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KING'S COLLEGE HAMPSTEAD CAMPUS, KIDDERPORE AVENUE, LONDON NW3

Client
Barratt West London

Consulting Engineer
Gravity Consulting Engineers

Report No. 3648-1

11 October 2011

CONTENTS

KING'S COLLEGE HAMPSTEAD CAMPUS, KIDDERPORE AVENUE, LONDON NW3

Synopsis

A further investigation has been carried out within the King's College Hampstead campus on the instructions of Barratt West London. Technical direction was provided by Gravity Consulting Engineers. A Desk Study[1] and previous general intrusive investigation[2] has been prepared for the site and should be read in conjunction with this report.

The purpose of this investigation was to confirm the ground conditions and to provide recommendations in respect of foundation design and other geoenvironmental matters for the proposed redevelopment. This includes the reuse of Block B, demolition of other blocks one reconstructed with a basement, some without and only refurbishment of others.

Four boreholes, ten continuous open drive (window) samplers were undertaken. In addition seven trial to expose existing foundation construction were carried out, all supported by a programme of in situ and laboratory testing.

For Block B it is proposed to reuse the existing raft, but to install a new building core; which will be carried on piled foundations other buildings are expected to be piled.

1
Site description

The area of investigation is a piece of sloping ground between Kidderpore Avenue and the Finchley Road which is occupied by a number of two and three storey properties and a former library building; a six to seven storey building with a semi basement cut into the sloping ground. A full site description is contained within the Desk Study to which the reader is referred, whilst the general layout is shown at Figure 1.

2
Development proposals

It is proposed to strip the existing library building (Block B) back to the frame and reconstruct it with two additional floors. The existing lower ground floor is to be used for car parking. We understand that the building utilises a raft foundation of approximate size 28m by 28m and loading are as follows:-

Existing:	Dead load 55kPa	Live load 32kPa
Proposed:	Dead load 69kPa	Live load 26kPa

In addition the new core will be constructed on 300mm diameter piled foundations, ideally carrying 700kN each.

Block A is to be demolished and replaced with a similar building with a basement car park beneath, to join to the libraries Lower Ground Floor. Blocks C & D are to be refurbished, whilst the building occupying the area of Block E & F are to be replaced by new constructions without basements. As design has not been finalised for these aspects loadings are not yet available.

A general layout of the blocks is provided at Figure 2.

3
Geology

Published records of the British Geological Survey (BGS) indicate the site to lie on the Claygate Member of the London Clay formation underlain by London Clay.

4
Field work

The extent of this phase of field work was agreed with the client and comprised four additional boreholes, two within the library building advanced by light percussive techniques to a maximum depth of 15 m and two further borehole around the site to 25m. In addition, ten window samples were carried out within and library building and across the site. All internal borehole were undertaken through diamond cored holes through the existing slabs. Also seven external trial pits were excavated by hand to expose the existing foundation construction. Trial Pits A - C, K & L were not excavated for various reasons. The location of all exploratory positions is shown on Figure 1 at Appendix D.

Representative soil and water samples were recovered from the boreholes for subsequent laboratory examination and testing; whilst Standard Penetration Tests (SPT) were carried out as appropriate. Details of the strata encountered are provided on the Borehole and Trial Pit Records at Appendix A; together with particulars of the samples recovered, groundwater observations, SPT results and section through existing foundation where appropriate. The profile of SPT with level is presented at Figure 3 of Appendix D.

Standpipes were installed in percussive boreholes to permit monitoring of water levels with the results to date presented at Appendix B.

5
Laboratory testing

The following laboratory tests were conducted on samples recovered during the field work:-

- Natural moisture content: to assess the in situ condition of the soil.
- Liquid and Plastic Limits: to classify cohesive soil into behavioural groups.
- Unconsolidated undrained triaxial compression: to determine the shear strength of cohesive material and thus to assess its load bearing capacity.
- One-dimensional consolidation: to determine the deformation characteristics of clay under applied loading and unloading.
- Soluble sulphate concentration and pH value: for the specification of buried concrete.

Results of these tests are presented at Appendix C. The variation of shear strength with level is presented at Figure 4 of Appendix D.

6
Ground conditions

6.1
Stratigraphy

The stratigraphy of the site as revealed by the investigation is described in detail at Appendix A and confirms that previously encountered at this site and is not going to be described here, as it has been undertaken in the previous report.

6.2
Groundwater

Groundwater inflows were noted in all of the cable percussive boreholes. The strikes in the boreholes were limited to the Claygate Member of the London Clay formation with the unweathered London Clay at depth not recording any groundwater strikes.

Numerous slow inflows and seepage's were recorded at various depths in the boreholes. However, the speed of drilling and use of casing to support the bore may have masked inflows.

Details of all groundwater observations during drilling are provided on the appropriate Borehole Record.

Subsequent monitoring of the standpipes inside the library indicate water to be between some 0.4 & 0.8m below top of basement slab level. i.e. Within the thickness of the concrete but the level recorded is not above the top of the concrete.

The other boreholes found water levels to be some 6m below ground level at the top of the site and 2m adjacent to the library.

The two standpipes within the library have been purges dry to confirm the water level and the recharged levels will form an addendum.

7
Discussion

7.1
General

The site has evidently already carried development and the investigation has revealed fill material to be present. It is possible that other pockets of fill material may also be present; perhaps deeper, of different character or associated with the remains of underground construction; even though not detected by this investigation.

All remnants of previous construction should be removed prior to redevelopment to enable the proposals to be constructed without hindrance and to perform satisfactorily.

7.2
Block B - former library building

We understand that the library was constructed in the early 1970's and thus settlement from the existing loading is expected to be sensibly complete. As part of the new works the existing building will be stripped back to the frame prior to reconstruction. The loading associated with this condition is 49 kPa and therefore some relaxation of the building will occur. This is expected to be minimal and will be taken up by reconsolidation under the new loading.

7.2.1
Anecdotal information

It is understood from an Architect who was studying at the college in the mid 1970's that there were problems with movement of the library building for some time after it was built. He understands that it was "sliding down the hill". There is no information relating to if and when the movement stopped, how much it moved or the reason that it moved.

There are various possible geotechnical (possible structural reasons will not be discussed here) reasons associated with a building sliding down the hill. The two main reasons are that the whole of the hill is moving and the building is moving with it. The other being that local slippage has occurred caused by or causing the building to move. Both of these could be restarted/ exacerbated by the new works and loading.

Assuming that the architect was correct. (and being a professional within the construction industry we have no reason to doubt him) Until the reason for the movement has been established remedial design cannot be undertaken or designed for. The following discussion is

based on the assumption that no movement occurred in the soil that caused the "sliding" and that the slope is stable.

It is recommended that investigation is undertaken into the possible reasons for the "sliding down the hill" so that remedial measures and/ or appropriate design can be undertaken to counteract it.

7.2.2
Existing Raft foundation

It has been assumed that the existing raft is functioning as a rigid structure and the settlement from the existing loading is sensibly complete. This is a reasonable conclusion since the building has been completed for in excess of 40 years. There is expected to be a small amount of swelling associated with the unloading of the building, but this will be taken up after the new construction has been completed.

Based on the test results, the additional settlement calculated for the new loadings is anticipated to be in the order of 15mm, based on conventional analysis techniques and full dead load and two thirds of live load being used in the analysis.

Groundwater monitoring indicates that the water is some ½m above the formation level of the raft and thus the raft is undergoing hydrostatic uplift. The dead weight of the building is sufficient to counteract this force.

7.2.3
Piled foundations

Either driven or bored piles would be suitable in the ground conditions found at this site. However, compared with bored piling, construction of driven piles generates greater noise and vibration which will not be acceptable in this environment. It is expected that conventional bored piled will be required within the existing building due to restricted headroom available, although casing through the Claygate Member will be needed to control groundwater inflows. Bored piles constructed by conventional means are therefore recommended and parameters for their preliminary design are provided in Tables 1 & 2.

Table 1: Design parameters for; bored piles - Shaft friction

Stratum	Typical level, mOD	Ultimate unit shaft friction
All material	<86.5	Ignore
Claygate Member	86.5 - 78.0	Increases linearly from 30 to 65 kPa
London Clay	78.0 - 63.0	Increases linearly from 65 to 120 kPa

Tables 1 and 2 have been derived in conjunction with an adhesion factor of 0.60 in the Claygate Member and the unweathered London Clay.

Table 2: Design parameters for; bored piles- End bearing capacity

Stratum	Level, mOD	Ultimate unit end bearing capacity
London Clay	78.0 - 63.0	Increases linearly from 960 to 1780 kPa

A factor of safety must be applied to derive the allowable working load from the ultimate values obtained from Tables 1 to 4. An overall value of 2.5 is commonly employed as it is expected that load tests would be carried out to verify the chosen value on a development of this scale.

Tables 1 and 2 predict that a CFA pile of 300 mm diameter, bored to 63 mOD depth (circa 25m below slab level), will have an allowable load capacity of approximately 700 kN under an overall factor of safety of 2.5.

Settlement at the toe of a single pile is not expected to exceed some 3 - 5 mm since the working load will be carried wholly in shaft friction.

Evidently it would be possible to utilise other pile types and different geometries. Further advice could be given on the load capacity for any other configuration which may be under consideration.

The actual load capacity achieved in practice depends upon the precise installation procedures. Advice should therefore be sought from specialist contractors to verify the load capacity and settlement characteristics of their particular piles in the ground conditions revealed by this investigation. In any event, it is recommended that the chosen pile configuration be confirmed by load tests conducted at an early stage in the development, preferably before installation of the contract piles.

It should be ensured that new piled foundation to not provide a pathways for upward water seepage into the building and water levels should be carefully monitored to ensure that they do not rise such that they come above the basement slab level.

7.3

Block A

As the final layout is not yet finalised the following information is based on drawing reproduced at figure 2. As loading are not yet available following is a table of preliminary pile capacities which is based on the Tables 1 & 2 of the previous section.

Preliminary pile capacity... Kidderpore Avenue

Factor of safety 2.5

		Ultimate Unit		Pile dia. 0.30				Pile dia. 0.45				Pile dia. 0.60			
Level	Cohesion	Capacity		Ultimate Load Capacity			Allowable	Ultimate Load Capacity			Allowable	Ultimate Load Capacity			Allowable
MoD		Shaft Friction	End Bearing	Shaft Friction	End Bearing	Total	Load Capacity	Shaft Friction	End Bearing	Total	Load Capacity	Shaft Friction	End Bearing	Total	Load Capacity
	kPa	kPa	kPa	kN	kN	kN	kN	kN	kN	kN	kN	kN	kN	kN	kN
86.5	55	33	495	0	35	35	14	0	79	79	31	0	140	140	56
86.0	58	35	522	16	37	53	21	24	83	107	43	32	148	180	72
85.5	61	37	550	33	39	72	29	49	87	137	55	66	155	221	88
85.0	64	38	577	51	41	91	37	76	92	168	67	101	163	264	106
84.5	67	40	604	69	43	112	45	104	96	200	80	138	171	309	124
84.0	70	42	632	88	45	133	53	133	100	233	93	177	179	356	142
83.5	73	44	659	109	47	155	62	163	105	268	107	218	186	404	162
83.0	76	46	686	130	49	178	71	195	109	304	122	260	194	454	182
82.5	79	48	714	152	50	202	81	228	114	341	137	304	202	506	202
82.0	82	49	741	175	52	227	91	262	118	380	152	350	210	559	224
81.5	85	51	769	198	54	253	101	298	122	420	168	397	217	614	246
81.0	88	53	796	223	56	279	112	335	127	461	184	446	225	671	268
80.5	91	55	823	248	58	307	123	373	131	504	201	497	233	730	292
80.0	95	57	851	275	60	335	134	412	135	547	219	550	240	790	316
79.5	98	59	878	302	62	364	146	453	140	593	237	604	248	852	341
79.0	101	60	905	330	64	394	158	495	144	639	256	660	256	916	366
78.5	104	62	933	359	66	425	170	538	148	687	275	718	264	981	393
78.0	107	64	960	389	68	456	183	583	153	735	294	777	271	1049	419
77.5	110	66	987	419	70	489	196	629	157	786	314	838	279	1117	447
77.0	113	68	1015	451	72	522	209	676	161	837	335	901	287	1188	475
76.5	116	69	1042	483	74	557	223	724	166	890	356	966	295	1260	504
76.0	119	71	1069	516	76	592	237	774	170	944	378	1032	302	1334	534
75.5	122	73	1097	550	78	628	251	825	174	1000	400	1100	310	1410	564
75.0	125	75	1124	585	79	664	266	877	179	1056	422	1170	318	1488	595
74.5	128	77	1151	621	81	702	281	931	183	1114	446	1241	326	1567	627
74.0	131	79	1179	657	83	741	296	986	187	1173	469	1315	333	1648	659
73.5	134	80	1206	695	85	780	312	1042	192	1234	494	1390	341	1731	692
73.0	137	82	1234	733	87	820	328	1100	196	1296	518	1466	349	1815	726
72.5	140	84	1261	772	89	861	345	1158	201	1359	544	1545	357	1901	760
72.0	143	86	1288	812	91	903	361	1218	205	1423	569	1625	364	1989	796
71.5	146	88	1316	853	93	946	378	1280	209	1489	596	1706	372	2078	831
71.0	149	90	1343	895	95	990	396	1342	214	1556	622	1790	380	2170	868
70.5	152	91	1370	938	97	1034	414	1406	218	1624	650	1875	387	2263	905
70.0	155	93	1398	981	99	1080	432	1472	222	1694	678	1962	395	2357	943
69.5	158	95	1425	1025	101	1126	450	1538	227	1765	706	2051	403	2454	981
69.0	161	97	1452	1071	103	1173	469	1606	231	1837	735	2141	411	2552	1021
68.5	164	99	1480	1117	105	1221	489	1675	235	1910	764	2233	418	2652	1061
68.0	167	100	1507	1164	107	1270	508	1745	240	1985	794	2327	426	2753	1101
67.5	170	102	1534	1211	108	1320	528	1817	244	2061	824	2423	434	2857	1143
67.0	174	104	1562	1260	110	1370	548	1890	248	2138	855	2520	442	2962	1185
66.5	177	106	1589	1309	112	1422	569	1964	253	2217	887	2619	449	3068	1227
66.0	180	108	1616	1360	114	1474	590	2040	257	2297	919	2720	457	3177	1271
65.5	183	110	1644	1411	116	1527	611	2117	261	2378	951	2822	465	3287	1315
65.0	186	111	1671	1463	118	1581	633	2195	266	2460	984	2926	473	3399	1360
64.5	189	113	1699	1516	120	1636	654	2274	270	2544	1018	3032	480	3512	1405
64.0	192	115	1726	1570	122	1692	677	2355	274	2629	1052	3140	488	3628	1451
63.5	195	117	1753	1624	124	1748	699	2437	279	2716	1086	3249	496	3745	1498
63.0	198	119	1781	1680	126	1806	722	2520	283	2803	1121	3360	503	3863	1545
62.5	201	121	1808	1736	128	1864	746	2605	288	2892	1157	3473	511	3984	1594
62.0	204	122	1835	1794	130	1923	769	2690	292	2982	1193	3587	519	4106	1642
61.5	207	124	1863	1852	132	1983	793	2778	296	3074	1230	3703	527	4230	1692
61.0	210	126	1890	1911	134	2044	818	2866	301	3167	1267	3821	534	4356	1742

Single piles could stress soil below depth of investigation; prove ground conditions throughout zone of stress before using. Pile groups should be considered separately.

7.3.1
Excavations

7.3.1.1
Stability

The Made Ground encountered should be regarded as inherently unstable. Some apparent stability may be present immediately on excavation, especially as there is a high clay content, but this must not be relied upon, this also follows for the underlying Claygate Beds. It is recommended that all excavations should be supported at all times unless battered to a safe angle of repose.

Provision of adequate support is especially important for the safety of personnel when required to work in or close to excavations. Particular care should be exercised when excavations are close to existing structures to ensure they do not experience any loss of support. Temporary and permanent works should be designed to resist the additional lateral earth pressures arising from any superimposed loads in addition to those generated by the soil itself, without significant deformation.

7.3.1.2
Retaining walls

Lateral earth pressures will act upon the basement walls and both temporary and permanent works should be designed to accommodate the lateral earth pressures without significant deformation, and also any increase that may result from nearby superimposed loadings. Lateral earth pressures may be calculated in conjunction with the parameters of Table 3.

Table 3: Material parameters in terms of effective stress

Material	Bulk density Mg/m^3	Effective cohesion	Effective angle of internal shearing resistance, degrees
Made Ground	1.9	0	20*
Claygate Beds	2.0	0	23*

** estimated*

7.3.1.3

Groundwater

Groundwater inflows should be expected within the depth of excavation. It is recommended that trench sheets or other method is used to support the excavation and to reduce groundwater inflows to a magnitude such that they could be controlled by conventional pumping from shallow sumps. High rates of pumping should be avoided as this could remove fines from the material and induce settlement of the surrounding ground.

The basement construction should be designed to withstand the expected hydrostatic uplift and be tanked.

It is recommended that a specialist hydrological assessment be made into the effect the basement may have on other buildings and the sloping ground in the area to ensure that they are not detrimentally effected.

