Ground and Project CONSULTANTS LTD

63 GOLDHURST TERRACE, LONDON NW6 3HB. GEOTECHNICAL INTERPRETATIVE REPORT

JULY 2016

Client:

DIG FOR VICTORY LTD

20 MORTLAKE HIGH STREET,

LONDON

SW14 8JN

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The advice and opinions in this report should be read and relied on only in the context of the report as a whole, taking account of the terms of reference agreed with the client. The findings are based on the information made available to Ground and Project Consultants Ltd at the date of the report (and will have been assumed to be correct) and on current UK standards, codes, technology and practices as at that time. They do not purport to include any manner of legal advice or opinion. New information or changes in conditions and regulatory requirements may occur in future, which will change the conclusions presented here.

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Ground and Project Consultants Ltd

63 Goldhurst Terrace, London, NW6 3HB:

Geotechnical Interpretative Report 30152/1

Contents

1 Introduction

Ground and Project Consultants Ltd have been instructed by Dig For Victory Ltd (DFV) to provide a geotechnical interpretative report for the basement proposals at 63 Goldhurst Terrace, London NW6 3HB. This is in response to the audit report by CampbellReith (12066-79,Revision: F1, April 2016). The property is located in the London Borough of Camden, London, its location is indicated on Figure 1.

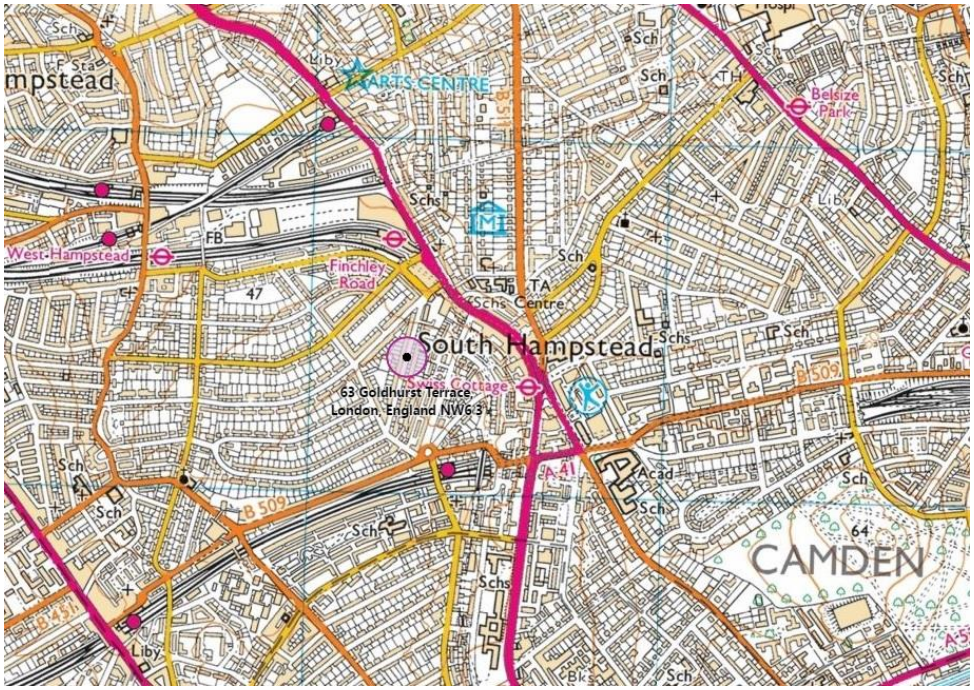

Figure 1: Site Location

2 Scope and Objective

The scope of this report and approach is as follows:

A review the existing data supplied by the client has been carried out, including the proposal drawings produced to date, Ground Investigation data, photos of the building and the background data available through London Borough of Camden's website and other freely available data such as BGS geological information and purchased environmental data.

In line with the CPG4 guidance:

- A detailed assessment of the published and encountered geology
- Development of a ground model including an assessment of geotechnical properties
- An engineering interpretation including development of characteristic values for design.

The report has not considered contaminated land aspects of the site.

This report and the work to support it has been carried out by Jon Smithson who is a Director of Ground and Project Consultants Ltd and is a Chartered Geologist (CGeol) with 30 years' experience.

3 Review of Desk Study Information

Topography

The OS map indicates the property is at around 43m AOD. The ground surface rises gently towards the North at around 1 in 40 (less than 2°). There is no significant change in elevation at the property.

Geology

The available geological mapping (Ref 1.) indicates that the site lies on London Clay which typically comprises a stiff grey fissured clay, weathering to brown near surface. Concretions of argillaceous limestone in nodular form (Claystones) occur throughout the formation. The geological map (North London 256) indicates that the property is close to an area of 'propensity' for Head Deposits, immediately to the east, associated with the higher ground of Highgate Hill. Typically these deposits are thin (<2m) and consist of soft, ocherous brown silty clay with blue-grey mottling in places and angular, frost-shattered fragments of flint occur sporadically throughout. The base of the London Clay is likely to occur at significant depth below the property. See figure 2 below.

