Site Investigations
♣
Geologists
♣
Environmental &
Geotechnical
Engineers

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FAO Alex Gibson

Date: 29th November 2016

William Saunders
Sheppard Lockton House
Cafferata Way
Newark
Nottinghamshire
NG24 2TN

Permeability Testing

Small Drove, Weston
S161131

Dear Alex,

Solmek visited the above site on 24th November 2016 to carry out a series of percolation tests within four hand dug trial pits to a maximum depth of 0.80mbgl as instructed by the client. Water was then added to the trial pits from a water bowser. During the excavation of Trial Pit 2 (TP2) gravel was encountered from 0.55mbgl to 0.80mbgl which, given the high infiltration rate, could potentially be a soakaway for the existing housing development on site.

Please find attached the details of the percolation tests. The testing was carried out in accordance with BRE Digest 365: Soakaway Design.

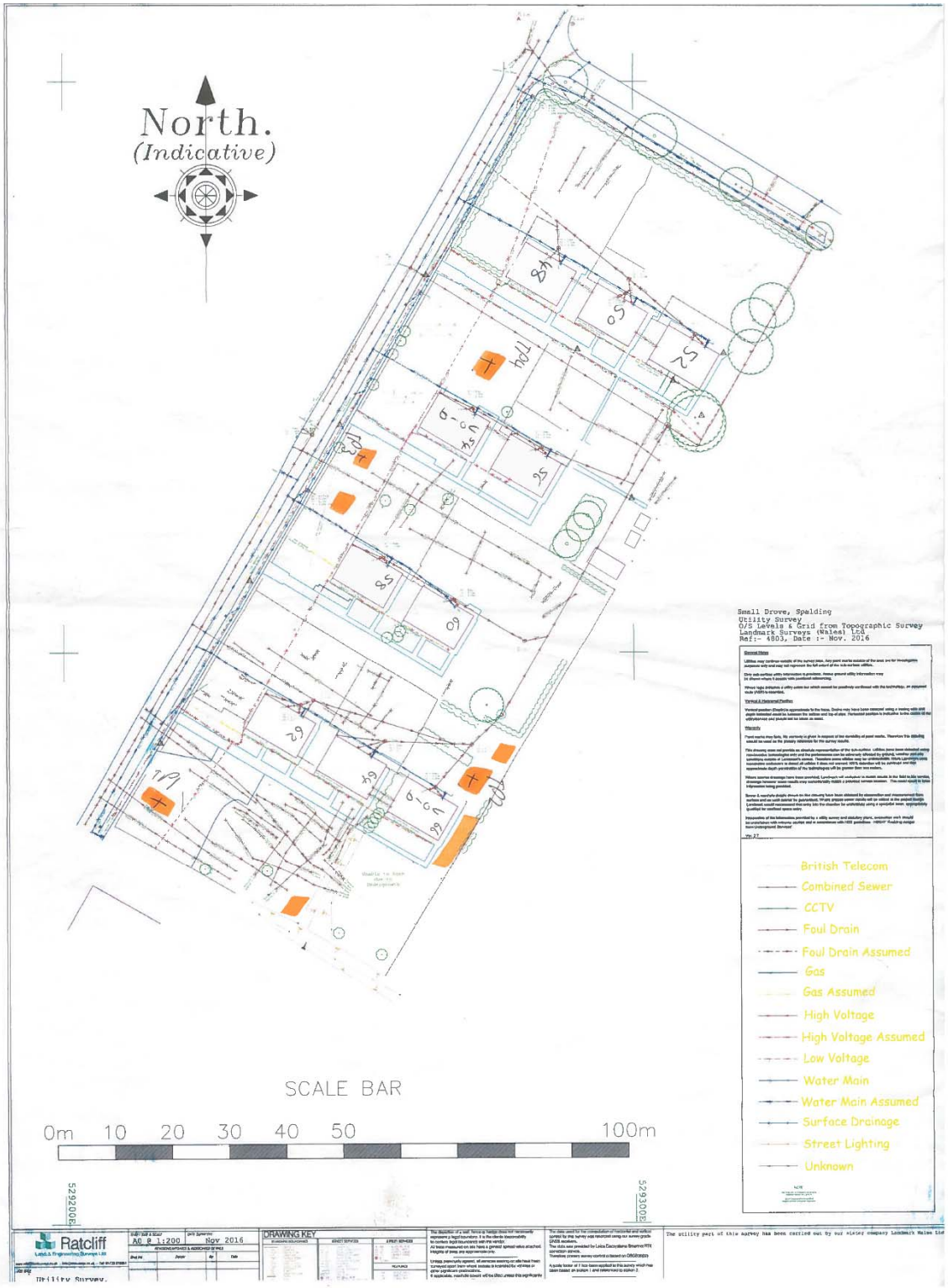
Below gives a summary of the related infiltrations rates for each trial pit.