7.3.1.4

Soil swelling

Excavation of the new basement will reduce the vertical stress that acts upon the soil and thus generate swelling at formation level. Movement will occur in two distinct phases; elastic recovery which will take place immediately the load is removed followed by long term swelling at decreasing rate over the ensuing years. The elastic component will be removed during final trimming of the excavation and is thus likely to be unnoticed. As the site is sloping the amount of soil removed from the northern part of the site will be significantly greater than the southern end. This swelling assessment is based purely on a average removal of some 2m of soil across the whole basement area.

The magnitude of long term swelling has been assessed from the consolidation test data on the assumption that the same geological factor applies to swelling as it does to consolidation. Published data comparing the results of long term monitoring of basement construction with the magnitude of swelling derived from conventional analysis has indicated that significant swelling only occurs when the reduction in vertical effective stress is more than 20 % of the vertical effective stress prior to excavation. This philosophy has been incorporated into the present analysis.

The estimated swelling is calculated at some 20 mm. A void should therefore be incorporated beneath the basement slab to allow for the anticipated swelling, or the basement designed to withstand the uplift forces.

7.4
Block E & F

Block E & F again as the design for this has not yet been finalised piling parameters from the previous tables can be used in their design.

7.5
Buried concrete

Laboratory tests on soil samples from site A yielded a maximum soluble sulphate concentration of 1.20 g/l which results in a Design Sulphate Class[3] of DS-2. These conditions also prevail at site B.

The groundwater is considered to be mobile at both sites and all pH determinations were in excess of 5.5. Therefore the Aggressive Chemical Environment for Concrete, ACEC, is classed as AC-2.

A M Smith
AP GEOTECHNICS LTD
11 October 2011

PROCEDURAL NOTES for GROUND INVESTIGATIONS

General

This report is based upon data obtained from field descriptions of the strata and examination of the samples by an engineer, together with the results of in situ and laboratory tests as appropriate. Responsibility cannot be accepted for variations in ground conditions between and around any of the exploratory points that is not revealed by the data. Whilst the report may offer an opinion on the ground conditions between exploratory points and below the depth of investigation, this is for guidance only and no liability is accepted for its accuracy.

Drilling procedure

Boring by light cable percussion drilling allows the ground conditions to be reasonably well established. However, a certain amount of disturbance is inevitable and some mixing of soils can occur.

Sampling procedure

"Undisturbed" samples of predominantly cohesive soils are taken with a 100mm diameter open tube sampler, generally in accordance with BS 5930: 1999.

Where appropriate, or where an undisturbed sample is unsuccessful, disturbed samples are recovered and sealed into polythene bags.

Groundwater samples are taken when water is encountered in sufficient quantity.

Standard penetration tests

The test is conducted generally in accordance with BS 1377: Part 9: 1990. The sampler tube is subject to a seating drive of 150mm into the soil at the base of the borehole. Results are given on the Borehole Records as the number of blows required to drive the sampler tube a further 300mm and this is known as the "N" value. Where the driving resistance is such that full penetration is not achieved, the test is generally terminated after 50 blows and the actual distance penetrated is recorded.

Groundwater

Groundwater observations necessarily reflect the conditions encountered at the time of the exploratory work. Long term monitoring of standpipes is usually required to establish an equilibrium water level since the normal rate of boring is too fast to permit steady state conditions to be achieved.

Groundwater levels are subject to variations caused by changes in drainage conditions and seasonal climatic changes.

Water may necessarily be added to advance the bore whilst casing may be required to maintain an open hole. These can both mask subsequent groundwater observations and are therefore noted on the individual Borehole Record.

APPENDICES

APPENDIX A

BOREHOLE and TRIAL PIT RECORDS

SYMBOLS and ABBREVIATIONS

Samples

Undisturbed

U	Standard open drive "undisturbed" 102mm dia. in boreholes 38mm dia. in trial pits, window sampler and hand auger
T	Thin wall open drive
P	Piston
C	CBR mould

Disturbed

D	Small
B	Bulk
C	Contaminants: plastic tub
J	brown glass jar
W	Water

In situ tests

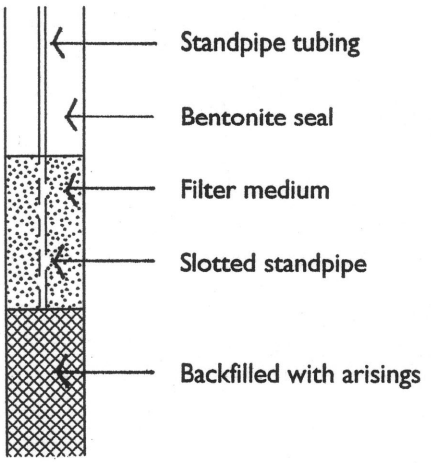
SPT	Standard Penetration Test, open shoe
CPT	solid cone
	N value is number of blows for 300mm penetration. Blow count also given as seating drive followed by four increments of 75mm.
V ( )	Vane test (c_u kPa)
P ( )	Hand penetrometer (c_u kg/cm^2)
M ( )	Mexe probe (CBR %)

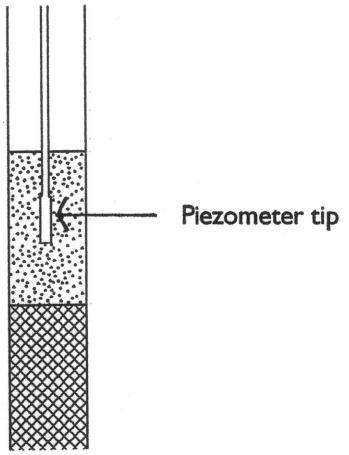
Water records

$\blacktriangledown_1$	Standing level
$\triangledown_1$	Depth encountered

suffix identifies separate strikes

Standpipes





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Site	Borehole Number
KIDDERPORE AVENUE - PHASE II	BH51

Boring Method	Casing Diameter	Ground Level (mOD)	Client	Job Number
Cable Percussion	150mm cased to 4.50m 150mm cased to 16.50m	91.40	Barratt West London	3648
	Location	**Dates**	**Engineer**	**Sheet**
	See Site Plan	15/08/2011- 17/08/2011	Gravity Consulting Engineers	1/2

Depth (m)	Sample / Tests	Casing Depth (m)	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
				15/08/2011:	91.23	(0.17)	CONCRETE floor		
				16/08/2011:DRY 16/08/2011:16.30m		0.17	Basement - void		
				17/08/2011:3.80m 17/08/2011:		(2.88)			
					88.35	3.05	CONCRETE		
3.80	W19	12.10	3.80			(0.95)			
4.00-4.50	B1	4.10	DRY		87.40	4.00	Firm brown mottled orange and light brown very silty CLAY. Silt is iron stained		
4.50-4.95	U2	4.10	DRY	25 blows					
4.95	C3					(1.95)			
5.50-5.95	U4	4.60	5.90	25 blows					▽1
5.95	C5			constant(1) at 5.90m, fell to 12.10m in 20 mins.	85.45	5.95	Firm brown mottled orange and light brown very silty CLAY. Silt is iron stained		
6.50-6.95	U6	6.20	DRY	20 blows					
6.95	C7								
7.50-7.95	U8	7.40	DRY	40 blows					
7.95	C9					(4.10)			
8.50-8.95	SPT N=14	8.35	DAMP	2,2/3,3,4,4		(4.10)			
8.50-9.00	B10	8.35	DAMP						
					81.35	10.05			

Remarks
Chiselling from 3.80m to 4.10m for .50 hours.

Scale (approx)	Logged By
1:50	MM

Figure No.
3648.BH51

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Site	Borehole Number
KIDDERPORE AVENUE - PHASE II	BH51

Boring Method	Casing Diameter	Ground Level (mOD)	Client	Job Number
Cable Percussion	150mm cased to 4.50m 150mm cased to 16.50m	91.40	Barratt West London	3648
	Location	**Dates**	**Engineer**	**Sheet**
	See Site Plan	15/08/2011- 17/08/2011	Gravity Consulting Engineers	2/2

Depth (m)	Sample / Tests	Casing Depth (m)	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
10.00-10.45	U11	9.60	DAMP	30 blows	81.35	(4.10) 10.05	Firm dark greyish brown mottled light grey silty CLAY becoming less silty with depth. Contains rare shell fragments		
10.45	C12								
						(1.95)			▽2
				Water strike(2) at 11.20m.					
11.50-11.95	SPT N=19	11.50	DRY	3,3/4,4,5,6					
11.50-12.00	B13	11.50	DRY						
					79.40	12.00	Firm to stiff dark greyish brown slightly silty CLAY becoming less silty with depth. Contains shell fragments.		▼1
13.00-13.45	U14	12.00	DRY	35 blows					
13.45	C15								
						(4.45)			
14.50-14.95	SPT N=23	12.00	DRY	2,3/4,5,6,8					
14.50-15.00	B16	12.00	DRY						
16.00-16.45	U17	12.00	DAMP	60 blows					
					74.95	16.45			
16.45	C18						Complete at 16.45m		

Remarks

Scale (approx)	Logged By
1:50	MM

Figure No. 3648.BH51

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Site	Borehole Number
KIDDERPORE AVENUE - PHASE II	BH52

Boring Method	Casing Diameter	Ground Level (mOD)	Client	Job Number
Cable Percussion	150mm cased to 8.30m	91.40	Barratt West London	3648
	Location	**Dates**	**Engineer**	**Sheet**
	See Site Plan	12/08/2011-15/08/2011	Gravity Consulting Engineers	1/2

Depth (m)	Sample / Tests	Casing Depth (m)	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
				13/08/2011:DAMP	91.23	(0.17) 0.17	CONCRETE		
							Basement - void		
						(2.88)			
					88.35	3.05	CONCRETE		
						(1.10)			
4.07-4.50	B1				87.25	4.15	Firm brown mottled orange and grey silty CLAY. Silt is iron stained		
4.50-4.95	U2	4.50	DAMP	20 blows					▼1
4.95	C3			slow(1) at 5.00m, rose to 4.80m in 20 mins, sealed at 8.30m.		(1.85)			▽1
5.00	W11								
5.50-5.95	U4	5.50	DAMP	20 blows					
5.95	C5				85.40	6.00	Firm dark grey very silty CLAY becoming less silty with depth. Contains rare shell fragments. Silt is iron stained		
6.50-6.95	U6	6.00	DRY	20 blows		(1.20)			
6.95	C7								
7.20	J8				84.20	7.20	Firm dark brownish grey silty CLAY		
7.50-7.95	U9	7.50	DAMP	25 blows					
7.95	C10								
9.00-9.45	U12	8.30	DRY	20 blows					
9.45	C13								▼2

Remarks

Scale (approx)	Logged By
1:50	MM

Figure No. 3648.BH52

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Site	Borehole Number
KIDDERPORE AVENUE - PHASE II	BH52

Boring Method	Casing Diameter	Ground Level (mOD)	Client	Job Number
Cable Percussion	150mm cased to 8.30m	91.40	Barratt West London	3648
	Location	**Dates**	**Engineer**	**Sheet**
	See Site Plan	12/08/2011-15/08/2011	Gravity Consulting Engineers	2/2

Depth (m)	Sample / Tests	Casing Depth (m)	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
							Firm dark brownish grey silty CLAY		
10.30	W20			slow/medium(2) at 10.30m, rose to 9.60m in 20 mins, sealed at 10.60m.					▽2
10.50-10.95	U14								
10.95	C15								
12.00-12.45 12.00-12.50	SPT N=16 B16	10.60	DRY	2,3/3,5,3,3,5		(8.30)			
13.50-13.95	U17	10.60	DRY	25 blows					
13.95	C18								
15.00-15.45 15.00-15.50	SPT N=19 B19	10.60	DRY	2,3/4,4,5,6					
					75.90	15.50	Complete at 15.50m		

Remarks

Scale (approx)	Logged By
1:50	MM

Figure No. 3648.BH52

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Site	Borehole Number
KIDDERPORE AVENUE - PHASE II	BH53

Boring Method	Casing Diameter	Ground Level (mOD)	Client	Job Number
Cable Percussion		91.20	Barratt West London	3648
	Location	**Dates**	**Engineer**	**Sheet**
	See Site Plan	12/08/2011-16/08/2011	Gravity Consulting Engineers	1/3

Depth (m)	Sample / Tests	Casing Depth (m)	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water	Instr
				16/08/2011:NIL						
0.10-0.50	B1					(0.50)	MADE GROUND: Dark brown gravelly sand. Gravel consists of fine to coarse sub-angular flint brick concrete and Type 1			
					90.70	0.50				
0.60-1.10	B2						Soft becoming firm light orange brown mottled dark brown silty fine sandy CLAY becoming less sandy with depth. Silt is wispy and iron stained with depth			
1.20-1.65	U1			30 blows						
1.65	D1									
2.10-2.55	SPT N=8			1,2/1,2,2,3					▽1	
2.10-2.60	B3			seepages(1) at 2.20m.						
2.55	D2									
						(4.70)				
3.00-3.45	U2			35 blows						
3.45	D3									
4.00-4.45	U3			40 blows						
4.45	D4									
5.00-5.45	U4			40 blows						
					86.00	5.20				
5.45	D5						Firm dark grey mottled dark brown silty CLAY becoming less silty and stiffer with depth. Contains occasional shell fragments			
5.50-6.00	B4									
6.50-6.95	U5			40 blows						
				seepages(2) at 6.80m.					▽2	
6.95	D6									
8.00-8.45	U6			40 blows						
8.45	D7									
						(7.80)				
9.50-9.95	SPT N=22			3,3/4,5,6,7						

Remarks
Pit dry
Dig inspection pit to 1.20m
Chiselling from 0.00m to 1.20m for 1 hour. Breaking out from 0.00m to 1.20m for 1 hour.

Scale (approx)	Logged By
1:50	MM

Figure No.
3648.BH53

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Site	Borehole Number
KIDDERPORE AVENUE - PHASE II	BH53

Boring Method	Casing Diameter	Ground Level (mOD)	Client	Job Number
Cable Percussion		91.20	Barratt West London	3648
	Location	**Dates**	**Engineer**	**Sheet**
	See Site Plan	12/08/2011-16/08/2011	Gravity Consulting Engineers	2/3

Depth (m)	Sample / Tests	Casing Depth (m)	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water	Instr
							Firm dark grey mottled dark brown silty CLAY becoming less silty and stiffer with depth. Contains occasional shell fragments			
11.00-11.45	U7			50 blows						
11.45	D8					(7.80)				
13.00-13.50	B5				78.20	13.00	Stiff to very stiff dark greyish brown slightly silty CLAY with occasional shell fragments			
14.00-14.45	U8			50 blows						
14.45	D9									
15.50-15.95	SPT N=23			4,4/5,5,6,7						
17.00-17.45	U9			55 blows						
17.45	D10									
18.50-18.95	SPT N=34			4,5/7,8,9,10						
						(12.00)				

Remarks

Scale (approx)	Logged By
1:50	MM

Figure No. 3648.BH53

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Site	Borehole Number
KIDDERPORE AVENUE - PHASE II	BH53

Boring Method	Casing Diameter	Ground Level (mOD)	Client	Job Number
Cable Percussion		91.20	Barratt West London	3648
	Location	**Dates**	**Engineer**	**Sheet**
	See Site Plan	12/08/2011-16/08/2011	Gravity Consulting Engineers	3/3

Depth (m)	Sample / Tests	Casing Depth (m)	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water	Instr
20.00-20.45	U10			60 blows			Stiff to very stiff dark greyish brown slightly silty CLAY with occasional shell fragments			
20.45	D11									
21.50-21.95	SPT N=40			5,6/8,10,10,12						
						(12.00)				
23.00-23.45	U11			60 blows						
23.45	D12									
24.55-25.00	SPT N=42			5,7/8,10,12,12						
					66.20	25.00				
							Complete at 25.00m			

Remarks

Scale (approx)	Logged By
1:50	MM

Figure No. 3648.BH53

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Site	Borehole Number
KIDDERPORE AVENUE - PHASE II	BH54

Boring Method	Casing Diameter	Ground Level (mOD)	Client	Job Number
Cable Percussion		96.80	Barratt West London	3648
	Location	**Dates**	**Engineer**	**Sheet**
	See Site Plan	17/08/2011-18/08/2011	Gravity Consulting Engineers	1/3

Depth (m)	Sample / Tests	Casing Depth (m)	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
				17/08/2011:NIL		(0.30)	TARMAC (various layers of driveway)		
					96.50	0.30			
0.40-0.90	B1						MADE GROUND: Dark brown gravelly clayey sand. Gravel consists of medium to coarse flint and brick		
						(1.10)			
1.20-1.65	SPT(C) N=15			4,5/4,3,4,4	95.40	1.40			
1.20-1.70	B2						Stiff brown mottled orange brown indurated silty CLAY. Silt appears wispy and slightly iron stained		
1.70-2.10	B3								
2.10-2.45	U1			60 blows					
2.45	D1					(2.80)			
3.00-3.45	U2			60 blows					
3.45	D2								
4.00-4.45	U3			45 blows					
					92.60	4.20			
4.45	D3						Firm to stiff orange brown and grey silty fine sandy CLAY		
5.00-5.45	SPT N=13			2,2/3,3,4,3					
5.50-6.00	B4								
						(4.25)			
6.50-6.95	U4			40 blows					
6.95	D4			seepage(1) at 7.00m.					▽1
8.00-8.45	U5			40 blows					
					88.35	8.45			
8.45	D5						Firm to stiff dark grey mottled light grey silty clay becoming less silty with depth. Contains occasional shell fragments		
9.00-9.50	B5								
9.50-9.95	U6			50 blows seepage(2) at 9.60m.					▽2

Remarks
Breaking out from 0.00m to 1.20m for 1 hour.