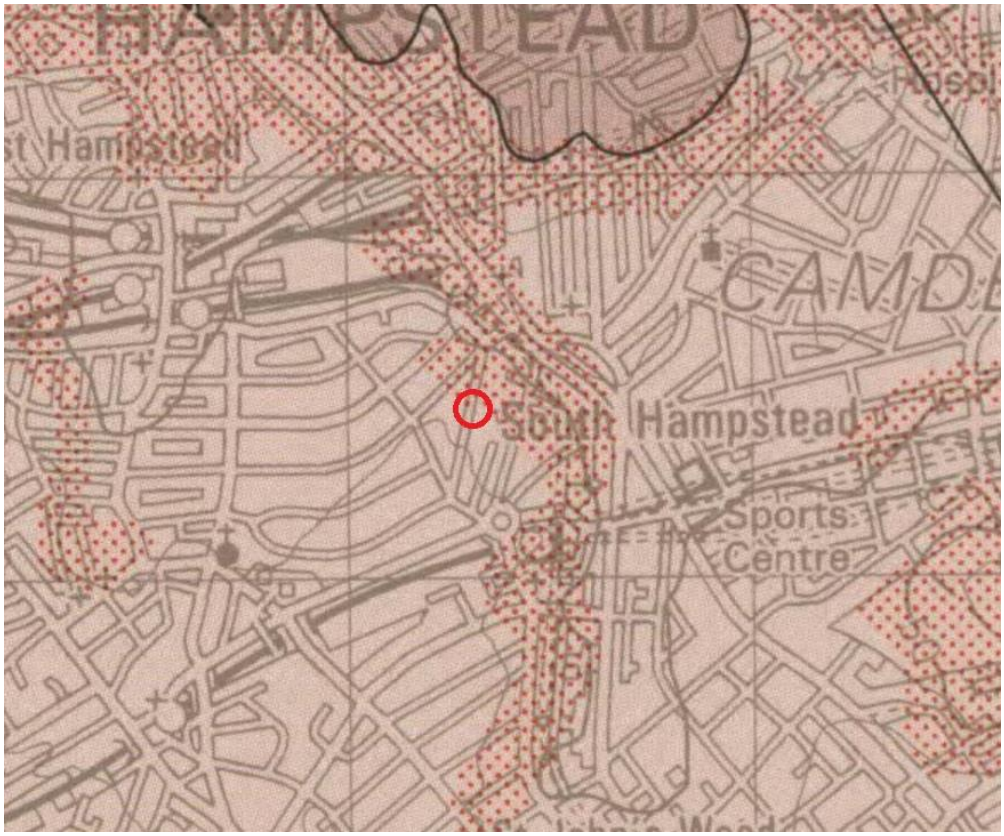

Figure 2: Geology

Hydrology and Hydrogeology

The OS Map indicates that there are no surface water bodies in the vicinity of the site.

The London Clay is classified by the Environment Agency as unproductive strata (rock layers with low permeability and negligible significance for water supply or river base flow). The site is not within a source protection zone of a public water supply. There are no groundwater abstraction licenses within 2 km of the site and no source protection zones within 500 m of the site.

4 Ground Investigation

A ground investigation (GI) has been carried out at the site by Chelmer Site Investigations for Dig For Victory Ltd (DFV) and results of these have been made available by DFV. The GI was carried out in August 2014.

The work comprised one hand auger borehole (BH1) to 5.00m bgl in front garden area of the property. No groundwater monitoring was installed.

Below is a summary derived from the Ground Investigation report. The borehole encountered a cover of Made Ground, 0.90m thick, beneath paving slabs. This was described as 'medium compact, dark brown, very silty clay, with gravel and brick fragments'. Fibrous roots were noted. Below the Made Ground the borehole encountered an 'upper' clay deposit described as 'Firm (becoming stiff at 0.9m) , orange-brown, grey veined, silty CLAY, with partings of orange and brown, silt and fine sand, claystone nodules and selenite crystals'. Below 2.3m the 'lower' clay is described as very stiff, orange-brown, grey veined, silty CLAY, with partings of orange and brown, silt and fine sand, frequent claystone nodules and selenite crystals. These clays are likely to be London Clay.

Hand Shear vane testing was carried out in the clay deposits. In the 'upper' clay these gave undrained shear strength values of 62kN/m2 increasing to 100kN/m2 at 2.0m bgl. This suggests the clay is firm becoming stiff. The 'lower' clay had a shear strength exceeding the shear vanes capability of 140kN/m2 equating to very stiff.

Groundwater was not encountered during drilling. No groundwater or ground gas monitoring equipment was installed.

Disturbed samples were collected from the boreholes. No laboratory tests were carried out on the samples collected.

5 Geotechnical Assessment

Conceptual Ground Model

From the above a conceptual Ground model has been developed and is presented in tabular form below:

Strata	Typical Description	Depth at Property encountered in GI	Geotechnical Properties – Tentative Characteristic Values*	Other
Made Ground	Dark brown, very silty clay, with grave	Ground level to 0.90m	N/A	Made Ground should not be relied upon as a bearing strata.
London Clay	Orange Brown grey veined silty clay. Probably firm becoming stiff and very stiff with depth.	0.90 to 5.00m (base not proven).	C' =0 ϕ' = 20o Cu = 50 increasing to 120kN/m2 at formation. Coefficient of Compressibility, mv (at anticipated loads) = 0.15m2/MN **	The undrained shear strength of the London Clay should be confirmed prior to construction. Typically London Clay in this area is of high or very high plasticity
Groundwater		Not encountered Local data available suggests groundwater levels may be between 1m and 2m bgl		May significantly vary seasonally or after prolonged wet or dry periods.

Table 3: Summary of Strata Characteristics

*The determination of parameters is tentative due to the lack of test data.

**Strength should be verified by hand held shear vane/ inspection during ground excavation.

6 Uncertainties and Limitations

The Ground Investigation has provided useful information on the likely ground conditions which will be encountered at site. The level of investigation however leaves a number of uncertainties as follows:

i) The nature of the London Clay at depth: the depth of investigation to 5m is just below the basement formation. It is probable that the London Clay below the basement will be very stiff as recorded.
ii) The strength of the London Clay has only been measured using a hand held shear vane. Whilst the vane gives useful data it is not always reliable and has not been correlated with other tests. There is no direct data on the compressibility of the London Clay at the property.
iii) Laboratory testing has not been carried out on the samples recovered. The Hand Auger borehole in this case has only recovered disturbed samples so can only be used for index testing such as atterberg limits and moisture content, and chemical tests. Atterberg Limits give useful data on plasticity (shrink, swell properties) and correlations to strength and compressibility.
iv) There is no data on sulphates and pH's. Tests to characterise these are recommended in line with BRE Special Digest 1, to enable buried concrete mixes to be appropriately designed.
v) The borehole has recovered only disturbed samples. The descriptions of the recovered soils may therefore be approximate. The presence of Head Deposits at the site cannot be discounted. The presence of silt and sand partings may be suggestive of Head Deposits.
vi) The depth of Made Ground may vary considerably at the site.
vii) Groundwater was not encountered during the GI. However this does not necessarily indicate its absence and the design of both temporary and permanent works should make an allowance for the presence of groundwater.

