MICHAEL CHESTER & PARTNERS Consulting Civil and Structural Engineers
8 Hale Lane London NW7 3NX tel 020 8959 9119 fax 020 8959 9662 mail@michaelchester.co.uk

Our Ref: 14011 February 2014

FLAT 1, 85 GREENCROFT GARDENS, LONDON NW6

STRUCTURAL REPORT TO ACCOMPANY PLANNING APPLICATION

(Note – references in this report to 'left' and 'right' are used as looking at the property from the front street.)

1.0 Project Information

1.1 The site is located on the south side of Greencroft Gardens, London NW6, mid-way between its junctions with Priory Road and Fairhazel Gardens.

1.2 The subject property on the site is a late Victorian semi-detached double-fronted house four storeys high including a roof mansard storey. It has a relatively small original cellar approximately 2 metres deep located beneath its centre and extending out to the right hand flank wall, and a sub-floor void approximately 1.3 metres deep elsewhere below most of the ground floor.

1.3 The proposed works which are the subject of this Planning Application comprise the excavation of a new basement, with a finished floor level approximately 3.0 metres deep below existing ground floor level, across the full footprint of the house and extending by a maximum of about 1.5 metres outwards from both the right hand flank and the rear of the house to form external lightwell areas.

1.4 Michael Chester & Partners have been appointed by the owners of the ground floor Flat 1 to carry out an appraisal of the structural and slope stability aspects of the Basement Impact Assessment (BIA) in line with Camden Planning Guidance CPG4 "Basements and Light Wells".

2.0 Questions arising from CPG4 BIA Slope Stability Screening Flowchart

Q1: Does the existing site include slopes, natural or man-made, greater than 7 degrees (approximately 1 in 8)?

No. The site is sensibly flat, with a slight fall of about 600mm from the front external area down to the rear garden.

Q2: Will the proposed re-profiling of the landscaping at site change slopes at the property boundary level to more than 7 degrees (approximately 1 in 8)?

No. Proposed levels around the new building are to remain as existing.

Q3: Does the development neighbour land, including railway cuttings and the like, with a slope greater than 7 degrees (approximately 1 in 8)?

No. See Q1.

Q4: Is the site within a wider hillside setting in which the general slope is greater than 7 degrees (approximately 1 in 8)?

No.

Q5: Is the London Clay the shallowest stratum on the site?

Yes. British Geological Survey sheet 256 shows London Clay as the shallowest stratum and this has been proved by a site investigation.

Q6: Will any trees be felled as part of the proposed development and/or are any works proposed within any tree protection zones where trees are to be retained?

No.

Q7: Is there a history of seasonal shrinkage-swell subsidence in the local area, and/or evidence of such effects on the site?

Unknown but, as Q5, the site is underlain by London Clay which is a highly plastic material readily susceptible to volume changes as a result of changes in its moisture content. There were, however, no obvious signs that the existing building was suffering or had been suffering from these effects.

Q8: Is the site within 100m of a watercourse or a potential spring line?

Unknown.

Q9: Is the site within an area of previously worked ground?

Yes, but only to the extent that the site investigation trial pits and boreholes encountered clay-based fill material from external ground level at the front of the site down to approximately 1.4 metres depth overlying the London Clay. The house footings bear into the London Clay.

Q10: Is the site within an aquifer? If so, will the proposed basement extend beneath the water table such that dewatering may be required during construction?

London Clay is not an aquifer.

Q11: Is the site within 50m of the Hampstead Heath ponds?

No.

Q12: Is the site within 5m of a highway or pedestrian right of way?

The original front wall of the house is set back from the front boundary by about 5-6 metres. The site front boundary itself borders the public footpath to Greencroft Gardens.

Q13: Will the proposed basement significantly increase the differential depth of foundations relative to the neighbouring properties?

Yes, to a limited extent. Existing foundations depths are relatively deep for a building of this age and the founding depth of the party wall will be increased by approximately 1.4 metres due to necessary underpinning.

Q14: Is the site over (or within the exclusion zone of) any tunnels, eg railway lines.

No.

3.0 Slope stability "scoping"

3.1 Conceptual ground model: The site falls approximately 0.6m from front to back and is approximately level from side to side. The wider surrounding area is sensibly level. The top surface of the London Clay is generally level, typically at about 1.4 metres below external ground level at the front.

3.2 Site investigations have been carried out and generally confirm the above, including the depths of the existing foundations. These investigation findings are appended.

4.0 Basement Impact Assessment

4.1 In summary, the existing building has a sub-floor void approximately 1.3 metres deep and a small cellar about 2 metres deep below its ground floor level. Trial investigations have revealed the founding levels of the existing footings throughout varying between approximately 1.7 – 2.4 metres below ground floor level, all bearing into the London Clay subsoil.

4.2 The proposed basement structure will have a founding level approximately 3.8 metres below ground floor level.

4.3 All existing external perimeter walls of the subject property and its party wall with no.83 Greencroft Gardens will be underpinned down to the new basement founding depth. This will be done, subject to Party Wall negotiations where applicable, variously in mass concrete or reinforced concrete carried out in short lengths in a carefully controlled sequence where necessary to ensure that the adjoining structures remain stable and entirely safe at all times.

4.4 The retained height of soil around the perimeter of the basement excavation generally will vary between approximately 2.2-3.0 metres. The surrounding ground will be supported by reinforced concrete retaining walls.

4.5 Internal loadbearing walls at ground floor level will be underbuilt down onto new foundations below the basement floor.