Scale (approx)	Logged By
1:50	MM

Figure No.
3648.BH54

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Site	Borehole Number
KIDDERPORE AVENUE - PHASE II	BH54

Boring Method	Casing Diameter	Ground Level (mOD)	Client	Job Number
Cable Percussion		96.80	Barratt West London	3648
	Location	**Dates**	**Engineer**	**Sheet**
	See Site Plan	17/08/2011-18/08/2011	Gravity Consulting Engineers	2/3

Depth (m)	Sample / Tests	Casing Depth (m)	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
9.95	D6						Firm to stiff dark grey mottled light grey silty clay becoming less silty with depth. Contains occasional shell fragments		
11.00-11.45	SPT N=26			3,5/5,6,7,8					
				seepage(3) at 11.70m.					▽3
12.50-12.95	U7			50 blows					
12.95	D7								
14.00-14.45	SPT N=25			4,4/5,6,7,7		(9.55)			
15.50-15.95	U8			55 blows					
15.95	D8								
				seepage(4) at 16.60m.					▽4
17.00-17.45	SPT N=31			5,5/6,8,8,9					
					78.80	18.00	Very stiff dark greyish brown slightly silty CLAY with shell fragments		
18.50-18.95	U9			65 blows					
18.95	D9								
20.00-20.45	SPT N=37			6,7/8,9,9,11					

Remarks

Scale (approx)	Logged By
1:50	MM

Figure No. 3648.BH54

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Site	Borehole Number
KIDDERPORE AVENUE - PHASE II	BH54

Boring Method	Casing Diameter	Ground Level (mOD)	Client	Job Number
Cable Percussion		96.80	Barratt West London	3648
	Location	**Dates**	**Engineer**	**Sheet**
	See Site Plan	17/08/2011-18/08/2011	Gravity Consulting Engineers	3/3

Depth (m)	Sample / Tests	Casing Depth (m)	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
							Very stiff dark greyish brown slightly silty CLAY with shell fragments		
21.50-21.95	U10			70 blows					
21.95	D10					(7.00)			
23.00-23.45	SPT N=45			5,7/9,10,12,14					
24.55-25.00	U11			70 blows					
25.00	D11				71.80	25.00	Complete at 25.00m		

Remarks

Scale (approx)	Logged By
1:50	MM

Figure No. 3648.BH54

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Site	Number
KIDDERPORE AVENUE - PHASE II	HA56

Excavation Method	Dimensions	Ground Level (mOD)	Client	Job Number
Drive-in Window Sampler		88.35	Barratt West London	3648
	Location	**Dates** 23/09/2011	**Engineer** Gravity Consulting Engineers	**Sheet** 1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
					(1.06)	CONCRETE		
				87.29	1.06	Light greyish brown mottled orange silty CLAY. Silt is iron stained		
1.50	D1							
2.00	D2				(1.94)			
			Water strike(1) at 2.20m.					▽1
2.50	D3							
3.00	D4			85.35	3.00			
						Complete at 3.00m		

Remarks

Scale (approx)	Logged By
1:25	MM

Figure No. 3648.HA56

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Site	Number
KIDDERPORE AVENUE - PHASE II	HA57

Excavation Method	Dimensions	Ground Level (mOD)	Client	Job Number
Drive-in Window Sampler		88.35	Barratt West London	3648
	Location	**Dates** 24/09/2011	**Engineer** Gravity Consulting Engineers	**Sheet** 1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
					(1.24)	CONCRETE		
				87.11	1.24	Light brown and orange brown silty CLAY. Silt is wispy and iron stained		
1.50	D1							
2.00	D2				(1.76)			
2.50	D3							
3.00	D4			85.35	3.00	Complete at 3.00m		

Remarks

Scale (approx)	Logged By
1:25	MM

Figure No. 3648.HA57

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Site	Number
KIDDERPORE AVENUE - PHASE II	HA58

Excavation Method	Dimensions	Ground Level (mOD)	Client	Job Number
Drive-in Window Sampler		88.35	Barratt West London	3648
	Location	**Dates** 24/09/2011	**Engineer** Gravity Consulting Engineers	**Sheet** 1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
					(1.00)	CONCRETE		
1.00	D1			87.35	1.00	Greyish brown mottled orange brown silty CLAY. Silt is wispy and iron stained		
1.50	D2							
2.00	D3				(2.00)			
2.50	D4							
3.00	D5			85.35	3.00	Complete at 3.00m		

Remarks

Scale (approx)	Logged By
1:25	MM

Figure No. 3648.HA58

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Site	Number
KIDDERPORE AVENUE - PHASE II	WSA

Excavation Method	Dimensions	Ground Level (mOD)	Client	Job Number
Drive-in Window Sampler			Barratt West London	3648
	Location	**Dates**	**Engineer**	**Sheet**
	See Site Plan	12/08/2011	Gravity Consulting Engineers	1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
0.00-1.00	L1		70% recovery		(0.60)	TOPSOIL with flint and brick rubble		
					0.60			
					(0.40)	Stiff yellow brown silty CLAY with occasional flint		
1.00-2.00	L2		90% recovery		1.00	Firm to stiff orange brown mottled grey CLAY with pockets of fine sand		
2.00-3.00	L3		100% recovery		(3.00)			
3.00-4.00	L4		100% recovery					
					4.00	Complete at 4.00m		

Remarks
Bore dry

Scale (approx)	Logged By
1:25	MM

Figure No.
3648.WSA

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Site	Number
KIDDERPORE AVENUE - PHASE II	WSB

Excavation Method	Dimensions	Ground Level (mOD)	Client	Job Number
Drive-in Window Sampler			Barratt West London	3648
	Location	**Dates**	**Engineer**	**Sheet**
	See Site Plan	12/08/2011	Gravity Consulting Engineers	1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
0.00-1.00	L1		80% recovery		(0.50)	TOPSOIL with flints		
					0.50	MADE GROUND: Brown grey sandy clay with flint and brick rubble		
					(0.60)			
1.00-2.00	L2		100% recovery		1.10	Stiff orange brown mottled grey sandy CLAY with flint and occasional rootlets		
					(0.90)			
2.00-3.00	L3		100% recovery		2.00	Soft to firm orange brown mottled grey CLAY with frequent pockets of orange brown fine sand		
3.00-4.00	L4		100% recovery		(2.00)			
					4.00	Complete at 4.00m		

Remarks
Bore dry

Scale (approx)	Logged By
1:25	MM

Figure No.
3648.WSB

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Site	Number
KIDDERPORE AVENUE - PHASE II	WSC

Excavation Method	Dimensions	Ground Level (mOD)	Client	Job Number
Drive-in Window Sampler			Barratt West London	3648
Location		**Dates**	**Engineer**	**Sheet**
See Site Plan		12/08/2011	Gravity Consulting Engineers	1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
0.00-1.00	L1		30% recovery 12/08/2011:4.00m		(0.05) 0.05 (0.25) 0.30	TARMAC MADE GROUND: Flint and hardcore rubble Firm brown and grey mottled orange brown CLAY with pockets of orange brown fine sand		
1.00-2.00	L2		100% recovery					
2.00-3.00	L3		100% recovery		(3.70)			
3.00-4.00	L4		90% recovery		4.00	Complete at 4.00m		

Remarks
Water seepage at 3.70m

Scale (approx)	Logged By
1:25	MM

Figure No.
3648.WSC

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Site	Number
KIDDERPORE AVENUE - PHASE II	WSD

Excavation Method	Dimensions	Ground Level (mOD)	Client	Job Number
Drive-in Window Sampler			Barratt West London	3648
	Location	**Dates**	**Engineer**	**Sheet**
	See Site Plan	12/08/2011	Gravity Consulting Engineers	1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
0.00-1.00	L1		80% recovery 12/08/2011:DAMP		(0.50) 0.50	TOPSOIL with flint and rootlets		
					(0.50) 1.00	Stiff light yellowish brown weathered silty CLAY with occasional flint		
1.00-2.00	L2		100% recovery			Firm to stiff orange brown mottled grey CLAY with pockets of orange brown fine sand		
2.00-3.00	L3		100% recovery		(2.60)			
3.00-4.00	L4		100% recovery		3.60 (0.40) 4.00	Firm to stiff greyish brown silty CLAY		
						Complete at 4.00m		

Remarks
Bore damp
Water seepage at 3.2m

Scale (approx)	Logged By
1:25	MM

Figure No.
3648.WSD

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Site	Number
KIDDERPORE AVENUE - PHASE II	WSE

Excavation Method	Dimensions	Ground Level (mOD)	Client	Job Number
Drive-in Window Sampler			Barratt West London	3648
	Location	**Dates**	**Engineer**	**Sheet**
	See Site Plan	12/08/2011	Gravity Consulting Engineers	1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
0.00-1.00	L1		40% recovery 12/08/2011:		(0.10) 0.10	MADE GROUND: Paving slab		
					(0.10) 0.20	MADE GROUND: Sand and cement		
						MADE GROUND: Reddish and brownish black coarse sand with coarse flint and brick rubble		
1.00-2.00	L2		70% recovery					
					(2.10)			
						Dark brown clay lens to 2.00m with fine brick fragments		
2.00-3.00	L3		100% recovery					
					2.30	Firm orange brown and brown CLAY with pockets of orange brown fine sand		
3.00-4.00	L4		100% recovery					
					(1.70)			
					4.00	Complete at 4.00m		

Remarks
Bore dry

Scale (approx)	Logged By
1:25	MM

Figure No.
3648.WSE

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Site	Number
KIDDERPORE AVENUE - PHASE II	WSF

Excavation Method	Dimensions	Ground Level (mOD)	Client	Job Number
Drive-in Window Sampler			Barratt West London	3648
Location		**Dates**	**Engineer**	**Sheet**
See Site Plan		12/08/2011	Gravity Consulting Engineers	1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
0.00-1.00	L1		70% recovery 12/08/2011:		(0.10) 0.10	MADE GROUND: Crazy paving		
					(0.40)	MADE GROUND: Greyish brown coarse sand and concrete rubble		
					0.50			
					(0.50)	MADE GROUND: Orange brown mottled brown silty CLAY with flint and brick		
1.00-2.00	L2		100% recovery		1.00	Firm to stiff orange brown mottled grey slightly silty CLAY with pockets of orange brown fine sand		
2.00-3.00	L3		100% recovery		(3.00)			
3.00-4.00	L4		100% recovery					
					4.00	Complete at 4.00m		

Remarks
Bore dry

Scale (approx)	Logged By
1:25	MM

Figure No.
3648.WSF

AP GEOTECHNICS
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F 01932 851255
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Site	Trial Pit Number
KIDDERPORE AVENUE - PHASE II	TPD

Excavation Method	Dimensions	Ground Level (mOD)	Client	Job Number
Trial Pit			Barratt West London	3648
	Location	**Dates** 24/08/2011	**Engineer** Gravity Consulting Engineers	**Sheet** 1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
					(0.05) 0.05	TARMAC		
0.15	D1				(0.32)	MADE GROUND: Black mottled brown gravelly sand and brick rubble. Gravel of fine to coarse angular flint		
0.37	D2				0.37 (0.05) 0.42	Lean-mix concrete		
					(0.18)	MADE GROUND: Dark brown mottled orange slightly gravelly clay. Gravel of fine to medium red brick		
0.60	D3				0.60	Firm light brown CLAY with occasional pockets of orange brown silt		
					(0.50)			
1.00	D4				1.10			
						Complete at 1.10m		

Plan

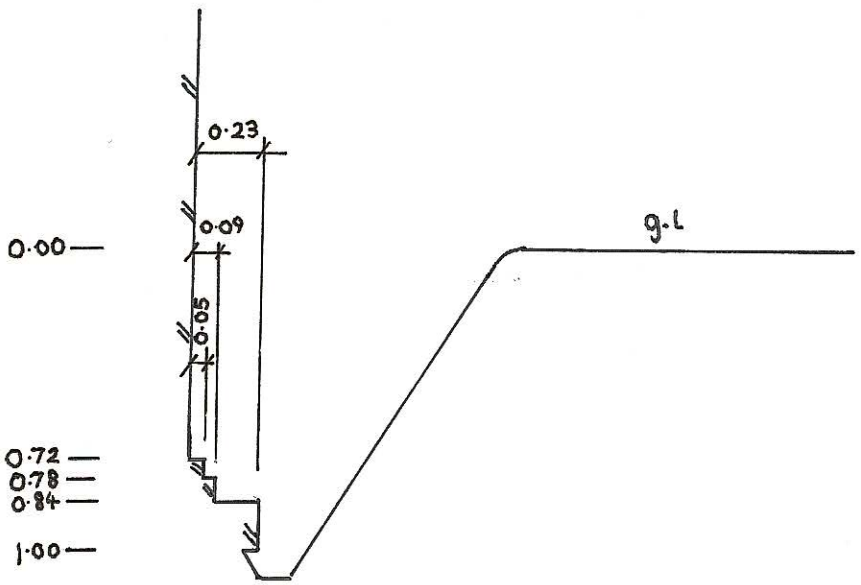
Remarks

Pit stable and dry
Backfilled with arisings

Scale (approx)	Logged By	Figure No.
1:25	MM	3648.TPD

AP GEOTECHNICS	T 01932 848460 F 01932 851255 E mail@apgeotechnics.co.uk	Site KIDDERPORE AVENUE - PHASE II	Trial Pit Number TPD

Excavation Method	Dimensions	Ground Level (mOD)	Client	Job Number
Trial Pit			Barratt West London	3648
	Location	**Dates** 24/08/2011	**Engineer** Gravity Consulting Engineers	**Sheet** 2/2



	Scale (approx)	Logged By	Figure No.
	1:25		3648.TPD

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Site	Trial Pit Number
KIDDERPORE AVENUE - PHASE II	TPE

Excavation Method	Dimensions	Ground Level (mOD)	Client	Job Number
Trial Pit			Barratt West London	3648
	Location	**Dates** 08/07/2011	**Engineer** Gravity Consulting Engineers	**Sheet** 1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
					(0.34)	TOPSOIL		
					0.34	MADE GROUND: Orange brown mottled brown and black clay with pockets of sand and brick fragments		
0.50	D1				(0.86)			
1.00	D2				1.20	Complete at 1.20m		

Plan

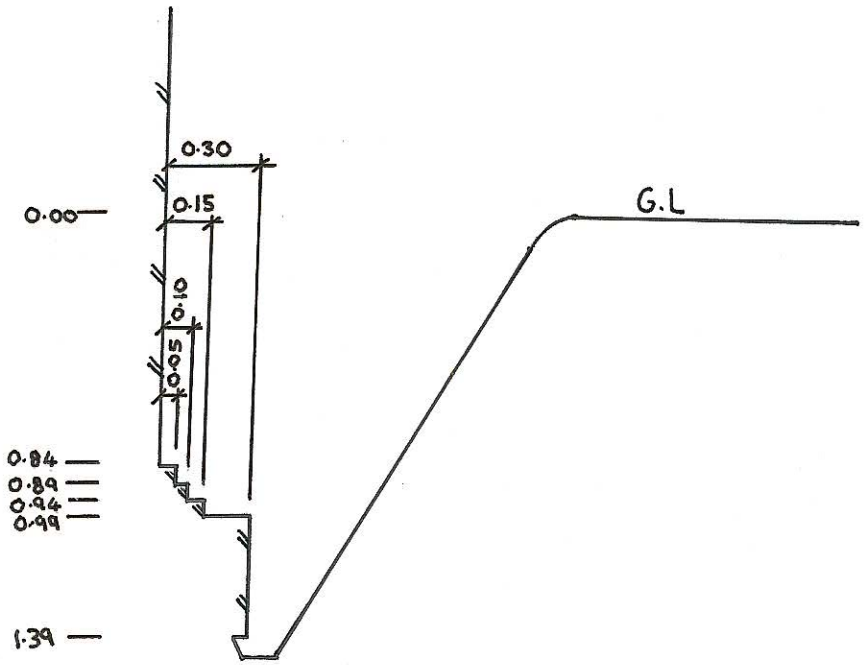
Remarks

Pit stable and dry
Backfilled with arisings

Scale (approx)	Logged By	Figure No.
1:25	MM	3648.TPE

AP GEOTECHNICS	T 01932 848460 F 01932 851255 E mail@apgeotechnics.co.uk	Site KIDDERPORE AVENUE - PHASE II	Trial Pit Number TPE

Excavation Method	Dimensions	Ground Level (mOD)	Client	Job Number
Trial Pit			Barratt West London	3648
	Location	**Dates**	**Engineer**	**Sheet**
		08/07/2011	Gravity Consulting Engineers	2/2



	Scale (approx)	Logged By	Figure No.
	1:25	MM	3648.TPE

AP GEOTECHNICS
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E mail@apgeotechnics.co.uk