Test Number	Infiltration Rate (m/sec x10^{-6})	Description of Base stratum
TP1	2.22	Brown sandy clayey SILT
TP2	3370	Rounded fine to coarse GRAVEL
TP3	10.2	Brown very sandy clayey SILT
TP4	38.0	Brown very sandy clayey SILT

We would like to take this opportunity to thank you for using Solmek.

Yours sincerely
On behalf of Solmek Ltd

S Alexander
Engineering Geologist



Title	Date
Site Location Plan	November 2016
Project	**Fig No.**
Small Drove, Weston	Figure 1
Client	**Scale**
William Saunders	Do Not Scale
Key	

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SOAKAWAY DESIGN IN ACCORDANCE WITH BRE DIGEST 365: 1991
BRE Digest 365, Figure 2, Page 5

Client:	**William Saunders**				
Site:	**Small Drove, Weston**				
Job No:	**S161131**				
Pit No:	**TP1**		**Test No:**	**1**	

CALCULATION OF SOIL INFILTRATION RATE

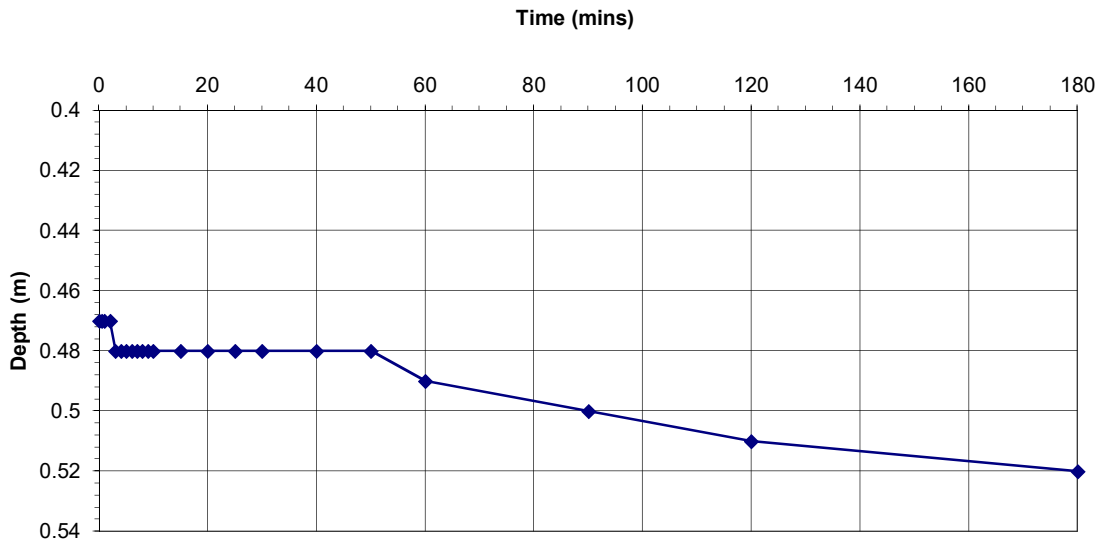
Time (min)	Depth (m)
0	0.47
0.5	0.47
1	0.47
2	0.47
3	0.48
4	0.48
5	0.48
6	0.48
7	0.48
8	0.48
9	0.48
10	0.48
15	0.48
20	0.48
25	0.48
30	0.48
40	0.48
50	0.48
60	0.49
90	0.5
120	0.51
180	0.52