4.6 A scheme drawing illustrating the proposed works is appended.

4.7 Anticipated damage as a result of these works is likely to fall within the negligible or very slight categories defined by Burland *et al*.

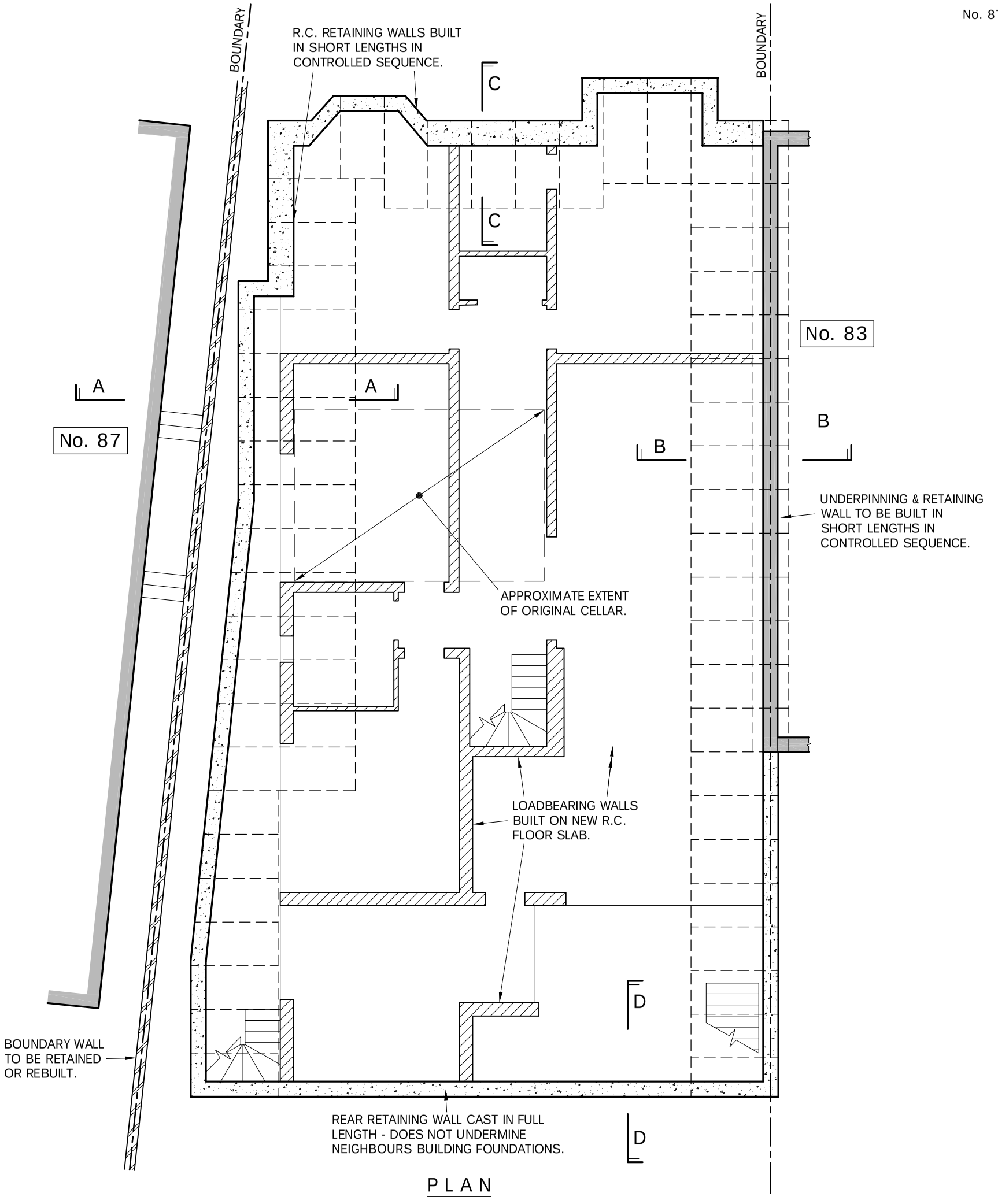
4.8 The risk of damage to the subject and neighbouring buildings by ground heave due to the release of overburden pressure, as a consequence of the basement excavation, is considered to be insignificant because of the relatively minimal excavation depth involved.

4.9 Monitoring of the buildings adjacent to the site is not considered necessary.

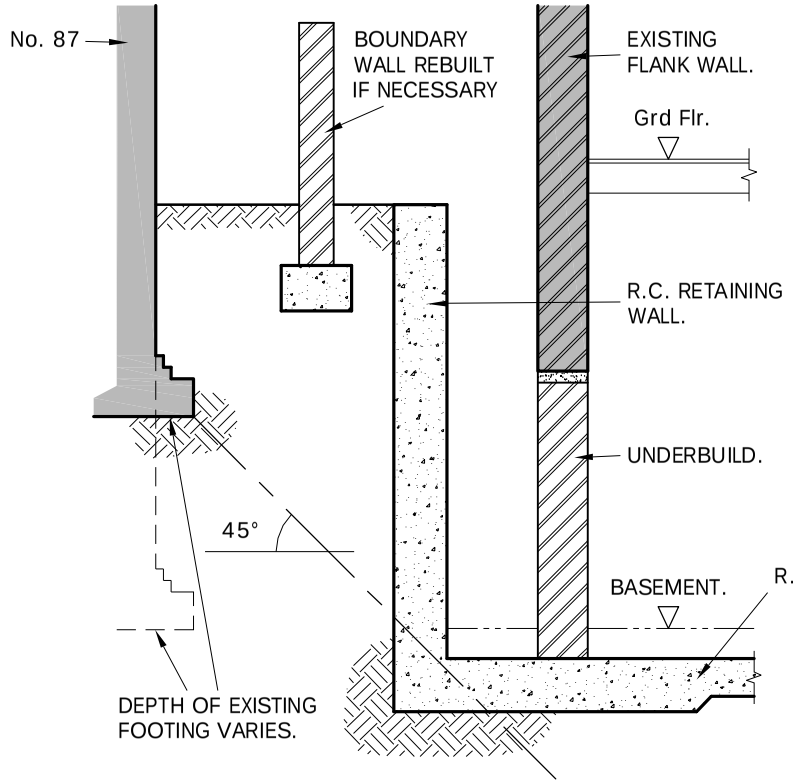
Robert C Moore BSc CEng MIStructE
Partner – Michael Chester & Partners LLP