7 References

i) BGS Geological Map Sheet 256.
ii) Ordnance Survey Map, Explorer 173, London North
iii) Arup: Camden Geological, Hydrogeological and Hydrological Study.
iv) Chelmer Site Investigations: Ground Investigation Report:. 63 Goldhurst Terrace: FACT/ 512 6B

DIG FOR VICTORY

63 GOLDHURST TERRACE
LONDON, NW6 3HB

Hydro-geological assessment & Flooding risk report

Issued: September 2014
Issued by Alex Efstathiou
Revision: A

1. INTRODUCTION

DFV have been commissioned by Mr and Mrs Cryer to undertake a hydrogeological assessment and flood risk report to assess the impact of the proposed retro fit basement construction at 63 Goldhurst Terrace on the local groundwater regime and the risk posed by flooding.

This is in response to the London Borough of Camden's request for information regarding the impact of the proposed basement on groundwater levels and the possible changes subsequent to construction and the client's consulting engineers request for information regarding the water table and ground conditions.

This report presents the findings of a desk based study of the available ground and groundwater conditions in the surrounding area taking into account published geological records from the British Geological Survey, groundwater conditions from the Environment Agency and the available site investigation information from the site specific borehole, carried out in August 2014, (the report of this activity can be found in appendices of this document). Information regarding the proposed water management systems is also presented in the appendices of this report. Using this information conclusions are drawn on the possible impact of the proposed basement structure on the local groundwater and drainage regime in section 5.

It should be noted that this report does not comprise a geotechnical appraisal of the proposed development.

2. SITE LOCATION

2.1 General

The existing property is a mid-terrace brick built Victorian house.
The site is located at 63 Goldhurst Terrace, London NW6 3HB.
A site location plan can be found in the appendices of this document (Figure 6.1).

2.2 Proposed development

The proposal is to create a new basement storey below the footprint of the existing property complete with lightwells to the front and rear. The property is a family dwelling and the additional space is predominantly for recreational and ancillary use and is not intended to be solely habitable such as a self-contained dwelling.
As such the risk to life has been considerably reduced. Practical measures are taken to reduce the impact of flooding and low level upstands will be formed around the lightwells to reduce the risk of localised flooding.

Basement spaces are drained by a surface water pump and 'dual' pumps are installed as standard. These are fitted with a high level alarm with battery backup to warn in the event of pump failure. A further battery back-up system is available in high risk areas to ensure the pumps continue to operate in the event of mains failure; this is not considered necessary in this proposal and will not be fitted as standard.

Details of the water management systems are presented in appendix 6.4.

Scheme designs for the proposed basement structure are presented in appendix 6.5.

3. GEOLOGY AND GROUND CONDITIONS

3.1 Published geology

The British Geological Survey Map for this area suggests that the site geology comprises of
London Clay.

London Clay Formation

London Clay Up to 150m Fine, sandy, silty clay. The London Clay Formation is an over consolidated firm to very stiff, becoming hard with depth, fissured, blue to grey silty clay of low to very high plasticity. The upper and lower parts may contain silty or fine grained sand partings. It also contains, within it, laminated structured, nodular claystone and rare sand partings. The London Clay is approximately 90m thick in the area. The London Clay is relatively impermeable and this is confirmed by the relatively low permeability typically 1x10-9 m/s and lower.

3.2 Site investigation

A borehole investigation was undertaken by Chelmer Site Investigations in August 2014. Other reports to varying depths have been sourced and referenced from historic works previously carried out in the area.
The factual reports are included in Appendix 6.3.

4. GROUNDWATER

4.1 Aquifer classification

The London Clay is classified as an aquitard, although is slightly more permeable where weathered or where it has a higher proportion of sand.

4.2 Groundwater

The borehole encountered a slight water seepage at a depth of 2.6m below the ground floor level. This is not expected to be a problem as it was only minor and local.

Historic borehole records in the area found no water at depths of up to 7m below ground level, significantly below the proposed dig depth. A small amount of seepage is to be expected in the course of projects of this nature and would not present any undue challenges to the completion of same.

5. CONCLUSIONS

5.1 Current hydrological regime

The ground and groundwater conditions indicate that precipitation falling on the site, where not already collected by gulleys from roof and hard standing, has and will continue to infiltrate through the ground passing downwards until it reaches the top of the relatively low permeability London Clay Formation where the direction of flow will become lateral. Contribution to local groundwater from vertical infiltration of rainwater is to be limited at this site and the development will not alter this.

5.2 Impact of proposed basement construction

The site investigation data confirms the anticipated shallow depth geology suggested by the desk study information. The site investigation information indicates that the basement should not encounter problematic groundwater or form an obstruction to regional flow. Furthermore, the available borehole information from the BGS in the area confirms that groundwater is not expected to a depth of 7m, which is considerably below the anticipated depth of the proposed construction. The level used for the 1:200 year flood is considered to be 5.32 AOD.
The AOD for this property is 39.6m.

The flood map from the area is shown in appendix 6.2. Please also refer to the Surface Water Run-Off Calculation in appendix 6.6.

We have received planning approval and carried out basement works on Goldhurst Terrace itself and roads surrounding the proposed works, including Aberdare Gardens and Canfield
Gardens, all with AOD's ranging well above the 1:200 year floodplain.

5.3 Conclusion

Based on the ground and groundwater conditions at the site, the proposed basement will have no discernable impact on the local hydrology and will therefore not impact or influence neighbouring properties. It is outside of 20 metres from a canal or watercourse and consequently the likelihood of flooding is minimal.

6. APPENDICES

6.1 Site location plan

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6.2 EA flood risk map

Environment Agency Flood Risk Map of NW6 3HB- any potential flood risk areas would be shown in blue, should there be any risks

6.3 Site investigation reports

6.3.1 British Geological Borehole Report

TQ28SE/ 276
2623.8410
256

GROUND EXPLORATIONS LIMITED

BOREHOLE SECTION SHEET

Date December 19 55

CONTRACT NAME: Swiss Cottage. ORDER NO.

Bored for : Messrs. Goodhart-Rendel & Partners.