Pit Dimensions	
Length (m) =	0.60
Width (m) =	0.45
Depth (m) =	0.75

Depth at start of test (m) =	0.470
Depth at end of test (m)=	0.520
75% level (m)=	0.483
50% Effective Depth	0.255
25% level (m)=	0.508
Base area of pit (m^2) =	0.270
Vp_{75-25} (m^3) =	0.007
a_{p50} (m^2) =	0.806

From the graph:	
tp 75 (min) =	52
tp 25 (min) =	115

Soil infiltration rate, f, (m/s) =	**2.22E-06**	**normal test**	
Input by:	**SA**	**Date:**	**29/11/2016**
Checked by:	**RW**	**Date:**	**29/11/2016**



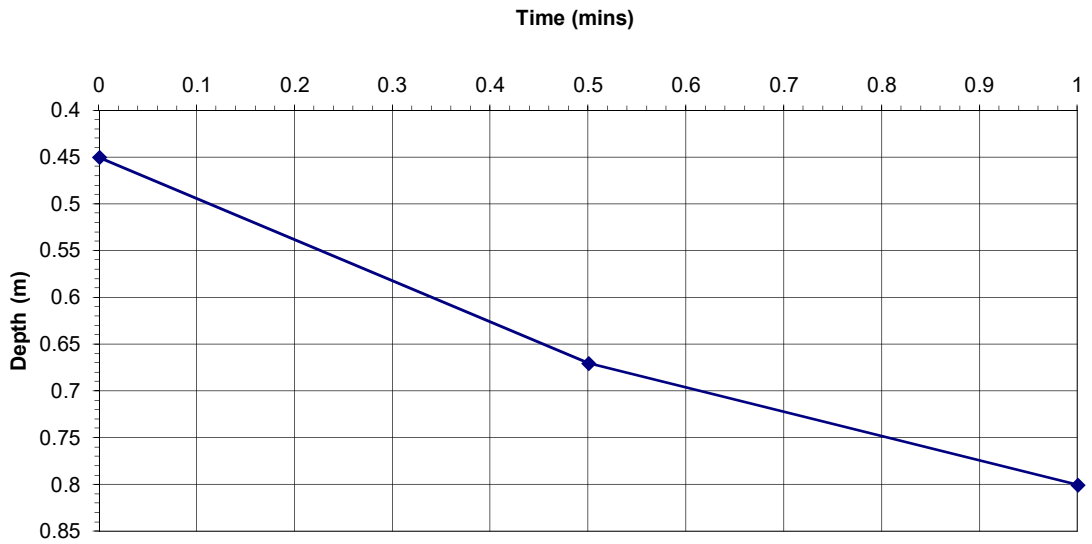
SOAKAWAY DESIGN IN ACCORDANCE WITH BRE DIGEST 365: 1991
BRE Digest 365, Figure 2, Page 5

Client:	**William Saunders**				
Site:	**Small Drove, Weston**				
Job No:	**S161131**				
Pit No:	**TP2**		**Test No:**	**1**	

CALCULATION OF SOIL INFILTRATION RATE

Time (min)	Depth (m)
0	0.45
0.5	0.67
1	0.8
2	
3	
4	
5	
6	
7	
8	
9	
10	
15	
20	
25	
30	
40	
50	
60	
90	
120	
180	

Pit Dimensions	Length (m) =	0.70	
	Width (m) =	0.55	
	Depth (m) =	0.80	
	Depth at start of test (m) =	0.450	
	Depth at end of test (m)=	0.800	
	75% level (m)=	0.538	
	50% Effective Depth	0.175	
	25% level (m)=	0.713	
	Base area of pit (m^2) =	0.385	
	Vp_{75-25} (m^3) =	0.067	
	a_{p50} (m^2) =	0.823	
From the graph:			
	tp 75 (min) =	0.31	
	tp 25 (min) =	0.715	
Soil infiltration rate, f, (m/s) =		**3.37E-03**	**normal test**
Input by:	**SA**	**Date:**	**29/11/2016**
Checked by:	**RW**	**Date:**	**29/11/2016**