Site	Trial Pit Number
KIDDERPORE AVENUE - PHASE II	TPF

Excavation Method	Dimensions	Ground Level (mOD)	Client	Job Number
Trial Pit			Barratt West London	3648
	Location	**Dates** 08/07/2011	**Engineer** Gravity Consulting Engineers	**Sheet** 1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
					(0.35)	TOPSOIL		
					0.35	MADE GROUND: Orange brown mottled brown and black clay with brick rubble		
0.50	D1				(0.80)			
1.00	D2				1.15	Complete at 1.15m		

Plan

Remarks

Scale (approx)	Logged By	Figure No.
1:25	MM	3648.TPF

AP GEOTECHNICS
T 01932 848460
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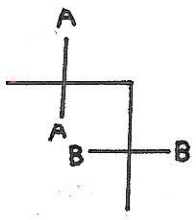
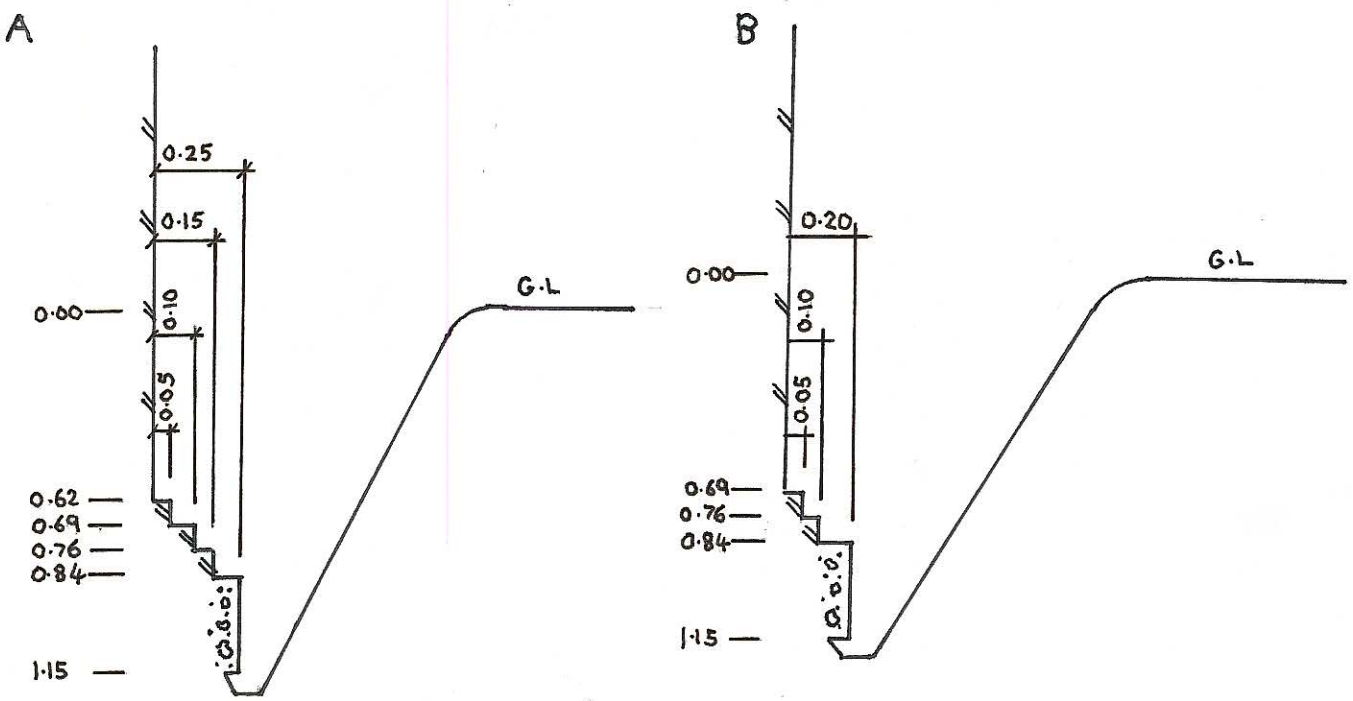
Site	Trial Pit Number
KIDDERPORE AVENUE - PHASE II	TPF

Excavation Method	Dimensions	Ground Level (mOD)	Client	Job Number
Trial Pit			Barratt West London	3648
	Location	**Dates** 08/07/2011	**Engineer** Gravity Consulting Engineers	**Sheet** 2/2





Scale (approx)	Logged By	Figure No.
1:25	MM	3648.TPF

AP GEOTECHNICS
T 01932 848460
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Site	Trial Pit Number
KIDDERPORE AVENUE - PHASE II	TPG

Excavation Method	Dimensions	Ground Level (mOD)	Client	Job Number
Trial Pit			Barratt West London	3648
	Location	**Dates**	**Engineer**	**Sheet**
	See Site Plan	18/08/2011	Gravity Consulting Engineers	1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
					(0.48)	TOPSOIL with brick and slate		
0.50	D1				0.48 (0.07)	MADE GROUND: Brown slightly gravelly clay. Gravel consists of fine angular flint and red brick		
0.55	D2				0.55 (0.05)			
					0.60	MADE GROUND: Brown clayey gravelly sand. Gravel of fine to medium red brick and occasional flint		
1.00	D3				(0.76)	MADE GROUND: Orange brown mottled brown slightly gravelly clay becoming less gravelly with depth. Gravel consists of fine angular brick and flint		
1.00-1.36	D4				1.36	Complete at 1.36m		

Plan

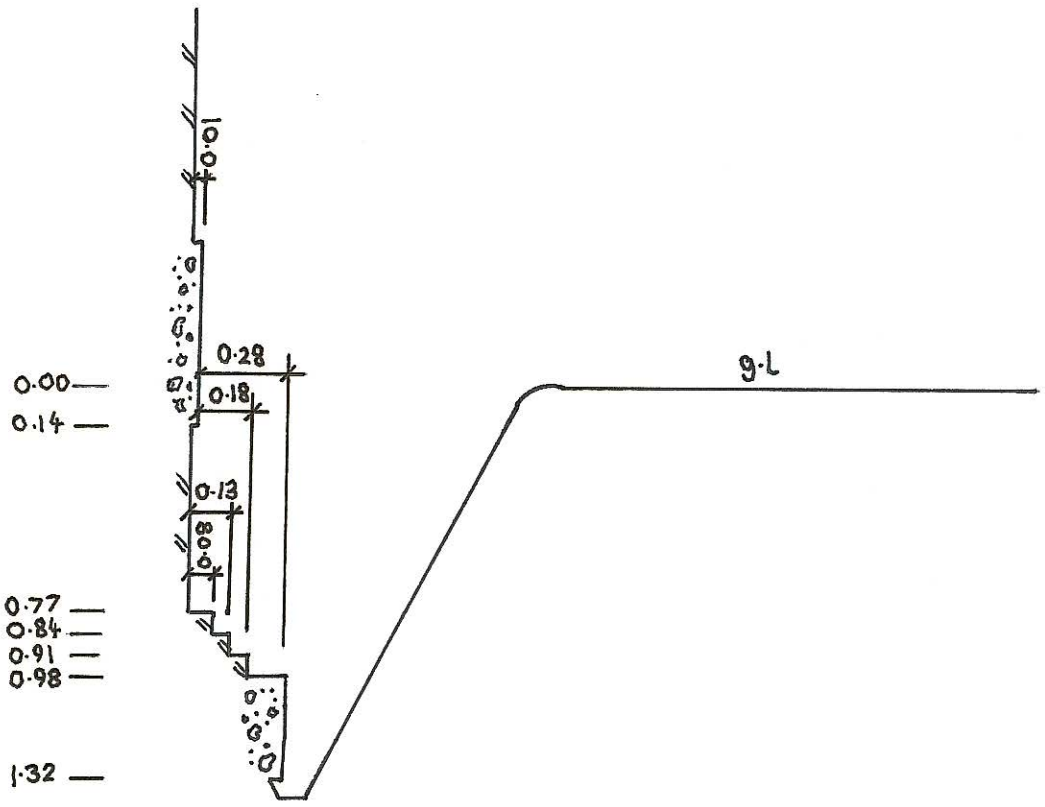
Remarks

Pit stable and dry
Backfilled with arisings

Scale (approx)	Logged By	Figure No.
1:25	MM	3648.TPG

AP GEOTECHNICS	T 01932 848460 F 01932 851255 E mail@apgeotechnics.co.uk	Site KIDDERPORE AVENUE - PHASE II	Trial Pit Number TPG

Excavation Method	Dimensions	Ground Level (mOD)	Client	Job Number
Trial Pit			Barratt West London	3648
	Location See Site Plan	**Dates** 18/08/2011	**Engineer** Gravity Consulting Engineers	**Sheet** 2/2



	Scale (approx)	Logged By	Figure No.
	1:25		3648.TPG

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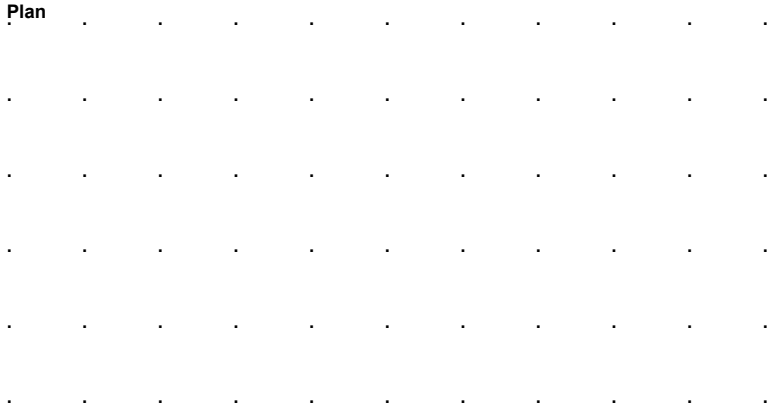
E mail@apgeotechnics.co.uk

Site	Trial Pit Number
KIDDERPORE AVENUE - PHASE II	TPH

Excavation Method	Dimensions	Ground Level (mOD)	Client	Job Number
Trial Pit			Barratt West London	3648
	Location	**Dates** 24/08/2011	**Engineer** Gravity Consulting Engineers	**Sheet** 1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
					(0.25) 0.25	TOPSOIL		
					(0.12) 0.37	PEA SHINGLE		
0.50	D1				(0.23) 0.60	MADE GROUND: Dark brown mottled orange brown slightly gravelly silty clay with rootlets. Gravel consists of fine to medium sub-rounded to sub-angular brick and flint		
0.80	D2				(0.40) 1.00	MADE GROUND: Reddish brown sandy fine to coarse angular to sub-angular gravel		
1.00	D3				(0.05) 1.05	Brown slightly sandy slightly gravelly CLAY becoming more sandy in parts. Gravel of fine to medium angular to sub-rounded flint, brick and rare ceramic pottery		
						Complete at 1.05m		

Plan



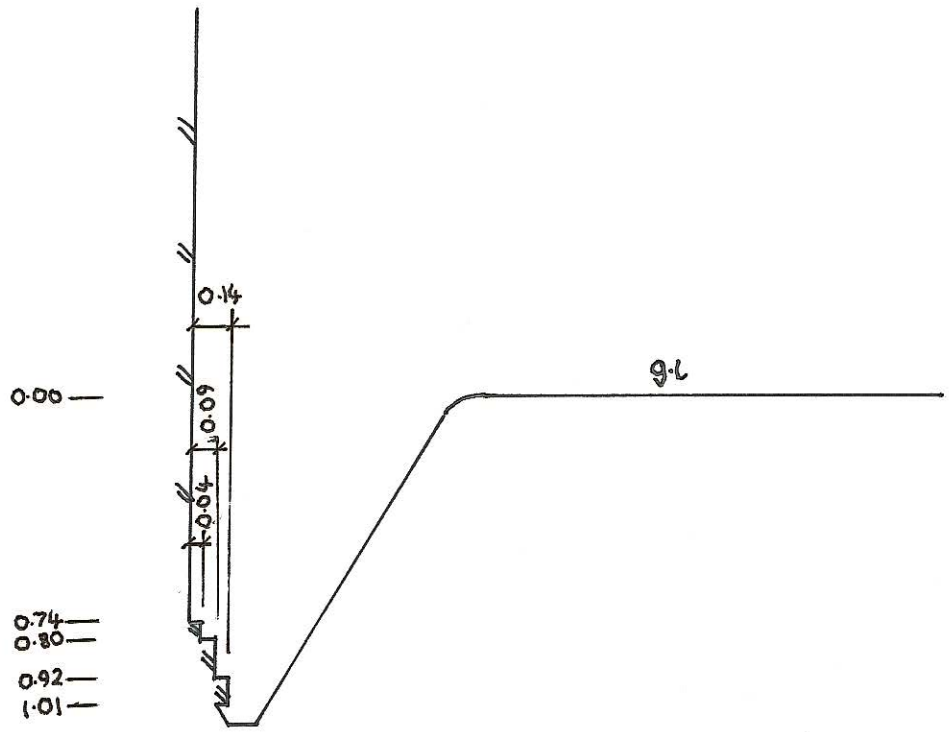
Remarks

Pit stable and dry
Backfilled with arisings

Scale (approx)	Logged By	Figure No.
1:25	MM	3648.TPH

AP GEOTECHNICS	T 01932 848460 F 01932 851255 E mail@apgeotechnics.co.uk	Site KIDDERPORE AVENUE - PHASE II	Trial Pit Number TPH

Excavation Method	Dimensions	Ground Level (mOD)	Client	Job Number
Trial Pit			Barratt West London	3648
	Location	**Dates** 24/08/2011	**Engineer** Gravity Consulting Engineers	**Sheet** 2/2



	Scale (approx)	Logged By	Figure No.
	1:25		3648.TPH

AP GEOTECHNICS
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E mail@apgeotechnics.co.uk

Site	Trial Pit Number
KIDDERPORE AVENUE - PHASE II	TPL

Excavation Method	Dimensions	Ground Level (mOD)	Client	Job Number
Trial Pit			Barratt West London	3648
	Location	**Dates**	**Engineer**	**Sheet**
		22/08/2012-22/08/2013	Gravity Consulting Engineers	1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
					(0.05) 0.05	CONCRETE		
					(0.25) 0.30	MADE GROUND: Coarse sand and cement		
					(1.70) 2.00	Light brown mottled grey and orange brown slightly gravelly slightly sandy slightly silty CLAY becoming less sandy with depth. Gravel consists of fine to coarse sub-angular flint and red brick		
						Complete at 2.00m		

Plan

Remarks

Pit stable and dry
Backfilled with arisings

Scale (approx)	Logged By	Figure No.
1:25	MM	3648.TPL

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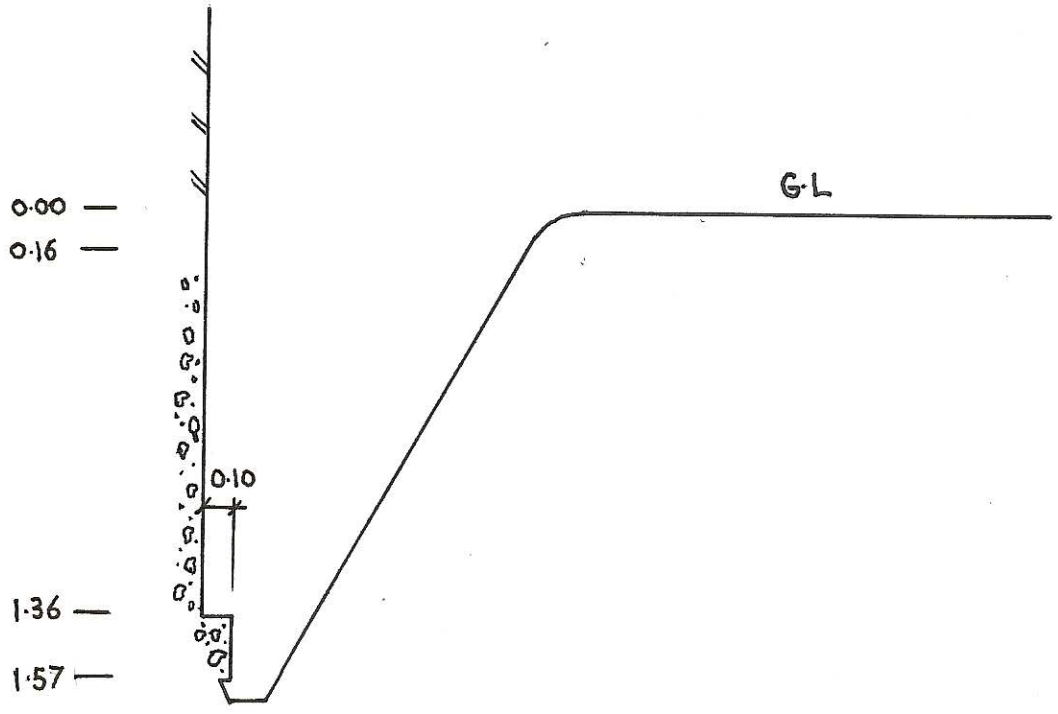
E mail@apgeotechnics.co.uk

Site	Trial Pit Number
KIDDERPORE AVENUE - PHASE II	TPL

Excavation Method	Dimensions	Ground Level (mOD)	Client	Job Number
Trial Pit			Barratt West London	3648
	Location	Dates 22/08/2012-22/08/2013	Engineer	Sheet
			Gravity Consulting Engineers	2/2



Scale (approx)	Logged By	Figure No.
1:25	MM	3648.TPL

AP GEOTECHNICS
T 01932 848460
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E mail@apgeotechnics.co.uk

