CONSTRUCTION METHOD STATEMENT

11 ALBERT TERRACE MEWS
LONDON
NW1 7TA

JAMES FRITH LTD
Consulting Civil and Structural Engineers

Report No: R0036 November 2014

CONSTRUCTION METHOD STATEMENT

11 ALBERT TERRACE MEWS
LONDON
NW1 7TA

Revision	Date	Description	Approved By:
1	12/11/14	Draft Issue	James Frith MEng CEng MIStructE FGS
2	14/11/14	First Issue	James Frith MEng CEng MIStructE FGS

32 Meadway, Haslemere Surrey GU27 1NW | 07876762553 | www.jamesfrithltd.com | office@jamesfrithltd.com

CONTENTS

1. INTRODUCTION

1.1 Basis of Report

This report has been produced with reference to 'Camden Planning Guidance CPG4' . It shall be read in conjunction with all other planning documentation.

The methodologies presented in this report are to demonstrate that the proposed works are feasible and minimise the risk to the safety and stability of the existing structures within and adjacent to the property. There are equally viable methods and techniques not presented in this report that will achieve the same result and depend on the preference of the Engineer or Contractor involved.

The information in this report is specific to the property and may not be appropriate for other locations.

1.2 About James Frith Ltd

James Frith Ltd has a wide range of experience in civil and structural engineering projects, both permanent and temporary. We have carried out numerous basement designs, both top-down and bottom-up, throughout London including small domestic extensions to multi-level basements. We work closely with architects and contractors to develop cost-effective solutions.

We also have experience of rail and highway projects (bridges, foundations, temporary works) along with the technical approval procedures they entail which may be required on some basement projects.

We carry out all aspects of the design though to the end of construction and typical works comprise: foundation design including piling and ground anchors, reinforced concrete, steel and timber structures, temporary works design including scaffolding and propping.

2. EXISTING CONDITIONS

2.1 Description of Existing Structure

11 Albert Terrace is a modern 2-storey high end terrace property built circa 1970. The property is approximately 30m long by 10m wide with the building occupying and area of 19.6m long by 6m and a garden forming the remainder. The rear garden is bounded by masonry walls along the boundaries. The ground floor and garden is 800mm below road level. See Figures 1-3. Historically the property has been altered internally and externally in the mid 2000s with and single storey extension to the rear.

The main structure typically comprises cavity masonry walls with render facing. Floor structures are generally timber floor joists and the roof is formed from a mixture of trusses and joisted flat roofs. A number of walls have large openings and other rooms have structural framing supporting walls and/or floors above, however it is not known if these are original or part of the recent alterations.

Figure 1. Main House (South Elevation)

Figure 2. Rear Garden

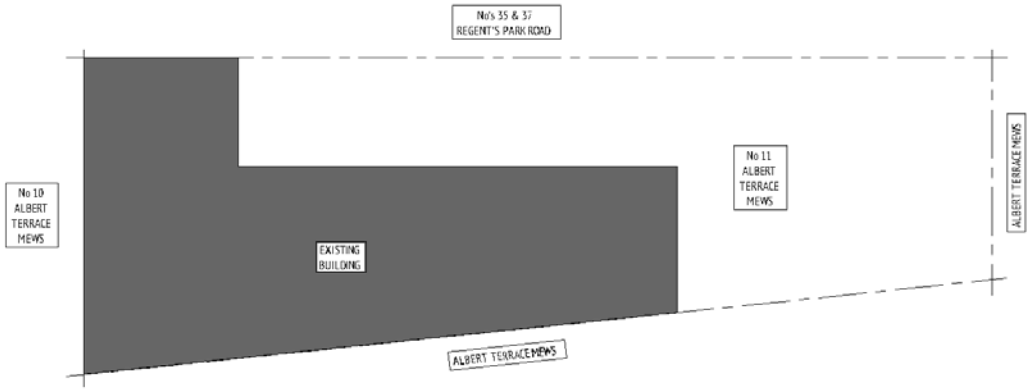


Figure 3. Site Plan

2.2 Geology & Hydrology

The British Geology Survey (BGS) mapping service indicates that the property is underlain with London Clay which is up to 150m thick.