SOAKAWAY DESIGN IN ACCORDANCE WITH BRE DIGEST 365: 1991
BRE Digest 365, Figure 2, Page 5

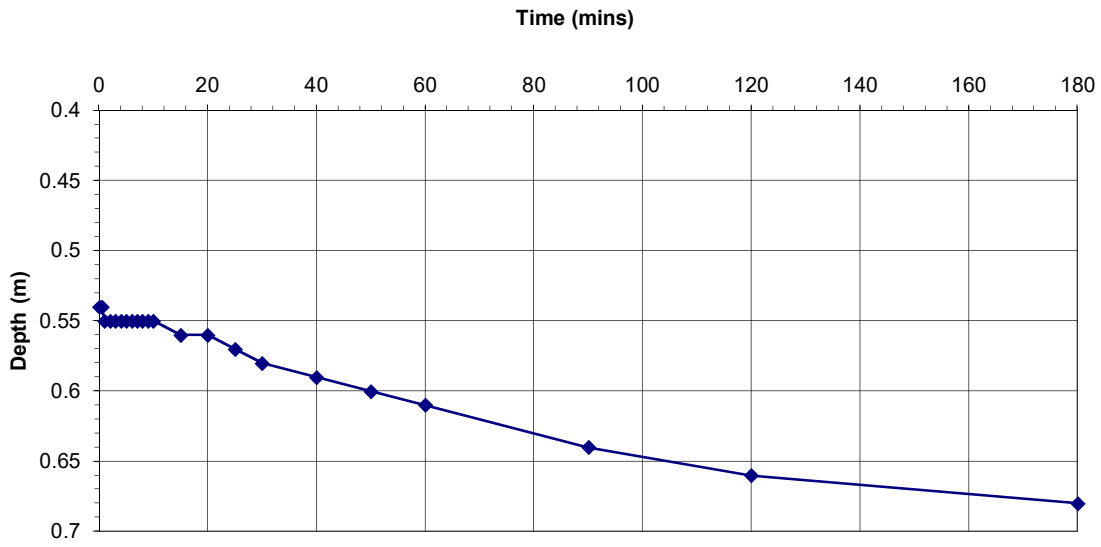
Client:	**William Saunders**				
Site:	**Small Drove, Weston**				
Job No:	**S161131**				
Pit No:	**TP3**		**Test No:**	**1**	

CALCULATION OF SOIL INFILTRATION RATE

Time (min)	Depth (m)
0	0.54
0.5	0.54
1	0.55
2	0.55
3	0.55
4	0.55
5	0.55
6	0.55
7	0.55
8	0.55
9	0.55
10	0.55
15	0.56
20	0.56
25	0.57
30	0.58
40	0.59
50	0.6
60	0.61
90	0.64
120	0.66
180	0.68

Pit Dimensions	
Length (m) =	0.60
Width (m) =	0.45
Depth (m) =	0.70
Depth at start of test (m) =	0.540
Depth at end of test (m)=	0.680
75% level (m)=	0.575
50% Effective Depth	0.090
25% level (m)=	0.645
Base area of pit (m^2) =	0.270
Vp_{75-25} (m^3) =	0.019
a_{p50} (m^2) =	0.459
From the graph:	
tp 75 (min) =	27.5
tp 25 (min) =	95
Soil infiltration rate, f, (m/s) =	**1.02E-05** **normal test**

Input by:	**SA**	**Date:**	**29/11/2016**
Checked by:	**RW**	**Date:**	**29/11/2016**



SOAKAWAY DESIGN IN ACCORDANCE WITH BRE DIGEST 365: 1991
BRE Digest 365, Figure 2, Page 5