Address : Kirkland House, Whitehall S.W1.

Address of Site : Coleridge Gardens

District or Town : Swiss Cottage County : London

Standing Water Level : - below surface Dia. of Borehole : 6 Inches.

Water Struck (1) None (2) (3)

Boring Commenced : 5.12.55 Boring Completed : 6.12.55

Special Remarks :

Jar Samples : 2871 2'0"; 2872 5'0"; 2879 9'0"; 2876 13'0"; 2878 17'0"; 2880 22'0";

Core Samples : 2873 5'6" - 7'0"; 2875 10'0" - 11'6"; 2877 14'6" - 16'0"; 2879 18'6" - 20'0"; 2881 23'6" - 25'0";

Sand/Gravel Samples :

DESCRIPTION OF STRATA	Thickness Feet	Thickness Inches	Depth Below Surface Feet	Depth Below Surface Inches
The descriptions are given in accordance with the Civil Engineering Code of Practice No. 1 "Site Investigations." No responsibility is accepted for these descriptions and clients should examine the samples submitted.				
No. 1 Boring				
Topsoil	1	6	(0-1½) 1	6
Loamy clay	3	6	(1-5) 5	0
Brown clay	20	0	(5-25) 25	0
TOTAL FROM SURFACE ...	25	0	25	0.

This form is to be returned to Head Office immediately the borehole is finished.

Foreman's Signature..... *Date*.....

P. & R. Ltd.—175

DIG FOR VICTORY

63 Goldhurst Terrace, London, NW6 3HB

Method Statement – New Basement Construction

Date Issued: 07 September 2014

Version: -

Issued By: AE

Checked By: RS

Introduction

- This method statement should be read in conjunction with the architectural drawings by Dig For Victory DFV1407-P01.
- This method statement should be read in conjunction with the structural engineering drawings. **Please note that we will be excavating to a formation level of –3.700 metres and there are existing basements to both 61 and 65 Goldhurst Terrace and we do not intend to extend below the foundation levels of either basement party wall**
- Please also refer to the attached DFV Typical underpinning sequence for clay soils with sacrificial sheeting. This sketch details the construction method we are likely to adopt, based on the assumed ground conditions at the property consisting of London clay (Refer to section B below).
- Please also refer to the attached hoarding and conveyor layout, which details a typical compound layout over the footpath and the highway.
- Please also refer to the document '61GT Typical Temporary Works Arrangement', which details the designed temporary works for a similar project undertaken at nr 61 Goldhurst Terrace, which we commenced less than 4 months ago as of the date of this document. Once we establish the existing structural arrangements as stage B below we will then employ our Structural Engineer to design a suitable temporary works regime which, in our view, will not differ greatly from the exemplar shown.

- The key stages are as follows:-

  A - Establish hoarding and conveyor

  B - Investigatory works

  C – Underpinning and retaining walls

  D - Steel frame installation at basement and basement ceiling level

  E - Excavation, drainage and basement slab construction

  F - Internal waterproofing membrane and screed

Note : Temporary Support to Excavated Faces

- Ground conditions will be continuously assessed by a competent person to determine the means and method of supporting any face of any excavation. All necessary shoring equipment will be available for use on site. The most likely method to be adopted will be the introduction of trench sheets supported by Acrow props in accordance with the temporary works design prepared by the Engineer. Please refer to the attached diagrams which indicate the temporary works we will adopt during the underpinning works.

- We would like to note that we completed an almost identical project at nr 66 Goldhurst Terrace at the end of 2013 and we will be employing the same methodology, project team and resources at nr 63. Our highly trained, experienced and competent Foreman (holding the 5 Day Site Managers Safety Training Scheme accreditation) shall ensure that every part of every excavation is inspected at the start of each shift (and at intervals as specified by law and good practice) and will record the findings of any such inspection in a register held on site.

A. Establish access, hoarding and conveyor

- The hoarding and conveyor will be positioned at the front of the property, which will be subject to any restrictions imposed by the local governing authority. The layout will be similar to the attached hoarding and conveyor layout sketch, which details a typical conveyor set-up over the highway and footpath.
- Carefully protect and/or remove any internal or external fixtures and fittings affected by the works.
- Erect plywood hoarding with vertical standards, anchored to the ground. The hoarding will be fully secure with a lockable door for access.
- Provide protection to public where conveyor extends over footpath. Depending on the requirements of the local governing authority, construct a plywood bulkhead onto the pavement. Hoarding to have a plywood roof covering, night-lights and safety notices.
- Install conveyor at basement level. Ensure that the conveyor is adequately supported and secured to the hoarding using a temporary scaffold structure.
- Install temporary electrical and water supplies from Clients permanent connections.

B. Investigatory works

- We have a soil investigation report which shows a soil profile of made ground to 1.3m deep and stiff London clay below that to our formation level.
- On commencement of construction DFV will determine the foundation type, width and depth through **localized trial pits in appropriate locations** and initial excavations. Any discrepancies from the design allowances will be reported to the structural engineer in order that the detailed design can be modified.
- Prior to installation of new structural beams in the superstructure, DFV may undertake the local exploration of specific areas in the superstructure. This will confirm the exact form and location of the temporary works that are required. A fully designed temporary works package will be prepared once the existing structural composition is determined, and only once the structural engineer has been made aware thereof and issues either an instruction to continue as planned or revised design information. Only then can the permanent structural work can then be undertaken while ensuring that the full integrity of the structure above is maintained.