Ground investigation was carried out in Albert Terrace Mews in July 2011 comprising a 10m deep borehole with insitu testing. The borehole found the top of the London Clay 0.5m below ground level with the clay increasing from firm to very stiff in strength. No ground water was encountered and the borehole was dry on completion. Hydrological maps from the Environment Agency indicate no groundwater protection zones or aquifers under the property.

Shear vane testing at regular depths indicates the shear strength of the clay increases from 67kN/m^2 at 1m BGL to >140kN/m^2 at 4m BGL. The borehole log is provided in Appendix A.

3. PROPOSED WORKS

The works comprise the construction of a 14.8m long by 6m wide by 3.5m deep basement beneath the existing structure. The basement will be 5m offset from the party wall to No 10 Albert Terrace Mews and is outside the 45° load spread from the foundations to this structure. A general arrangement drawing is provided in Appendix B.

3.1 Structural Form

The basement structure will be constructed from reinforced concrete elements to provide a monolithic box structure to resist vertical and horizontal loads. The current design philosophy is to construct the basement using a hit and miss underpin construction sequence. This will ensure that damage to the existing and adjoining structures is minimised.

The new reinforced concrete walls will transfer the existing foundation loads to a deeper stratum where the strength of the clay is greater and is unaffected by fluctuations in water content by tress and surface water. The walls will also resist the lateral soil and surcharge pressures.

3.3 Temporary Works

Temporary Works given below will be required to facilitate construction of the basement and minimise damage to existing and neighbouring structures. The methodology stated in Section 4.1 has been developed to reduce the amount of temporary works.

- Temporary props (RMD Slimshor or permanent steel floor beams) will be installed to brace the underpinning to limit lateral movement until the basement and ground floor slabs are cast.

3.4 Trees

A small number trees are present in the rear garden and the basement structure has been located to be outside any tree root protection zones and therefore will not be affected by the works.

4. CONSTRUCTION METHODOLOGY

The proposed methodology for constructing the basement has been based on recognised techniques used on previous projects in accordance with design codes and health and safety regulations. The final method will be developed with the chosen Contractor during detailed design prior to work commencing on site.

4.1 Construction Sequence

This suggested sequence shall be read in conjunction with the drawings in Appendix C. It excludes other works related to mechanical and electrical, which normally occur after the structure is built or these are incorporated in the design beforehand.

Stage Ref	Description
A	Contractor Site Set-up : Erect hoardings, carry out service disconnections, site welfare, etc.
B	Soft strip and take up existing ground floor structure
C	Set-out underpin bays in accordance with Engineers drawing (1.2m max width)
D	Locate pin No 1 and excavate to formation level. Install temporary trench support to soil.
E	Prepare substrate, fix reinforcement and cast underpin. Cure concrete
F	Once concrete has cured dry pack between top of concrete and existing wall, if constant head method not used during casting of RC wall.
G	Repeat stages D-F for next underpin in sequence.
H	Excavate to 1.5m below ground level and install new ground floor beams/temporary propping to provide lateral restraint to top of underpins.
I	Continue excavation to top of 'L' of underpins and install low level prop.
J	Continue excavating to formation level and prepare substrate including any drainage requirements.
K	Fix basement slab reinforcement and cast basement slab.
L	Once basement slab has cured, remove low level props.
M	Construct ground floor structure and once complete remove top level props.
N	Install waterproofing and internal drainage systems
O	Carry out any structural alterations to superstructure above GF level.
P	Install and fix finishes to internal rooms
Q	Carry out snagging and arising remedial works. Take down and remove hoarding, site welfare etc. Hand back site to Client.

5. EFFECT ON EXISTING AND NEIGHBOURING PROPERTIES

The proposed basement excavation is 4.3m deep overall from highway level. This means any property foundation within a 4m horizontal offset from the basement perimeter will need to be taken into account in the design. Based on this there are no foundations or structures within this 4m zone. Albert Terrace Mews private road is within the 4m zone therefore the effects from vehicular loading will be considered.

5.1 Existing Structure No 11 Albert Terrace Mews (Clients Property)

The basement structure is to be built below the existing load bearing walls of the property. The existing foundation loads will be transferred to a lower depth of greater capacity, therefore this will be of benefit to the overall stability of the structure.