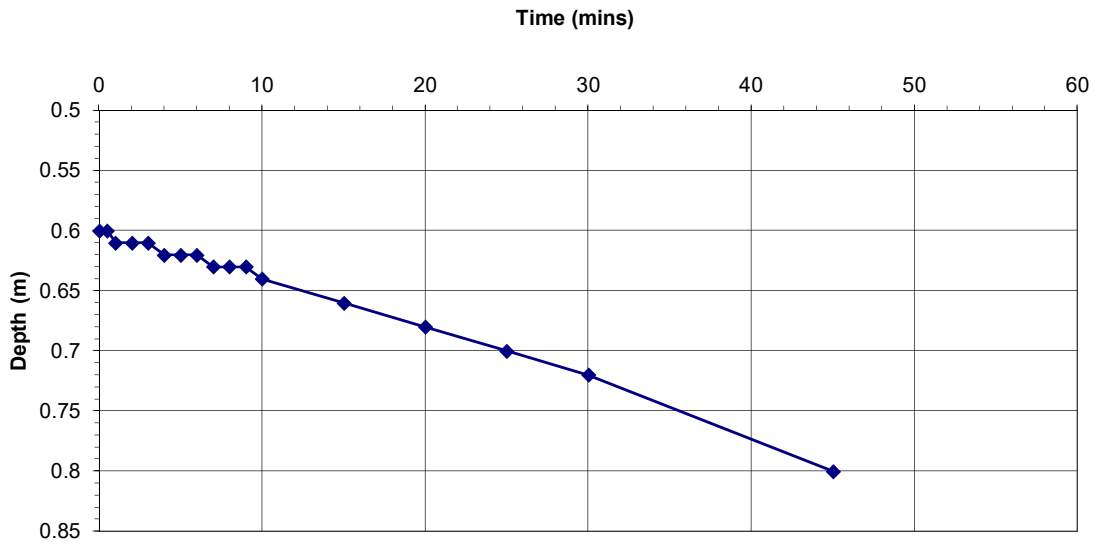
Client:	**William Saunders**				
Site:	**Small Drove, Weston**				
Job No:	**S161131**				
Pit No:	**TP4**		**Test No:**	**1**	

CALCULATION OF SOIL INFILTRATION RATE

Time (min)	Depth (m)
0	0.6
0.5	0.6
1	0.61
2	0.61
3	0.61
4	0.62
5	0.62
6	0.62
7	0.63
8	0.63
9	0.63
10	0.64
15	0.66
20	0.68
25	0.7
30	0.72
45	0.8
50	
60	
90	
120	
180	

Pit Dimensions	
Length (m) =	0.65
Width (m) =	0.45
Depth (m) =	0.80
Depth at start of test (m) =	0.600
Depth at end of test (m)=	0.800
75% level (m)=	0.650
50% Effective Depth	0.100
25% level (m)=	0.750
Base area of pit (m^2) =	0.293
Vp_{75-25} (m^3) =	0.029
a_{p50} (m^2) =	0.513
From the graph:	
tp 75 (min) =	12.5
tp 25 (min) =	37.5

Soil infiltration rate, f, (m/s) =	**3.80E-05**	**normal test**	
Input by:	**SA**	**Date:**	**29/11/2016**
Checked by:	**RW**	**Date:**	**29/11/2016**



♠Solmek conditions of offer, notes on limitations & basis for contract (ref: version1/2016)

These conditions accompany our tender and supercede any previous conditions issued. Solmek will prepare a report solely for the use of the Client (the party invoiced) and its agent(s). No reliance should be placed on the contents of this report, in whole or in part by 3rd parties. The report, its content and format and associated data are copyright, and the property of Solmek. Photocopying of part or all of the contents, transfer or reproduction of any kind is forbidden without written permission from Solmek. A charge may be levied against such approval, the same to be made at the discretion of Solmek. Solmek was a trading name of Hymas Geoenvironmental Ltd.

Solmek cannot be held liable and do not warrant, or otherwise guarantee the validity of information provided by third parties and subsequently used in our reports. Solmek are not responsible for the action negligent of otherwise of subcontractors or third parties.