Site	Trial Pit Number
KIDDERPORE AVENUE - PHASE II	TPM

Excavation Method	Dimensions	Ground Level (mOD)	Client	Job Number
Trial Pit			Barratt West London	3648
	Location	**Dates** 23/08/2011	**Engineer** Gravity Consulting Engineers	**Sheet** 1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
					(0.30)	TOPSOIL		
					0.30	Dark brown mottled orange slightly gravelly silty clay. Gravel consists of fine to medium angular flint, brick and rare ash		
0.50	D1							
					(1.18)			
1.00	D2							
			Water strike(1) at 1.25m.					▽1
1.40	D3							
					1.48	Complete at 1.48m		

Plan

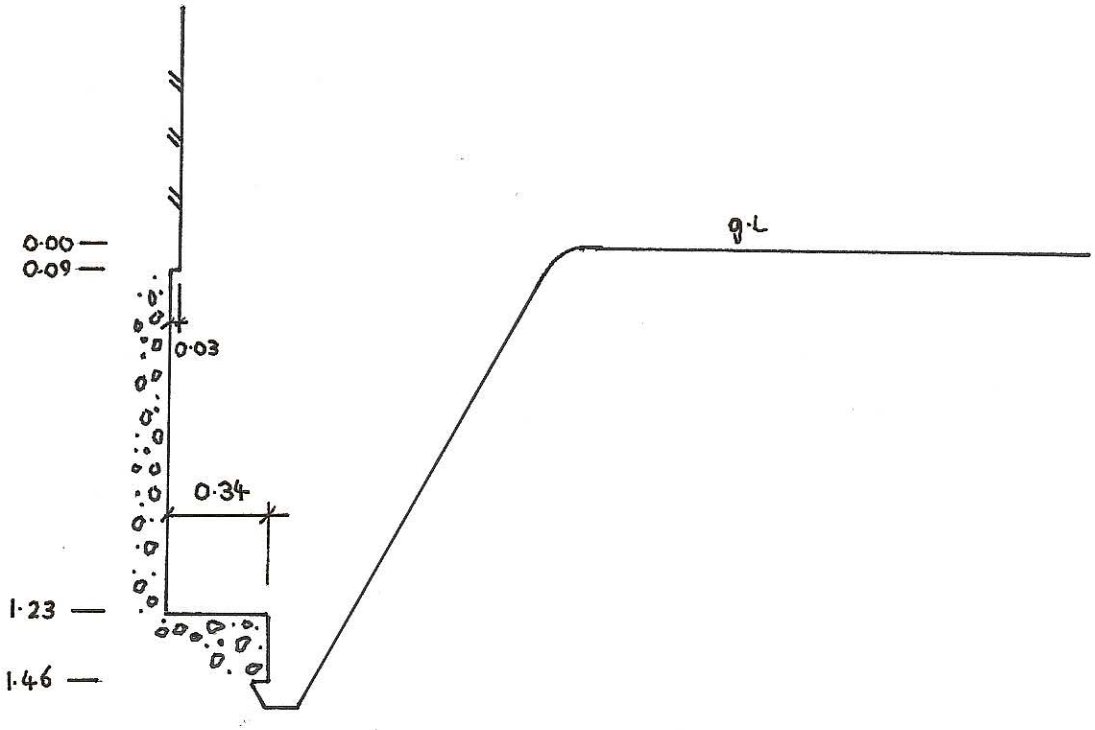
Remarks

Pit stabilised
Backfilled with arisings

Scale (approx)	Logged By	Figure No.
1:25	MM	3648.TPM

AP GEOTECHNICS	T 01932 848460 F 01932 851255 E mail@apgeotechnics.co.uk	Site KIDDERPORE AVENUE - PHASE II	Trial Pit Number TPM

Excavation Method	Dimensions	Ground Level (mOD)	Client	Job Number
Trial Pit			Barratt West London	3648
	Location	**Dates** 23/08/2011	**Engineer** Gravity Consulting Engineers	**Sheet** 2/2



	Scale (approx)	Logged By	Figure No.
	1:25		3648.TPM

APPENDIX B

STANDPIPE RECORDS

STANDPIPE RECORDS

WATER LEVELS

Project: KIDDEPORE AVENUE - PHASE II
Client: Barratt West London
Agent: Gravity Consulting Engineers

Project No. 3648
Sheet No. 1/1

Location	BH51		BH52		BH53		BH54									
Red. level	88.35		88.35		91.20		96.80									
	Water level															
Date	m bgl	m OD	m bgl	m OD												
23/08/2011	0.83	87.52	0.39	87.96												
03/10/2011	0.87	87.48	0.33	88.02	2.10	89.10	6.10	90.70								

Remarks

APPENDIX C

LABORATORY TEST RESULTS

SUMMARY OF GEOTECHNICAL TESTS

Project: KIDDERPORE AVENUE, PHASE III
Client: Barratt West London

Project No: 3643
Sheet No: 1/8

Location	Sample No	Depth m	Description	CLASSIFICATION							TRIAXIAL COMPRESSION - TOTAL STRESS							CHEMICAL		
				Natural Moisture Content %	Liquid Limit %	Plastic Limit %	Plast. Index %	Passing 425µm %	Mod. Plast. Index %	Class	Type	Moisture Content %	Bulk Density Mg/m³	Radial Stress kPa	Deviator Stress kPa	Cohesion cu, kPa assuming Øu = 0	Cohesion cu, kPa Øu, deg	Sulphate (SO4) Water g/l	Sulphate (SO4) Soil (Sol) g/l	pH
BH51	W19	3.80																0.11		7.15
	U2	4.50	Firm brown mottled orange and light brown very silty CLAY	28	41	21	20	100		CI	UU 102	28	1.95	90	128	64			0.68	7.32
	U4	5.50	Firm brown mottled orange and light brown very silty CLAY								UU 102	29	2.00	110	174	87				
	U6	6.50	Stiff dark greyish brown mottled light grey silty CLAY	29	38	18	20	100		CI	UU 102	23		130						
	U8	7.50	Stiff dark greyish brown mottled light grey silty CLAY								UU 102	23	2.05	150	236	118			0.65	7.41
	U11	10.00	Stiff dark greyish brown mottled light grey silty CLAY								UU 102	25	2.11	200	164	82				
	U14	13.00	Stiff dark greyish brown slightly silty CLAY								UU 102	25	2.05	260	215	108				
	U17	16.00	Very stiff dark greyish brown slightly silty CLAY								UU 102	26	2.09	320	291	145				

Note: Soil Classification based upon unmodified Plasticity Index

SUMMARY OF GEOTECHNICAL TESTS

Project: KIDDERPORE AVENUE, PHASE III
Client: Barratt West London

Project No: 3643
Sheet No: 2/8

Location	Sample No	Depth m	Description	CLASSIFICATION							TRIAXIAL COMPRESSION - TOTAL STRESS							CHEMICAL		
				Natural Moisture Content %	Liquid Limit %	Plastic Limit %	Plast. Index %	Passing 425µm %	Mod. Plast. Index %	Class	Type	Moisture Content %	Bulk Density Mg/m³	Radial Stress kPa	Deviator Stress kPa	Cohesion cu, kPa assuming Øu = 0	Cohesion cu, kPa Øu, deg	Sulphate (SO4) Water g/l	Sulphate (SO4) Soil (Sol) g/l	pH
BH52	U2	4.50	Firm brown mottled orange and grey silty CLAY	27	52	26	26	100		CH	UU 102	27	2.04	90	115	58			0.31	7.27
	U4	5.50	Stiff brown mottled orange and grey silty CLAY								UU 102	28	1.98	110	173	86				
	U6	6.50	Stiff dark grey very silty CLAY								UU 102	29	2.02	130	177	88				
	U9	7.50	Firm dark brownish grey silty CLAY	25	46	23	23	100		CI	UU 102	25	2.08	150	132	66			0.36	7.54
	U12	9.00	Firm dark brownish grey silty CLAY								UU 102	27	2.1	180	141	70				
	U14	10.50	Firm dark brownish grey silty CLAY								UU 102	25	2.12	210	132	66			0.42	7.48
	U17	13.50	Stiff dark brownish grey silty CLAY								UU 102	22	2.09	270	200	100				

Note: Soil Classification based upon unmodified Plasticity Index

SUMMARY OF GEOTECHNICAL TESTS

Project: KIDDERPORE AVENUE, PHASE III
Client: Barratt West London

Project No: 3643
Sheet No: 3/8

Location	Sample No	Depth m	Description	CLASSIFICATION							TRIAXIAL COMPRESSION - TOTAL STRESS							CHEMICAL		
				Natural Moisture Content %	Liquid Limit %	Plastic Limit %	Plast. Index %	Passing 425µm %	Mod. Plast. Index %	Class	Type	Moisture Content %	Bulk Density Mg/m³	Radial Stress kPa	Deviator Stress kPa	Cohesion cu, kPa assuming Øu = 0	Cohesion cu, kPa Øu, deg	Sulphate (SO4) Water g/l	Sulphate (SO4) Soil (Sol) g/l	pH
BH53	U1	1.20	Soft light orange brown mottled dark brown silty sandy CLAY								UU 102	30	1.91	24	68	34				
	U2	3.00	Firm light orange brown mottled dark brown silty sandy CLAY	28	47	23	24	100		CI	UU 102	28	1.91	60	90	45			0.28	7.22
	U3	4.00	Firm light orange brown mottled dark brown silty sandy CLAY								UU 102	30	1.86	80	136	68				
	U4	5.00	Firm light orange brown mottled dark brown silty sandy CLAY								UU 102	28	1.88	100	145	72				
	U5	6.50	Soft dark grey mottled brown silty CLAY								UU 102	30	1.99	130	98	49				
	U6	8.00	Firm dark grey mottled brown silty CLAY								UU 102	23	1.98	160	142	71			0.31	7.28
	U7	11.00	Firm dark grey mottled brown silty CLAY	24	44	19	25	100		CI	UU 102	24	2.03	220	110	55				
	U8	14.00	Stiff dark greyish brown slightly silty CLAY								UU 102	27	1.99	280	292	146				

Note: Soil Classification based upon unmodified Plasticity Index

SUMMARY OF GEOTECHNICAL TESTS

Project: KIDDERPORE AVENUE, PHASE III
Client: Barratt West London

Project No: 3643
Sheet No: 4/8

Location	Sample No	Depth m	Description	CLASSIFICATION							TRIAXIAL COMPRESSION - TOTAL STRESS							CHEMICAL		
				Natural Moisture Content %	Liquid Limit %	Plastic Limit %	Plast. Index %	Passing 425µm %	Mod. Plast. Index %	Class	Type	Moisture Content %	Bulk Density Mg/m³	Radial Stress kPa	Deviator Stress kPa	Cohesion cu, kPa assuming Øu = 0	Cohesion cu, kPa Øu, deg	Sulphate (SO4) Water g/l	Sulphate (SO4) Soil (Sol) g/l	pH
BH53	U9	17.00	Stiff dark greyish brown slightly silty CLAY	28	75	23	52	100		CV	UU 102	28	1.97	340	270	135				
	U10	20.00	Very stiff dark greyish brown slightly silty CLAY								UU 102	30	2.03	400	299	149			0.28	7.51
	U11	23.00	Very stiff dark greyish brown slightly silty CLAY								UU 102	25	2.00	460	306	153				

Note: Soil Classification based upon unmodified Plasticity Index

SUMMARY OF GEOTECHNICAL TESTS

Project: KIDDERPORE AVENUE, PHASE III
Client: Barratt West London

Project No: 3643
Sheet No: 5/8

Location	Sample No	Depth m	Description	CLASSIFICATION							TRIAXIAL COMPRESSION - TOTAL STRESS							CHEMICAL		
				Natural Moisture Content %	Liquid Limit %	Plastic Limit %	Plast. Index %	Passing 425µm %	Mod. Plast. Index %	Class	Type	Moisture Content %	Bulk Density Mg/m³	Radial Stress kPa	Deviator Stress kPa	Cohesion cu, kPa assuming Øu = 0	Cohesion cu, kPa Øu, deg	Sulphate (SO4) Water g/l	Sulphate (SO4) Soil (Sol) g/l	pH
BH54	U1	2.10	Stiff brown mottled orange brown silty CLAY	21	57	27	30	100		CH	UU 102	21		42						
	U 2	3.00	Very stiff brown mottled orange brown silty CLAY								UU 102	23	1.85	60	320	160				
	U3	4.00	Stiff brown mottled orange brown silty CLAY								UU 102	20	1.87	80	170	85				
	U4	6.50	Soft orange brown and grey silty sandy CLAY	29	36	15	21	100		CI	UU 102	29	1.96	130	46	23				
	U5	8.00	Stiff orange brown and grey silty sandy CLAY								UU 102	29	1.89	160	220	110				
	U6	9.50	Firm orange brown and grey silty sandy CLAY								UU 102	26	1.96	190	110	55				
	U7	12.50	Stiff orange brown and grey silty sandy CLAY								UU 102	25	1.99	250	183	91				
	U8	15.50	Stiff orange brown and grey silty sandy CLAY								UU 102	27	2.12	310	230	115				

Note: Soil Classification based upon unmodified Plasticity Index

SUMMARY OF GEOTECHNICAL TESTS

Project: KIDDERPORE AVENUE, PHASE III
Client: Barratt West London

Project No: 3643
Sheet No: 6/8

Location	Sample No	Depth m	Description	CLASSIFICATION							TRIAXIAL COMPRESSION - TOTAL STRESS							CHEMICAL		
				Natural Moisture Content %	Liquid Limit %	Plastic Limit %	Plast. Index %	Passing 425µm %	Mod. Plast. Index %	Class	Type	Moisture Content %	Bulk Density Mg/m³	Radial Stress kPa	Deviator Stress kPa	Cohesion cu, kPa assuming Øu = 0	Cohesion cu, kPa Øu, deg	Sulphate (SO4) Water g/l	Sulphate (SO4) Soil (Sol) g/l	pH
BH54	U9	18.50	Stiff dark greyish brown slightly silty CLAY	26	62	19	43	100		CH	UU 102	24	1.97	370	257	128				
	U10	21.50	Very stiff dark greyish brown slightly silty CLAY								UU 102	25	1.96	430	307	153				
	U11	24.55	Very stiff dark greyish brown slightly silty CLAY								UU 102	24	2.02	491	340	170				

Note: Soil Classification based upon unmodified Plasticity Index

SUMMARY OF GEOTECHNICAL TESTS

Project: KIDDERPORE AVENUE, PHASE III
Client: Barratt West London

Project No: 3643
Sheet No: 7/8

Location	Sample No	Depth m	Description	CLASSIFICATION							TRIAXIAL COMPRESSION - TOTAL STRESS							CHEMICAL		
				Natural Moisture Content %	Liquid Limit %	Plastic Limit %	Plast. Index %	Passing 425µm %	Mod. Plast. Index %	Class	Type	Moisture Content %	Bulk Density Mg/m³	Radial Stress kPa	Deviator Stress kPa	Cohesion cu, kPa assuming Øu = 0	Cohesion cu, kPa Øu, deg	Sulphate (SO4) Water g/l	Sulphate (SO4) Soil (Sol) g/l	pH
BHA		1.00	Firm to stiff orange brown mottled grey CLAY	16	56	26	30	100		CH									0.38	7.6
		1.50	Firm to stiff orange brown mottled grey CLAY	21																
		2.00	Firm to stiff orange brown mottled grey CLAY	25	43	19	24	100		CI										
		2.50	Firm to stiff orange brown mottled grey CLAY	25																
		3.00	Firm to stiff orange brown mottled grey CLAY	26																
BHB		1.50	Stiff orange brown mottled grey sandy CLAY	23	51	25	26	100		CH									0.56	7.23
		2.00	Stiff orange brown mottled grey sandy CLAY	22																
		2.50	Firm orange brown mottled grey CLAY	28															0.13	7.33
		3.00	Firm orange brown mottled grey CLAY	28	44	17	27	100		CI										

Note: Soil Classification based upon unmodified Plasticity Index

SUMMARY OF GEOTECHNICAL TESTS

Project: KIDDERPORE AVENUE, PHASE III
Client: Barratt West London

Project No: 3643
Sheet No: 8/8

Location	Sample No	Depth m	Description	CLASSIFICATION							TRIAXIAL COMPRESSION - TOTAL STRESS							CHEMICAL		
				Natural Moisture Content %	Liquid Limit %	Plastic Limit %	Plast. Index %	Passing 425µm %	Mod. Plast. Index %	Class	Type	Moisture Content %	Bulk Density Mg/m³	Radial Stress kPa	Deviator Stress kPa	Cohesion cu, kPa assuming Øu = 0	Cohesion cu, kPa Øu, deg	Sulphate (SO4) Water g/l	Sulphate (SO4) Soil (Sol) g/l	pH
BHD		1.00	Firm to stiff orange brown CLAY	22																
		1.50	Firm to stiff orange brown CLAY	20	50	20	30	100		CI/CH									0.27	7.0
		2.00	Firm to stiff orange brown CLAY	28																
		2.50	Firm to stiff orange brown CLAY	29	47	21	26	100		CI										
		3.00	Firm to stiff orange brown CLAY	29																
		3.50	Firm to stiff orange brown CLAY	29																
BHE		1.50	Firm orange brown and brown CLAY																0.60	7.0
		2.50	Firm orange brown and brown CLAY	21	44	18	26	100		CI										