Existing drainage runs underneath the property will need to be disconnected or temporarily diverted. These will be reinstated and incorporated into the new drainage scheme for the basement.

5.2 No 10 Albert Terrace Mews

The proposed basement does not extend up to the party wall between No 10 and No 11, and it is located 5.2m away from this wall. The load spread from the foundation (strip footing) will not interact with the basement structure. Any lateral movement of the basement walls, which could affect the party wall, will be prevented by introducing propping during construction.

5.3 No's 35 & 37 Regent's Park Road

The existing 5-storey structures are greater than 5m from the proposed structure therefore the load spread from these foundation will not interact with the basement structure. Again, any lateral movement of the basement walls will be prevented by introducing propping during construction.

5.4 Private Road (Albert Terrace Mews)

The proposed basement structure will be adjacent to the road boundary and therefore the design of the piles and basement structure may be subject to approval from the Local Council/ Highway Authority.

5.5 London Underground Tube Lines

No tube lines are within the property curtilage.

APPENDIX A:

Geotechnical Information

J PAMMENT SITE INVESTIGATIONS

J PAMMENT

55 Roding Leigh, South Woodham Ferrers, Chelmsford, Essex CM3 5JZ
TEL/FAX: 01245 322 115 - MOBILE: 07940 514 408

BH No: 1	Sheet: 1 of 1	Ref:	Date: 26.07.11	For: Albert Terrace Mews, London NW1

Depth Mtrs.	Description of Strata	Thick-ness	Legend	Sample	Test Type	Test Result	Root Information	Depth to Water	Depth mtrs
G.L.	BLOCK PAVING OVER SAND.	0.2							
0.2	MADE GROUND firm mid brown silty clay with occasional small pieces of brick rubble and fine gravel.	0.3					Roots of live appearance to 2mmØ to 1.3m.		
0.5	Firm mid brown mottled orange grey veined silty CLAY with partings of orange and brown silt and fine sand.	1.5		D	V	66 68	No roots observed below 1.3m.		1.0
2.0				D	V	78 80			2.0
	Stiff as above.	2.0		D	V	112 124			3.0
4.0				D	V	140+ 140+			4.0
				D	V	140+ 140+			5.0
	Very stiff dark brown silty CLAY with partings of orange and brown silt and fine sand.	4.5		D	V	140+ 140+			6.0
				D					7.0
				D					8.0
8.5				D					9.0
	Very stiff dark grey silty CLAY.	1.5							
10.0	Borehole ends at 10.0m			D	V	140+ 140+			10.0

Remarks: Borehole dry & open on completion.

Key: D : Disturbed Sample M: Penetration Test by Mackintosh Probe W: Water Sample V: Vane Test

APPENDIX B:

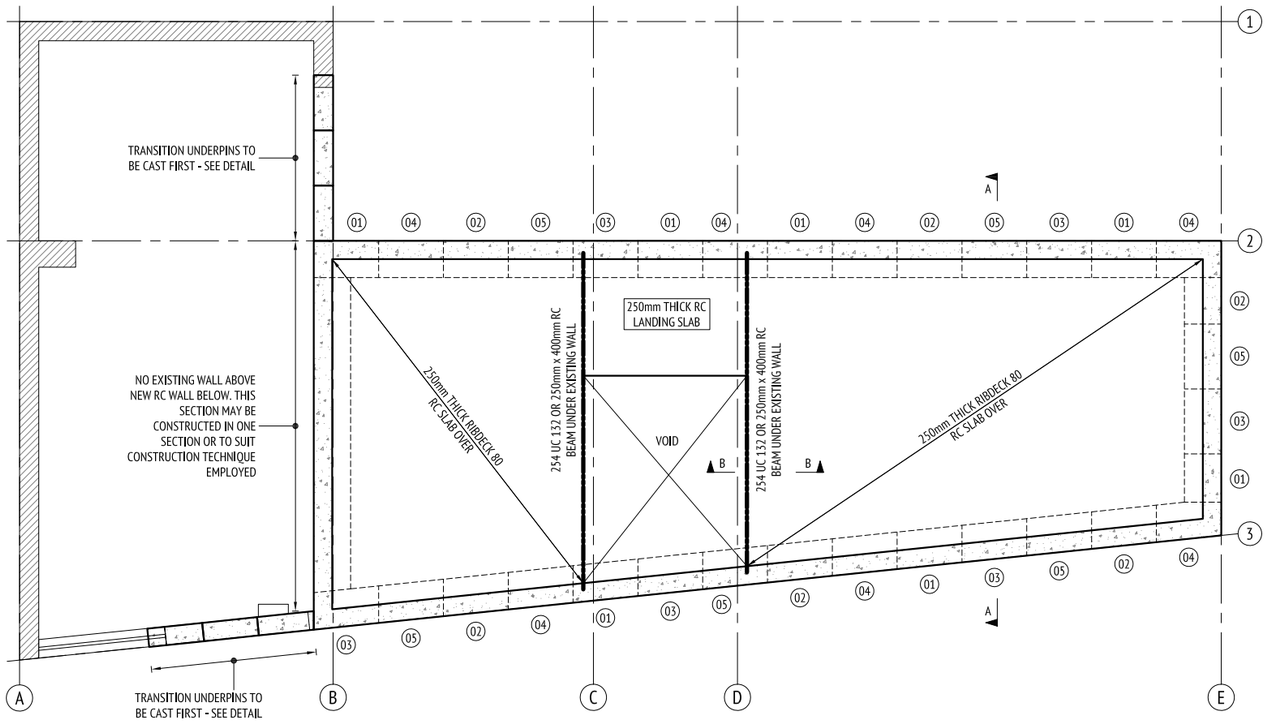
Proposed Drawing

SCALE: AS SHOWN AT A3

REV	DESCRIPTION	DATE
A	FIRST ISSUE	12/11/14

JOB No: 0036 **REV**

DRAWING No: P001 A



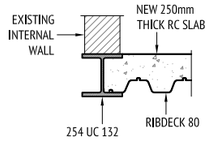
BASEMENT PLAN
SCALE 1:100

KEY

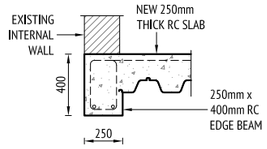
(01) INDICATES UNDERPIN SEQUENCE NUMBER

UNDERPIN SEQUENCE

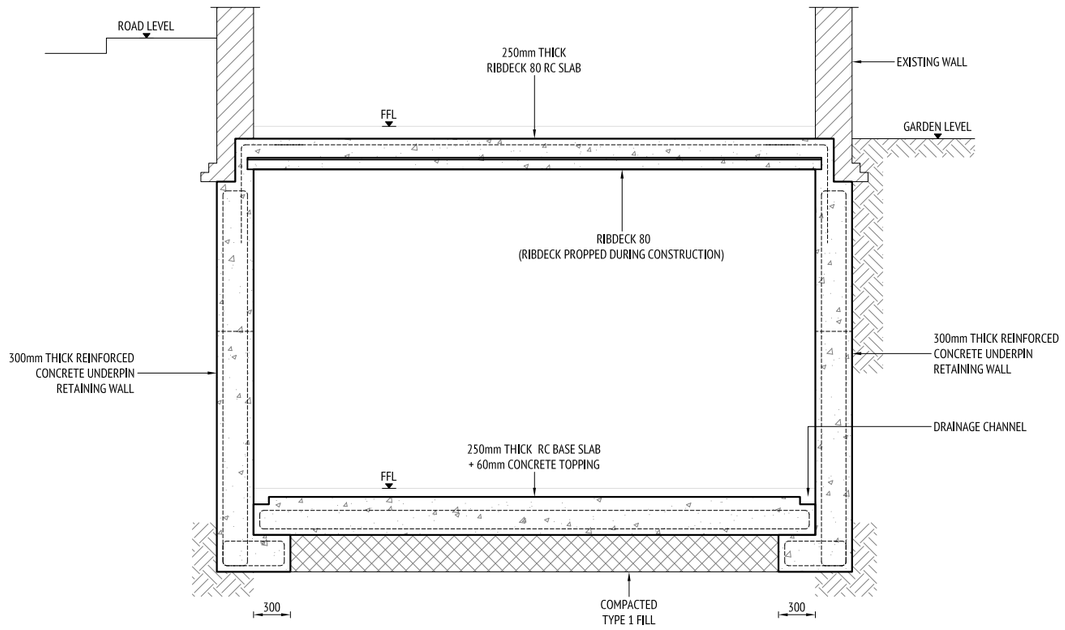
1. SET-OUT BAY No 1
2. EXCAVATE TO FORMATION LEVEL UNDER EXISTING WALL. (MAX WIDTH 1.2m)
3. INSTALL REINFORCEMENT CAGE AND SUPPORT IN PLACE MAINTAINING COVER REQUIREMENTS
4. CAST CONCRETE UNDERPIN AND CURE FOR 3 DAYS
5. DRY PACK USING SAND:CEMENT MORTAR BETWEEN UNDERPIN AND EXISTING WALL. ALTERNATIVELY USE A 40N/mm² NON-SHRINK CEMENTITIOUS GROUT (FOSROC CONBEXTRA GP OR SIMILAR APPROVED).
6. MOVE TO BAY No. 2 AND REPEAT STEPS 2 TO 5 FOR REMAINING BAYS