C. Reinforced concrete underpinning and retaining walls

- Sacrificial trench sheets are installed at the back of the excavation as said excavation progresses. The method adopted to prevent localised collapse of the soil is to install these progressively one at a time. The trench sheets are held in place with acrows until such time as the full underpinning excavation is sheeted.
- Once the toe section is cast, the lower level propping to the trench sheets can be removed, prior to casting the stem section. This method ensures that at all times the excavation is controlled, and indeed the integrity of the surrounding soil and structure above is maintained, to enable permanent works construction.
- The access trench is first excavated, directly underneath the wall to be underpinned. The width of any base is individually assessed on site with due regard to the type and condition of the foundation, and structural geometry above. The maximum width of any underpinning base will be 1,200mm.
- Break off projecting brick or concrete footing back to internal face of brick wall. Excavate using hand and compressed air tools removing spoil until the design depth is reached, and removed to muck away conveyor.
- Soils, where unstable in the temporary condition, will be shored. Shoring system design will be undertaken by DFV if required.
- Once the excavation is completed to the design depth and length. The stratum at the proposed founding depth is confirmed as being appropriate by our engineers or the building control inspector.
- The design steel reinforcement will be fixed in the toe section of the underpinning base. This will be checked by the building control inspector prior to concreting.
- Following construction of the toe, the design steel reinforcement will then be fixed in the stem (Or wall) section. This will be checked by the building control inspector prior to concreting.
- A single sided shutter is then erected, and concrete poured to form the underpinning base up to a maximum of 100mm below the underside of the existing foundation.

- After 24 hours the temporary wall shutters are removed. The void between the top of the underpin base and underside of the existing foundation will then be drypacked with a mixture of sharp sand and cement (Ratio 3:1 sharp sand:cement).
- A further 24 hours is allowed before adjacent sections can be excavated.
- Construction joints, if required, are formed using a suitable shear key or joggle joint. In exceptional circumstances, dowel bars are incorporated. Typically these are post drilled and resin fixed with specification as per structural design.
- A record will be kept of the sequence of construction, which will be in strict accordance with recognised industry procedures. The as-built records will be updated as necessary and issued to involved parties during the works.

D. Steel framework installation

- The new steel framework is to be installed to provide the new openings as per the architectural layouts. The framework will consist of a system of steel beams and columns that will bear at the new basement level.
- The new frame will be installed in a sequence to be determined by the DFV, in conjunction with the district surveyor.
- Once full internal investigation of the property has been concluded, DFV will carry out a temporary works design for the steel beam installation.
- Temporary works will be undertaken as per the MMP Design Temporary Works drawings.

Supporting existing walls above basement excavation:

- Where steel beams need to be installed directly under load bearing walls, temporary works will be required to enable this work. Support consists the installation of steel needle beams at high level, supported on vertical props, to enable safe removal of brickwork below, and installation of the new beams and columns.
- Once the props are fully tightened, the brickwork will be broken out carefully by hand. All necessary platforms and crash decks will be provided during this operation.
- Decking and support platforms to enable handling of steel beams and columns will be provided as required.
- Once full structural bearing is provided via beams and columns down to the new basement floor level, the temporary works will be redundant and can be safely removed.
- Any voids between the top of the permanent steel beams and the underside of the existing walls will be packed out as necessary. Voids will be drypacked with a 1:3 (cement: sharp sand) drypack layer, between the top of the steel and underside of brickwork above.
- Any voids in the brickwork left after removal of needle beams can at this point be repaired by bricking up and/or drypacking, to ensure continuity of the structural fabric.

E. Excavation, drainage and basement slab construction

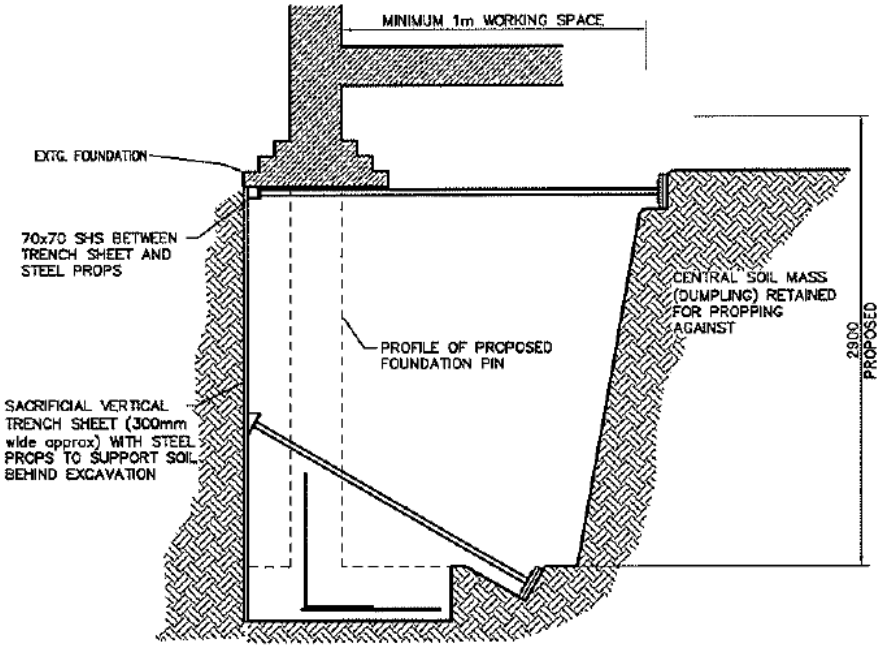
- Once the underpinning is complete to all walls, the bulk excavation can be completed.
- Depending on the structural design it may be a requirement to implement propping to resist sliding forces (As per structural engineering requirements) at the base of the underpins, prior to construction of the new basement slab, and to allow for excavation to formation level. Generally, the underpinning works are completed around the perimeter walls, with the central soil mass (Dumpling) left intact as detailed on the attached sheets. This enables the earth mass to act as a firm support for the underpinning stem single sided shutters, and also to provide a prop force at the base of the pins.
- The pump sump units and associated underground drainage will then be installed in conjunction with the mechanical and electrical details and architectural layouts.
- Once excavation to formation level has been completed, and the slab cast, any temporary shoring can be safely removed.
- The design steel reinforcement will then be fixed in the slab. This will be checked by the engineer and building control inspector prior to concreting.