Note: Soil Classification based upon unmodified Plasticity Index

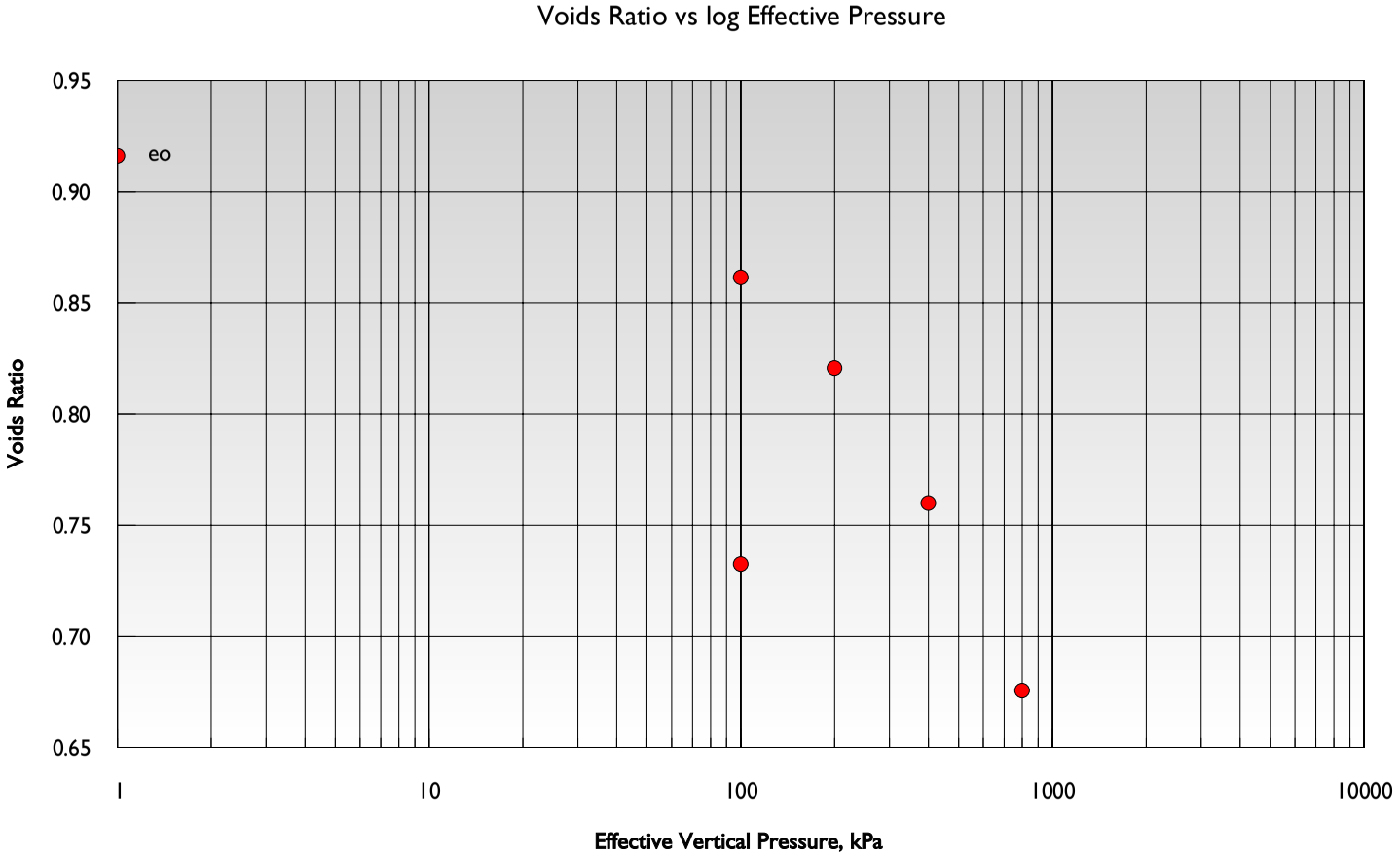
ONE - DIMENSIONAL CONSOLIDATION TEST

Project: KIDDERPORE AVENUE, PHASE III
Client: Barratt West London

Project No: 3648
Sheet No. 1/8

Borehole	Sample	Depth, m
BH51	U2	4.50
Description		
Firm grey/brown silty CLAY		
Specific Gravity	Moisture Cont. %	Dry Density Mg/m³
2.710 measured	start 34 finish 30	1.414

Pressure kPa	Coefficient of Consolidation m²/year	Coefficient of Compressibility m²/MN
0		
	0.772	0.286
100		
	1.422	0.219
200		
	1.399	0.166
400		
	1.288	0.120
800		
	1.172	0.048
100		



ONE - DIMENSIONAL CONSOLIDATION TEST

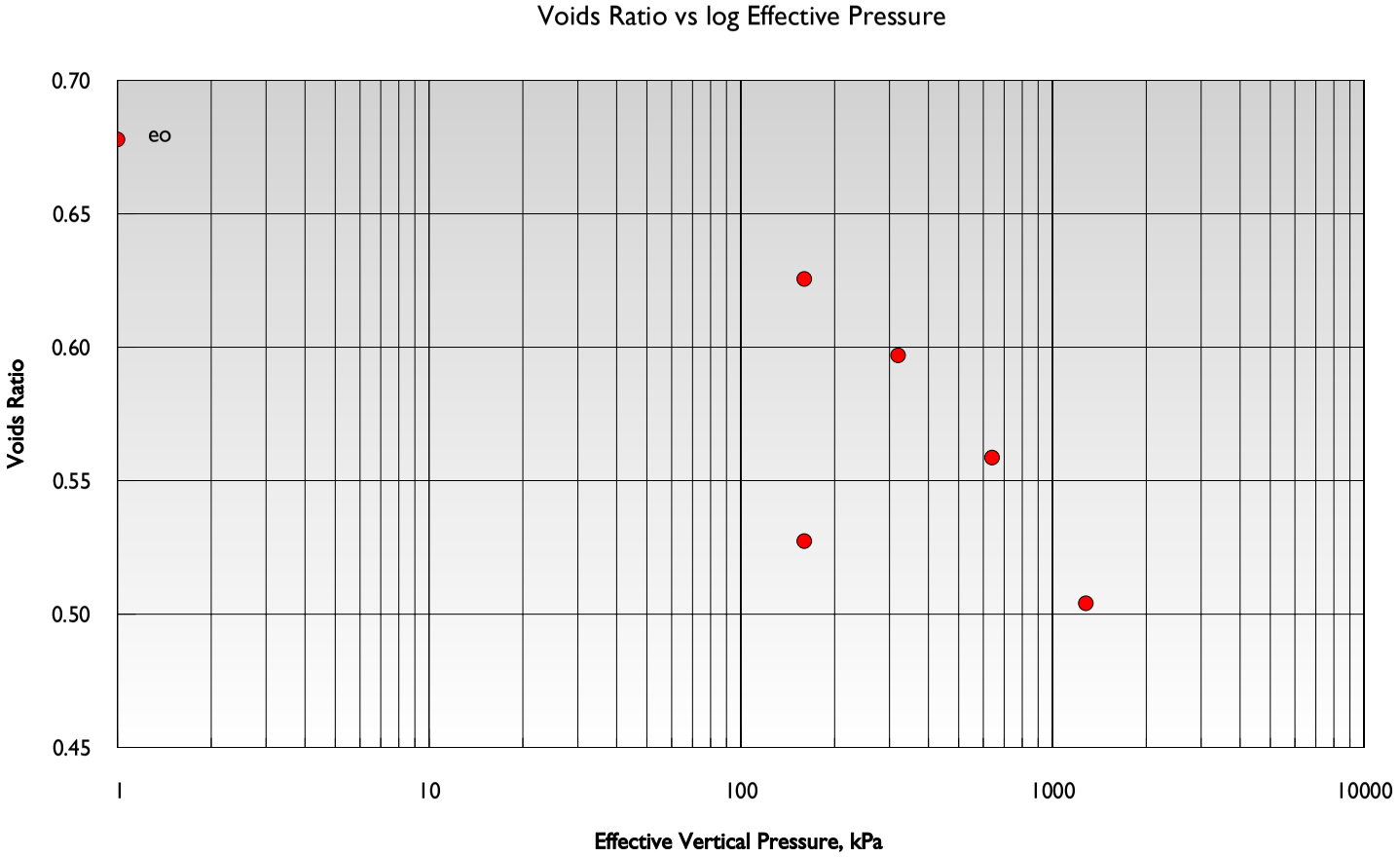
Project: KIDDERPORE AVENUE, PHASE III
Client: Barratt West London

Project No: 3648
Sheet No. 2/8

Borehole	Sample	Depth, m
BH51	U6	6.50
Description		
Very stiff grey very silty CLAY		

Specific Gravity	Moisture Cont. %	Dry Density Mg/m³
2.710 measured	start 23 finish 21	1.615

Pressure kPa	Coefficient of Consolidation m²/year	Coefficient of Compressibility m²/MN
0		
	0.373	0.195
160		
	0.477	0.110
320		
	0.293	0.075
640		
	0.701	0.055
1280		
	1.308	0.014
160		



ONE - DIMENSIONAL CONSOLIDATION TEST

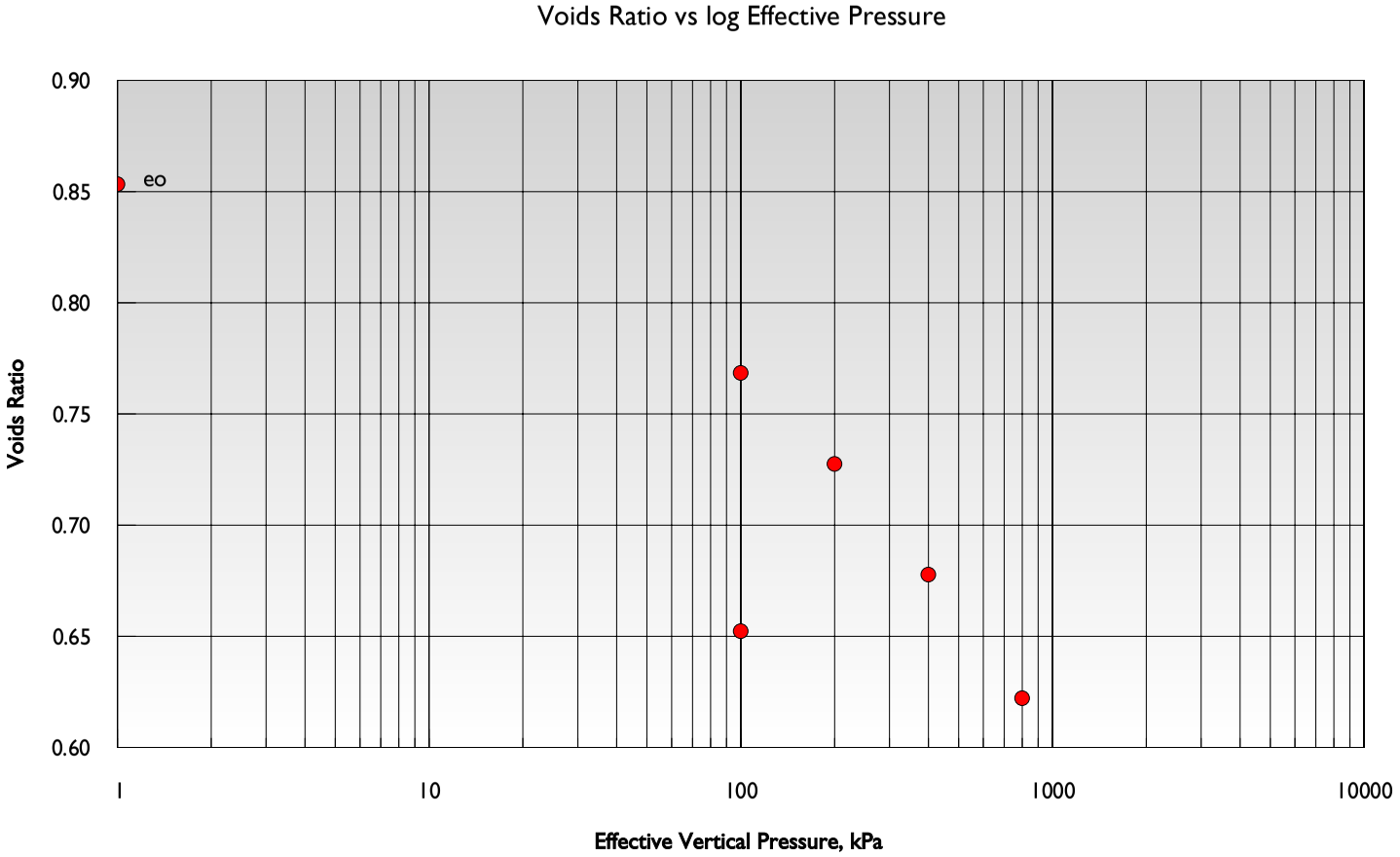
Project: KIDDERPORE AVENUE, PHASE III
Client: Barratt West London

Project No: 3648
Sheet No. 3/8

Borehole	Sample	Depth, m
BH52	U2	4.50
Description		
Firm brown mottled grey silty CLAY		

Specific Gravity	Moisture Cont. %	Dry Density Mg/m³
2.730 measured	start 28 finish 25	1.473

Pressure kPa	Coefficient of Consolidation m²/year	Coefficient of Compressibility m²/MN
0		
	0.924	0.458
100		
	1.847	0.232
200		
	2.026	0.144
400		
	3.167	0.083
800		
	36.997	0.027
100		



ONE - DIMENSIONAL CONSOLIDATION TEST

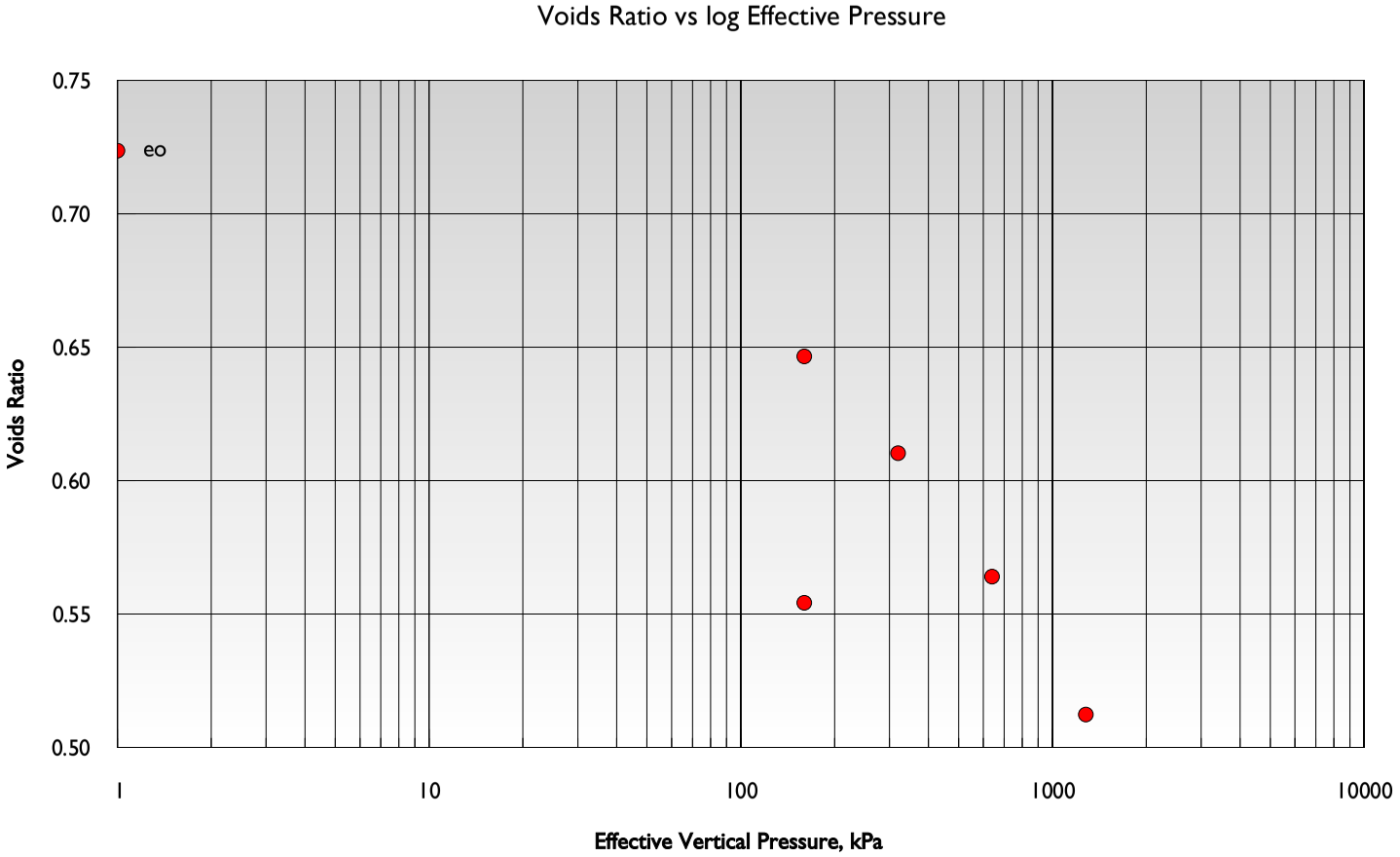
Project: KIDDERPORE AVENUE, PHASE III
Client: Barratt West London

