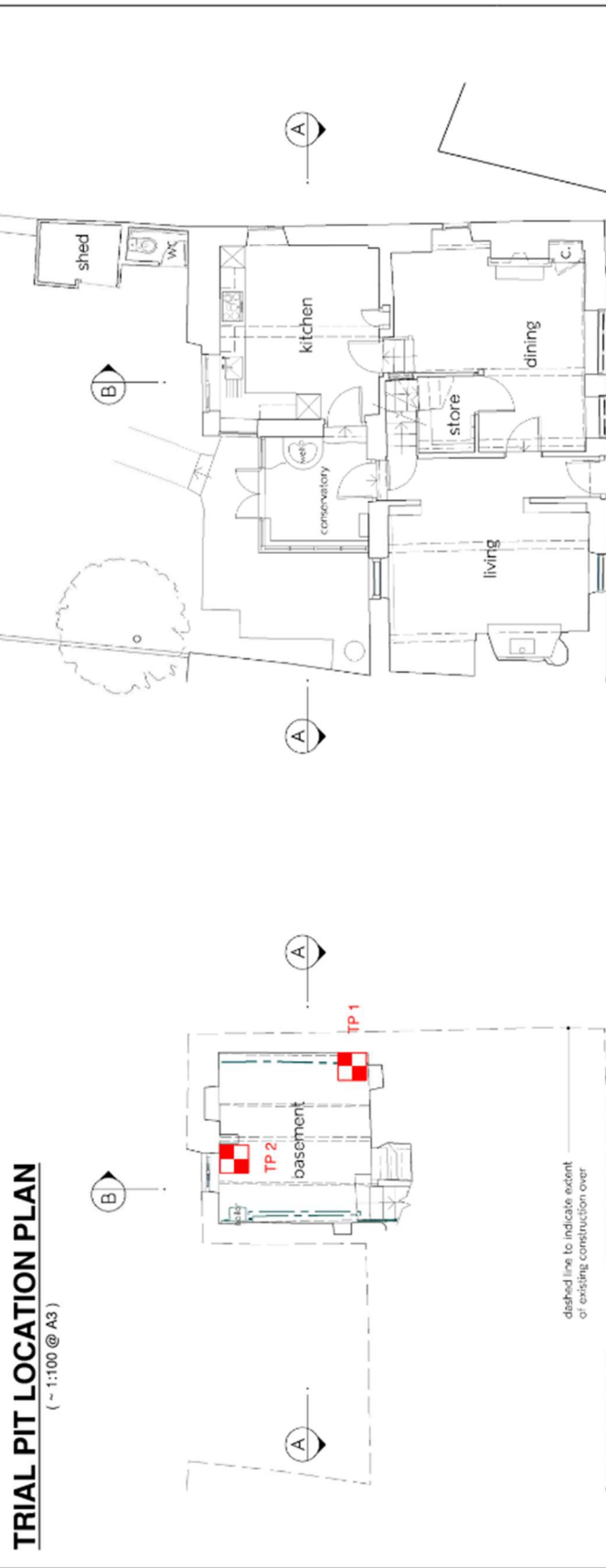
This report has been prepared for Mike Taylor and Ria Dankin-Potts and their advisors, for the purposes noted in Section 1, using the information available to us at the time. It should not be relied upon by anyone else or used for any other purpose. This report is confidential to our Client; it should only be shown to others with their permission. We retain copyright of this report which should only be reproduced with our permission.