F. Internal waterproofing membrane and screed

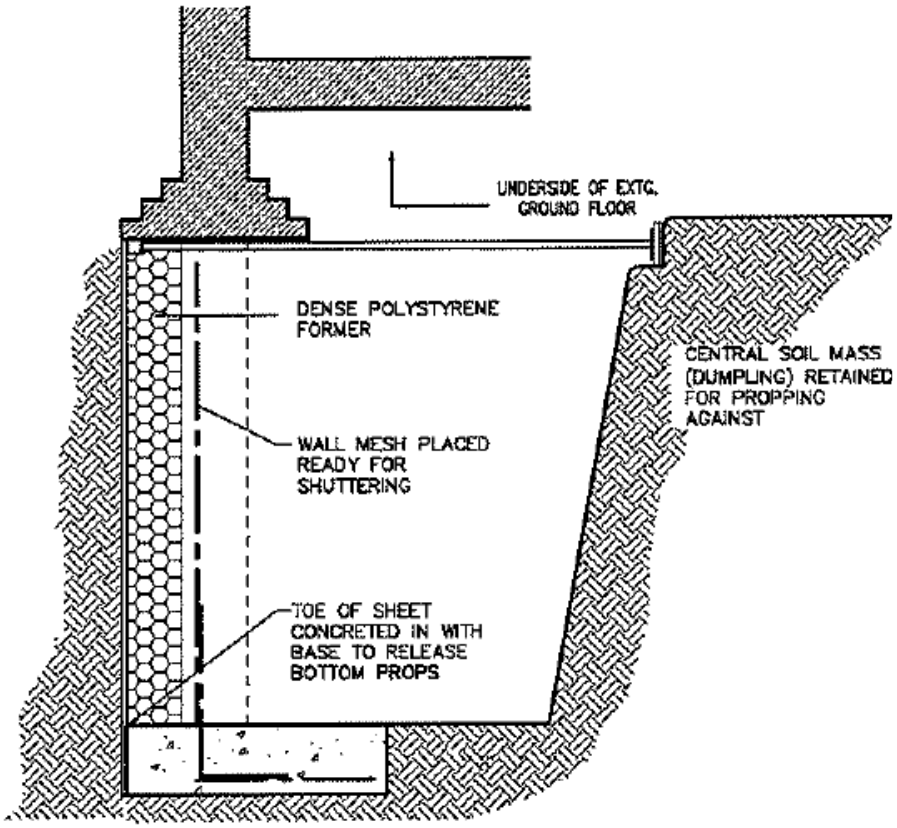
- Generally the waterproofing membrane will be in accordance with the attached sketch.
- Once the basement slab is complete, the DELTA internal waterproofing cavity membrane will be installed as per the architectural layouts and manufacturers technical specification.
- The floor finishes which may include insulation and under floor heating, can be laid as per the final architectural details.
- A cement and sand screed will be applied on the slab surface.
- This completes the structural work by DFV, in preparation for the fit out works.