Project No: 3648
Sheet No. 4/8

Borehole	Sample	Depth, m
BH52	U9	7.50
Description		
Firm to stiff dark brownish grey silty CLAY		

Specific Gravity	Moisture Cont. %	Dry Density Mg/m³
2.710 measured	start 25 finish 22	1.572

Pressure kPa	Coefficient of Consolidation m²/year	Coefficient of Compressibility m²/MN
0		
	0.699	0.280
160		
	0.730	0.138
320		
	0.638	0.090
640		
	0.616	0.052
1280		
	22.018	0.025
160		



ONE - DIMENSIONAL CONSOLIDATION TEST

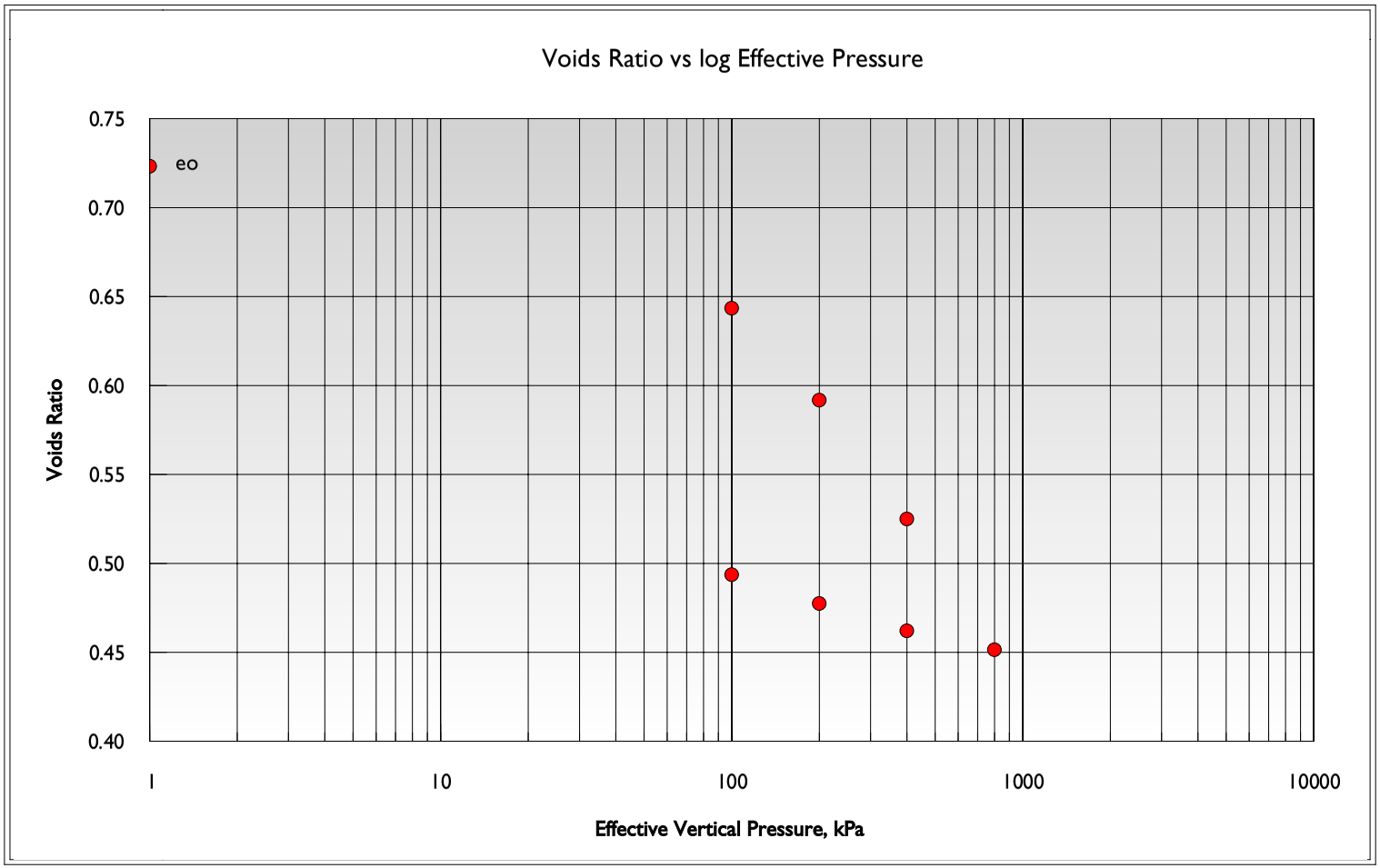
Project: KIDDERPORE AVENUE, PHASE III
Client: Barratt West London

Project No: 3648
Sheet No. 5/8

Borehole	Sample	Depth, m
BH53	U2	3.00
Description		
Firm mottled brown grey sandy silty CLAY		

Specific Gravity	Moisture Cont. %	Dry Density Mg/m³
2.710 measured	start 33 finish 28	1.573

Pressure kPa	Coefficient of Consolidation m²/year	Coefficient of Compressibility m²/MN
0		
	0.628	0.463
100		
	1.357	0.315
200		
	1.212	0.210
400		
	0.561	0.121
800		
	9.908	0.018
400		
	1.506	0.053
200		
	0.625	0.109
100		



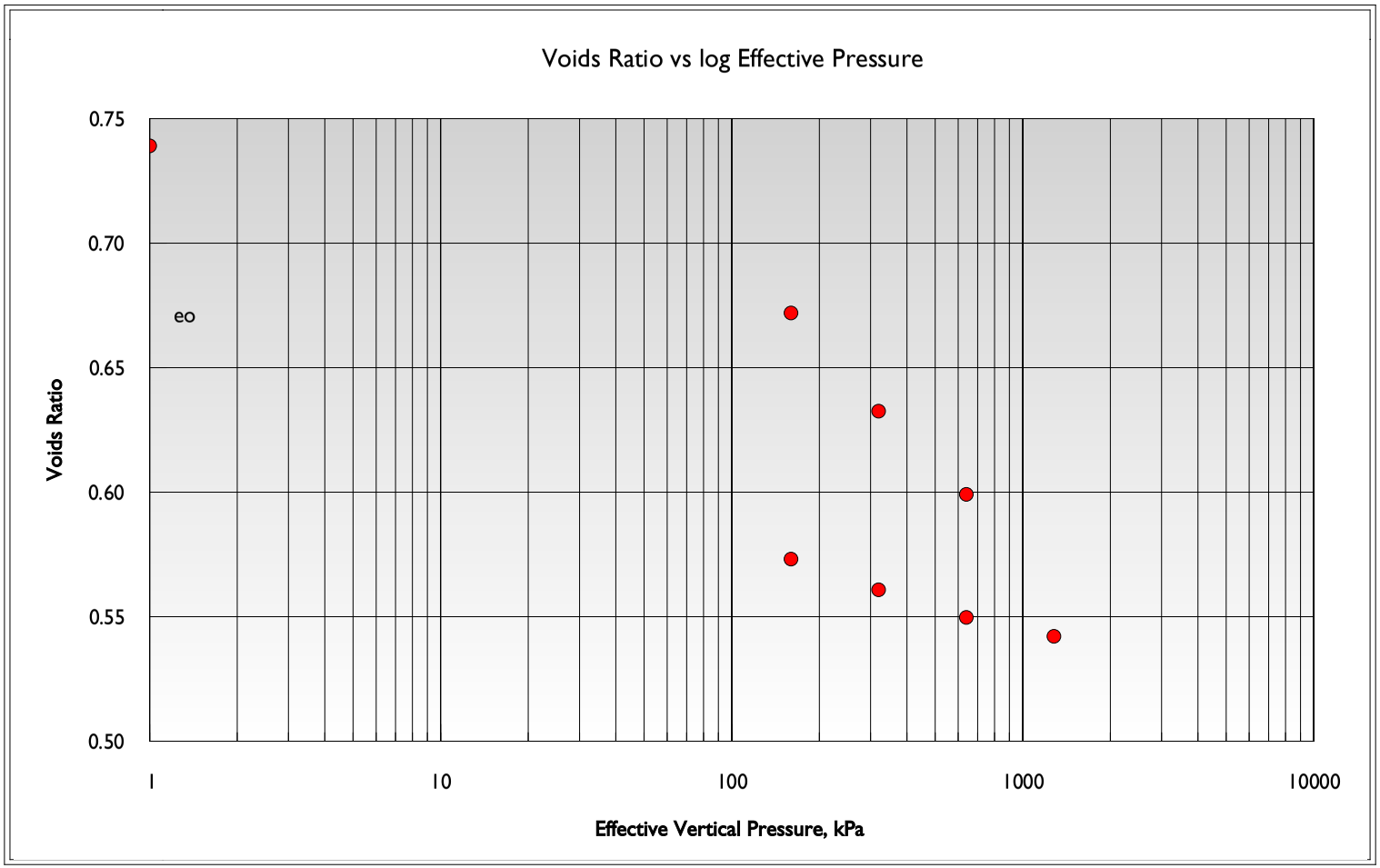
ONE - DIMENSIONAL CONSOLIDATION TEST

Project: KIDDERPORE AVENUE, PHASE III
Client: Barratt West London

Project No: 3648
Sheet No. 6/8

Borehole	Sample	Depth, m
BH53	U7	11.00
Description		
Firm dark grey silty CLAY		
Specific Gravity	Moisture Cont. %	Dry Density Mg/m³
2.710 measured	start 24 finish 22	1.558

Pressure kPa	Coefficient of Consolidation m²/year	Coefficient of Compressibility m²/MN
0		
	2.185	0.241
160		
	1.288	0.147
320		
	0.706	0.064
640		
	3.401	0.056
1280		
	9.773	0.008
640		
	1.391	0.022
320		
	0.563	0.049
160		



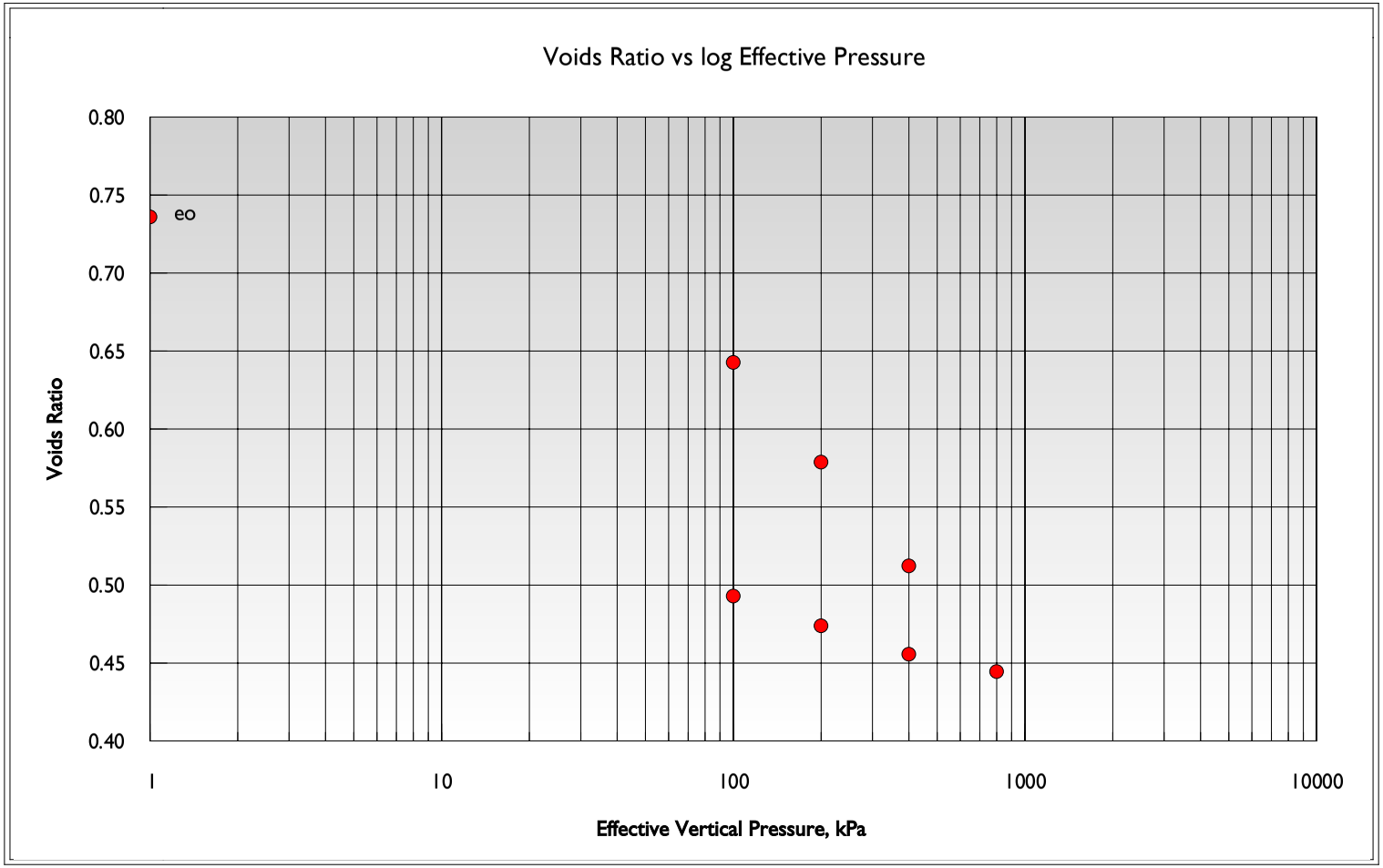
ONE - DIMENSIONAL CONSOLIDATION TEST

Project: KIDDERPORE AVENUE, PHASE III
Client: Barratt West London

Project No: 3648
Sheet No. 7/8

Borehole	Sample	Depth, m
BH54	U1	2.10
Description		
Stiff brown mottled orange brown silty CLAY		
Specific Gravity	Moisture Cont. %	Dry Density Mg/m³
2.730 measured	start 22 finish 19	1.573

Pressure kPa	Coefficient of Consolidation m²/year	Coefficient of Compressibility m²/MN
0		
	0.675	0.537
100		
	0.746	0.389
200		
	0.944	0.211
400		
	0.927	0.112
800		
	0.704	0.019
400		
	0.469	0.062
200		
	0.597	0.130
100		



ONE - DIMENSIONAL CONSOLIDATION TEST

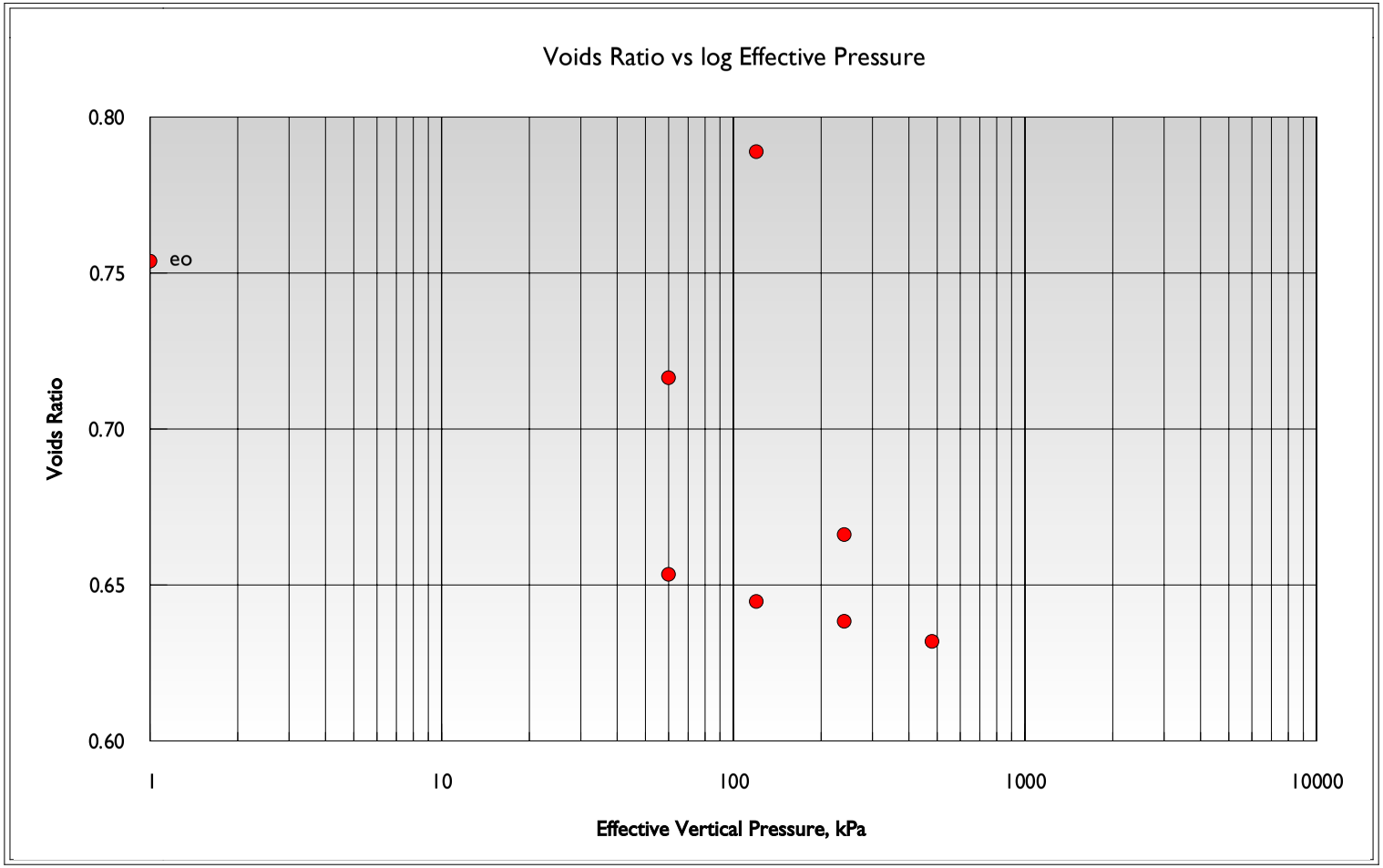
Project: KIDDERPORE AVENUE, PHASE III
Client: Barratt West London