APPENDIX A:

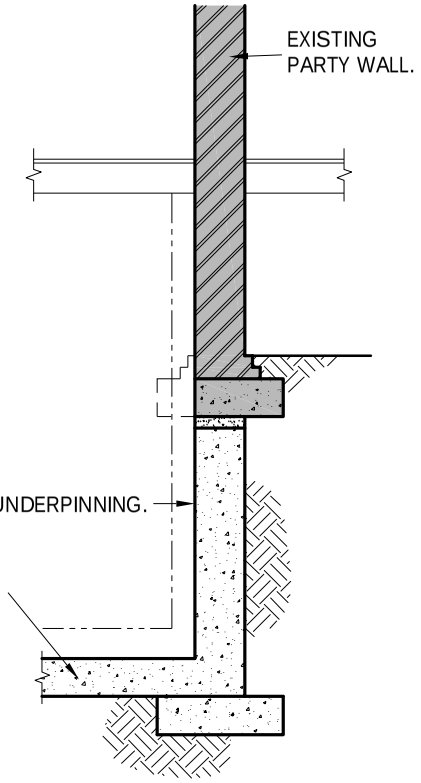
MCP BASEMENT SCHEME DRAWING No.14011/50



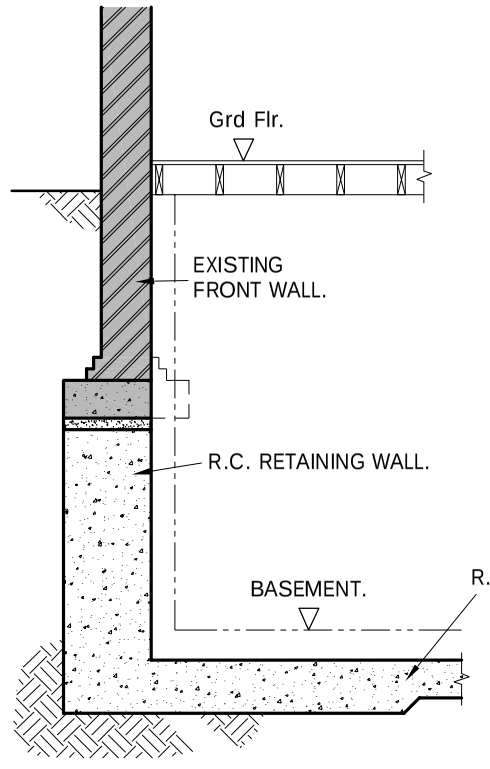
PLAN



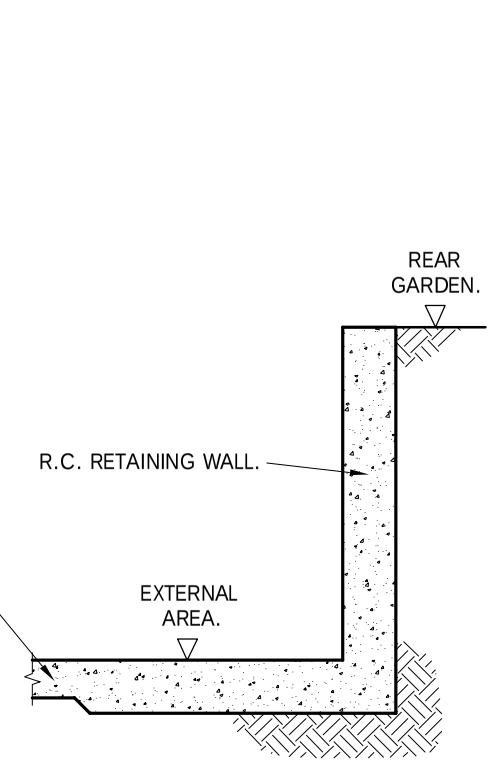
SECTION A - A



SECTION B - B



SECTION C - C



SECTION D - D

MICHAEL CHESTER & PARTNERS
Consulting Civil and Structural Engineers
8 Hale Lane London NW7 3NX tel 020 8959 9119 fax 020 8959 9662