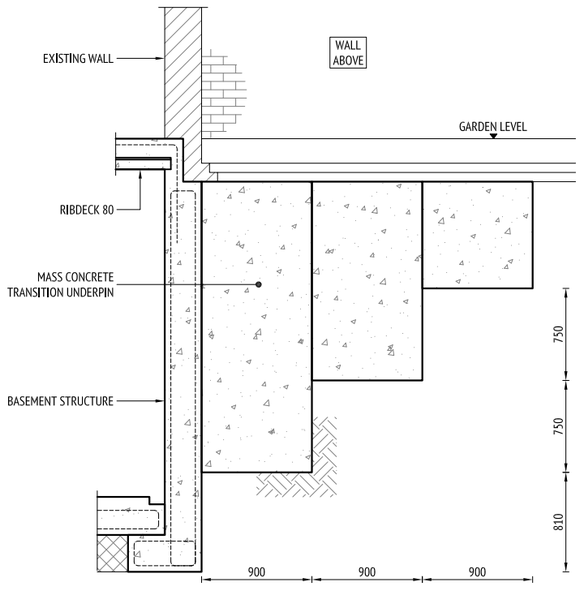
SECTION B-B - OPTION 1
SCALE 1:40



SECTION B-B - OPTION 2
SCALE 1:40



SECTION A-A
SCALE 1:50



TRANSITION UNDERPIN DETAIL
SCALE 1:50

JAMES FRITH LTD
CONSULTING CIVIL AND STRUCTURAL ENGINEERS
+44 (0) 7876762553 | www.jamesfrithltd.com | office@jamesfrithltd.com

PROJECT: ALBERT TERRACE MEWS

TITLE: PROPOSED BASEMENT GA

STATUS: PLANNING

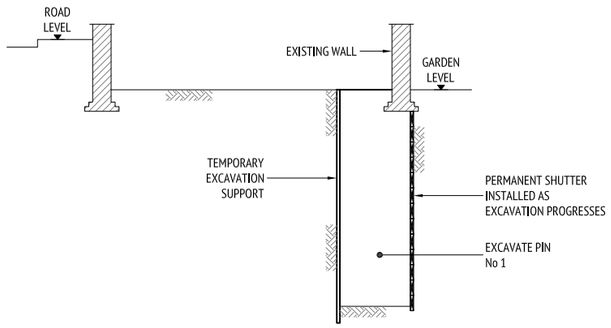
CLIENT: MRJ RUNDELL & ASSOCIATES

SCALE: AS SHOWN AT A3

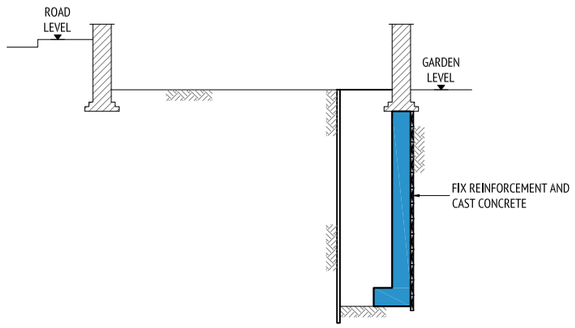
REV	DESCRIPTION	DATE
A	FIRST ISSUE	12/11/14