Site investigation is a process of sampling. The scope and size of an investigation may be considered proportional to levels of confidence regarding the ground and groundwater conditions. The exploratory holes undertaken investigate only a small volume of the ground in relation to the overall size of the site, and can only provide a general indication of site conditions. The opinions provided and recommendations given in this report are based on the ground conditions as encountered within each of the exploratory holes. There may be different ground conditions elsewhere on the site which have not been identified by this investigation and which therefore have not been taken into account in this report. Reports are generally subject to the comments of the local authority and Environment Agency. The comments made on groundwater conditions are based on observations made at the time that site work was carried out. It should be noted that mobile contamination, ground gas levels and groundwater levels may vary owing to seasonal, tidal and/or weather related effects. Solmek cannot be held liable for any unrecorded or unforeseen obstructions between exploratory boreholes and trial pits. This includes instances where previous structures on the site (buried man made structures) or the presence of boulder clay (cobbles and/or boulder obstructions) have been anticipated. All types of piling operations should make allowance for obstructions within the construction budget to accommodate this. Unrecorded ancient mining may occur anywhere where seams that have been worked and influence the rock and soil above. Dissolution cavities can occur where gypsum or chalk is present. Rotary drilling is the recommended technique to prove the integrity of the rock.

Where the scope of the investigation is limited via access to information, time constraints, equipment limitations, testing, interpretation or by the client or his agents budgetary constraints, elements not set out in the proposal and excluded from the report are deemed to be omitted from the scope of the investigation.

Desk studies are generally prepared in accordance with RICS guidelines. Environmental site investigations are generally undertaken as 'exploratory investigations' in accordance with the definitions provided in paragraph 5.4 of BS 10175:2001 in order to confirm the conceptual assumptions. You are advised to familiarize yourself with the typical scope of such an investigation. No pumping of water will be undertaken unless a licence or facilities/equipment have been arranged by others.

Where the type, number or/and depth of exploratory hole is specified by others, Solmek cannot and will not be responsible for any subsequent shortfall or inadequacy in data, and any consequent shortfall in interpretation of environmental and geotechnical aspects which may be required at a later date in order to facilitate the design of permanent or temporary works.

All information acquired by Solmek in the course of investigation is the property of Solmek, and, only also becomes the joint property of the Client only on the complete settlement of all invoices relating to the project. Solmek reserve the right to use the information in commercial tendering and marketing, unless the Client expressly wishes otherwise in writing. The quoted rates do not include VAT, and payment terms are 30 days from dispatch of invoice from our offices. Quotes are subject to a site visit.

We have allowed for 1 mobilisation and normal working hours unless otherwise stated. The scope of the investigation may be reviewed following the desk study and/or fieldwork. The presence or otherwise of Japanese Knotweed or other invasive plants can be difficult to identify especially during winter months. If Japanese Knotweed or other invasive species are suspect, it should be confirmed by an ecologist. We have not allowed for acquiring services information, and cannot be responsible for damage to underground services or pipes not shown to us or not clearly shown on plans. Costs incurred will be passed on to you, and in commissioning Solmek you understand and accept that you/your agent have a contractual relationship with Solmek & you accept this. Our rates assume unobstructed, reasonably level and firm access to the exploratory positions and adequate clear working areas and headroom. We have priced on the basis that you or your client have the necessary permissions, wayleaves and approvals to access land. All boreholes and pits are backfilled with arisings except where gas monitoring pipes are installed with stopcock covers. Solmek are not responsible for any uneven surfaces as a result of siteworks and rutting and backfilled excavations may require re-levelling and/or making good by others after fieldwork is complete, and Solmek has not allowed for this. No price has been provided or requested for a return visit to remove pipework and covers. Hourly rates apply to consultancy only and do not include expenses unless otherwise shown. If warranties are required, legal costs incurred will be passed on to you assuming Solmek agree to complete such warranties, modified or otherwise and you understand and agree to pay all costs.

We reserve the right to pursue full payment of the invoice prior to release of any information including reports. We advise you/your client that we may elect to pursue our statutory rights under late payment legislation, and will apply 8% to the base rate for unreasonably late payments. Solmek are exempt from the CIS Scheme. Solmek offer to undertake work only in strict accordance with conditions covered by our current insurances, which are available for inspection. Solmek are not responsible for acts, negligent or otherwise of subcontractors and as a matter of policy cannot indemnify any other parties. Professional indemnity Insurance is limited to ten times the invoice net total except where stated otherwise by Solmek. Solmek give notice that consequential loss as a direct or indirect result of Solmek's activities or omission of the same are excluded.