Date FEB 14	Drg No 14011/50	Rev
Drawn VP		
Scale 1:100		

Project
85 GREENCROFT GARDENS
LONDON NW6

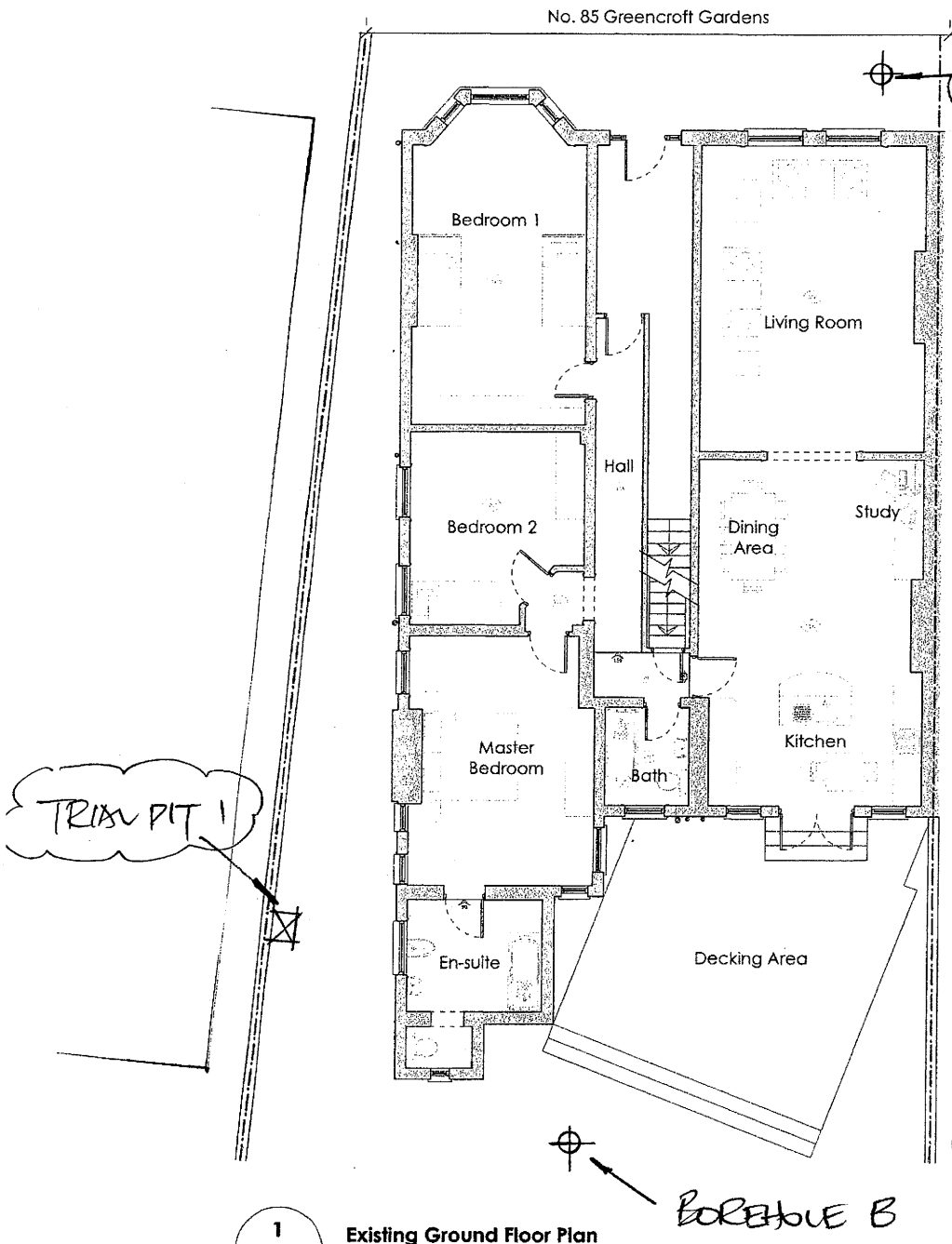
PROPOSED BASEMENT CONSTRUCTION SCHEME

Do not scale from this drawing. Dimensions given are in millimetres unless noted otherwise.
This drawing must be read in conjunction with all relevant drawings and specifications.