JOB No: 0036 **REV**

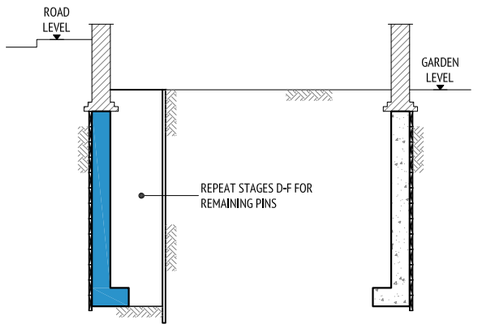
DRAWING No: P002 A



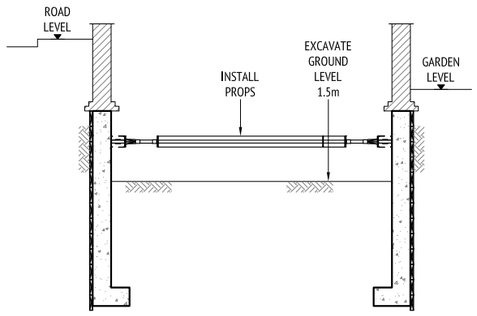
STAGE A-D
SCALE 1:100



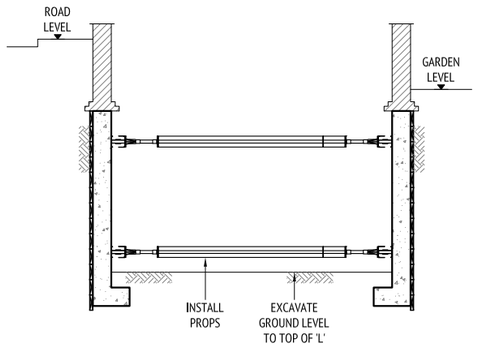
STAGE E
SCALE 1:100



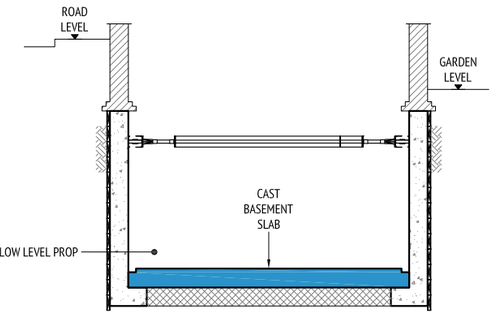
STAGE G
SCALE 1:100



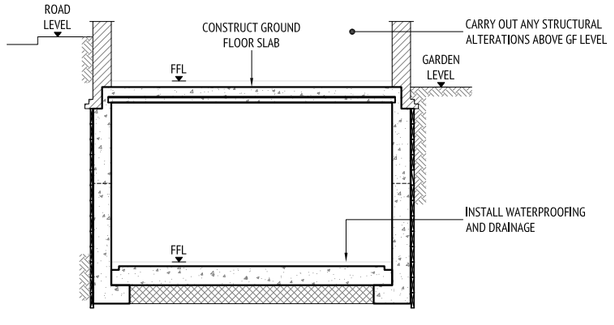
STAGE H
SCALE 1:100



STAGE I
SCALE 1:100



STAGE J-L
SCALE 1:100



STAGE M-Q
SCALE 1:100

JAMES FRITH LTD
CONSULTING CIVIL AND STRUCTURAL ENGINEERS
+44 (0) 7876762553 | www.jamesfrithltd.com | office@jamesfrithltd.com

PROJECT: 11 ALBERT TERRACE MEWS

TITLE: PROPOSED CONSTRUCTION SEQUENCE

STATUS: PLANNING

CLIENT: MRJ RUNDELL & ASSOCIATES

APPENDIX C:

Construction Sequence Drawings