## **Appendices**

### **Appendix A: Trial Pit Records**

Job No. 165 Page SK TP01 Rev. 1  
 Date June 2023 Eng. MW Chd.  
 Job Thatched Cottage, Bampton

Mike Wilford Associates  
 Consulting Engineers



**TRIAL PIT LOCATION PLAN**

( ~ 1:100 @ A3 )

dashed line to indicate extent of existing construction over



**Trial Pit Specification**

**Note the Thatched Cottage is a Grade II listed building and care should be taken carrying out the work and replacing the flag stone floor following inspection.**

1. The builder is to check both visually and using a 'CAT' scanner for existing live services near the location of the proposed trial holes. If live services prevent the digging of the hole where shown contact the Engineer to agree where the trial pit can be relocated.
2. The builder is to ensure that the holes are guarded / covered if left unattended during the excavation.
3. The pits are to be dug to a depth 150mm lower than the underside of the existing footings.
4. Where digging pits next to existing stone footings care is to be taken to ensure that any stone corbels are not damaged during excavation.
5. The builder is responsible for providing temporary shoring where required to ensure the safety of those working in the trial pits.
6. All pits are to backfilled with well-compacted excavated material and the surface made good with the original paving materials, as agreed with client, after inspection of the pits by the Engineer.



Internal view of existing basement



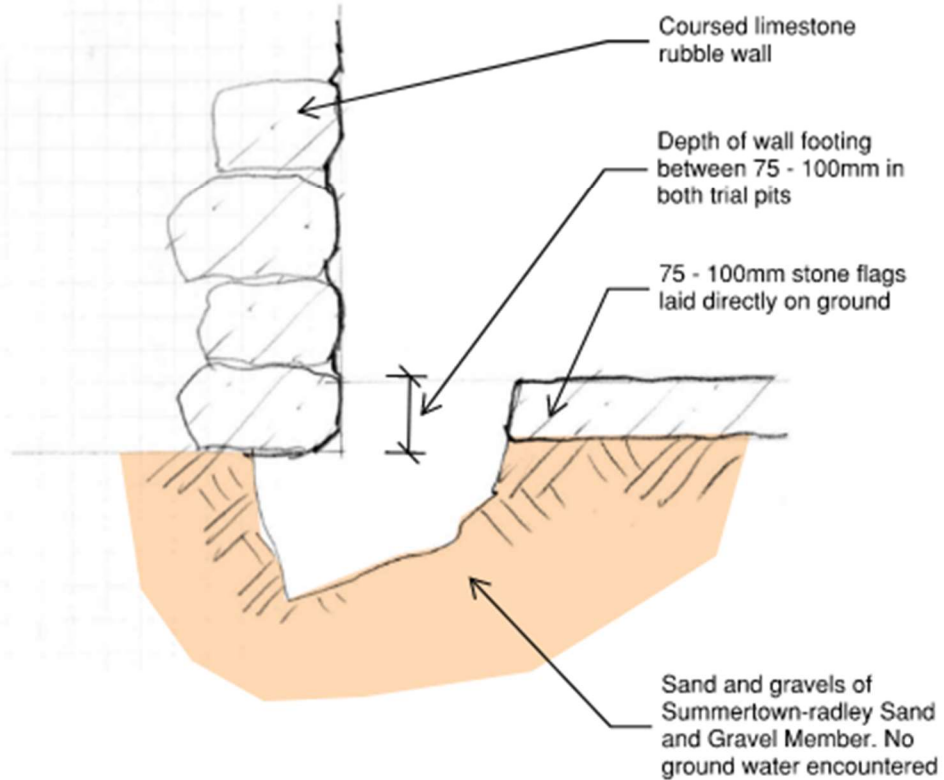
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Job No. 165 Page SK TP02 Rev 1  
Date Sep 2023 Eng MW Chd -  
Job Thatched Cottage, Bampton

### Results of Trial Pit Investigation 23rd June 2023

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Results of trial pits TP01 and TP02 both similar.