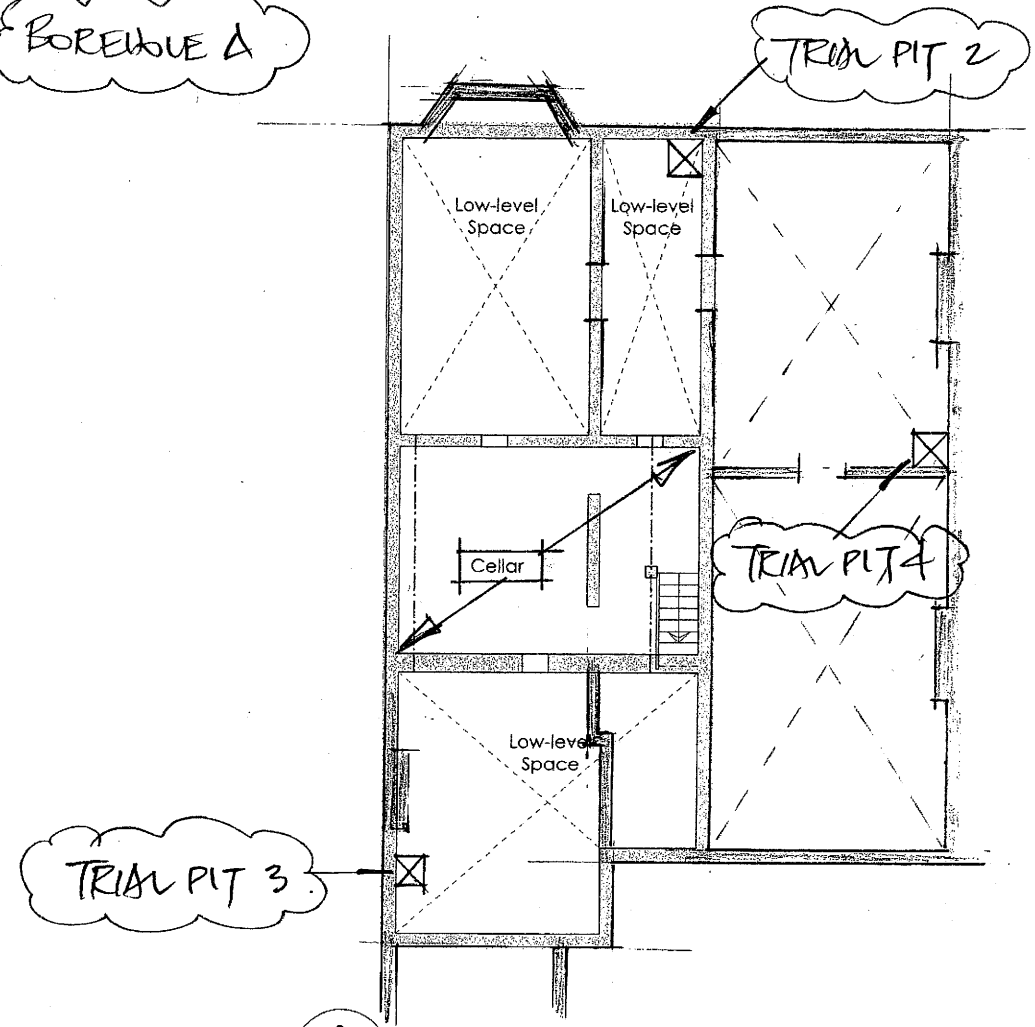
PRELIMINARY A3

APPENDIX B:

FOUNDATION INVESTIGATION RESULTS BY S.CHICK INVESTIGATIONS



1 P-010 **Existing Ground Floor Plan**
scale 1:100 @ A3

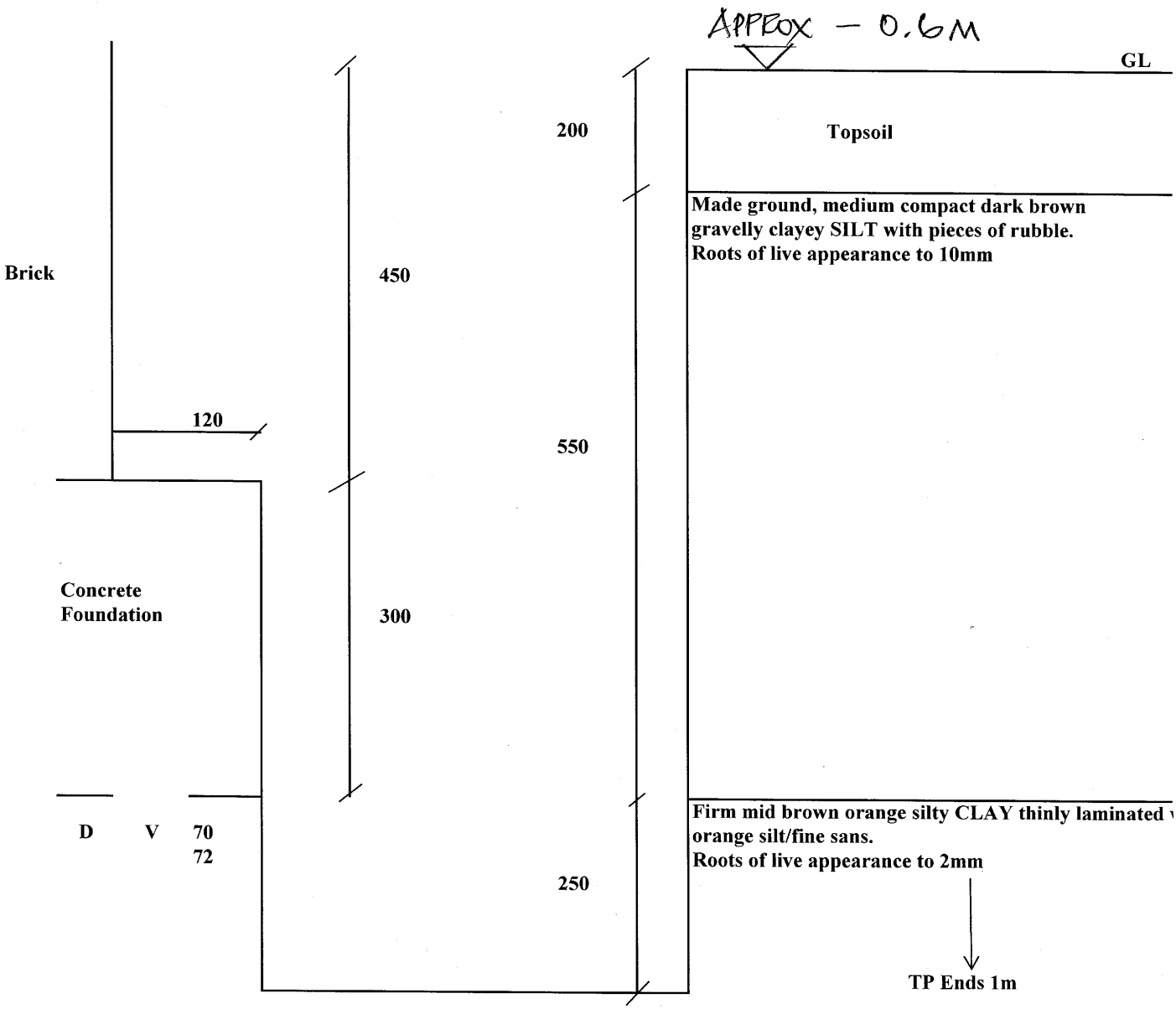


2 P-010 **Existing Cellar Plan**
scale 1:100 @ A3

FOUNDATION INVESTIGATION KEY PLAN.