Typical underpinning sequence – Clay soils with sacrificial sheeting

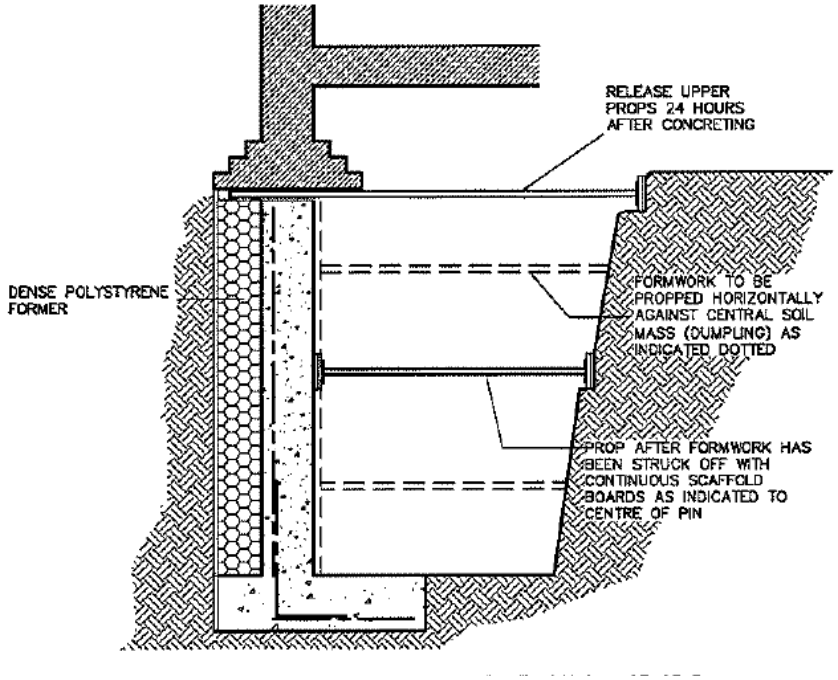
Stage 1



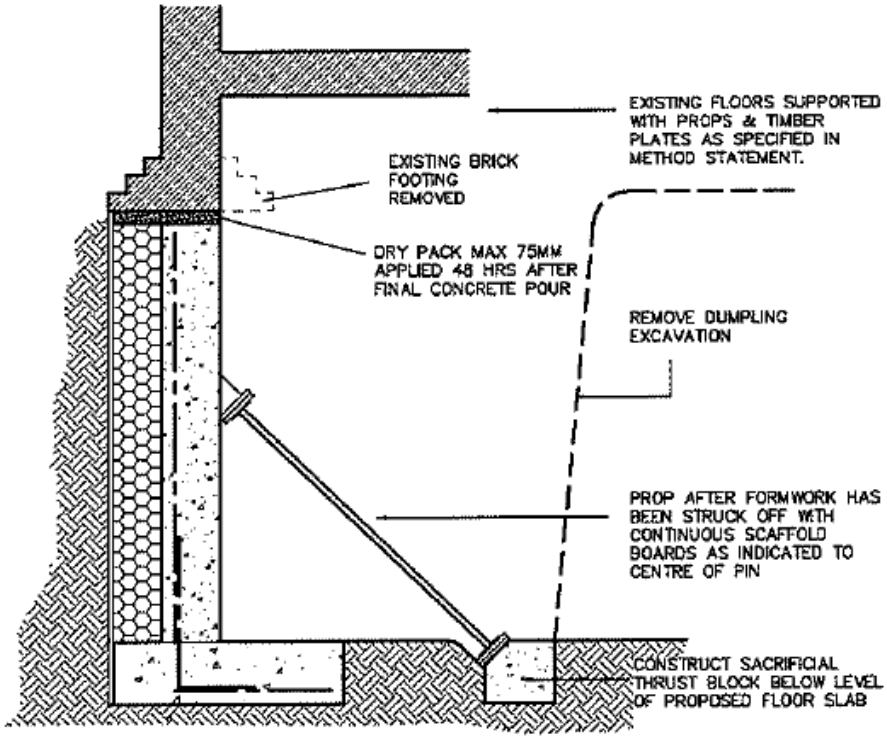
Stage 2

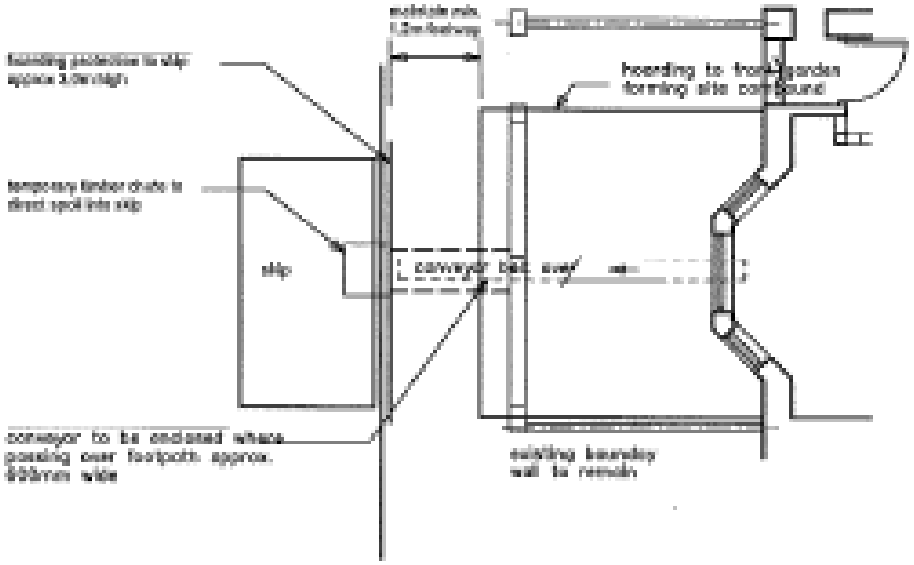


Stage 3

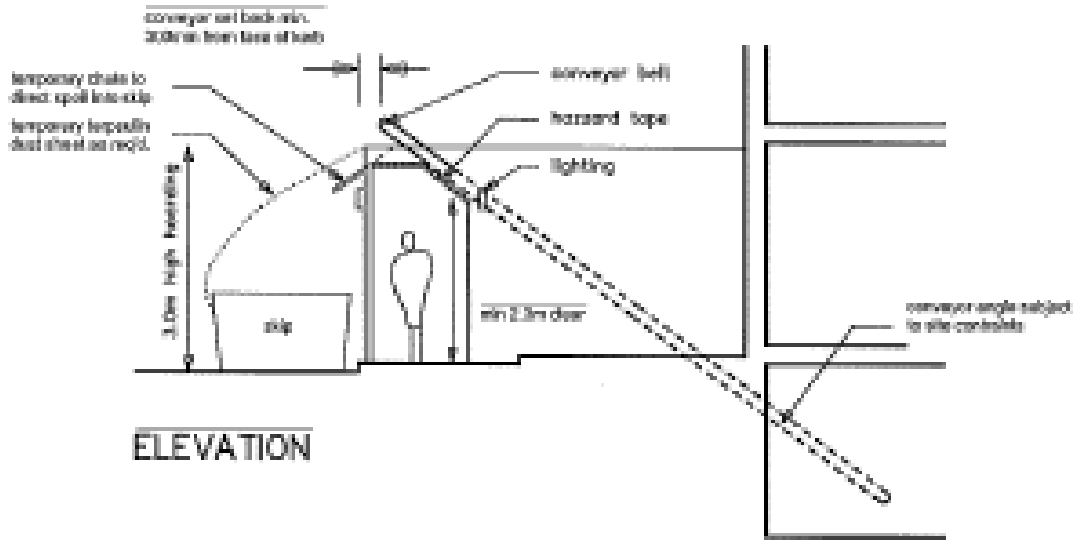


Stage 4





PLAN AT PAVEMENT LEVEL



ELEVATION

TYPICAL HOARDING & OVERHEAD CONVEYOR INSTALLATION

Chelmer Site Investigations

Unit 15, East Hanningfield Industrial Estate
Old Church Road, East Hanningfield, Essex CM3 8AB
Telephone: 01245 400 930 **Fax:** 01245 400 933
Email: info@siteinvestigations.co.uk **Website**: www.siteinvestigations.co.uk

Factual Report

Client:	Dig for Victory Ltd
Site:	63 Goldhurst Terrace London NW6
CSI Ref:	FACT/5126B
Dated:	12th August 2014

Chelmer Site Investigations
Unit 15 East Hanningfield Industrial Estate
Old Church Road, East Hanningfield, Essex CM3 8AB
Telephone: 01245 400930 Fax: 01245 400933
Email: info@siteinvestigations.co.uk Website: www.siteinvestigations.co.uk