**Photograph of TP01**  
Note shallow footing and orange sands and gravels.



**Photograph of TP02**  
Note shallow footing and orange sands and gravels.

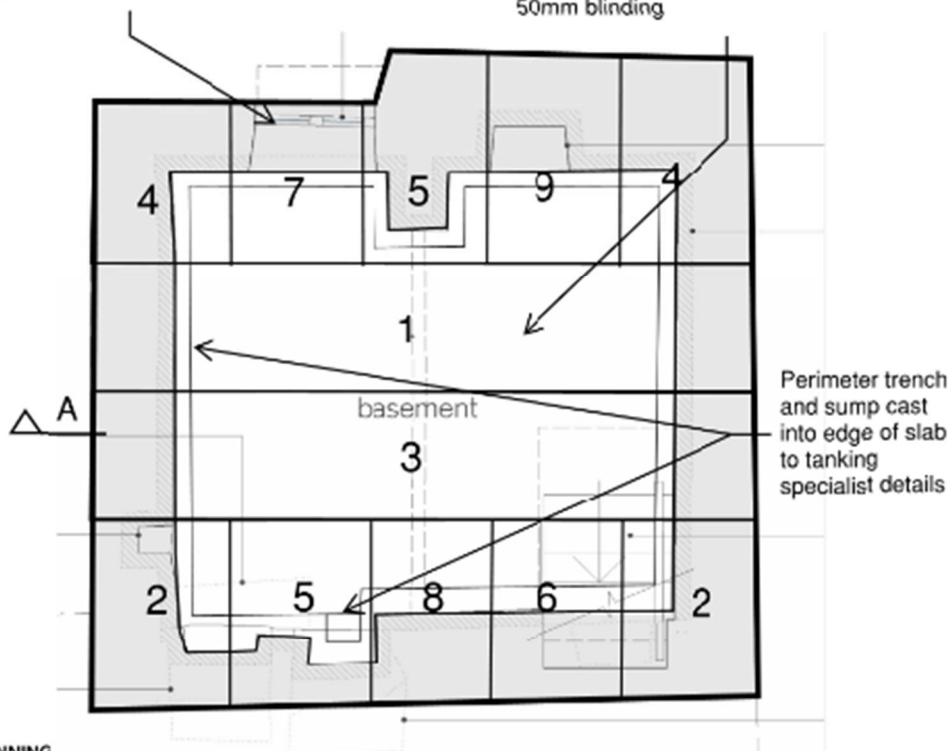
## **Appendix B: Proposed Structural Details**

## Proposed basement slab and underpinning

( ~ 1:50 @ A4 )

GEN3 Concrete underpinning to existing wall cast homogeneous with slab in maximum 1.0m wide bays.

GEN3 200mm deep concrete slab with 2 layers A393 mesh top and bottom. Slab cast on DPM to specialist details on 150mm well compacted hardcore with 50mm blinding



### UNDERPINNING

Refer to D50 Specification for full specification

Underpinning is to be carried out in short sections of about 1 metre in length. The bottoms of the foundation shall be inspected and approved by the Engineer and the Building Inspector before concrete is poured. The underpinning is to be carried out to the satisfaction of the Engineer and the Building Inspector.

Projecting portions of the existing footings are to be carefully cut off where directed and the underside of the footings are to be cleaned and hacked free of dirt, soil or loose materials before underpinning.

The body of the underpinning is to be constructed in GEN3/1:2:4 mix concrete and is to be cast to the widths shown unless otherwise directed by the Engineer. Excavation and concreting of any section of underpinning shall be carried out on the same day.

The mass concrete is to be stopped off 75mm below the underside of the existing footing and the final pinning up over the whole of the footing is to be carried out with 1:3 mix cement to sharp sand dry pack mortar, well rammed in 24 hours after the mass concrete has been poured.

Excavation to any section of underpinning shall not be started until at least 48 hours after completion of any adjacent sections of the work.

The sides of the previous underpinning bays are to be roughened or keyed to the satisfaction of the Engineer and Building Inspector. Allow 300mm lap to join neighbouring reinforcement.

Sequence of underpinning to be as shown. All sections marked 1 to be excavated, cast and dry packed before starting excavation of section marked 2 and all sections marked 2 to be complete before excavation for sections marked 3 etc.