Project No: 3648
Sheet No. 8/8

Borehole	Sample	Depth, m
BH54	U44	6.50
Description		
Soft light orange brown sandy/silty CLAY		

Specific Gravity	Moisture Cont. %	Dry Density Mg/m³
2.710 measured	start 28 finish 26	1.545

Pressure kPa	Coefficient of Consolidation m²/year	Coefficient of Compressibility m²/MN
0		
	1.776	0.355
60		
	0.926	-0.704
120		
	1.217	0.572
240		
	0.630	0.086
480		
	139.321	0.016
240		
	1.899	0.032
120		
	3.253	0.088
60		



APPENDIX D

FIGURES

Kidderpore Avenue

Borehole and Trial Pit location plan

Scale unknown

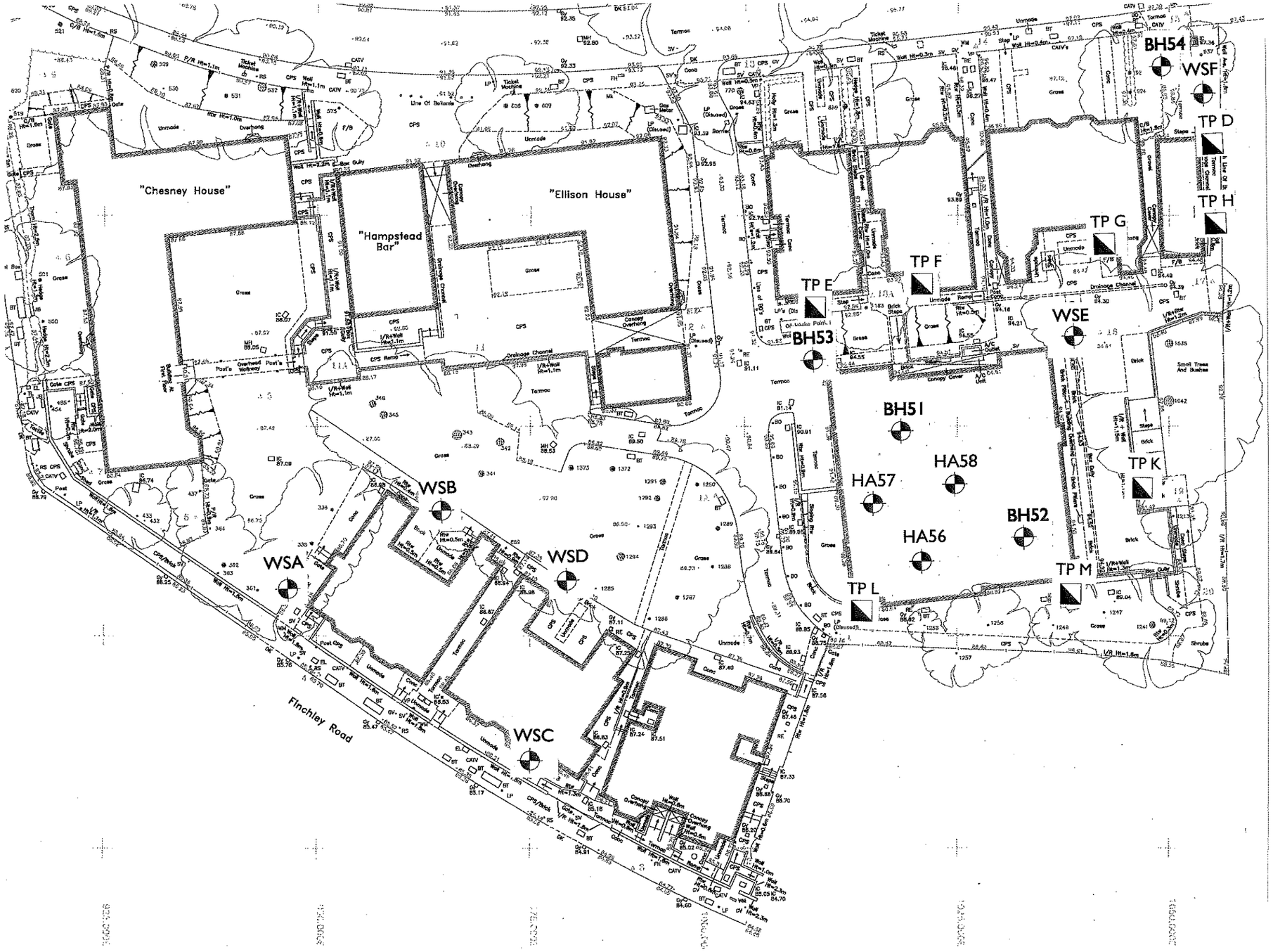
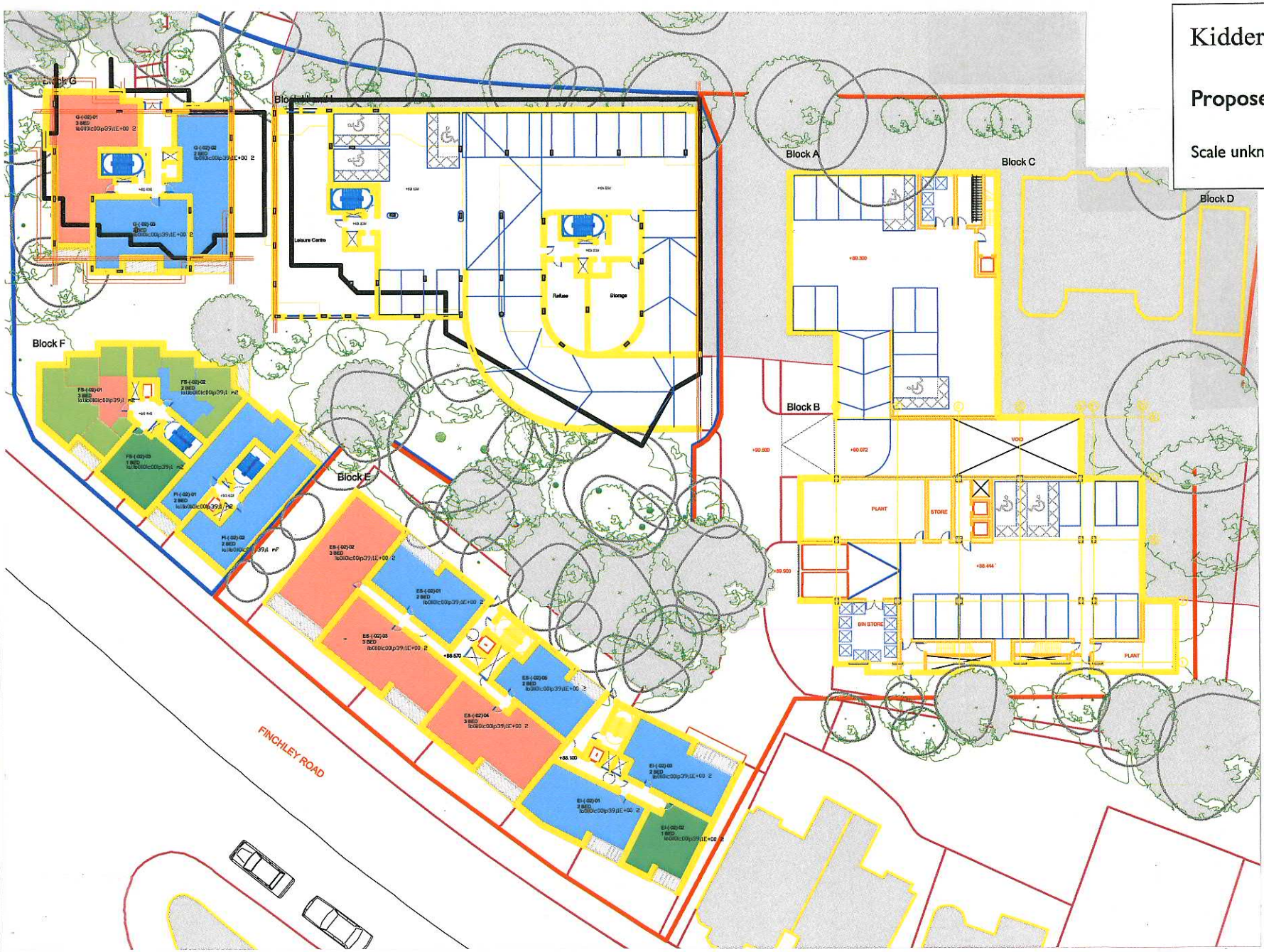


Figure 1



Kidderpore Avenue

Proposed layout

Scale unknown

Figure 2

SPT PROFILE
Kidderpore Avenue Phase III

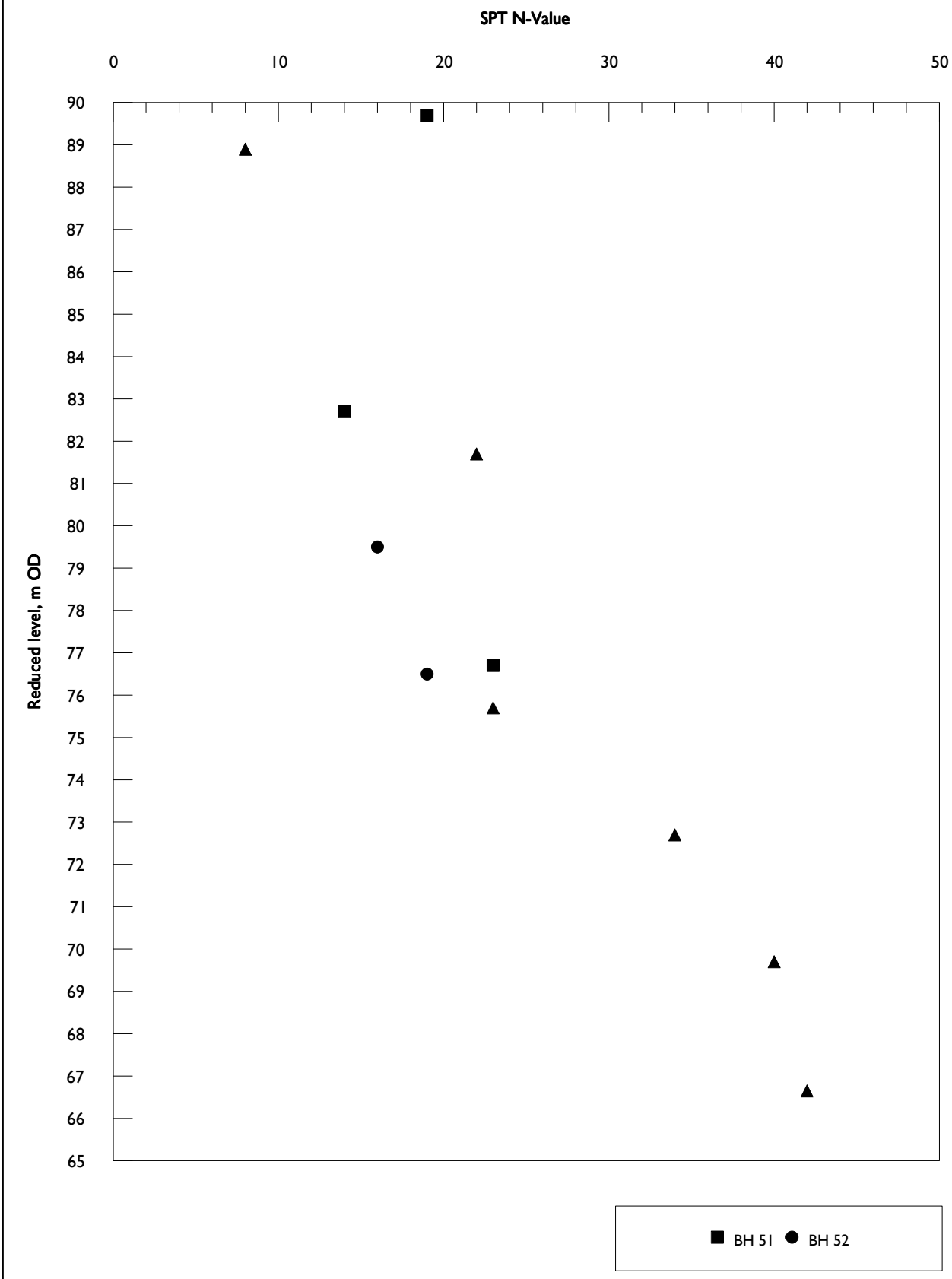


Figure 3

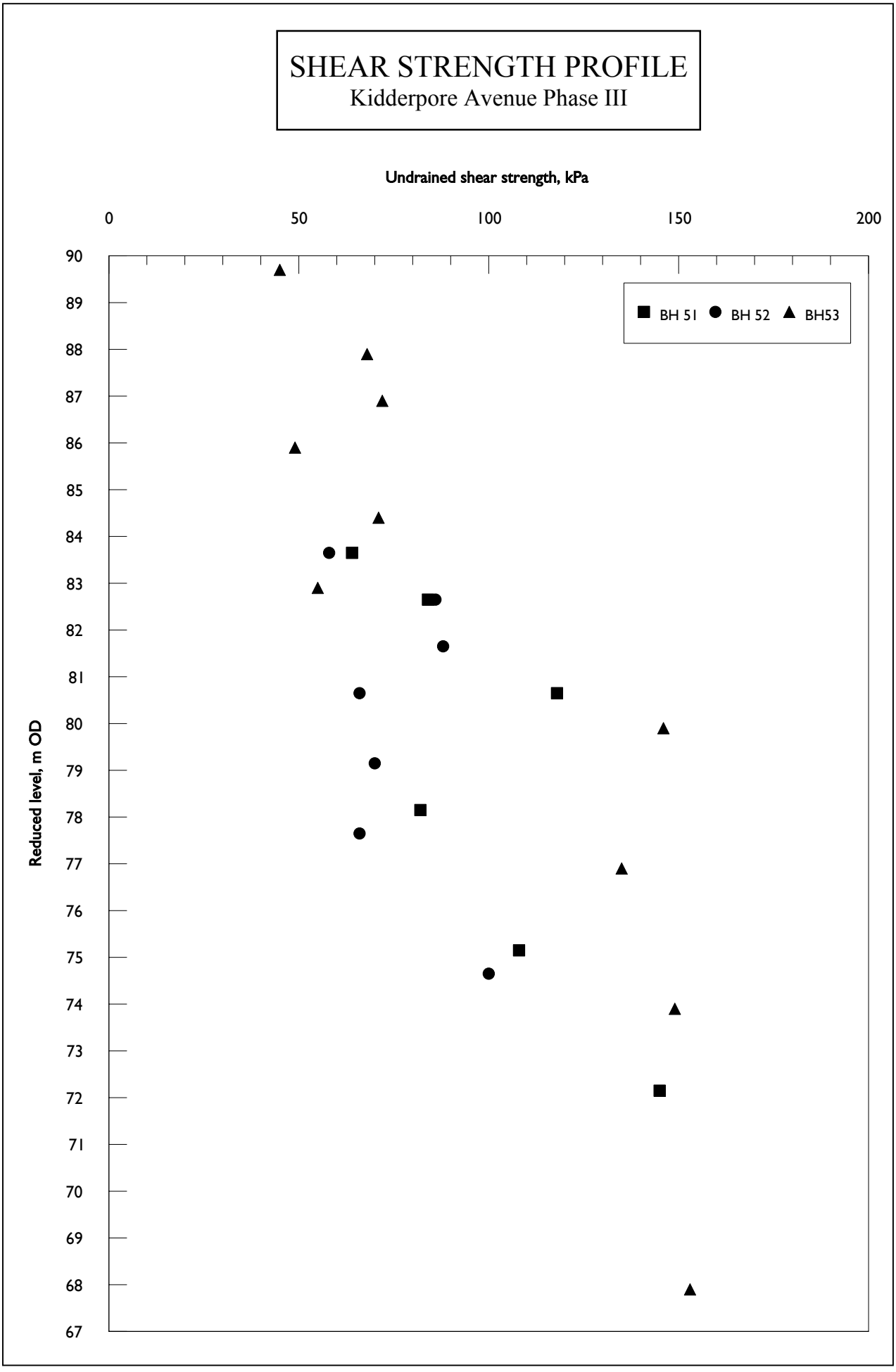


Figure 4