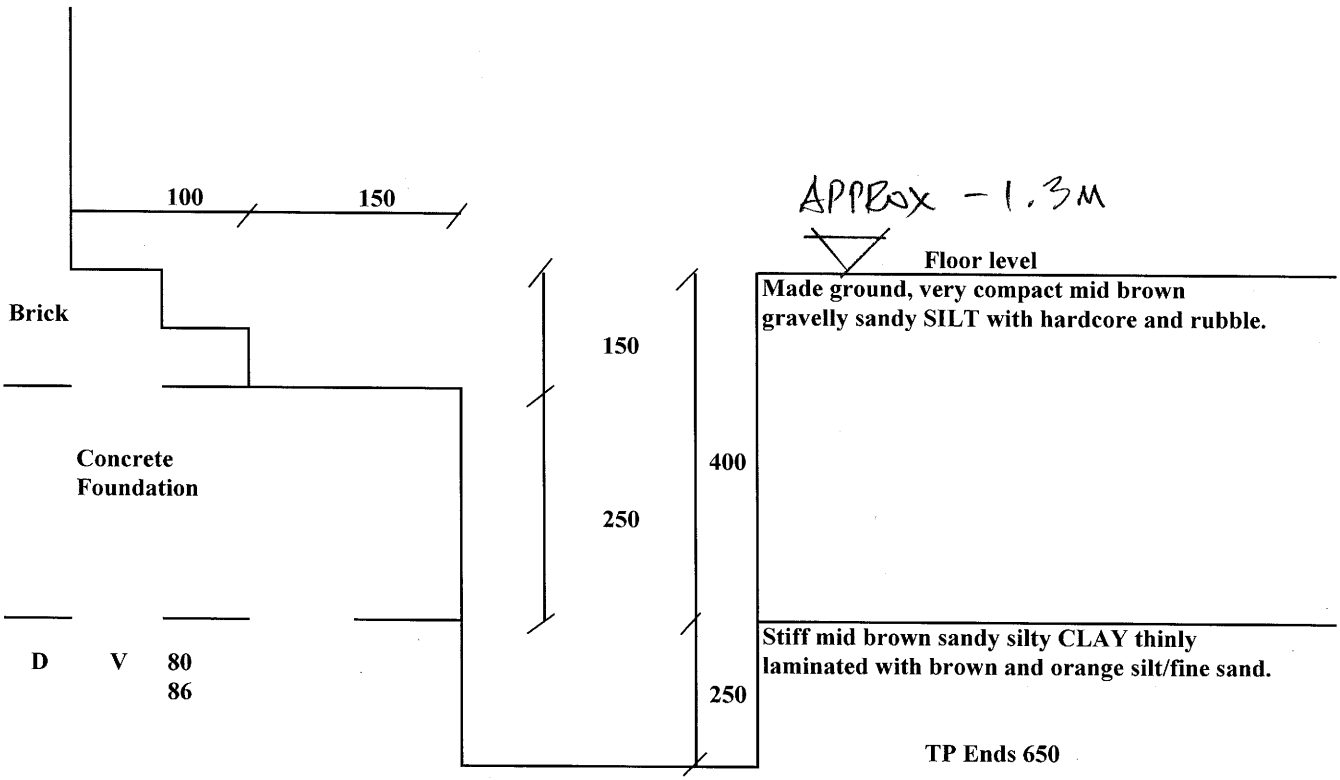
healycornelius INTERIORS ARCHITECTURE TECHNOLOGY — No. 5 St. John's Lane London EC1M 4BH T 020 7404 7771 F 020 7404 7772 CIAT	Drawing Title: **Existing Ground Floor & Cellar Plans**		
Client: Van Der Valk & de Bona	Scale: 1:100 @ A3	Date: 08 Jan. 2013	Drawn: MOK
Job Title: Flat 1, No. 85 Greencroft Gardens, London NW6 3LJ	Drawing Number: **13-499-P-010**		Rev: -

TP No: 1	Sheet: 1 of 1	S Chick Investigations
Client: Chesters	Date: 06/02/2014	Site: 85 Greencroft Gardens, NW6



Remarks:	Key: T.D.T.D. Too Dense to Drive			
X(Y) = X blows for Ymm penetration.	D Small disturbed sample	J Jar sample		
	B Bulk disturbed sample	V Pilcon Vane (kPa)		
	W Water sample	M Mackintosh Probe		
Logged: / Checked: / Approved:	Scale: NTS	Weather:		