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Job No. 165 Page SK 02 Rev 1

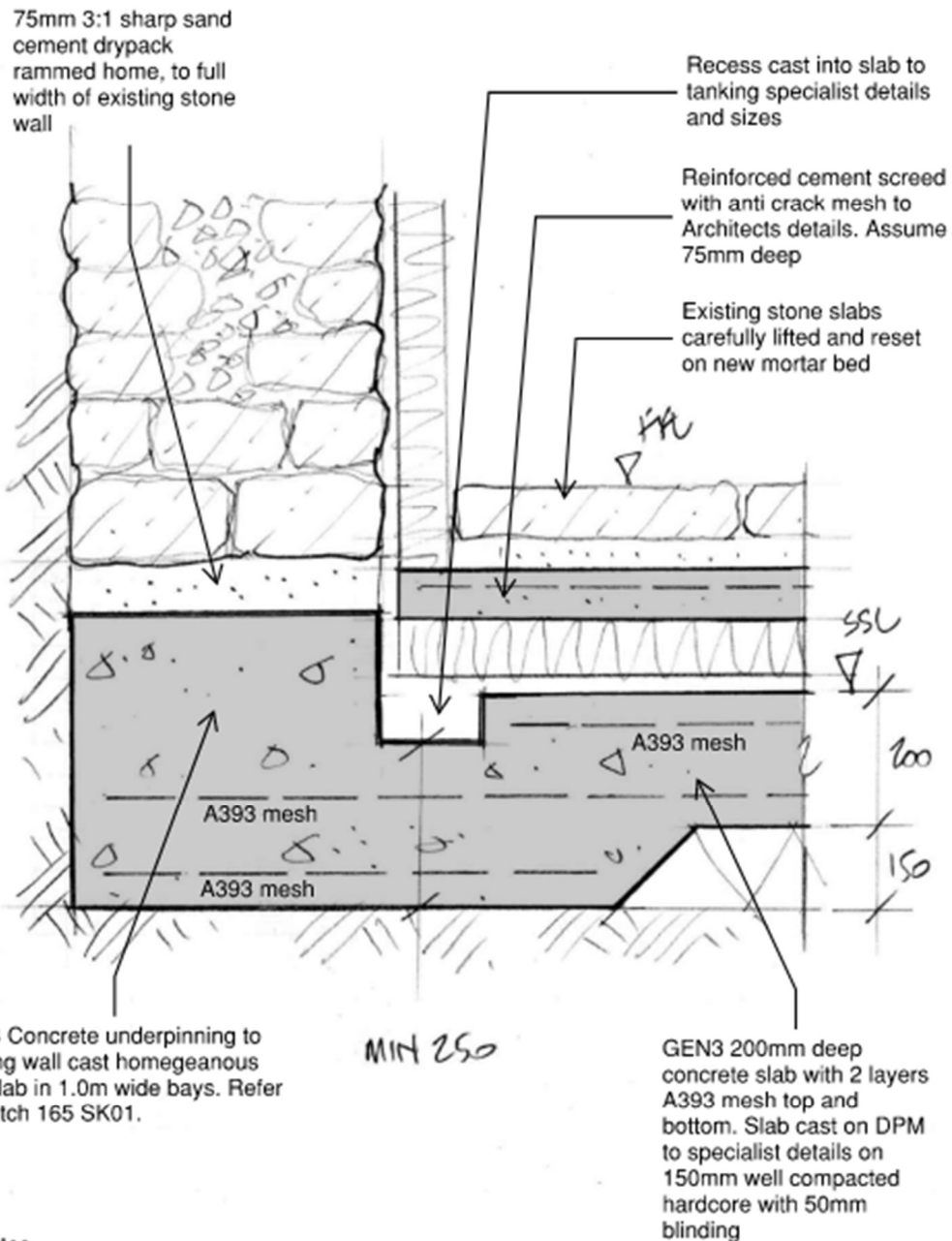
Date Sep 2023 Eng MW Chd -

Job Thatched Cottage, Bampton

### Proposed new slab with underpinning detail

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#### SECTION A-A



**Notes**  
All DPM and tanking to specialist details and setting out  
All insulation to Architects details and specification  
Finished levels to Architects details