Chelmer Site Investigations

Client: Dig for Victory Ltd	**Scale:** N.T.S.	**Sheet:** 1 of 1	**Date:** 12.8.14	
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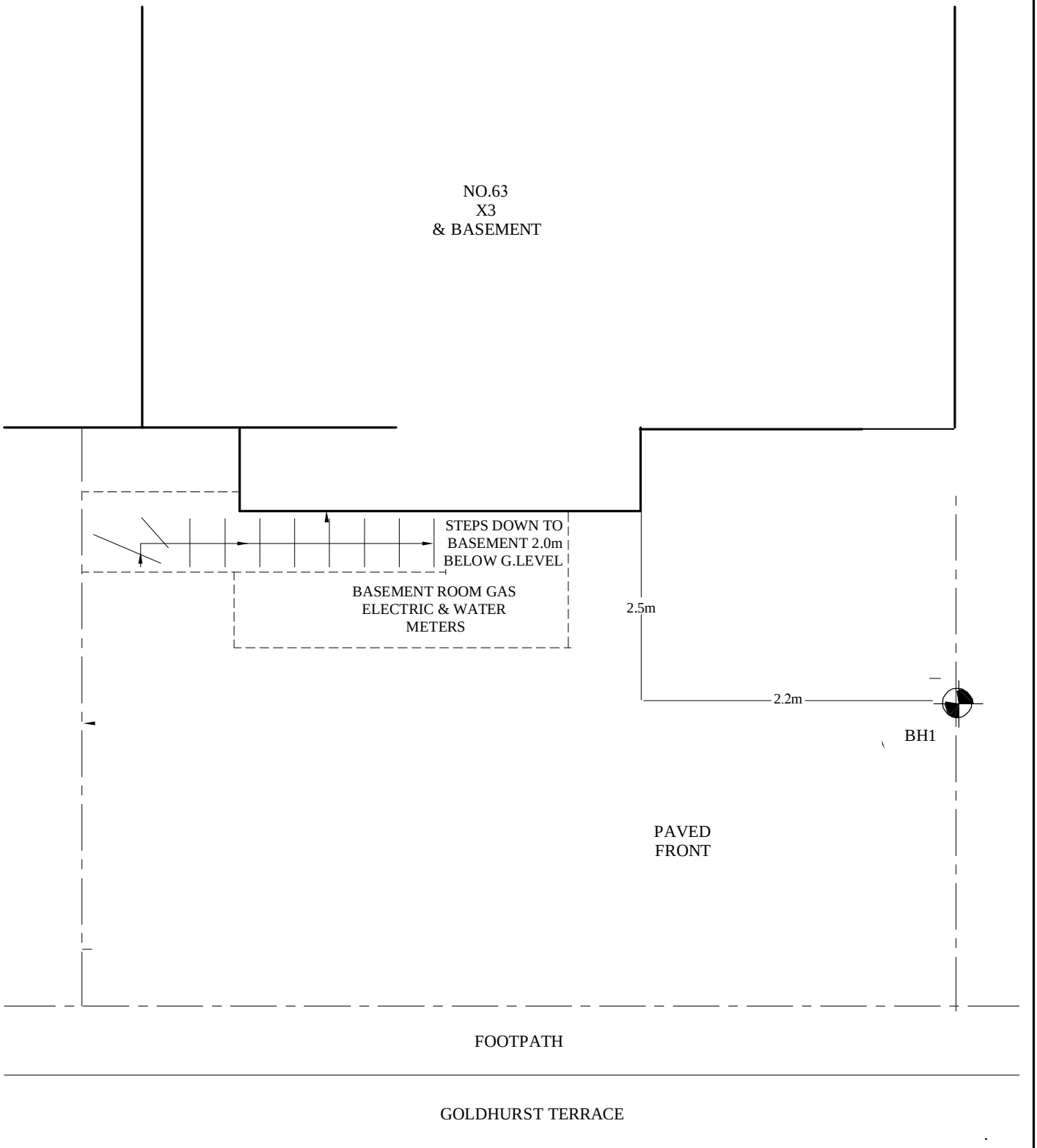

Notes:

On site tree identification for guidance only. Not authenticated.

Key:

Tree/Shrub | Borehole | Trial Pit | Gully | Tree Stump | Rain Water/ Soil Pipe | Manhole

Chelmer Site Investigations
Unit 15 East Hanningfield Industrial Estate
Old Church Road, East Hanningfield, Essex CM3 8AB
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Client: Dig for Victory Ltd	**Scale:** N.T.S.	**Sheet No:** 1 of 1	**Weather:** Overcast	**Date:** 12.8.14	
Site: 63 Goldhurst Terrace, London NW6	**Job No:** 5126B	**Borehole No:** 1	**Boring method:** Hand auger		

Depth Mtrs.	Description of Strata	Thick-ness	Legend	Sample	Test Type	Test Result	Root Information	Depth to Water	Depth Mtrs
G.L.									
0.15	BRICK PAVING	0.15							
	MADE GROUND: medium compact, dark brown, very silty clay, with gravel and brick fragments.	0.75		D			Hair and fibrous roots to 0.9m.		0.5
0.9	Firm, orange-brown, grey veined, silty CLAY, with partings of orange and brown, silt and fine sand, claystone nodules and selenite crystals.	1.4		D	V	62 66	No roots observed below 0.9m.		1.0
	.....becoming stiff from 1.4m.			D	V	78 82			1.5
				D	V	94 100			2.0
2.3	Very stiff, orange-brown, grey veined, silty CLAY, with partings of orange and brown, silt and fine sand, frequent claystone nodules and selenite crystals.	2.7		D	V	140+ 140+			2.5
				D	V	140+ 140+			3.0
				D	V	140+ 140+			3.5
				D	V	140+ 140+			4.0
				D	V	140+ 140+			4.5
5.0	Borehole ends at 5.0m			D	V	140+ 140+			5.0

Drawn by: JG **Approved by:** ME

Remarks: Borehole dry and open on completion.

Key: T.D.T.D. Too Dense to Drive
D Small Disturbed Sample J Jar Sample
B Bulk Disturbed Sample V Pilcon Vane (kPa)
U Undisturbed Sample (U100) M Mackintosh Probe
W Water Sample N Standard Penetration Test Blow Count

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REPORT NOTES

Equipment Used

Hand tools, Mechanical Concrete Breaker and Spade, Hand Augers, 100mm/150mm diameter Mechanical Flight Auger Rig, GEO205 Flight Auger Rig, Window Sampling Rig, and Large or Limited Access Shell & Auger Rig upon request and/or access permitting.

On Site Tests

By Pilcon Shear-Vane Tester (Kn/m^2) in clay soils, and/or Mackintosh Probe in granular soils or made ground and/or upon request Continuous Dynamic Probe Testing and Standard Penetration Testing.

Note:

Details reported in trial-pits and boreholes relate to positions investigated only as instructed by the client or engineer on the date shown.

We are therefore unable to accept any responsibility for changes in soil conditions not investigated i.e. variations due to climate, season, vegetation and varying ground water levels.

Full terms and conditions are available upon request.