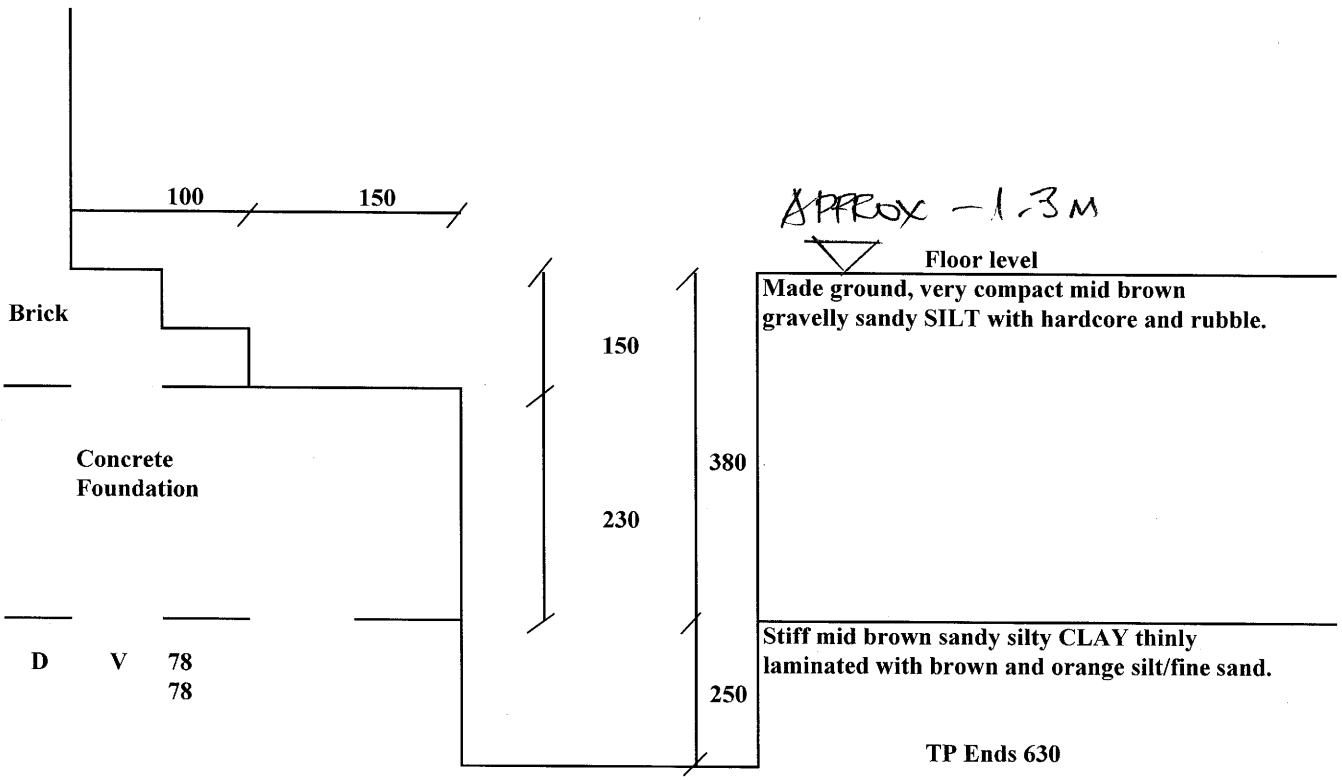
TP No: 2	Sheet: 1 of 1	S Chick Investigations
Client: Chesters	Date: 06/02/2014	Site: 85 Greencroft Gardens, NW6



Remarks:	Key: T.D.T.D. Too Dense to Drive	
X(Y) = X blows for Y mm penetration.	D Small disturbed sample	J Jar sample
	B Bulk disturbed sample	V Pilcon Vane (kPa)
	W Water sample	M Mackintosh Probe

Logged:	Checked:	Approved:	Scale: NTS	Weather:

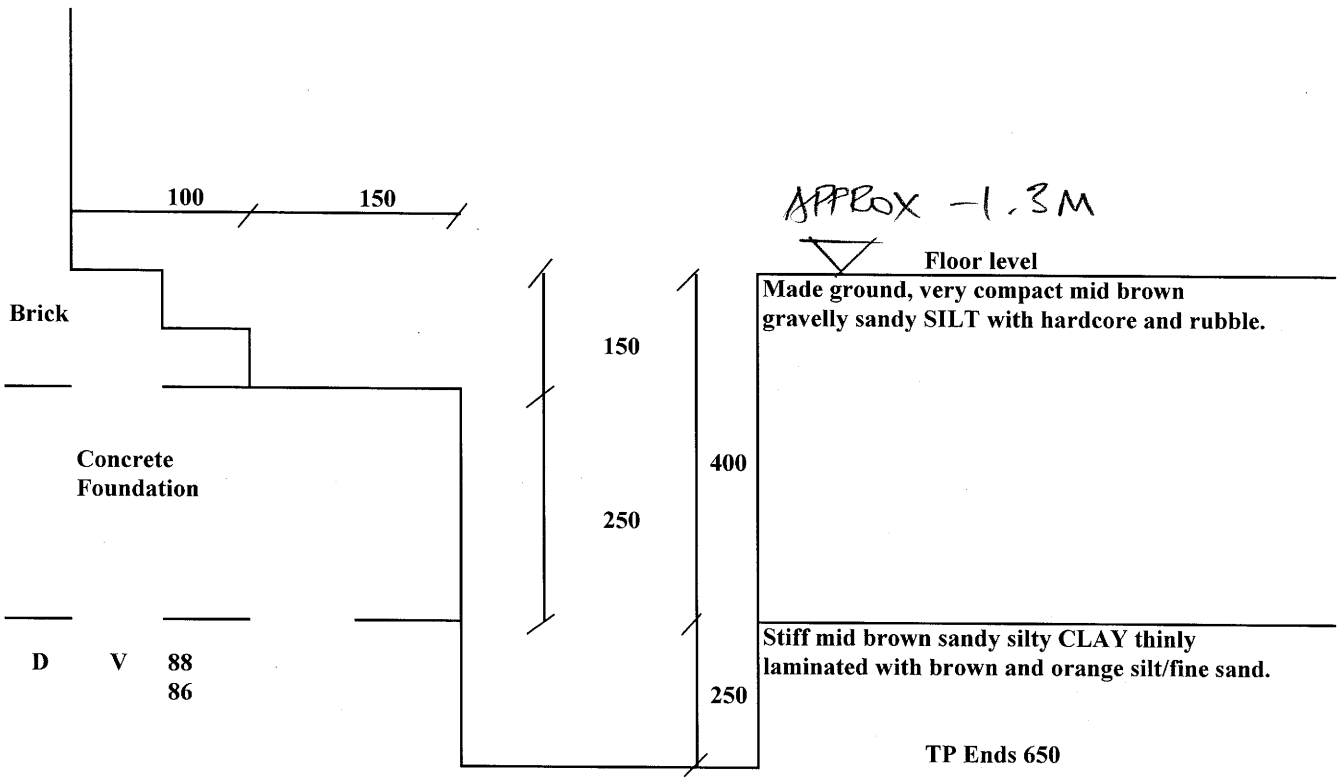
TP No: 3	Sheet: 1 of 1	S Chick Investigations
Client: Chesters	Date: 06/02/2014	Site: 85 Greencroft Gardens, NW6



Remarks:	Key: T.D.T.D. Too Dense to Drive	
X(Y) = X blows for Ymm penetration.	D Small disturbed sample	J Jar sample
	B Bulk disturbed sample	V Pilcon Vane (kPa)
	W Water sample	M Mackintosh Probe

Logged:	Checked:	Approved:	Scale: NTS	Weather:

TP No: 4	Sheet: 1 of 1	S Chick Investigations
Client: Chesters	Date: 06/02/2014	Site: 85 Greencroft Gardens, NW6



Remarks:	*Key:* T.D.T.D. Too Dense to Drive	
X(Y) = X blows for Ymm penetration.	D Small disturbed sample	J Jar sample
	B Bulk disturbed sample	V Pilcon Vane (kPa)
	W Water sample	M Mackintosh Probe

Logged:	Checked:	Approved:	Scale: NTS	Weather:

Borehole No: A	Sheet: 1 of 1	S Chick Investigations
	Job No:	Site: 85 Greencroft Gardens
Boring Method: C.F.A	Date: 06/02/2014	NW6
Diameter: 100mm Coordinates:	Ground Level mOD: -0.2M	Work Carried out for: Chesters

Depth (m)	Description of Strata	Thick-ness (m)	Sample	Test Type	Test Result	Depth (m)	Field Records/Comments	Depth to water (m)
GL	Block paving over sand	0.20					Roots of live appearance to 8mm to 1.2m	
0.20	Made ground, medium compact mid brown gravelly silty CLAY with pieces of rubble	1.20						
			D	M	14	1.00		
					14		Hair and fibrous roots observed to 2.2m	
1.40	Stiff mid brown grey veined silty CLAY with partings of brown silt/fine sand	1.10			16			
					18			
			D	V	122	2.00		
					132			
2.50	Very stiff mid brown silty CLAY with partings of brown silt/fine sand	2.50						
			D	V	140+	3.00		
					140+			
			D	V	140+			
					140+			
	BH Ends 5.0m		D	V	140+		BH dry and open on completion	
					140+			

Remarks:

X(Y) = X blows for Ymm penetration.

Key: T.D.T.D. Too Dense to Drive

D Small disturbed sample
B Bulk disturbed sample
W Water sample
J Jar sample
V Pilcon Vane (kPa)
M Mackintosh Probe

Logged: SC	Checked:	Approved:	Scale: NTS	Weather:

Borehole No: B	Sheet: 1 of 1	S Chick Investigations
	Job No:	Site: 85 Greencroft Gardens
Boring Method: C.F.A	Date: 06/02/2014	NW6
Diameter: 100mm Coordinates:	Ground Level mOD: −0.6M	Work Carried out for: Chesters

Depth (m)	Description of Strata	Thick-ness (m)	Sample	Test Type	Test Result	Depth (m)	Field Records/Comments	Depth to water (m)
GL	Turf over topsoil	0.20					Occasional roots of live appearance to 2mm to 1m	
0.20	Made ground, medium compact mid brown gravelly clayey silt with pieces of rubble.	0.40						
0.60	Firm mid brown mottled orange silty CLAY with partings of orange silt/fine sand	0.70	D	V	72 72	1.00		
1.30	Stiff mid brown silty CLAY with partings of brown silt/fine sand	1.90	D	V	116 118	2.00		
			D	V	130 134	3.00		
3.20	Very stiff as above	1.80	D	V	140+ 140+			
	BH Ends 5.0m		D	V	140+ 140+		BH dry and open on completion	

Remarks:

X(Y) = X blows for Ymm penetration.

Key: T.D.T.D. Too Dense to Drive

D Small disturbed sample
B Bulk disturbed sample
W Water sample
J Jar sample
V Pilcon Vane (kPa)
M Mackintosh Probe

Logged: SC	Checked:	Approved:	Scale: NTS	Weather: