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Innovyze	Network 2019.1	


100 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for Surface Network 4

PN	US/MH Name	Water Level (m)	Surcharged Depth (m)	Flooded Volume (m³)	Flow / Cap.	Overflow (l/s)	Pipe Flow (l/s)	Status	Level Exceeded
5.002	S348	91.988	1.326	0.000	1.49		128.3	FLOOD RISK	
5.003	S349	91.370	1.016	0.000	1.42		213.4	SURCHARGED	
5.004	S350	90.841	0.796	0.000	0.89		314.0	SURCHARGED	
1.010	S310	89.799	1.638	2.064	1.17		1123.6	FLOOD	1
1.011	S311	89.582	1.526	0.000	1.14		1138.0	FLOOD RISK	
1.012	S312	89.366	1.506	0.000	1.22		1170.6	SURCHARGED	
6.000	S351	93.498	0.968	0.000	0.85		101.5	FLOOD RISK	
6.001	S352	91.817	1.557	7.558	1.28		165.9	FLOOD	3
1.013	S313	89.139	1.460	0.000	1.39		1333.6	SURCHARGED	
1.014	S314	88.843	1.298	0.000	1.31		1345.6	SURCHARGED	
7.000	S353	92.968	-0.154	0.000	0.21		24.7	OK	
7.001	S354	92.578	0.650	0.000	0.77		90.7	SURCHARGED	
7.002	S355	91.622	1.372	0.000	1.24		149.8	FLOOD RISK	
1.015	S315	88.527	1.190	0.000	1.58		1510.2	SURCHARGED	
1.016	S316	88.124	0.920	0.000	1.54		1525.8	SURCHARGED	
8.000	S356	89.827	-0.172	0.000	0.37		94.8	OK	
8.001	S357	88.025	-0.135	0.000	0.58		139.5	OK	
1.017	S317	87.698	0.687	0.000	0.91		1577.9	SURCHARGED	
1.018	S318	87.216	0.793	0.000	0.83		1580.8	SURCHARGED	
1.019	S319	86.728	1.017	0.000	0.79		1602.5	SURCHARGED	
1.020	S320	86.220	1.322	0.000	0.82		1627.8	SURCHARGED	
1.021	S321	85.690	1.572	0.000	0.85		1657.0	FLOOD RISK	
9.000	S358	85.303	0.192	0.000	0.29		49.7	SURCHARGED	
9.001	S359	85.263	0.977	0.000	0.44		75.7	FLOOD RISK	
1.022	S322	85.131	1.754	0.000	0.89		1709.2	FLOOD RISK	
1.023	S323	84.557	2.050	36.804	1.77		1753.0	FLOOD	4
10.000	S360	96.273	-0.134	0.000	0.34		36.7	OK	
10.001	S361	95.012	-0.089	0.000	0.67		73.4	OK	
10.002	S362	93.397	-0.143	0.000	0.53		126.6	OK	
10.003	S363	90.592	-0.086	0.000	0.85		187.6	OK	
10.004	S364	89.422	-0.067	0.000	0.95		209.2	OK	
10.005	S365	88.231	-0.138	0.000	0.72		264.6	OK	
10.006	S366	87.896	0.422	0.000	0.71		285.0	SURCHARGED	
11.000	S371	87.639	0.682	0.000	0.70		115.1	SURCHARGED	
10.007	S367	87.137	1.371	0.000	1.28		426.3	FLOOD RISK	
10.008	S368	85.947	0.909	0.000	0.74		450.7	SURCHARGED	
10.009	S369	85.223	1.513	0.000	1.02		505.5	FLOOD RISK	
12.000	S372	87.499	0.947	0.000	0.89		78.7	SURCHARGED	
12.001	S373	86.772	1.145	0.000	1.55		134.7	FLOOD RISK	
12.002	S374	84.994	0.120	0.000	0.50		131.5	SURCHARGED	
12.003	S375	84.751	0.858	0.000	0.60		156.6	SURCHARGED	
10.010	S370	84.385	1.155	0.000	0.58		706.5	FLOOD RISK	
13.000	HW302	83.875	0.475	0.000	0.06		108.2	FLOOD RISK	
1.024	S324	84.121	2.256	0.000	0.67		143.2	FLOOD RISK	
1.025	S325	82.987	1.354	0.000	0.48		127.0	FLOOD RISK	
14.000	S376	86.500	-0.116	0.000	0.47		51.4	OK	
14.001	S377	85.094	-0.048	0.000	0.88		92.0	OK	

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100 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for Surface Network 4


PN	US/MH Name	Water		Surcharged		Flooded		Pipe Flow (l/s)	Status	Level Exceeded
		Level (m)	Depth (m)	Volume (m ³)	Flow / Overflow Cap. (l/s)					
14.002	S378	84.451	0.220	0.000	0.63	147.5	SURCHARGED			

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100 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for Surface Network 4

PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surchage	First (Y) Flood	First (Z) Overflow	Overflow Act.
14.003	S379	15 Winter	100	+40%	100/15 Summer			
14.004	S380	15 Winter	100	+40%	100/15 Summer			
1.026	S326	720 Winter	100	+40%	100/15 Summer	100/15 Summer		
15.000	S381	15 Winter	100	+40%				
15.001	S382	15 Winter	100	+40%	100/15 Summer			
15.002	HW303	1440 Winter	100	+40%	100/480 Winter			
15.003	HW304	1440 Winter	100	+40%	100/120 Summer			
1.027	S327	720 Winter	100	+40%	100/15 Summer	100/360 Summer		

PN	US/MH Name	Water			Surcharged		Flooded		Pipe		Level Exceeded
		Level (m)	Depth (m)	Volume (m³)	Flow / Cap. (l/s)	Overflow (l/s)	Flow (l/s)	Status			
14.003	S379	83.608	1.513	0.000	1.25	228.3	FLOOD RISK				
14.004	S380	82.952	1.287	0.000	1.74	296.6	FLOOD RISK				
1.026	S326	82.496	1.131	2.445	0.82	136.3	FLOOD			17	
15.000	S381	83.873	-0.007	0.000	0.67	66.2	OK				
15.001	S382	83.252	0.809	0.000	1.59	142.7	SURCHARGED				
15.002	HW303	82.320	0.120	0.000	0.01	6.3	SURCHARGED				
15.003	HW304	82.320	0.820	0.000	0.09	32.6	FLOOD RISK				
1.027	S327	82.600	1.472	0.532	1.59	90.5	FLOOD			4	

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STORM SEWER DESIGN by the Modified Rational Method

Design Criteria for Surface Network 3

Pipe Sizes STANDARD Manhole Sizes STANDARD

FSR Rainfall Model - England and Wales

Return Period (years)	100	PIMP (%)	100
M5-60 (mm)	20.400	Add Flow / Climate Change (%)	0
Ratio R	0.438	Minimum Backdrop Height (m)	0.200
Maximum Rainfall (mm/hr)	50	Maximum Backdrop Height (m)	1.500
Maximum Time of Concentration (mins)	30	Min Design Depth for Optimisation (m)	1.200
Foul Sewage (l/s/ha)	0.000	Min Vel for Auto Design only (m/s)	1.00
Volumetric Runoff Coeff.	0.750	Min Slope for Optimisation (1:X)	500

Designed with Level Soffits

Time Area Diagram for Surface Network 3






Time (mins)	Area (ha)	Time (mins)	Area (ha)
0-4	0.918	4-8	0.286

Total Area Contributing (ha) = 1.204

Total Pipe Volume (m³) = 361.089


Network Design Table for Surface Network 3

« - Indicates pipe capacity < flow











PN	Length (m)	Fall (m)	Slope (1:X)	I.Area (ha)	T.E. (mins)	Base Flow (l/s)	k (mm)	HYD SECT	DIA (mm)	Section Type	Auto Design
1.000	31.321	0.895	35.0	0.036	5.00	0.0	0.600	o	225	Pipe/Conduit	
1.001	31.408	0.897	35.0	0.076	0.00	0.0	0.600	o	225	Pipe/Conduit	
1.002	40.195	1.148	35.0	0.064	0.00	0.0	0.600	o	300	Pipe/Conduit	
1.003	61.544	4.103	15.0	0.000	0.00	0.0	0.600	o	300	Pipe/Conduit	
1.004	16.097	1.073	15.0	0.166	0.00	0.0	0.600	o	300	Pipe/Conduit	

Network Results Table

PN	Rain (mm/hr)	T.C. (mins)	US/IL (m)	Σ I.Area (ha)	Σ Base Flow (l/s)	Foul (l/s)	Add Flow (l/s)	Vel (m/s)	Cap (l/s)	Flow (l/s)
1.000	50.00	5.24	92.845	0.036	0.0	0.0	0.0	2.22	88.2	4.9
1.001	50.00	5.47	91.950	0.112	0.0	0.0	0.0	2.22	88.2	15.2
1.002	50.00	5.72	90.978	0.176	0.0	0.0	0.0	2.67	188.4	23.8
1.003	50.00	5.97	89.829	0.176	0.0	0.0	0.0	4.08	288.4	23.8
1.004	50.00	6.04	85.726	0.342	0.0	0.0	0.0	4.08	288.4	46.3

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Network Design Table for Surface Network 3

PN	Length (m)	Fall (m)	Slope (1:X)	I.Area (ha)	T.E. (mins)	Base Flow (l/s)	k (mm)	HYD SECT	DIA (mm)	Section	Type	Auto Design
1.005	22.835	1.153	19.8	0.000	0.00	0.0	0.600	1.5 _/_	500	1:1.5	Ditch	
2.000	49.785	1.659	30.0	0.085	5.00	0.0	0.600	o	300		Pipe/Conduit	
2.001	22.934	0.295	77.7	0.047	0.00	0.0	0.600	o	300		Pipe/Conduit	
3.000	57.899	4.495	12.9	0.183	5.00	0.0	0.600	o	300		Pipe/Conduit	
2.002	58.260	2.535	23.0	0.065	0.00	0.0	0.600	o	375		Pipe/Conduit	
4.000	49.674	4.140	12.0	0.182	5.00	0.0	0.600	o	225		Pipe/Conduit	
2.003	31.745	1.556	20.4	0.209	0.00	0.0	0.600	o	450		Pipe/Conduit	
2.004	34.343	0.384	89.4	0.091	0.00	0.0	0.600	1.5 _/_	500	1:1.5	Ditch	
1.006	16.593	1.350	12.3	0.000	0.00	0.0	0.600	o	600		Pipe/Conduit	
1.007	8.947	0.150	59.6	0.000	0.00	0.0	0.600	o	150		Pipe/Conduit	

Network Results Table

PN	Rain (mm/hr)	T.C. (mins)	US/IL (m)	E I.Area (ha)	E Base Flow (l/s)	Foul (l/s)	Add Flow (l/s)	Vel (m/s)	Cap (l/s)	Flow (l/s)
1.005	50.00	6.10	84.653	0.342	0.0	0.0	0.0	6.15	1753.2	46.3
2.000	50.00	5.29	90.080	0.085	0.0	0.0	0.0	2.88	203.6	11.5
2.001	50.00	5.50	88.420	0.132	0.0	0.0	0.0	1.78	126.2	17.9
3.000	50.00	5.22	92.620	0.183	0.0	0.0	0.0	4.40	311.3	24.8
2.002	50.00	5.76	88.050	0.380	0.0	0.0	0.0	3.79	419.0	51.5
4.000	50.00	5.22	89.805	0.182	0.0	0.0	0.0	3.80	151.0	24.6
2.003	50.00	5.88	85.440	0.771	0.0	0.0	0.0	4.52	718.4	104.4
2.004	50.00	6.07	83.884	0.862	0.0	0.0	0.0	2.89	823.0	116.7
1.006	50.00	6.14	83.500	1.204	0.0	0.0	0.0	6.97	1970.9	163.0
1.007	50.00	6.26	82.150	1.204	0.0	0.0	0.0	1.30	23.1	163.0

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Manhole Schedules for Surface Network 3

MH Name	MH CL (m)	MH Depth (m)	MH Connection	MH Diam., L*W (mm)	Pipe Out		Pipes In			Backdrop (mm)
					PN	Invert Level (m)	Diameter (mm)	PN	Invert Level (m)	
S206	94.572	1.727	Open Manhole	1200	1.000	92.845	225			
S207	93.679	1.729	Open Manhole	1200	1.001	91.950	225	1.000	91.950	225
S208	92.786	1.808	Open Manhole	1200	1.002	90.978	300	1.001	91.053	225
S209	91.625	1.796	Open Manhole	1200	1.003	89.829	300	1.002	89.830	300
S210	87.144	1.418	Open Manhole	1200	1.004	85.726	300	1.003	85.726	300
HW203	86.003	1.350	Open Manhole	1200	1.005	84.653	500	1.004	84.653	300
S203	92.056	1.976	Open Manhole	1200	2.000	90.080	300			
S204	90.044	1.624	Open Manhole	1200	2.001	88.420	300	2.000	88.421	300
S200	94.433	1.813	Open Manhole	1200	3.000	92.620	300			
S201	90.747	2.697	Open Manhole	1350	2.002	88.050	375	2.001	88.125	300
								3.000	88.125	300
S205	91.392	1.587	Open Manhole	1200	4.000	89.805	225			
S202	87.768	2.328	Open Manhole	1350	2.003	85.440	450	2.002	85.515	375
								4.000	85.665	225
HW201	85.904	2.020	Open Manhole	1200	2.004	83.884	500	2.003	83.884	450
HW202	85.000	1.500	Open Manhole	900 x 1050	1.006	83.500	600	1.005	83.500	500
								2.004	83.500	500
S211	85.000	2.850	Open Manhole	1500	1.007	82.150	150	1.006	82.150	600
HW200	83.618	1.618	Open Manhole	0		OUTFALL		1.007	82.000	150

MH Name	Manhole Easting (m)	Manhole Northing (m)	Intersection Easting (m)	Intersection Northing (m)	Manhole Access	Layout (North)
S206	566983.810	246707.023	566983.810	246707.023	Required	
S207	566963.714	246682.998	566963.714	246682.998	Required	
S208	566943.558	246658.912	566943.558	246658.912	Required	
S209	566925.113	246623.199	566925.113	246623.199	Required	
S210	566979.752	246594.875	566979.752	246594.875	Required	

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 Biggleswade
 SG18 8AX

Haverhill North
 Catchment Area 3
 Phase 6



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Manhole Schedules for Surface Network 3

MH Name	Manhole Easting (m)	Manhole Northing (m)	Intersection Easting (m)	Intersection Northing (m)	Manhole Access	Layout (North)
HW203	566995.039	246589.832	566995.039	246589.832	Required	
S203	567112.789	246737.150	567112.789	246737.150	Required	
S204	567085.056	246695.805	567085.056	246695.805	Required	
S200	567010.926	246715.853	567010.926	246715.853	Required	
S201	567062.823	246690.181	567062.823	246690.181	Required	
S205	566992.342	246659.943	566992.342	246659.943	Required	
S202	567036.907	246638.002	567036.907	246638.002	Required	
HW201	567024.628	246608.727	567024.628	246608.727	Required	
HW202	567013.409	246576.268	567013.409	246576.268	Required	
S211	567020.369	246561.206	567020.369	246561.206	Required	
HW200	567022.383	246552.489			No Entry	

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PIPELINE SCHEDULES for Surface Network 3

Upstream Manhole

PN	Hyd Sect	Diam (mm)	MH Name	C.Level (m)	I.Level (m)	D.Depth (m)	MH Connection	MH DIAM., L*W (mm)
1.000	o	225	S206	94.572	92.845	1.502	Open Manhole	1200
1.001	o	225	S207	93.679	91.950	1.504	Open Manhole	1200
1.002	o	300	S208	92.786	90.978	1.508	Open Manhole	1200
1.003	o	300	S209	91.625	89.829	1.496	Open Manhole	1200
1.004	o	300	S210	87.144	85.726	1.118	Open Manhole	1200
1.005	1.5 _ /	500	HW203	86.003	84.653	1.050	Open Manhole	1200
2.000	o	300	S203	92.056	90.080	1.676	Open Manhole	1200
2.001	o	300	S204	90.044	88.420	1.324	Open Manhole	1200
3.000	o	300	S200	94.433	92.620	1.513	Open Manhole	1200
2.002	o	375	S201	90.747	88.050	2.322	Open Manhole	1350
4.000	o	225	S205	91.392	89.805	1.362	Open Manhole	1200
2.003	o	450	S202	87.768	85.440	1.878	Open Manhole	1350
2.004	1.5 _ /	500	HW201	85.904	83.884	1.720	Open Manhole	1200
1.006	o	600	HW202	85.000	83.500	0.900	Open Manhole	900 x 1050
1.007	o	150	S211	85.000	82.150	2.700	Open Manhole	1500

Downstream Manhole

PN	Length (m)	Slope (1:X)	MH Name	C.Level (m)	I.Level (m)	D.Depth (m)	MH Connection	MH DIAM., L*W (mm)
1.000	31.321	35.0	S207	93.679	91.950	1.504	Open Manhole	1200
1.001	31.408	35.0	S208	92.786	91.053	1.508	Open Manhole	1200
1.002	40.195	35.0	S209	91.625	89.830	1.495	Open Manhole	1200
1.003	61.544	15.0	S210	87.144	85.726	1.118	Open Manhole	1200
1.004	16.097	15.0	HW203	86.003	84.653	1.050	Open Manhole	1200
1.005	22.835	19.8	HW202	85.000	83.500	1.200	Open Manhole	900 x 1050
2.000	49.785	30.0	S204	90.044	88.421	1.323	Open Manhole	1200
2.001	22.934	77.7	S201	90.747	88.125	2.322	Open Manhole	1350
3.000	57.899	12.9	S201	90.747	88.125	2.322	Open Manhole	1350
2.002	58.260	23.0	S202	87.768	85.515	1.878	Open Manhole	1350
4.000	49.674	12.0	S202	87.768	85.665	1.878	Open Manhole	1350
2.003	31.745	20.4	HW201	85.904	83.884	1.570	Open Manhole	1200
2.004	34.343	89.4	HW202	85.000	83.500	1.200	Open Manhole	900 x 1050
1.006	16.593	12.3	S211	85.000	82.150	2.250	Open Manhole	1500
1.007	8.947	59.6	HW200	83.618	82.000	1.468	Open Manhole	0

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Free Flowing Outfall Details for Surface Network 3

Outfall Pipe Number	Outfall C. Level Name	I. Level (m)	I. Level (m)	Min I. Level (m)	D,L (mm)	W (mm)
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1.007	HW200	83.618	82.000	0.000	0	0
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Simulation Criteria for Surface Network 3

Volumetric Runoff Coeff	0.750	Additional Flow - % of Total Flow	0.000
Areal Reduction Factor	1.000	MADD Factor * 10m ³ /ha Storage	2.000
Hot Start (mins)	0	Inlet Coefficient	0.800
Hot Start Level (mm)	0	Flow per Person per Day (l/per/day)	0.000
Manhole Headloss Coeff (Global)	0.500	Run Time (mins)	60
Foul Sewage per hectare (l/s)	0.000	Output Interval (mins)	1

Number of Input Hydrographs	0	Number of Storage Structures	1
Number of Online Controls	1	Number of Time/Area Diagrams	0
Number of Offline Controls	0	Number of Real Time Controls	0

Synthetic Rainfall Details

Rainfall Model	FSR	Profile Type	Summer
Return Period (years)	100	Cv (Summer)	0.750
Region	England and Wales	Cv (Winter)	0.840
M5-60 (mm)	20.400	Storm Duration (mins)	30
Ratio R	0.438		

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Date 01/01/2019 File Phase 6 - Pond 2-Rev1.mdx	Designed by Tom Wilson Checked by Nick Kohli	
Innovyze	Network 2019.1	

Online Controls for Surface Network 3


Hydro-Brake® Optimum Manhole: S211, DS/PN: 1.007, Volume (m³): 9.4

Unit Reference	MD-SHE-0098-6300-2500-6300
Design Head (m)	2.500
Design Flow (l/s)	6.3
Flush-Flo™	Calculated
Objective	Minimise upstream storage
Application	Surface
Sump Available	Yes
Diameter (mm)	98
Invert Level (m)	82.150
Minimum Outlet Pipe Diameter (mm)	150
Suggested Manhole Diameter (mm)	1200

Control Points	Head (m)	Flow (l/s)
Design Point (Calculated)	2.500	6.3
Flush-Flo™	0.428	4.8
Kick-Flo®	0.871	3.9
Mean Flow over Head Range	-	4.8

The hydrological calculations have been based on the Head/Discharge relationship for the Hydro-Brake® Optimum as specified. Should another type of control device other than a Hydro-Brake Optimum® be utilised then these storage routing calculations will be invalidated

Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)
0.100	3.2	1.200	4.5	3.000	6.9	7.000	10.2
0.200	4.4	1.400	4.8	3.500	7.4	7.500	10.6
0.300	4.7	1.600	5.1	4.000	7.8	8.000	10.9
0.400	4.8	1.800	5.4	4.500	8.3	8.500	11.2
0.500	4.8	2.000	5.7	5.000	8.7	9.000	11.5
0.600	4.7	2.200	5.9	5.500	9.1	9.500	11.8
0.800	4.2	2.400	6.2	6.000	9.5		
1.000	4.1	2.600	6.4	6.500	9.9		


WBP Limited		Page 7
12a -18a Hitchin Street Biggleswade SG18 8AX	Haverhill North Catchment Area 3 Phase 6	
Date 01/01/2019 File Phase 6 - Pond 2-Rev1.mdx	Designed by Tom Wilson Checked by Nick Kohli	
Innovyze	Network 2019.1	

Storage Structures for Surface Network 3

Tank or Pond Manhole: HW202, DS/PN: 1.006

Invert Level (m) 83.500

Depth (m)	Area (m ²)	Depth (m)	Area (m ²)	Depth (m)	Area (m ²)
0.000	354.0	1.010	902.0	1.510	1349.0
1.000	734.0	1.500	1148.0		

WBP Limited		Page 8
12a -18a Hitchin Street Biggleswade SG18 8AX	Haverhill North Catchment Area 3 Phase 6	
Date 01/01/2019 File Phase 6 - Pond 2-Rev1.mdx	Designed by Tom Wilson Checked by Nick Kohli	
Innovyze	Network 2019.1	

100 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for Surface Network 3

Simulation Criteria

Areal Reduction Factor 1.000 Additional Flow - % of Total Flow 0.000
Hot Start (mins) 0 MADD Factor * 10m³/ha Storage 2.000
Hot Start Level (mm) 0 Inlet Coefficient 0.800
Manhole Headloss Coeff (Global) 0.500 Flow per Person per Day (l/per/day) 0.000
Foul Sewage per hectare (l/s) 0.000

Number of Input Hydrographs 0 Number of Storage Structures 1
Number of Online Controls 1 Number of Time/Area Diagrams 0
Number of Offline Controls 0 Number of Real Time Controls 0


Synthetic Rainfall Details

Rainfall Model FSR Ratio R 0.422
Region England and Wales Cv (Summer) 0.750
M5-60 (mm) 21.000 Cv (Winter) 0.840

Margin for Flood Risk Warning (mm) 450.0
Analysis Timestep 2.5 Second Increment (Extended)
DTS Status ON
DVD Status ON
Inertia Status ON

Profile(s) Summer and Winter
Duration(s) (mins) 15, 30, 60, 120, 180, 240, 360, 480, 600,
720, 960, 1440, 2160, 2880
Return Period(s) (years) 100
Climate Change (%) 40

PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surchage	First (Y) Flood	First (Z) Overflow	Overflow Act.	Water Level (m)
1.000	S206	15 Winter	100	+40%					92.928
1.001	S207	15 Winter	100	+40%					92.124
1.002	S208	15 Winter	100	+40%					91.165
1.003	S209	15 Winter	100	+40%					89.970
1.004	S210	15 Winter	100	+40%					85.965
1.005	HW203	15 Winter	100	+40%					84.763
2.000	S203	15 Winter	100	+40%					90.192
2.001	S204	15 Winter	100	+40%					88.627
3.000	S200	15 Winter	100	+40%					92.755
2.002	S201	15 Winter	100	+40%					88.274
4.000	S205	15 Winter	100	+40%					89.965
2.003	S202	15 Winter	100	+40%					85.761
2.004	HW201	600 Winter	100	+40%					84.682
1.006	HW202	600 Winter	100	+40%	100/15 Summer				84.682
1.007	S211	600 Winter	100	+40%	100/15 Summer				84.728

WBP Limited		Page 9
12a -18a Hitchin Street Biggleswade SG18 8AX	Haverhill North Catchment Area 3 Phase 6	
Date 01/01/2019 File Phase 6 - Pond 2-Rev1.mdx	Designed by Tom Wilson Checked by Nick Kohli	
Innovyze	Network 2019.1	

100 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for Surface Network 3

PN	US/MH Name	Surcharged Flooded		Pipe		Status	Level Exceeded
		Depth (m)	Volume (m ³)	Flow / Cap.	Overflow (l/s)		
1.000	S206	-0.142	0.000	0.29		24.0	OK
1.001	S207	-0.051	0.000	0.94		78.0	OK
1.002	S208	-0.113	0.000	0.70		123.2	OK
1.003	S209	-0.159	0.000	0.45		122.7	OK
1.004	S210	-0.061	0.000	0.98		240.3	OK
1.005	HW203	-1.240	0.000	0.02		238.9	OK
2.000	S203	-0.188	0.000	0.29		56.3	OK
2.001	S204	-0.093	0.000	0.80		89.1	OK
3.000	S200	-0.165	0.000	0.41		122.3	OK
2.002	S201	-0.151	0.000	0.65		253.8	OK
4.000	S205	-0.065	0.000	0.84		121.4	OK
2.003	S202	-0.129	0.000	0.84		520.6	OK
2.004	HW201	-1.222	0.000	0.00		49.8	OK
1.006	HW202	0.582	0.000	0.01		10.0	FLOOD RISK
1.007	S211	2.428	0.000	0.31		6.3	FLOOD RISK

Appendix F



APPENDIX 6 – EXPLORATORY HOLE LOGS

Borehole Logs
(BH1 to BH8)

Windowless Sample Hole Logs
(WS1 to WS19 and WSA to WSI)

Trial Pit Logs
(TP1 to TP*)

DRAFT

CLIENT: c/o Savills **PROJECT: Land to the North West of Haverhill** **GROUND LEVEL** **HOLE No. BH1**
 LOGGED BY: AC CHECKED BY: EXCAVATION METHOD: Cable Percussion (shell and auger) **COORDINATES E N** **SHEET 1 OF 1**
 FIELDWORK BY: AGB DATE: 1.50mm cased from 0.0 to 10.0m **DATES 20/10/2014 - 20/10/2014** **PROJECT NO. 995,SI**
 TEMPLATE REF: GEL AGS BH BETA

Date/Time and Depth	Depth of Casing	Depth* of Water	Piez.	Description of Strata	Strata		Graphical Representation				Sampling/In-Situ Testing			Laboratory Testing						Additional Tests and Notes	
					Leg	Reduced Level	Depth	SPT 'N' Value			Depths	Type	No.	Blows	SPT N	<425 %	WC %	PL %	LL %		ρ Mg/m ³
20/10 09:00	0.00	Dry		TOPSOIL (Dark brown clay with rootlets).		0.00				0											Hand pit from GL to 1.2m
				Firm to stiff orange brown grey mottled slightly gravelly CLAY. Gravel of rounded fine to coarse chalk. (LOWESTOFT FORMATION)		0.30				0.40-0.80	B	1									
				1.50 Becoming pale in colour with depth						1.20	D S	1	12 34 44	15	78	20	18	37			Moisture content, Atterberg Limit
										2.00	D S	2	12 33 44	14							
										3.00-3.45	U	U	(45)								
										3.45	D	3			89	21	17	35			Moisture content, Atterberg Limit
20/10 16:30	1.00	4.00								4.00	D S	4	12 35 56	19							Seepage inflow of water at 4m
				Stiff grey gravelly CLAY. Gravel of rounded fine to coarse chalk. (LOWESTOFT FORMATION)		4.80				5.00	D S	5	24 67 810	31							
										6.00	D	6									
										6.50	D S	7	24 66 67	25							pH and Sulphate
										7.50	D	8									
										8.00-8.45	U	2	(70)		90	18	17	33	2.14	272.4	Moisture content, Atterberg Limit, Triaxial test
										8.45	D	9									
										9.00	D	10									
										9.50	D S	11	35 78 99	33							
20/10 16:45	1.50	0.00				10.00															Borehole completed at 10.0m

GEL AGS BH BETA 995,SI - NW HAVERHILL, 31-10-14, LF_SG.GPJ_GINT STD AGS 3_1.GDT 11/12/14

*WATER Standing water level PIEZOMETER Upper seal **SAMPLE AND TEST KEY**
 Water strikes Response zone **D** Small disturbed sample **S** Standard penetration test **Blows** SPT blows for each 75mm increment
 Lower seal Bulk disturbed sample **B** Bulk disturbed sample **C** Cone penetration test **(35)** Undisturbed sample blow count
U Undisturbed sample **K** Permeability test **N** = SPT N value (blows after seating)
P Piston sample **J** Disturbed jar sample **N*120** = Total blows/penetration including seating
ES Environmental soil sample **W** Water Sample **<425** Sample % passing 425 micron sieve

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PROJECT No
995,SI

SHEET
1 OF 1

HOLE No.
BH1

DEPTH All depths, level and thicknesses in metres

CLIENT: c/o Savills		PROJECT: Land to the North West of Haverhill			GROUND LEVEL				HOLE No. BH2			
LOGGED BY: AC FIELDWORK BY: AGB TEMPLATE REF: GEL AGS BH BETA		CHECKED BY: DATE:		EXCAVATION METHOD: Cable Percussion (shell and auger) 4.50mm cased from 0.0 to 10.0m			COORDINATES E N				SHEET 1 OF 1	
							DATES 21/10/2014 - 21/10/2014				PROJECT NO. 995,SI	

Date/Time and Depth	Depth of Casing	Depth* of Water	Piez.	Description of Strata	Strata		Graphical Representation		Sampling/In-Situ Testing			Laboratory Testing						Additional Tests and Notes			
					Leg	Reduced Level	Depth	SPT 'N' Value	Depths	Type	No.	Blows	SPT N	<425 %	WC %	PL %	LL %		ρ Mg/m ³	Cu kN/m ²	
21/10/08:30	0.00	Dry		TOPSOIL		0.00			0											Hand pit from GL to 1.2m	
				Firm to stiff brown slightly sandy CLAY. (HEAD DEPOSITS)		0.30			0.40-0.80	B	1										
				Firm brown slightly gravelly CLAY. Gravel of rounded fine to coarse chalk. (LOWESTOFT FORMATION)		1.80			1.20	D S	1	11 22 23	9								
									2.00-2.45	U	1	(45)									
									2.45	D	2			91	19	16	30			Moisture content, Atterberg Limit, pH and sulphate	
									3.00	D S	3	22 33 33	12								
21/10 +15 mins	1.50	4.00		Firm to stiff grey gravelly CLAY. Gravel of rounded fine to coarse rounded chalk. (LOWESTOFT FORMATION)		4.40			4.00	D S	4	11 12 23	8							Inflow of water at 4m Water sealed out at 4.5m.	
		1.60							5.00-5.45	U	2	(35)			20		2.07	80.5		pH and sulphate, Triaxial test	
									5.45	D	5										
									6.00	D	6										
									6.50	D S	7	12 34 58	20								
									7.50	D	8										
									8.00	D S	9	23 66 77	26								
									9.00	D	10									pH and sulphate	
21/10 13:00	4.50	Dry							9.50	D S	11	34 66 89	29								
21/10 13:15	0.00								10.00												Borehole completed at 10.0m

GEL AGS BH BETA 995,SI - NW HAVERHILL, 31-10-14, LF,SG,GPJ, GINT STD, AGS 3, 1,GDT, 11/12/14

*WATER Standing water level PIEZOMETER Upper seal Response zone Lower seal

SAMPLE AND TEST KEY
D Small disturbed sample
B Bulk disturbed sample
U Undisturbed sample
P Piston sample
J Disturbed jar sample
ES Environmental soil sample
W Water Sample

S Standard penetration test
C Cone penetration test
K Permeability test

Blows SPT N
SPT blows for each 75mm increment
(35) Undisturbed sample blow count
N = SPT N value (blows after seating)
N*120 = Total blows/penetration including seating
<425 Sample % passing 425 micron sieve

DEPTH All depths, level and thicknesses in metres



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SHEET
1 OF 1

HOLE No.
BH2

CLIENT: c/o Savills **PROJECT: Land to the North West of Haverhill** **GROUND LEVEL** **HOLE No. BH3**
 LOGGED BY: AC **EXCAVATION METHOD:** Cable Percussion (shell and auger) **COORDINATES E N** **SHEET 1 OF 1**
 FIELDWORK BY: AGB **DATE:** **DATES 21/10/2014 - 21/10/2014** **PROJECT NO. 995,SI**
 TEMPLATE REF: GEL AGS BH BETA

Date/Time and Depth	Depth of Casing	Depth* of Water	Piez.	Description of Strata	Strata		Graphical Representation		Sampling/In-Situ Testing			Laboratory Testing						Additional Tests and Notes		
					Leg	Reduced Level	Depth	SPT 'N' Value	Depths	Type	No.	Blows	SPT N	<425 %	WC %	PL %	LL %		ρ Mg/m ³	Cu kN/m ²
21/10/14:00	0.00	Dry		TOPSOIL		0.00			0											Hand pit from GL to 1.2m
				Stiff dark brown slightly silty gravelly CLAY. Gravel of rounded fine to coarse chalk (LOWESTOFT FORMATION)	X	0.30			0.40-0.80	B	1									
									1.20	D S	1	22 44 46	18							
									2.00	D S	2	12 34 44	15							
									3.00	D S	3	12 33 55	16							
				Stiff to very stiff dark grey gravelly CLAY. Gravel of rounded fine to coarse chalk. (LOWESTOFT FORMATION)	O	3.70			4.00-4.45	U	1	(60)		90	18	19	48			Moisture content, Atterberg Limit
									4.45	D	4									
									5.00	D S	5	35 79 1010	36							
									6.00	D	6									
									6.50-6.95	U	2	(80)								
									6.95	D	7									
									7.00	D	8									
									8.00	D S	9	57 88 910	35							pH and sulphate
									9.00	D	10									
									9.50	D S	11	48 910 1213	44							
21/10 17:00 21/10 17:15	1.50 0.00	Dry				10.00														Borehole completed at 10.0m

GEL AGS BH BETA 995,SI - NW HAVERHILL, 31-10-14, LF_SG.GPJ_GINT STD AGS 3_1.GDT 11/12/14

*WATER Standing water level PIEZOMETER Upper seal Response zone Lower seal

SAMPLE AND TEST KEY: D Small disturbed sample, B Bulk disturbed sample, U Undisturbed sample, P Piston sample, J Disturbed jar sample, ES Environmental soil sample, W Water Sample

S Standard penetration test, C Cone penetration test, K Permeability test

Blows SPT N = SPT N value (blows after seating) N*120 = Total blows/penetration including seating <425 Sample % passing 425 micron sieve

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PROJECT No 995,SI
SHEET 1 OF 1
HOLE No. BH3

DEPTH All depths, level and thicknesses in metres

CLIENT: c/o Savills **PROJECT: Land to the North West of Haverhill** **GROUND LEVEL** **HOLE No. BH4**

LOGGED BY: AC
FIELDWORK BY: AGB
TEMPLATE REF: GEL AGS BH BETA

CHECKED BY:
DATE:

EXCAVATION METHOD: Cable Percussion (shell and auger)
1.50mm cased from 0.0 to 10.0m

COORDINATES E N
DATES 23/10/2014 - 23/10/2014

SHEET 1 OF 1
PROJECT NO. 995,SI

Date/Time and Depth	Depth of Casing	Depth* of Water	Piez.	Description of Strata	Strata		Graphical Representation				Sampling/In-Situ Testing			Laboratory Testing							Additional Tests and Notes			
					Leg	Reduced Level	Depth	SPT 'N' Value 0 10 20 30 40				Depths	Type	No.	Blows	SPT N	<425 %	WC %	PL %	LL %		ρ Mg/m ³	Cu kN/m ²	
23/10/08:30	0.00	Dry		TOPSOIL		0.00				0														
				Stiff orange brown grey mottled gravelly CLAY. Gravel of rounded fine to coarse chalk. (LOWESTOFT FORMATION)		0.20				0.40-0.80	B	1												
										1.20	D	1	6 10 10 12 8 8	38										
										2.00	D	2	3 5 6 7 7 7	27										
										3.00-3.45	U	1	(80)			18			2.10	211.4		Triaxial test		
				Very stiff to hard dark grey slightly gravelly CLAY. Gravel of rounded fine to coarse chalk. (LOWESTOFT FORMATION)		3.30				3.45	D	3												
										4.00	D	4	5 7 10 10 12 15	47										
										5.00	D	5	3 6 8 10 11 11	40										
										6.00	D	6												
										6.50	D	7	5 5 8 10 12 12	42										
										7.50	D	8												
										8.00	D	9	3 7 11 14 15 10	60*										
										9.00	D	10												
										9.50-9.95	U	2	(90)			16			2.14	349.4		pH and sulphate, Triaxial test		
23/10 13:00 23/10 13:15	1.50 0.00	Dry				10.00				9.95	D	11												

GEL AGS BH BETA 995,SI - NW HAVERHILL, 31-10-14, LF_SG.GPJ_GINT STD AGS 3_1.GDT 11/12/14

*WATER Standing water level PIEZOMETER

Upper seal Response zone Lower seal

SAMPLE AND TEST KEY

D Small disturbed sample
B Bulk disturbed sample
U Undisturbed sample
P Piston sample
J Disturbed jar sample
ES Environmental soil sample
W Water Sample

S Standard penetration test
C Cone penetration test
K Permeability test

Blows SPT blows for each 75mm increment (35) Undisturbed sample blow count
N = SPT N value (blows after seating)
N*120 = Total blows/penetration including seating
<425 Sample % passing 425 micron sieve

DEPTH All depths, level and thicknesses in metres

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SHEET
1 OF 1

HOLE No.
BH4

CLIENT: c/o Savills **PROJECT: Land to the North West of Haverhill** **GROUND LEVEL** **HOLE No. BH5**
 LOGGED BY: AC CHECKED BY: EXCAVATION METHOD: Cable Percussion (shell and auger) **COORDINATES E N** **SHEET 1 OF 1**
 FIELDWORK BY: AGB DATE: 1.50mm cased from 0.0 to 10.0m **DATES 22/10/2014 - 22/10/2014** **PROJECT NO. 995,SI**
 TEMPLATE REF: GEL AGS BH BETA

Date/Time and Depth	Depth of Casing	Depth* of Water	Piez.	Description of Strata	Strata		Graphical Representation				Sampling/In-Situ Testing			Laboratory Testing						Additional Tests and Notes				
					Leg	Reduced Level	Depth	SPT 'N' Value				Depths	Type	No.	Blows	SPT N	<425 %	WC %	PL %		LL %	ρ Mg/m ³	Cu kN/m ²	
22/10/09:00	0.00	Dry		TOPSOIL Stiff orange brown grey mottled slightly gravelly CLAY. Gravel of rounded fine to medium chalk. (LOWESTOFT FORMATION)		0.00					0													Hand pit from GL to 1.2m
						0.10					0.40-0.80	B	1											
											1.20-1.65	U	1	(55)		18				2.11	148.3			Triaxial test
											2.20	S	2	22										
											2.20	D	2	45										
											2.20	S	2	56										
											2.20	D	2	20										
											3.00	D	3	24										
											3.00	S	3	58										
											3.00	D	3	118										
											4.00	D	4	35										
											4.00	S	4	68										
											4.00	D	4	912										
						4.80					4.80	D	5	35										
											5.00	S	5	68										
											5.00	D	5	89										
											6.00	D	6											
											6.50-6.95	U	2	(80)		93	17	17	42	2.15	312.5			Moisture content, Atterberg Limit, Triaxial test
											6.95	D	7											
											7.50	D	8											
											8.00	D	9	24										
											8.00	S	9	78										
											8.00	D	9	1010										
											9.00	D	10											
											9.50	D	11	519										
											9.50	S	11	3812										
22/10 16:00	1.50	Dry				10.00																		Borehole completed at 10.0m
22/10 16:15	0.00																							

GEL AGS BH BETA 995,SI - NW HAVERHILL, 31-10-14, LF_SG.GPJ_GINT STD AGS 3_1.GDT 11/12/14

*WATER Standing water level PIEZOMETER Upper seal **SAMPLE AND TEST KEY**
 Water strikes Response zone **D** Small disturbed sample **S** Standard penetration test **Blows** SPT blows for each 75mm increment
 Lower seal Bulk disturbed sample **B** Bulk disturbed sample **C** Cone penetration test **N** = SPT N value (blows after seating)
U Undisturbed sample **K** Permeability test **N*120** = Total blows/penetration including seating
P Piston sample **J** Disturbed jar sample **<425** Sample % passing 425 micron sieve
ES Environmental soil sample **W** Water Sample

DEPTH All depths, level and thicknesses in metres

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PROJECT No
995,SI

SHEET
1 OF 1

HOLE No.
BH5

CLIENT: c/o Savills **PROJECT: Land to the North West of Haverhill** **GROUND LEVEL** **HOLE No. BH6**
 LOGGED BY: AC CHECKED BY: EXCAVATION METHOD: Cable Percussion (shell and auger) **COORDINATES E N** **SHEET 1 OF 1**
 FIELDWORK BY: AGB DATE: 1.50mm cased from 0.0 to 8.3m **DATES 24/10/2014 - 24/10/2014** **PROJECT NO. 995,SI**
 TEMPLATE REF: GEL AGS BH BETA

Date/Time and Depth	Depth of Casing	Depth* of Water	Piez.	Description of Strata	Strata		Graphical Representation				Sampling/In-Situ Testing			Laboratory Testing						Additional Tests and Notes			
					Leg	Reduced Level	Depth	SPT 'N' Value				Depths	Type	No.	Blows	SPT N	<425 %	WC %	PL %		LL %	ρ Mg/m ³	Cu kN/m ²
24/10/08:30	0.00	Dry		TOPSOIL Firm to stiff orange brown grey mottled gravelly CLAY. Gravel of rounded fine to medium chalk. (LOWESTOFT FORMATION)		0.00	0	10	20	30	40	0											Hand pit from GL to 1.2m
						0.20						0.40-0.80	B	1									
												1.20	D	1	5 5 6 7 8 8	29							
												2.00-2.45	U	1	(50)		94	18	19	48	2.09	174.1	Moisture content, Atterberg Limit, Triaxial test
												2.45	D	2									
												3.00	D	3	2 4 5 5 6 8	24							
				Very stiff to hard dark grey slightly gravelly CLAY. Gravel of rounded fine to medium chalk. (LOWESTOFT FORMATION)		4.00						4.00	D	4	2 3 5 5 6 7	23							
												5.00-5.45	U	2	(70)								
												5.45	D	5									
												6.00	D	6									
												6.50	D	7	2 4 5 6 8 10	29							
												7.50	D	8									
24/10 13:00	1.50											8.00	D	9	17								
24/10 13:15	0.00	Dry				8.30							D	S									Borehole completed at 8.3m

GEL AGS BH BETA 995,SI - NW HAVERHILL, 31-10-14, LF, SG, GPJ, GINT, STD, AGS 3, 1, GDT, 11/12/14

*WATER Standing water level PIEZOMETER Upper seal **SAMPLE AND TEST KEY** D Small disturbed sample S Standard penetration test Blows SPT blows for each 75mm increment
 Water strikes Response zone B Bulk disturbed sample C Cone penetration test N = SPT N value (blows after seating)
 Lower seal U Undisturbed sample K Permeability test N*120 = Total blows/penetration including seating
P Piston sample J Disturbed jar sample ES Environmental soil sample <425 Sample % passing 425 micron sieve
W Water Sample

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PROJECT No
 995,SI
SHEET
 1 OF 1
HOLE No.
 BH6

DEPTH All depths, level and thicknesses in metres

CLIENT: c/o Savills PROJECT: Land to the North West of Haverhill GROUND LEVEL HOLE No. BH7
 LOGGED BY: AC CHECKED BY: EXCAVATION METHOD: Cable Percussion (shell and auger) COORDINATES E N SHEET 1 OF 1
 FIELDWORK BY: AGB DATE: 1.50mm cased from 0.0 to 8.2m DATES 24/10/2014 - 24/10/2014 PROJECT NO. 995,SI
 TEMPLATE REF: GEL AGS BH BETA

Date/Time and Depth	Depth of Casing	Depth* of Water	Piez.	Description of Strata	Strata		Graphical Representation				Sampling/In-Situ Testing				Laboratory Testing						Additional Tests and Notes	
					Leg	Reduced Level	Depth	SPT 'N' Value 0 10 20 30 40				Depths	Type	No.	Blows	SPT N	<425 %	WC %	PL %	LL %		ρ Mg/m ³
24/10 14:00	0.00	Dry		TOPSOIL		0.00				0												Hand pit from GL to 1.2m
				Firm to stiff orange brown grey mottled slightly gravelly CLAY. Gravel of rounded fine to medium chalk. (LOWESTOFT FORMATION)		0.40				0.40-0.80	B	1										
										1.20-1.65	U	1	(40)									
										1.65-2.00	D	1										
										2.00-3.00	D	2	12 34 46	17								
				Very stiff dark grey gravelly CLAY. Gravel of rounded fine to coarse chalk. (LOWESTOFT FORMATION)		3.30				3.00-4.00	D	3	13 35 56	19								
										4.00-4.45	U	2	(55)		92	20	19	42	2.12	205.6		Moisture content, Atterberg Limit, pH and sulphate, Triaxial test
										4.45-5.00	D	4										
										5.00-6.00	D	5	24 66 78	27								
										6.00-6.50	D	6										
										6.50-7.50	D	7	24 56 89	28								pH and sulphate
										7.50-8.20	D	8										
24/10 17:00	1.50	Dry				8.20					C											Borehole completed at 8.20m
24/10 17:15	0.00																					

GEL AGS BH BETA 995,SI - NW HAVERHILL, 31-10-14, LF_SG.GPJ_GINT STD AGS 3_1.GDT 11/12/14

*WATER Standing water level Water strikes
 PIEZOMETER Upper seal Response zone Lower seal
 SAMPLE AND TEST KEY D Small disturbed sample B Bulk disturbed sample U Undisturbed sample P Piston sample J Disturbed jar sample ES Environmental soil sample W Water Sample
 S Standard penetration test C Cone penetration test K Permeability test
 Blows SPT N Blows SPT N value (blows after seating) N*120 = Total blows/penetration including seating <425 Sample % passing 425 micron sieve

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PROJECT No 995,SI
 SHEET 1 OF 1
 HOLE No. BH7

DEPTH All depths, level and thicknesses in metres

CLIENT: c/o Savills **PROJECT: Land to the North West of Haverhill** **GROUND LEVEL** **HOLE No. BH8**
 LOGGED BY: AC CHECKED BY: EXCAVATION METHOD: Cable Percussion (shell and auger) **COORDINATES E N** **SHEET 1 OF 1**
 FIELDWORK BY: AGB DATE: 6.00mm cased from 0.0 to 10.0m **DATES 23/10/2014 - 23/10/2014** **PROJECT NO. 995,SI**
 TEMPLATE REF: GEL AGS BH BETA

Date/Time and Depth	Depth of Casing	Depth* of Water	Piez.	Description of Strata	Strata		Graphical Representation				Sampling/In-Situ Testing				Laboratory Testing						Additional Tests and Notes		
					Leg	Reduced Level	Depth	SPT 'N' Value				Depths	Type	No.	Blows	SPT N	<425 %	WC %	PL %	LL %		ρ Mg/m ³	Cu kN/m ²
23/10 14:00	0.00	Dry		TOPSOIL		0.00					0												Hand pit from GL to 1.2m
				Firm brown slightly silty CLAY (HEAD DEPOSITS)	X	0.40					0.40-0.80	B	1										
											1.20	D	1	12	14	100	24	20	51				Moisture content, Atterberg Limit
											1.80	D	2	23									
23/10	2.00			Soft brown very sandy CLAY. (HEAD DEPOSITS)	X	1.80					1.80	D	2	11	8								Seepage inflow of water at 2m
				Soft to firm brown slightly gravelly sandy CLAY. Gravel of rounded fine to coarse chalk. (HEAD DEPOSITS)	X	2.20					2.00	D	3	12									
											3.00	D	4	22	9								
											4.00	D	5	23	11								
23/10	4.50										4.00	D	5	33									Seepage inflow of water at 4.5m
				Stiff grey gravelly CLAY. Gravel of rounded fine to coarse chalk. (LOWESTOFT FORMATION)	X	5.20					5.00	D	6	12	10								
											6.00	D	7	12									Water sealed out at 6.0m.
											6.50	D	8	13	19								
											7.50	D	9	45									
				7.50 Becoming very stiff with depth.	X						7.50	D	9	55									
											8.00	U	1	(45)		18				2.16	217.2		Triaxial test
											8.45	D	10										
											8.45	D	10										
											9.00	D	11										
											9.50	D	12	23	23								
23/10 17:00	6.00	Dry									9.50	S	12	45									
23/10 17:15	0.00										10.00	S	12	68									Borehole completed at 10.0m

GEL AGS BH BETA 995,SI - NW HAVERHILL, 31-10-14, LF, SG, GP, GINT STD AGS 3, 1, GDT, 11/12/14

*WATER Standing water level PIEZOMETER Upper seal **SAMPLE AND TEST KEY**
 Water strikes Response zone **D** Small disturbed sample **S** Standard penetration test **Blows** SPT blows for each 75mm increment
 Lower seal Bulk disturbed sample **B** Bulk disturbed sample **C** Cone penetration test **N** = SPT N value (blows after seating)
 Undisturbed sample **U** Undisturbed sample **K** Permeability test **N*120** = Total blows/penetration including seating
P Piston sample **J** Disturbed jar sample **ES** Environmental soil sample **<425** Sample % passing 425 micron sieve
W Water Sample

DEPTH All depths, level and thicknesses in metres

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PROJECT No
995,SI

SHEET
1 OF 1

HOLE No.
BH8

CLIENT: c/o Savills		PROJECT: Land to the North West of Haverhill		GROUND LEVEL		HOLE No. WS1	
LOGGED BY: LF FIELDWORK BY: GEL TEMPLATE REF: GEL AGS BH BETA		CHECKED BY: DATE:		EXCAVATION METHOD: Windowless sampler Uncased to 4.0 m		COORDINATES E N	
				DATES 28/10/2014 - 28/10/2014		SHEET 1 OF 1	
						PROJECT NO. 995,SI	

Date/Time and Depth	Depth of Casing	Depth* of Water	Piez.	Description of Strata	Strata		Graphical Representation				Sampling/In-Situ Testing				Laboratory Testing						Additional Tests and Notes		
					Leg	Reduced Level	Depth	SPT 'N' Value				Depths	Type	No.	Blows	SPT N	<425 %	WC %	PL %	LL %		ρ Mg/m ³	Cu kN/m ²
							0	10	20	30	40												
				TOPSOIL (Dark brown slightly sandy slightly gravelly clay with rootlets. Gravel of angular to subrounded fine to medium flint and infrequent brick fragments)		0.00						0										Groundwater not encountered during drilling	
				Firm becoming stiff brown slightly sandy gravelly CLAY. Gravel of subrounded to rounded chalk and angular to subrounded fine to coarse flint. (LOWESTOFT FORMATION)		0.45						0.20	J	1								Metals, PAH, TPH, Moisture content, pH and Sulphate	
							0.70						0.35	J	2								
				1.20 Becomes brown grey mottled with depth		1.00						0.70	J	3								Metals, PAH, TPH, Moisture content, pH and Sulphate	
							0.80						0.80	D	1								Shear vane test = 48kN/m ² Shear vane test = 50kN/m ²
							1.00						1.00	1	2	11							
						2.00						2.00	2	3	11	5	5	7				Shear vane test = 87kN/m ²	
						3.00						3.00	3	4	4	4	6	7				Collapse of sidewalls at 3.0m depth Shear vane test = 112kN/m ²	
						4.00						4.00	4	5	5	7	8	10	12	14		50mm diameter monitoring well installed to 4.0m Windowless sample hole completed at 4.0m depth	

GEL AGS BH BETA 995,SI - NW HAVERHILL, 31-10-14, LF,SG,GPJ, GINT STD AGS 3, 1,GDT, 11/12/14

*WATER	Standing water level	PIEZOMETER	Upper seal	SAMPLE AND TEST KEY	D Small disturbed sample	S Standard penetration test	Blows	SPT blows for each 75mm increment
▽	Water strikes		Response zone	B Bulk disturbed sample	C Cone penetration test	SPT N	(35) Undisturbed sample blow count	
			Lower seal	U Undisturbed sample	K Permeability test		N = SPT N value (blows after seating)	
				P Piston sample			N*120 = Total blows/penetration including seating	
				J Disturbed jar sample			<425 Sample % passing 425 micron sieve	
				ES Environmental soil sample				
				W Water Sample				

DEPTH All depths, level and thicknesses in metres

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PROJECT No
995,SI
SHEET
1 OF 1
HOLE No.
WS1

CLIENT: c/o Savills		PROJECT: Land to the North West of Haverhill			GROUND LEVEL			HOLE No. WS2		
LOGGED BY: LF FIELDWORK BY: GEL TEMPLATE REF: GEL AGS BH BETA		CHECKED BY: DATE:		EXCAVATION METHOD: Windowless sampler Uncased to 4.0 m			COORDINATES E N			SHEET 1 OF 1
							DATES 28/10/2014 - 28/10/2014			PROJECT NO. 995,SI

Date/Time and Depth	Depth of Casing	Depth* of Water	Piez.	Description of Strata	Strata		Graphical Representation					Sampling/In-Situ Testing				Laboratory Testing						Additional Tests and Notes	
					Leg	Reduced Level	Depth	SPT 'N' Value					Depths	Type	No.	Blows	SPT N	<425 %	WC %	PL %	LL %		ρ Mg/m ³
							0	10	20	30	40												
				TOPSOIL (Dark brown slightly sandy slightly gravelly clay with rootlets. Gravel of angular to subrounded fine to coarse flint and infrequent fine to medium brick and charcoal fragments)		0.00						0	J	1									Groundwater not encountered during drilling
				Firm becoming stiff brown slightly sandy gravelly CLAY. Gravel of subrounded to rounded chalk and angular to subrounded fine to coarse flint. (LOWESTOFT FORMATION) 0.80 Becomes brown grey mottled with depth		0.47						0.10	J	2									No collapse of sidewalls during drilling
							0.70						0.70	J	3								Shear vane test = 70kN/m ²
							0.80						0.80	D	1								Shear vane test = 76kN/m ²
							1.00						1.00	1	D	2							Shear vane test = 82kN/m ²
							2.00						2.00	2	D	3							Shear vane test = 91kN/m ²
						3.00						3.00	3	D	4							Shear vane test = 96kN/m ²	
						4.00						4.00	4	D	5							50mm diameter monitoring well installed to 4.0m Shear vane test = 96kN/m ² Windowless sample hole completed at 4.0m depth	

GEL AGS BH BETA 995,SI - NW HAVERHILL, 31-10-14, LF,SG,GPJ, GINT STD AGS 3, 1,GDT, 11/12/14

*WATER	Standing water level	PIEZOMETER	Upper seal	SAMPLE AND TEST KEY	D Small disturbed sample	S Standard penetration test	Blows	SPT blows for each 75mm increment
▽	Water strikes		Response zone	B Bulk disturbed sample	C Cone penetration test	SPT N	(35) Undisturbed sample blow count	
			Lower seal	U Undisturbed sample	K Permeability test		N = SPT N value (blows after seating)	
				P Piston sample			N*120 = Total blows/penetration including seating	
				J Disturbed jar sample			<425 Sample % passing 425 micron sieve	
				ES Environmental soil sample				
				W Water Sample				

DEPTH All depths, level and thicknesses in metres

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PROJECT No
995,SI
SHEET
1 OF 1
HOLE No.
WS2.

GEL AGS BH BETA 995,SI - NW HAVERHILL, 31-10-14, LF,SG,GPJ, GINT STD AGS 3, 1,GDT, 11/12/14

CLIENT: c/o Savills		PROJECT: Land to the North West of Haverhill			GROUND LEVEL			HOLE No. WS3		
LOGGED BY: LF FIELDWORK BY: GEL TEMPLATE REF: GEL AGS BH BETA		CHECKED BY: DATE:		EXCAVATION METHOD: Windowless sampler Uncased to 1.8 m			COORDINATES E N			SHEET 1 OF 1
							DATES 29/10/2014 - 29/10/2014			PROJECT NO. 995,SI

Date/Time and Depth	Depth of Casing	Depth* of Water	Piez.	Description of Strata	Strata		Graphical Representation					Sampling/In-Situ Testing				Laboratory Testing						Additional Tests and Notes		
					Leg	Reduced Level	Depth	SPT 'N' Value					Depths	Type	No.	Blows	SPT N	<425 %	WC %	PL %	LL %		ρ Mg/m ³	Cu kN/m ²
								0	10	20	30	40												
				TOPSOIL (Dark brown sandy clay with rootlets)		0.00						0												Groundwater not encountered during drilling
				TOPSOIL (Brown slightly sandy slightly gravelly clay. Gravel of angular to subrounded fine to medium flint and rare fine brick and charcoal fragments)		0.05						0.10	J	1										No collapse of sidewalls during drilling
				Gravel of angular to subrounded fine to medium flint and rare fine brick and charcoal fragments)		0.20						0.20	J	2										
				Firm becoming stiff brown slightly sandy gravelly CLAY. Gravel of subrounded to rounded chalk and angular to subrounded fine to coarse flint. (LOWESTOFT FORMATION)		0.30																		
												0.60	J	3										
												0.80	D	1									Shear vane test = 74kN/m ²	
												1.00	1 D	2									Shear vane test = 84kN/m ²	
						1.80						1.80	D	3									Infiltration test undertaken at 1.48m depth Shear vane test = 96kN/m ²	
												2											Windowless sample hole completed at 1.8m depth	
												3												
												4												

<p>*WATER Standing water level</p> <p> Water strikes</p>	<p>PIEZOMETER </p>	<p>Upper seal </p> <p>Response zone </p> <p>Lower seal </p>	<p>SAMPLE AND TEST KEY</p> <p>D Small disturbed sample</p> <p>B Bulk disturbed sample</p> <p>U Undisturbed sample</p> <p>P Piston sample</p> <p>J Disturbed jar sample</p> <p>ES Environmental soil sample</p> <p>W Water Sample</p>	<p>S Standard penetration test</p> <p>C Cone penetration test</p> <p>K Permeability test</p>	<p>Blows SPT N</p> <p>SPT N = SPT N value (blows after seating)</p> <p>N*120 = Total blows/penetration including seating</p> <p><425 Sample % passing 425 micron sieve</p>	<p>Geosphere Environmental Ltd Brightwell Barns, Ipswich Road, Brightwell, Suffolk, IP10 0BJ Telephone: 01603 298 076 Fax: 01603 298 075</p>	<p>PROJECT No 995,SI</p> <p>SHEET 1 OF 1</p> <p>HOLE No. WS3.</p>
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DEPTH All depths, level and thicknesses in metres

CLIENT: c/o Savills PROJECT: Land to the North West of Haverhill
 LOGGED BY: LF CHECKED BY: EXCAVATION METHOD: Windowless sampler
 FIELDWORK BY: GEL COORDINATES E N
 TEMPLATE REF: GEL AGS BH BETA DATE: Uncased to 2.0 m DATES 29/10/2014 - 29/10/2014
 PROJECT NO. 995,SI

Date/Time and Depth	Depth of Casing	Depth* of Water	Piez.	Description of Strata	Strata		Graphical Representation					Sampling/In-Situ Testing				Laboratory Testing						Additional Tests and Notes								
					Leg	Reduced Level	Depth	SPT 'N' Value					Depths	Type	No.	Blows	SPT N	<425 %	WC %	PL %	LL %		ρ Mg/m ³	Cu kN/m ²						
								0	10	20	30	40																		
				TOPSOIL (Dark brown slightly gravelly sandy clay with rootlets. Gravel of angular to subrounded fine to medium flint)			0.00						0																	Groundwater not encountered during drilling
				TOPSOIL (Dark brown slightly sandy slightly gravelly clay. Gravel of angular to subrounded fine to medium flint and rare fine brick and charcoal fragments)			0.05						0.10	J	1														No collapse of sidewalls during drilling	
				Stiff becoming very stiff pale brown grey mottled slightly sandy gravelly CLAY. Gravel of subrounded to rounded fine to coarse chalk and angular to subrounded fine to coarse flint. (LOWESTOFT FORMATION)			0.25						0.50	J	2															
														0.80	D	1														Shear vane test = 68kN/m ²
														1.00	1	D	2													Shear vane test = 82kN/m ²
														2.00	2	D	3													Shear vane test = 87kN/m ² Windowless sample hole completed at 2.0m depth

GEL AGS BH BETA 995,SI - NW HAVERHILL, 31-10-14, LF, SG, GPJ, GINT STD, AGS 3, 1, GDT, 11/12/14

*WATER Standing water level PIEZOMETER Upper seal Response zone Lower seal

SAMPLE AND TEST KEY
 D Small disturbed sample
 B Bulk disturbed sample
 U Undisturbed sample
 P Piston sample
 J Disturbed jar sample
 ES Environmental soil sample
 W Water Sample

S Standard penetration test
 C Cone penetration test
 K Permeability test

Blows SPT N
 SPT N = SPT N value (blows after seating)
 N*120 = Total blows/penetration including seating
 <425 Sample % passing 425 micron sieve

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PROJECT No.
 995,SI
 SHEET
 1 OF 1
 HOLE No.
 WS4.

DEPTH All depths, level and thicknesses in metres

CLIENT: c/o Savills		PROJECT: Land to the North West of Haverhill			GROUND LEVEL			HOLE No. WS5		
LOGGED BY: LF FIELDWORK BY: GEL TEMPLATE REF: GEL AGS BH BETA		CHECKED BY: DATE:		EXCAVATION METHOD: Windowless sampler Uncased to 4.0 m			COORDINATES E N			SHEET 1 OF 1
							DATES 29/10/2014 - 29/10/2014			PROJECT NO. 995,SI

Date/Time and Depth	Depth of Casing	Depth* of Water	Piez.	Description of Strata	Strata		Graphical Representation					Sampling/In-Situ Testing				Laboratory Testing						Additional Tests and Notes	
					Leg	Reduced Level	Depth	SPT 'N' Value					Depths	Type	No.	Blows	SPT N	<425 %	WC %	PL %	LL %		ρ Mg/m ³
							0	10	20	30	40												
				TOPSOIL (Dark brown slightly gravelly sandy clay with rootlets. Gravel of angular to subrounded fine to medium flint)		0.00						0											Groundwater not encountered during drilling Metals, PAH, TPH, Moisture content, pH and Sulphate No collapse of sidewalls during drilling
				TOPSOIL (Dark brown slightly sandy slightly gravelly clay. Gravel of angular to subrounded fine to medium flint and rare fine brick and charcoal fragments)		0.05						0.10	J	1									
				Firm becoming stiff pale brown grey mottled slightly sandy gravelly CLAY. Gravel of subrounded to rounded fine to coarse chalk and angular to subrounded fine to coarse flint. (LOWESTOFT FORMATION)		0.40						0.70	D	1									
				1.00 Becoming dark yellow brown grey mottled with depth								1	C		23 34 55	17							
				2.00 Becoming dark brown grey mottled with depth								1.60	D	2									
												2	C		33 44 56	19							
												2.60	D	3									
												3	C		44 55 76	23							
				3.50 Occasional iron oxide staining below 3.5m depth								3.60	D	4									
						4.00						4	C		55 57 79	28						Windowless sample hole completed at 4.0m depth	

GEL AGS BH BETA 995,SI - NW HAVERHILL, 31-10-14, LF, SG, GPJ, GINT STD AGS 3, 1, GDT, 11/12/14

*WATER	Standing water level	PIEZOMETER	Upper seal	SAMPLE AND TEST KEY	D Small disturbed sample	S Standard penetration test	Blows	SPT blows for each 75mm increment
▽	Water strikes		Response zone		B Bulk disturbed sample	C Cone penetration test	(35)	Undisturbed sample blow count
			Lower seal		U Undisturbed sample	K Permeability test	N	= SPT N value (blows after seating)
					P Piston sample		N*120	= Total blows/penetration including seating
					J Disturbed jar sample		<425	Sample % passing 425 micron sieve
					ES Environmental soil sample			
					W Water Sample			

gel

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PROJECT No
995,SI
SHEET
1 OF 1
HOLE No.
WSS.

GEL AGS BH BETA 995,SI - NW HAVERHILL, 31-10-14, LF,SG,GPJ, GINT STD AGS 3, 1,GDT, 11/12/14

CLIENT: c/o Savills		PROJECT: Land to the North West of Haverhill			GROUND LEVEL			HOLE No. WS6		
LOGGED BY: LF FIELDWORK BY: GEL TEMPLATE REF: GEL AGS BH BETA		CHECKED BY: DATE:		EXCAVATION METHOD: Windowless sampler Uncased to 1.9 m			COORDINATES E N			SHEET 1 OF 1
							DATES 29/10/2014 - 29/10/2014			PROJECT NO. 995,SI

Date/Time and Depth	Depth of Casing	Depth* of Water	Piez.	Description of Strata	Strata		Graphical Representation					Sampling/In-Situ Testing				Laboratory Testing						Additional Tests and Notes		
					Leg	Reduced Level	Depth	SPT 'N' Value					Depths	Type	No.	Blows	SPT N	<425 %	WC %	PL %	LL %		ρ Mg/m ³	Cu kN/m ²
							0	10	20	30	40													
				TOPSOIL (Dark brown slightly gravelly sandy clay with rootlets. Gravel of angular to subrounded fine to medium flint)		0.00						0												Groundwater not encountered during drilling
				TOPSOIL (Dark brown slightly sandy slightly gravelly clay. Gravel of angular to subrounded fine to medium flint and rare fine brick and charcoal fragments)		0.05						0.10	J	1									No collapse of sidewalls during drilling	
				Stiff becoming very stiff pale brown grey mottled slightly sandy gravelly CLAY. Gravel of subrounded to rounded fine to coarse chalk and angular to subrounded fine to coarse flint. (LOWESTOFT FORMATION)		0.25																		
													0.60	J	2									
				1.00 Becoming yellow brown grey mottled with depth below 1.0m								0.80	D	1										
													1											Infiltration test undertaken at 1.41m depth
						1.89						1.80	D	2									Windowless sample hole completed at 1.89m depth	
												2												
												3												
												4												

<p>*WATER Standing water level</p> <p> Water strikes</p>	<p>PIEZOMETER </p>	<p>Upper seal </p> <p>Response zone </p> <p>Lower seal </p>	<p>SAMPLE AND TEST KEY</p> <p>D Small disturbed sample</p> <p>B Bulk disturbed sample</p> <p>U Undisturbed sample</p> <p>P Piston sample</p> <p>J Disturbed jar sample</p> <p>ES Environmental soil sample</p> <p>W Water Sample</p>	<p>S Standard penetration test</p> <p>C Cone penetration test</p> <p>K Permeability test</p>	<p>Blows SPT N</p> <p>SPT N = SPT N value (blows after seating)</p> <p>N*120 = Total blows/penetration including seating</p> <p><425 Sample % passing 425 micron sieve</p>	<p>Geosphere Environmental Ltd Brightwell Barns, Ipswich Road, Bightwell, Suffolk, IP10 0BJ Telephone: 01603 298 076 Fax: 01603 298 075</p>	<p>PROJECT No 995,SI</p> <p>SHEET 1 OF 1</p> <p>HOLE No. WS6.</p>
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DEPTH All depths, level and thicknesses in metres

CLIENT: c/o Savills		PROJECT: Land to the North West of Haverhill			GROUND LEVEL			HOLE No. WS7		
LOGGED BY: LF FIELDWORK BY: GEL TEMPLATE REF: GEL AGS BH BETA		CHECKED BY: DATE:		EXCAVATION METHOD: Windowless sampler Uncased to 4.0 m			COORDINATES E N			SHEET 1 OF 1
							DATES 29/10/2014 - 29/10/2014			PROJECT NO. 995,SI

Date/Time and Depth	Depth of Casing	Depth* of Water	Piez.	Description of Strata	Strata		Graphical Representation					Sampling/In-Situ Testing				Laboratory Testing						Additional Tests and Notes			
					Leg	Reduced Level	Depth	SPT 'N' Value					Depths	Type	No.	Blows	SPT N	<425 %	WC %	PL %	LL %		ρ Mg/m ³	Cu kN/m ²	
								0	10	20	30	40													
				TOPSOIL (Dark brown slightly gravelly clay. Gravel of angular to subrounded fine to medium flint, rare brick and charcoal fragments)			0.00						0											Groundwater not encountered during drilling Metals, PAH, TPH, Moisture content, pH and Sulphate No collapse of sidewalls during drilling	
				Firm becoming stiff brown grey mottled slightly sandy gravelly CLAY. Gravel of subrounded to rounded fine to coarse chalk and angular to subrounded fine to coarse flint. (LOWESTOFT FORMATION)			0.30						0.10	J	1										Metals, PAH, TPH, Moisture content, pH and Sulphate
				1.00 Occasional iron oxide staining below 1.0m depth									0.40	J	2										
				2.00 Becoming dark yellow brown grey mottled with depth									0.80	D	1								Shear vane test = 56kN/m ²		
				3.50 Becoming dark grey with brown mottling with depth									1.80	D	2								Shear vane test = 82kN/m ²		
													2.60	D	3								Shear vane test = 94kN/m ²		
													3.60	D	4								Shear vane test = 88kN/m ²		
							4.00						4										Windowless sample hole completed at 4.0m depth 50mm diameter monitoring well installed to 4.0m		

GEL AGS BH BETA 995,SI - NW HAVERHILL, 31-10-14, LF, SG, GPJ - GINT STD AGS 3, 1, GDT 11/12/14

*WATER	Standing water level	PIEZOMETER	Upper seal	SAMPLE AND TEST KEY	D Small disturbed sample	S Standard penetration test	Blows	SPT blows for each 75mm increment
▽	Water strikes		Response zone	B Bulk disturbed sample	C Cone penetration test	SPT N	(35) Undisturbed sample blow count	N = SPT N value (blows after seating)
			Lower seal	U Undisturbed sample	K Permeability test		N*120 = Total blows/penetration including seating	
				P Piston sample			<425	Sample % passing 425 micron sieve
				J Disturbed jar sample				
				ES Environmental soil sample				
				W Water Sample				

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PROJECT No
995,SI
SHEET
1 OF 1
HOLE No.
WS7

DEPTH All depths, level and thicknesses in metres

CLIENT: c/o Savills		PROJECT: Land to the North West of Haverhill			GROUND LEVEL				HOLE No. WS8			
LOGGED BY: LF FIELDWORK BY: GEL TEMPLATE REF: GEL AGS BH BETA		CHECKED BY: DATE:		EXCAVATION METHOD: Windowless sampler Uncased to 2.0 m			COORDINATES E N				SHEET 1 OF 1	
							DATES 29/10/2014 - 29/10/2014				PROJECT NO. 995,SI	

Date/Time and Depth	Depth of Casing	Depth* of Water	Piez.	Description of Strata	Strata		Graphical Representation					Sampling/In-Situ Testing				Laboratory Testing						Additional Tests and Notes		
					Leg	Reduced Level	Depth	SPT 'N' Value					Depths	Type	No.	Blows	SPT N	<425 %	WC %	PL %	LL %		ρ Mg/m ³	Cu kN/m ²
								0	10	20	30	40												
				TOPSOIL (Dark brown slightly sandy slightly gravelly clay. Gravel of angular to subrounded fine to medium flint and rare fine brick and charcoal fragments)		0.00							0	J	1									Groundwater not encountered during drilling Metals, PAH, TPH, Moisture content, pH and Sulphate No collapse of sidewalls during drilling
				Firm becoming stiff yellow brown grey mottled slightly sandy gravelly CLAY. Gravel of subrounded to rounded fine to coarse chalk and angular to subrounded fine to coarse flint. (LOWESTOFT FORMATION)		0.30							0.10	J	2									
				0.80 - Becoming yellow brown grey mottled with depth									0.40	J										
				1.00 - Becoming brown/grey mottled with depth									0.80	D	1								Shear vane test = 78kN/m ²	
													1										Infiltration test undertaken at 1.58m depth	
													1.70	D	2								Shear vane test = 102kN/m ²	
						2.00							2										Windowless sample hole completed at 2.0m depth	
													3											
													4											

GEL AGS BH BETA 995,SI - NW HAVERHILL, 31-10-14, LF,SG,GPJ, GINT STD AGS 3, 1,GDT 11/12/14

*WATER	Standing water level	PIEZOMETER	Upper seal	SAMPLE	D Small disturbed sample	S Standard penetration test	Blows	SPT blows for each 75mm increment
▽	Water strikes		Response zone	AND	B Bulk disturbed sample	C Cone penetration test		(35) Undisturbed sample blow count
			Lower seal	TEST	U Undisturbed sample	K Permeability test	SPT N	N = SPT N value (blows after seating)
				KEY	P Piston sample			N*120 = Total blows/penetration including seating
					J Disturbed jar sample			Sample % passing 425 micron sieve
					ES Environmental soil sample			
					W Water Sample			

DEPTH All depths, level and thicknesses in metres

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PROJECT No 995,SI	SHEET 1 OF 1	HOLE No. WS8
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CLIENT: c/o Savills		PROJECT: Land to the North West of Haverhill			GROUND LEVEL				HOLE No. WS9			
LOGGED BY: LF FIELDWORK BY: GEL TEMPLATE REF: GEL AGS BH BETA		CHECKED BY: DATE:		EXCAVATION METHOD: Windowless sampler Uncased to 2.0 m			COORDINATES E N				SHEET 1 OF 1	
							DATES 29/10/2014 - 29/10/2014				PROJECT NO. 995,SI	

Date/Time and Depth	Depth of Casing	Depth* of Water	Piez.	Description of Strata	Strata		Graphical Representation					Sampling/In-Situ Testing				Laboratory Testing						Additional Tests and Notes	
					Leg	Reduced Level	Depth	SPT 'N' Value					Depths	Type	No.	Blows	SPT N	<425 %	WC %	PL %	LL %		ρ Mg/m ³
								0	10	20	30	40											
				TOPSOIL (Dark brown slightly sandy slightly gravelly clay. Gravel of angular to subrounded fine to medium flint and rare fine brick and charcoal fragments)		0.00						0	J	1									Groundwater not encountered during drilling
				Stiff becoming very stiff yellow brown grey mottled slightly sandy gravelly CLAY. Gravel of subrounded to rounded fine to coarse chalk and angular to subrounded fine to coarse flint. (LOWESTOFT FORMATION)		0.30						0.10	J	2									No collapse of sidewalls during drilling
				1.00 - Becoming brown/grey mottled with depth								0.50	J	2									
												0.80	D	1									
												1	C		35	35	23						
												1.60	D	2									
						2.00						2										Windowless sample hole completed at 2.0m depth	
												3										50mm diameter monitoring well installed to 2.0m	
												4											

GEL AGS BH BETA 995,SI - NW HAVERHILL, 31-10-14, LF, SG, GPJ, GINT, STD, AGS 3, 1, GDT, 11/12/14

*WATER	Standing water level	PIEZOMETER	Upper seal	SAMPLE AND TEST KEY	D Small disturbed sample	S Standard penetration test	Blows	SPT blows for each 75mm increment
▽	Water strikes		Response zone	B Bulk disturbed sample	C Cone penetration test	SPT N	(35) Undisturbed sample blow count	
			Lower seal	U Undisturbed sample	K Permeability test		N = SPT N value (blows after seating)	
				P Piston sample			N*120 = Total blows/penetration including seating	
				J Disturbed jar sample			<425 Sample % passing 425 micron sieve	
				ES Environmental soil sample				
				W Water Sample				

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PROJECT No
995,SI
SHEET
1 OF 1
HOLE No.
WS9

DEPTH All depths, level and thicknesses in metres

CLIENT: c/o Savills		PROJECT: Land to the North West of Haverhill			GROUND LEVEL				HOLE No. WS10			
LOGGED BY: BG FIELDWORK BY: GEL TEMPLATE REF: GEL AGS BH BETA		CHECKED BY: DATE:		EXCAVATION METHOD: Windowless sampler Uncased to 2.0 m			COORDINATES E N				SHEET 1 OF 1	
							DATES 30/10/2014 - 30/10/2014				PROJECT NO. 995,SI	

Date/Time and Depth	Depth of Casing	Depth* of Water	Piez.	Description of Strata	Strata		Graphical Representation					Sampling/In-Situ Testing				Laboratory Testing						Additional Tests and Notes		
					Leg	Reduced Level	Depth	SPT 'N' Value					Depths	Type	No.	Blows	SPT N	<425 %	WC %	PL %	LL %		ρ Mg/m ³	Cu kN/m ²
							0	10	20	30	40													
				TOPSOIL (Dark brown slightly sandy slightly gravelly clay. Gravel of subangular to subrounded fine to medium flint and rare chalk)		0.00						0												Groundwater not encountered during drilling Metals, PAH, TPH, Moisture content, pH and Sulphate No collapse of sidewalls during drilling
				Stiff pale brown gravelly CLAY. Gravel of subangular to rounded fine to coarse chalk. (LOWESTOFT FORMATION)		0.15						0.10	J	1										
												0.75	D	1										Shear vane test = 108kN/m ²
				Stiff dark grey brown mottled gravelly CLAY. Gravel of angular to subrounded fine to coarse chalk. (LOWESTOFT FORMATION)		1.10						1	C		25 34 45	16								
												1.50	D	2										Shear vane test = 116kN/m ²
						2.00						2												
												3												
												4												

GEL AGS BH BETA 995,SI - NW HAVERHILL, 31-10-14, LF_SG.GPJ_GINT STD AGS 3_1.GDT 11/12/14

*WATER	Standing water level	PIEZOMETER	Upper seal	SAMPLE AND TEST KEY	D Small disturbed sample	S Standard penetration test	Blows	SPT blows for each 75mm increment
▽	Water strikes		Response zone		B Bulk disturbed sample	C Cone penetration test	(35)	Undisturbed sample blow count
			Lower seal		U Undisturbed sample	K Permeability test	SPT N	N = SPT N value (blows after seating)
					P Piston sample			N*120 = Total blows/penetration including seating
					J Disturbed jar sample			Sample % passing 425 micron sieve
					ES Environmental soil sample			
					W Water Sample			

DEPTH All depths, level and thicknesses in metres


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PROJECT No
995,SI
SHEET
1 OF 1
HOLE No.
WS10

CLIENT: c/o Savills		PROJECT: Land to the North West of Haverhill			GROUND LEVEL			HOLE No. WS11		
LOGGED BY: BG FIELDWORK BY: GEL TEMPLATE REF: GEL AGS BH BETA		CHECKED BY: DATE:		EXCAVATION METHOD: Windowless sampler Uncased to 4.0 m			COORDINATES E N			SHEET 1 OF 1
							DATES 30/10/2014 - 30/10/2014			PROJECT NO. 995,SI

Date/Time and Depth	Depth of Casing	Depth of Water	Piez.	Description of Strata	Strata		Graphical Representation				Sampling/In-Situ Testing				Laboratory Testing						Additional Tests and Notes	
					Leg	Reduced Level	Depth	SPT 'N' Value				Depths	Type	No.	Blows	SPT N	<425 %	WC %	PL %	LL %		ρ Mg/m ³
							0	10	20	30	40											
				TOPSOIL (Desiccated dark brown sandy slightly gravelly clay with rootlets. Gravel of subangular fine to coarse flint and chalk with very rare brick fragments)		0.00						0										Groundwater not encountered during drilling
				Stiff pale brown grey mottled gravelly slightly cobbly desiccated CLAY. Gravel of angular to subangular fine to coarse chalk. (LOWESTOFT FORMATION)		0.30						0.20	J	1								No collapse of sidewalls during drilling
				1.10 Becoming brown dark grey mottled and very stiff to hard with depth								0.75	D	1								
				1.30 Orange brown sandy pockets present with depth								1	C		3 2 4 4 4 6	18						Shear vane test = 104kN/m ²
												1.50	D	2								Shear vane test = 136kN/m ²
												2	C		3 4 4 5 6 6	21					Shear vane test = 136kN/m ²	
												2.50	D	3								Shear vane test = 120kN/m ² Shear vane test = 128kN/m ²
				2.80 Becoming dark brown dark grey mottled with depth								3	C		4 4 5 6 7	26						Shear vane test = 128kN/m ² Shear vane test = 140kN/m ²
						4.00						4	C		5 7 7 8 10 12	37						Windowless sample hole completed 4.0m depth 50mm diameter monitoring well installed to 4.0m

GEL AGS BH BETA 995,SI - NW HAVERHILL, 31-10-14, LF, SG, GPJ, GINT, STD, AGS 3, 1, GDT, 11/12/14

*WATER	Standing water level	PIEZOMETER	Upper seal	SAMPLE AND TEST KEY	D Small disturbed sample	S Standard penetration test	Blows	SPT blows for each 75mm increment	 Geosphere Environmental Ltd Brightwell Barns, Ipswich Road, Bightwell, Suffolk, IP10 0BJ Telephone: 01603 298 076 Fax: 01603 298 075	PROJECT No 995,SI SHEET 1 OF 1 HOLE No. WS11
	Water strikes		Response zone	B Bulk disturbed sample	C Cone penetration test	SPT N	(35) Undisturbed sample blow count			
			Lower seal	U Undisturbed sample	K Permeability test		N = SPT N value (blows after seating) N*120 = Total blows/penetration including seating Sample % passing 425 micron sieve			

DEPTH All depths, level and thicknesses in metres W Water Sample

CLIENT: c/o Savills		PROJECT: Land to the North West of Haverhill			GROUND LEVEL			HOLE No. WS12		
LOGGED BY: BG FIELDWORK BY: GEL TEMPLATE REF: GEL AGS BH BETA		CHECKED BY: DATE:		EXCAVATION METHOD: Windowless sampler Uncased to 1.7 m			COORDINATES E N			SHEET 1 OF 1
							DATES 30/10/2014 - 30/10/2014			PROJECT NO. 995,SI

Date/Time and Depth	Depth of Casing	Depth of Water	Piez.	Description of Strata	Strata		Graphical Representation					Sampling/In-Situ Testing				Laboratory Testing						Additional Tests and Notes		
					Leg	Reduced Level	Depth	SPT 'N' Value					Depths	Type	No.	Blows	SPT N	<425 %	WC %	PL %	LL %		ρ Mg/m ³	Cu kN/m ²
								0	10	20	30	40												
				TOPSOIL (Dark brown slightly gravelly clay. Gravel of subangular to subrounded fine to coarse flint with fragments of brick)		0.00							0											Groundwater not encountered during drilling Metals, PAH, TPH, Moisture content, pH and Sulphate Infiltration test undertaken at 0.15m depth No collapse of sidewalls during drilling Shear vane test = 72kN/m ²
				Firm brown slightly gravelly CLAY. Gravel of subangular fine chalk. (LOWESTOFT FORMATION)		0.10							0.10	J	1									
													1										Shear vane test = 60kN/m ²	
													1.50	D	1								Shear vane test = 52kN/m ²	
						1.68																	Shear vane test = 72kN/m ² Windowless sample hole completed at 1.68m depth	
													2											
													3											
													4											

GEL AGS BH BETA 995,SI - NW HAVERHILL, 31-10-14, LF_SG.GPJ_GINT STD AGS 3_1.GDT 11/12/14

*WATER	Standing water level	PIEZOMETER	Upper seal	SAMPLE	D Small disturbed sample	S Standard penetration test	Blows	SPT blows for each 75mm increment
▽	Water strikes		Response zone	AND	B Bulk disturbed sample	C Cone penetration test	(35)	Undisturbed sample blow count
			Lower seal	TEST	U Undisturbed sample	K Permeability test	SPT N	N = SPT N value (blows after seating)
				KEY	P Piston sample			N*120 = Total blows/penetration including seating
					J Disturbed jar sample			<425 Sample % passing 425 micron sieve
					ES Environmental soil sample			
					W Water Sample			

DEPTH All depths, level and thicknesses in metres

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PROJECT No
995,SI
SHEET
1 OF 1
HOLE No.
WS12


CLIENT: c/o Savills **PROJECT: Land to the North West of Haverhill** **GROUND LEVEL** **HOLE No. WS13**
 LOGGED BY: BG CHECKED BY: EXCAVATION METHOD: Windowless sampler **COORDINATES E N** **SHEET 1 OF 1**
 FIELDWORK BY: GEL DATE: Uncased to 4.0 m **DATES 30/10/2014 - 30/10/2014** **PROJECT NO. 995,SI**
 TEMPLATE REF: GEL AGS BH BETA

Date/Time and Depth	Depth of Casing	Depth* of Water	Piez.	Description of Strata	Strata		Graphical Representation					Sampling/In-Situ Testing				Laboratory Testing						Additional Tests and Notes		
					Leg	Reduced Level	Depth	SPT 'N' Value					Depths	Type	No.	Blows	SPT N	<425 %	WC %	PL %	LL %		ρ Mg/m ³	Cu kN/m ²
							0	10	20	30	40													
				TOPSOIL (Dark brown slightly silty slightly sandy slightly gravelly clay with rootlets. Gravel of subangular to subrounded fine to medium flint)		0.00						0												Groundwater not encountered during drilling
				Stiff to very stiff gravelly CLAY. Gravel of subangular fine to coarse chalk and flint. (LOWESTOFT FORMATION)		0.40						0.20	J	1										No collapse of sidewalls with depth
				Soft to firm brown and orange brown mottled slightly sandy slightly gravelly CLAY. Gravel of subangular coarse flint. (LOWESTOFT FORMATION)		1.00						0.75	D	1										
				Very stiff to hard pale brown grey mottled gravelly CLAY. Gravel of subangular to subrounded fine to coarse chalk. (LOWESTOFT FORMATION)		1.50						1												Shear vane test = 52kN/m ²
						1.50						1.50	D	2										Shear vane test = 52kN/m ²
												2												Shear vane test = 68kN/m ²
												3												Shear vane test = 128kN/m ²
												3.50	D	3										
						4.00						4												Windowless sample hole completed at 4.0m depth 50mm diameter monitoring well installed to 4.0m

GEL AGS BH BETA 995,SI - NW HAVERHILL, 31-10-14, LF, SG, GPJ, GINT, STD, AGS 3, 1, GDT, 11/12/14

*WATER	Standing water level	PIEZOMETER	Upper seal	SAMPLE	D Small disturbed sample	S Standard penetration test	Blows	SPT blows for each 75mm increment
▽	Water strikes		Response zone	AND	B Bulk disturbed sample	C Cone penetration test	(35)	Undisturbed sample blow count
			Lower seal	TEST	U Undisturbed sample	K Permeability test	N =	SPT N value (blows after seating)
				KEY	P Piston sample		N*120 =	Total blows/penetration including seating
					J Disturbed jar sample		<425	Sample % passing 425 micron sieve
					ES Environmental soil sample			
					W Water Sample			

DEPTH All depths, level and thicknesses in metres



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PROJECT No
995,SI
SHEET
1 OF 1
HOLE No.
WS13

CLIENT: c/o Savills			PROJECT: Land to the North West of Haverhill				GROUND LEVEL				HOLE No. WS14		
LOGGED BY: BG FIELDWORK BY: GEL TEMPLATE REF: GEL AGS BH BETA		CHECKED BY: DATE:		EXCAVATION METHOD: Windowless sampler Uncased to 2.0 m				COORDINATES E N				SHEET 1 OF 1	
								DATES 30/10/2014 - 30/10/2014				PROJECT NO. 995,SI	

Date/Time and Depth	Depth of Casing	Depth of Water	Piez.	Description of Strata	Strata		Graphical Representation					Sampling/In-Situ Testing				Laboratory Testing						Additional Tests and Notes			
					Leg	Reduced Level	Depth	SPT 'N' Value					Depths	Type	No.	Blows	SPT N	<425 %	WC %	PL %	LL %		ρ Mg/m ³	Cu kN/m ²	
								0	10	20	30	40													
				TOPSOIL (Dark brown slightly silty slightly sandy slightly gravelly CLAY with rootlets. Gravel of subangular fine to medium flint and chalk)		0.00						0													Groundwater not encountered during drilling Metals, PAH, TPH, Moisture content, pH and Sulphate No collapse of sidewalls during drilling Shear vane test = 88kN/m ² Infiltration test undertaken at 0.70m depth Shear vane test = 132kN/m ² Shear vane test = 140kN/m ² Shear vane test = 100kN/m ² Windowless sample hole completed at 1.97m depth
				Stiff pale brown slightly gravelly CLAY. Gravel of subangular to subrounded fine to coarse chalk. (LOWESTOFT FORMATION)		0.30						0.15	J	1											
				Stiff dark brown and dark grey mottled gravelly CLAY. Gravel of subangular to subrounded fine to coarse chalk. (LOWESTOFT FORMATION)		0.60																			
				1.10 Becoming hard with depth								1													
				1.70 Orange brown sandy clay pocket present								1.50	D	1											
						1.97						2													

GEL AGS BH BETA 995,SI - NW HAVERHILL, 31-10-14, LF, SG, GPJ, GINT, STD, AGS 3, 1, GDT, 11/12/14

*WATER Standing water level PIEZOMETER

Upper seal Response zone Lower seal

SAMPLE AND TEST KEY

D Small disturbed sample
B Bulk disturbed sample
U Undisturbed sample
P Piston sample
J Disturbed jar sample
ES Environmental soil sample
W Water Sample

S Standard penetration test
C Cone penetration test
K Permeability test

Blows SPT N

SPT blows for each 75mm increment
(35) Undisturbed sample blow count
N = SPT N value (blows after seating)
N*120 = Total blows/penetration including seating
<425 Sample % passing 425 micron sieve

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PROJECT No
995,SI

SHEET
1 OF 1

HOLE No.
WS14

DEPTH All depths, level and thicknesses in metres

CLIENT: c/o Savills		PROJECT: Land to the North West of Haverhill			GROUND LEVEL				HOLE No. WS15			
LOGGED BY: BG FIELDWORK BY: GEL TEMPLATE REF: GEL AGS BH BETA		CHECKED BY: DATE:		EXCAVATION METHOD: Windowless sampler Uncased to 2.0 m			COORDINATES E N				SHEET 1 OF 1	
							DATES 30/10/2014 - 30/10/2014				PROJECT NO. 995,SI	

Date/Time and Depth	Depth of Casing	Depth* of Water	Piez.	Description of Strata	Strata		Graphical Representation					Sampling/In-Situ Testing				Laboratory Testing						Additional Tests and Notes		
					Leg	Reduced Level	Depth	SPT 'N' Value					Depths	Type	No.	Blows	SPT N	<425 %	WC %	PL %	LL %		ρ Mg/m ³	Cu kN/m ²
								0	10	20	30	40												
				TOPSOIL (Desiccated dark brown slightly silty slightly gravelly desiccated CLAY with rootlets. Gravel of subangular to subrounded fine to coarse flint)		0.00							0											Groundwater not encountered during drilling
				Stiff to desiccated pale brown and grey mottled gravelly slightly cobbly desiccated CLAY. Gravel of subangular to rounded fine to coarse chalk (LOWESTOFT FORMATION)		0.20							0.10	J	1									No collapse of sidewalls during drilling
				1.00 Becoming hard and dark grey with depth									0.75	D	1									Infiltration test undertaken at 0.9m depth
													1.50	D	2									
						2.00							2											Windowless sample hole completed at 2.0m depth
													3											
													4											

GEL AGS BH BETA 995,SI - NW HAVERHILL, 31-10-14, LF, SG, GPJ, GINT STD AGS 3, 1, GDT, 11/12/14

*WATER Standing water level PIEZOMETER Upper seal Response zone Lower seal

SAMPLE AND TEST KEY
D Small disturbed sample
B Bulk disturbed sample
U Undisturbed sample
P Piston sample
J Disturbed jar sample
ES Environmental soil sample
W Water Sample

S Standard penetration test
C Cone penetration test
K Permeability test

Blows SPT blows for each 75mm increment (35) Undisturbed sample blow count
N = SPT N value (blows after seating)
N*120 = Total blows/penetration including seating
<425 Sample % passing 425 micron sieve

DEPTH All depths, level and thicknesses in metres



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PROJECT No
995,SI

SHEET
1 OF 1

HOLE No.
WS15

CLIENT: c/o Savills		PROJECT: Land to the North West of Haverhill			GROUND LEVEL			HOLE No. WS16		
LOGGED BY: SG FIELDWORK BY: GEL TEMPLATE REF: GEL AGS BH BETA		CHECKED BY: DATE:		EXCAVATION METHOD: Windowless sampler Uncased to 4.0 m			COORDINATES E N			SHEET 1 OF 1
							DATES 31/10/2014 - 31/10/2014			PROJECT NO. 995,SI

Date/Time and Depth	Depth of Casing	Depth* of Water	Piez.	Description of Strata	Strata		Graphical Representation					Sampling/In-Situ Testing				Laboratory Testing						Additional Tests and Notes		
					Leg	Reduced Level	Depth	SPT 'N' Value					Depths	Type	No.	Blows	SPT N	<425 %	WC %	PL %	LL %		ρ Mg/m ³	Cu kN/m ²
							0	10	20	30	40													
				TOPSOIL (Dark grey brown slightly gravelly clay. Gravel of fine to medium flint with occasional brick).		0.00						0												Groundwater not encountered during drilling No collapse of sidewalls during drilling
				Firm becoming stiff dark yellow brown slightly gravelly desiccated CLAY. Gravel of fine to medium flint with occasional medium chalk. (LOWESTOFT FORMATION) 0.50 Rootlets present		0.30						0.10	J	1										
				1.50 No desiccation below 1.5m and becoming slightly sandy and firm with depth								1												
				2.20 Becoming gravelly and pale grey orange brown mottled below 2.2m. Gravel is fine to coarse chalk and flint								2												
												3												
												4												
						4.00						4											Windowless sample hole completed at 4.0m	

GEL AGS BH BETA 995,SI - NW HAVERHILL, 31-10-14, LF_SG.GPJ_GINT STD AGS 3_1.GDT 11/12/14

*WATER Standing water level PIEZOMETER Upper seal Response zone Lower seal

SAMPLE AND TEST KEY
 D Small disturbed sample
 B Bulk disturbed sample
 U Undisturbed sample
 P Piston sample
 J Disturbed jar sample
 ES Environmental soil sample
 W Water Sample

S Standard penetration test
 C Cone penetration test
 K Permeability test

Blows SPT N
 SPT N = SPT N value (blows after seating)
 N*120 = Total blows/penetration including seating
 <425 Sample % passing 425 micron sieve

DEPTH All depths, level and thicknesses in metres



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PROJECT No
995,SI

SHEET
1 OF 1

HOLE No.
WS16

CLIENT: c/o Savills		PROJECT: Land to the North West of Haverhill			GROUND LEVEL				HOLE No. WS18			
LOGGED BY: LF FIELDWORK BY: GEL TEMPLATE REF: GEL AGS BH BETA		CHECKED BY: DATE:		EXCAVATION METHOD: Windowless sampler Uncased to 4.0 m			COORDINATES E N				SHEET 1 OF 1	
							DATES 31/10/2014 - 31/10/2014				PROJECT NO. 995,SI	

Date/Time and Depth	Depth of Casing	Depth* of Water	Piez.	Description of Strata	Strata		Graphical Representation					Sampling/In-Situ Testing				Laboratory Testing						Additional Tests and Notes	
					Leg	Reduced Level	Depth	SPT 'N' Value					Depths	Type	No.	Blows	SPT N	<425 %	WC %	PL %	LL %		ρ Mg/m ³
							0	10	20	30	40												
				TOPSOIL (Dark brown slightly gravelly clay with rootlets. Gravel of angular to subrounded fine to medium flint and infrequent charcoal fragments).		0.00						0											No collapse of sidewalls during drilling
				Firm becoming stiff dark brown slightly gravelly CLAY. Gravel of angular to subrounded fine to medium flint. (HEAD DEPOSITS)		0.30																	
31/10		1.00										0.80	D	1									Seepage inflow of water at 1m
												1.20	D	2									
				Firm becoming stiff orange brown gravelly CLAY. Gravel of subrounded to rounded fine to coarse chalk and angular to subrounded fine to coarse flint. (LOWESTOFT FORMATION)		1.50																	
				2.20 Becoming brown grey mottled with depth								2											
												3.00	D	3									
												4											Windowless sample hole completed at 4.0m
												4.00											

GEL AGS BH BETA 995,SI - NW HAVERHILL, 31-10-14, LF, SG, GPJ, GINT STD, AGS 3, 1, GDT, 11/12/14

*WATER	▽ Standing water level	PIEZOMETER	Upper seal	SAMPLE AND TEST KEY	D Small disturbed sample	S Standard penetration test	Blows	SPT blows for each 75mm increment
	▽ Water strikes		Response zone		B Bulk disturbed sample	C Cone penetration test	N	(35) Undisturbed sample blow count
			Lower seal		U Undisturbed sample	K Permeability test	N*	N = SPT N value (blows after seating)
					P Piston sample			N*120 = Total blows/penetration including seating
					J Disturbed jar sample			<425 Sample % passing 425 micron sieve
					ES Environmental soil sample			
					W Water Sample			

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PROJECT No
995,SI
SHEET
1 OF 1
HOLE No.
WS18

CLIENT: c/o Savills		PROJECT: Land to the North West of Haverhill			GROUND LEVEL				HOLE No. WS19			
LOGGED BY: SG FIELDWORK BY: GEL TEMPLATE REF: GEL AGS BH BETA		CHECKED BY: DATE:		EXCAVATION METHOD: Windowless sampler Uncased to 4.0 m			COORDINATES E N				SHEET 1 OF 1	
							DATES 31/10/2014 - 31/10/2014				PROJECT NO. 995,SI	

Date/Time and Depth	Depth of Casing	Depth* of Water	Piez.	Description of Strata	Strata		Graphical Representation					Sampling/In-Situ Testing				Laboratory Testing						Additional Tests and Notes							
					Leg	Reduced Level	Depth	SPT 'N' Value					Depths	Type	No.	Blows	SPT N	<425 %	WC %	PL %	LL %		ρ Mg/m ³	Cu kN/m ²					
							0	10	20	30	40																		
				TOPSOIL (Dark brown gravelly very desiccated clay. Gravel of frequent fine to coarse flint and chalk).			0.00																					Groundwater not encountered during drilling	
				Dark brown pale grey mottled gravelly cobbly very desiccated CLAY. Gravel of fine to coarse flint and chalk with frequent cobbles of chalk. (LOWESTOFT FORMATION)			0.40																					No collapse of sidewalls during drilling	
				2.80 Becoming dark grey with depth																									
				3.00 No desiccation below 3.0m																									
							4.00																					Windowless sample hole completed at 4.0m 50mm diameter monitoring well installed to 4.0m	

GEL AGS BH BETA 995,SI - NW HAVERHILL, 31-10-14, LF, SG, GPJ, GINT, STD, AGS 3, 1, GDT, 11/12/14

*WATER	Standing water level	PIEZOMETER	Upper seal	SAMPLE	D Small disturbed sample	S Standard penetration test	Blows	SPT blows for each 75mm increment
▽	Water strikes		Response zone	AND	B Bulk disturbed sample	C Cone penetration test	(35)	Undisturbed sample blow count
			Lower seal	TEST	U Undisturbed sample	K Permeability test	N =	SPT N value (blows after seating)
				KEY	P Piston sample		N*120 =	Total blows/penetration including seating
					J Disturbed jar sample		<425	Sample % passing 425 micron sieve
					ES Environmental soil sample			
					W Water Sample			

DEPTH All depths, level and thicknesses in metres

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PROJECT No 995,SI	SHEET 1 OF 1	HOLE No. WS19
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CLIENT: c/o Savills		PROJECT: Land to the North West of Haverhill		GROUND LEVEL		HOLE No. WSA	
LOGGED BY: LF FIELDWORK BY: GEL TEMPLATE REF: GEL AGS BH BETA		CHECKED BY: DATE:		EXCAVATION METHOD: Windowless sampler Uncased to 4.0 m		COORDINATES E N	
				DATES 18/11/2014 - 18/11/2014		SHEET 1 OF 1	
						PROJECT NO. 995,SI	

Date/Time and Depth	Depth of Casing	Depth of Water	Piez.	Description of Strata	Strata		Graphical Representation				Sampling/In-Situ Testing				Laboratory Testing						Additional Tests and Notes	
					Leg	Reduced Level	Depth	SPT 'N' Value				Depths	Type	No.	Blows	SPT N	<425 %	WC %	PL %	LL %		ρ Mg/m ³
								0	10	20	30	40										
				TOPSOIL (Dark brown gravelly slightly silty clayey sand with occasional rootlets. Gravel is angular to subrounded fine to medium flint)		0.00						0	J	1								Groundwater not encountered during drilling
				Firm becoming very stiff yellow brown gravelly CLAY. Gravel of angular to subrounded fine to coarse flint and subrounded to rounded fine to coarse chalk (LOWESTOFT FORMATION) 0.50 - Becoming desiccated with depth 0.60 - 1.00 - Becoming dark grey brown with depth		0.25						0.10	J	2								No collapse of sidewalls during drilling Metals, PAH, TPH, Moisture content, pH and Sulphate
				1.00 - 4.00 - Becoming grey brown mottled with depth								0.30										
												1	C		11 12 9 8 8 9		34					
												2	C		6 6 7 7 8 9		31					
												3	C		6 8 9 9 10 12		40					
												4	C		8 9 10 12 13 14		49					Windowless sample hole completed at 4.0m

GEL AGS BH BETA 995,SI - NW HAVERHILL, 31-10-14, LF, SG, GPJ, GINT STD AGS 3, 1, GDT, 11/12/14

*WATER	Standing water level	PIEZOMETER	Upper seal	SAMPLE AND TEST KEY	D Small disturbed sample	S Standard penetration test	Blows	SPT blows for each 75mm increment
▽	Water strikes		Response zone	B Bulk disturbed sample	C Cone penetration test	SPT N	(35) Undisturbed sample blow count	
			Lower seal	U Undisturbed sample	K Permeability test		N = SPT N value (blows after seating)	
				P Piston sample			N*120 = Total blows/penetration including seating	
				J Disturbed jar sample			Sample % passing 425 micron sieve	
				ES Environmental soil sample				
				W Water Sample				

DEPTH All depths, level and thicknesses in metres

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PROJECT No 995,SI	SHEET 1 OF 1	HOLE No. WSA,
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GEL AGS BH BETA 995,SI - NW HAVERHILL, 31-10-14, LF, SG, GPJ, GINT STD AGS 3, 1, GDT 11/12/14

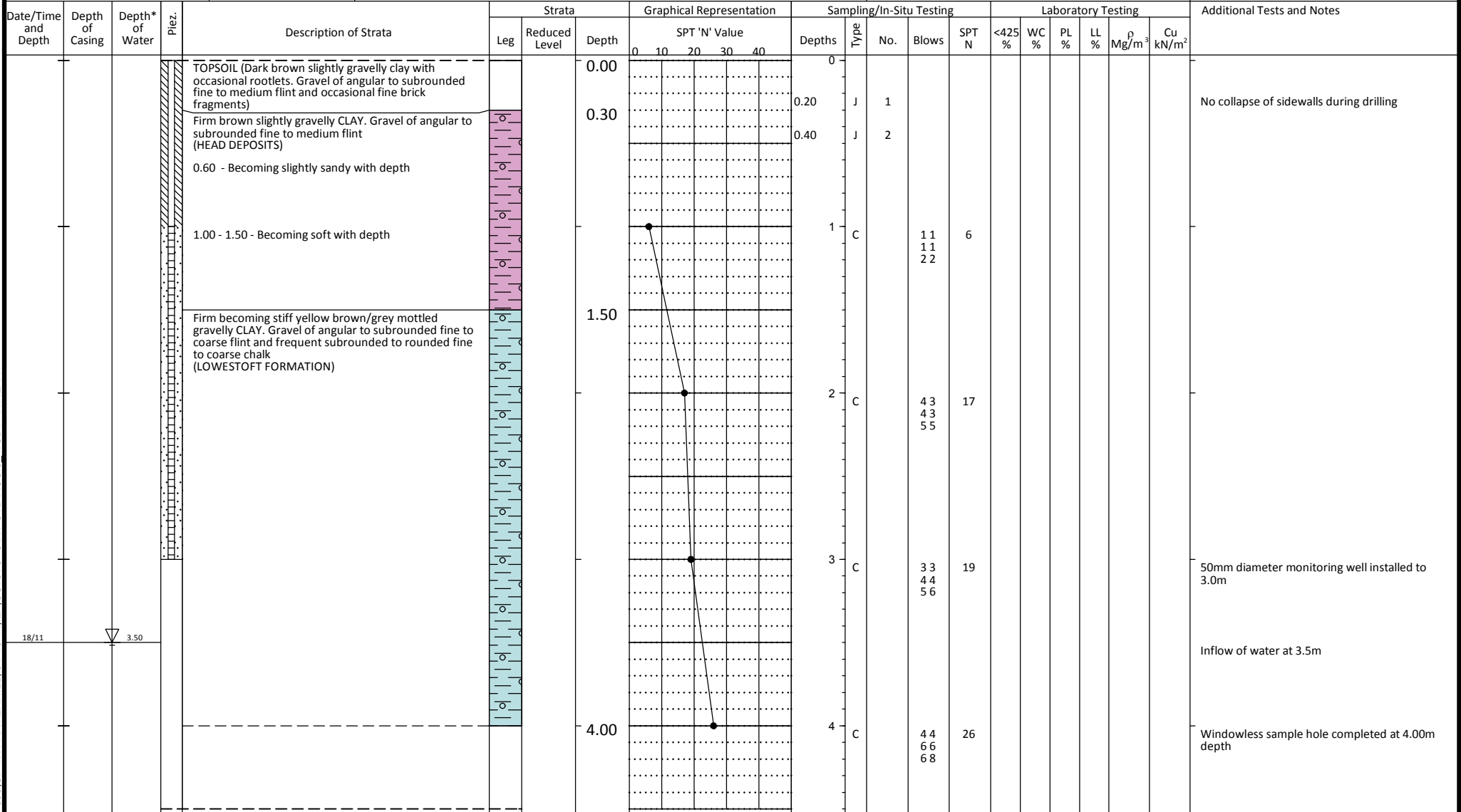
CLIENT: c/o Savills		PROJECT: Land to the North West of Haverhill			GROUND LEVEL				HOLE No. WSB			
LOGGED BY: LF FIELDWORK BY: GEL TEMPLATE REF: GEL AGS BH BETA		CHECKED BY: DATE:		EXCAVATION METHOD: Windowless sampler Uncased to 2.0 m			COORDINATES E N				SHEET 1 OF 1	
							DATES 18/11/2014 - 18/11/2014				PROJECT NO. 995,SI	

Date/Time and Depth	Depth of Casing	Depth* of Water	Piez.	Description of Strata	Strata		Graphical Representation					Sampling/In-Situ Testing				Laboratory Testing						Additional Tests and Notes		
					Leg	Reduced Level	Depth	SPT 'N' Value					Depths	Type	No.	Blows	SPT N	<425 %	WC %	PL %	LL %		ρ Mg/m ³	Cu kN/m ²
							0	10	20	30	40													
				TOPSOIL (Dark brown slightly gravelly clay with rootlets. Gravel of angular to subrounded fine to medium flint)		0.00						0												Groundwater not encountered during drilling No collapse of sidewalls during drilling Metals, PAH, TPH, Moisture content, pH and Sulphate
				Firm becoming stiff light orange brown gravelly CLAY. Gravel of angular to subrounded fine to coarse flint and subrounded fine to coarse chalk (LOWESTOFT FORMATION)		0.30						0.20	J	1									Metals, PAH, TPH, Moisture content, pH and Sulphate	
				0.80 - Becoming brown grey mottled with depth								0.40	J	2									Metals, PAH, TPH, Moisture content, pH and Sulphate	
												1											Infiltration test undertaken at 0.69m depth	
						2.00						2											Windowless sample hole completed at 2.00m depth	
												3												
												4												

<p>*WATER Standing water level</p> <p> Water strikes</p>	<p>PIEZOMETER </p>	<p>Upper seal </p> <p>Response zone </p> <p>Lower seal </p>	<p>SAMPLE AND TEST KEY</p> <p>D Small disturbed sample</p> <p>B Bulk disturbed sample</p> <p>U Undisturbed sample</p> <p>P Piston sample</p> <p>J Disturbed jar sample</p> <p>ES Environmental soil sample</p> <p>W Water Sample</p>	<p>S Standard penetration test</p> <p>C Cone penetration test</p> <p>K Permeability test</p>	<p>Blows SPT N</p> <p>SPT N = SPT N value (blows after seating)</p> <p>N*120 = Total blows/penetration including seating</p> <p><425 Sample % passing 425 micron sieve</p>	<p></p> <p>Geosphere Environmental Ltd Brightwell Barns, Ipswich Road, Bightwell, Suffolk, IP10 0BJ Telephone: 01603 298 076 Fax: 01603 298 075</p>	<p>PROJECT No 995,SI</p> <p>SHEET 1 OF 1</p> <p>HOLE No. WSB</p>
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DEPTH All depths, level and thicknesses in metres

CLIENT: c/o Savills		PROJECT: Land to the North West of Haverhill		GROUND LEVEL		HOLE No. WSC	
LOGGED BY: LF FIELDWORK BY: GEL TEMPLATE REF: GEL AGS BH BETA		CHECKED BY: DATE:		EXCAVATION METHOD: Windowless sampler Uncased to 4.0 m		COORDINATES E N	
				DATES 18/11/2014 - 18/11/2014		SHEET 1 OF 1	
						PROJECT NO. 995,SI	



GEL AGS BH BETA 995,SI - NW HAVERHILL, 31-10-14, LF,SG,GPJ - GINT STD AGS 3 1,GDT 11/12/14

*WATER	↓ Standing water level	PIEZOMETER	Upper seal	SAMPLE AND TEST KEY	D Small disturbed sample	S Standard penetration test	Blows	SPT blows for each 75mm increment (35) Undisturbed sample blow count
▽	Water strikes		Response zone		B Bulk disturbed sample	C Cone penetration test	SPT N	N = SPT N value (blows after seating)
			Lower seal		U Undisturbed sample	K Permeability test		N*120 = Total blows/penetration including seating
					P Piston sample			<425 Sample % passing 425 micron sieve
					J Disturbed jar sample			
					ES Environmental soil sample			
					W Water Sample			






DEPTH All depths, level and thicknesses in metres

	Geosphere Environmental Ltd	PROJECT No 995,SI SHEET 1 OF 1 HOLE No. WSC.
	Brightwell Barns, Ipswich Road,	
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CLIENT: c/o Savills		PROJECT: Land to the North West of Haverhill			GROUND LEVEL				HOLE No. WSD			
LOGGED BY: SG FIELDWORK BY: GEL TEMPLATE REF: GEL AGS BH BETA		CHECKED BY: DATE:		EXCAVATION METHOD: Windowless sampler Uncased to 2.0 m			COORDINATES E N				SHEET 1 OF 1	
							DATES 18/11/2014 - 18/11/2014				PROJECT NO. 995,SI	

Date/Time and Depth	Depth of Casing	Depth* of Water	Piez.	Description of Strata	Strata		Graphical Representation					Sampling/In-Situ Testing				Laboratory Testing						Additional Tests and Notes		
					Leg	Reduced Level	Depth	SPT 'N' Value					Depths	Type	No.	Blows	SPT N	<425 %	WC %	PL %	LL %		ρ Mg/m ³	Cu kN/m ²
								0	10	20	30	40												
				TOPSOIL (Brown slightly sandy clay with occasional fine to medium gravel of flint)		0.00							0											Groundwater not encountered during drilling No collapse of sidewalls during drilling Metals, PAH, TPH, Moisture content, pH and Sulphate
				Firm becoming stiff yellow brown CLAY with occasional fine to coarse gravel of flint and chalk (LOWESTOFT FORMATION)		0.30							0.20	J	1									
				0.70 - 2.00 - Becoming pale grey/orange brown mottled.		0.40							0.40	J	2									Infiltration test undertaken at 0.55m depth
													1											
						2.00							2											Windowless sample hole completed at 2.00m depth
													3											
													4											

GEL AGS BH BETA 995,SI - NW HAVERHILL, 31-10-14, LF, SG, GPJ, GINT STD AGS 3, 1, GDT, 11/12/14

*WATER  Standing water level  PIEZOMETER  Upper seal  Response zone  Lower seal

SAMPLE AND TEST KEY
 D Small disturbed sample
 B Bulk disturbed sample
 U Undisturbed sample
 P Piston sample
 J Disturbed jar sample
 ES Environmental soil sample
 W Water Sample

S Standard penetration test
 C Cone penetration test
 K Permeability test

Blows SPT N
 SPT N = SPT N value (blows after seating)
 N*120 = Total blows/penetration including seating
 <425 Sample % passing 425 micron sieve

DEPTH All depths, level and thicknesses in metres






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 Fax: 01603 298 075

PROJECT No
995,SI
SHEET
1 OF 1
HOLE No.
WSD.

CLIENT: c/o Savills				PROJECT: Land to the North West of Haverhill				GROUND LEVEL						HOLE No. WSE							
LOGGED BY: SG FIELDWORK BY: GEL TEMPLATE REF: GEL AGS BH BETA			CHECKED BY: DATE:		EXCAVATION METHOD: Windowless sampler Uncased to 4.0 m			COORDINATES E N						SHEET 1 OF 1							
								DATES 18/11/2014 - 18/11/2014						PROJECT NO. 995,SI							
Date/Time and Depth	Depth of Casing	Depth of Water	Piez.	Description of Strata	Strata		Graphical Representation				Sampling/In-Situ Testing				Laboratory Testing					Additional Tests and Notes	
					Leg	Reduced Level	Depth	SPT 'N' Value			Depths	Type	No.	Blows	SPT N	<425 %	WC %	PL %	LL %		ρ Mg/m ³
				TOPSOIL (Dark grey slightly sandy clay with occasional fine gravel of flint and brick)			0.00				0										No collapse of sidewalls during drilling
				Firm yellow brown sandy CLAY with occasional black speckling (HEAD DEPOSITS)			0.40														Rising to 0.8m on completion
				Stiff dark brown/pale grey mottled gravelly CLAY. Gravel is fine to coarse flint and chalk (HEAD DEPOSITS)			1.20				1	C	11	23	23	10					
				Orange brown fine to medium gravelly SAND. Gravel is fine to medium flint (HEAD DEPOSITS)			1.80														Moderate inflow of water at 1.8m
18/11 +20 mins		1.80 0.80		Stiff dark brown/pale grey mottled gravelly CLAY. Gravel is fine flint and chalk (LOWEST OF FORMATION) 2.25 - becoming dark grey			2.00				2	C	34	45	55	19					
																					50mm diameter monitoring well installed to 2.6m
																					Windowless sample hole completed at 4.0m depth
							4.00				4	C	33	45	59	23					

GEL AGS BH BETA 995,SI - NW HAVERHILL, 31-10-14, LF_SG.GPJ_GINT STD AGS 3_1.GDT 11/12/14

*WATER ∇ Standing water level ∇ Water strikes

PIEZOMETER
 Upper seal
 Response zone
 Lower seal

SAMPLE AND TEST KEY
 D Small disturbed sample
 B Bulk disturbed sample
 U Undisturbed sample
 P Piston sample
 J Disturbed jar sample
 ES Environmental soil sample
 W Water Sample

S Standard penetration test
 C Cone penetration test
 K Permeability test

Blows SPT N
 SPT N = SPT N value (blows after seating)
 N*120 = Total blows/penetration including seating
 <425 Sample % passing 425 micron sieve

DEPTH All depths, level and thicknesses in metres

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PROJECT No
995,SI

SHEET
1 OF 1

HOLE No.
WSE

CLIENT: c/o Savills		PROJECT: Land to the North West of Haverhill			GROUND LEVEL			HOLE No. WSF			
LOGGED BY: SG FIELDWORK BY: GEL TEMPLATE REF: GEL AGS BH BETA		CHECKED BY: DATE:	EXCAVATION METHOD: Windowless sampler Uncased to 2.0 m			COORDINATES E N			SHEET 1 OF 1		
						DATES 18/11/2014 - 18/11/2014			PROJECT NO. 995,SI		

Date/Time and Depth	Depth of Casing	Depth* of Water	Piez.	Description of Strata	Strata		Graphical Representation					Sampling/In-Situ Testing				Laboratory Testing						Additional Tests and Notes	
					Leg	Reduced Level	Depth	SPT 'N' Value					Depths	Type	No.	Blows	SPT N	<425 %	WC %	PL %	LL %		ρ Mg/m ³
							0	10	20	30	40												
				TOPSOIL (Dark grey slightly sandy clay with occasional fine gravel of flint and brick)		0.00						0											
				Firm becoming soft orange brown sandy CLAY with occasional fine to medium gravel of flint (HEAD DEPOSITS)		0.25						0.20	J	1									No collapse of sidewalls during drilling Metals, PAH, TPH, Moisture content, pH and Sulphate
						0.45							J	2									
18/11		1.30										1											Inflow of water at 1.3m
				Stiff dark brown/pale grey mottled slightly gravelly CLAY. Gravel is fine to medium flint and chalk (LOWESTOFT FORMATION)		1.60																	
						2.00						2											Window sample hole completed at 2.00m depth
												3											
												4											

*WATER Standing water level Water strikes	PIEZOMETER	Upper seal Response zone Lower seal	SAMPLE AND TEST KEY D Small disturbed sample B Bulk disturbed sample U Undisturbed sample P Piston sample J Disturbed jar sample ES Environmental soil sample W Water Sample	S Standard penetration test C Cone penetration test K Permeability test	Blows SPT blows for each 75mm increment (35) Undisturbed sample blow count SPT N N = SPT N value (blows after seating) N*120 = Total blows/penetration including seating <425 Sample % passing 425 micron sieve	Geosphere Environmental Ltd Brightwell Barns, Ipswich Road, Bightwell, Suffolk, IP10 0BJ Telephone: 01603 298 076 Fax: 01603 298 075	PROJECT No 995,SI SHEET 1 OF 1 HOLE No. WSF
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GEL AGS BH BETA 995,SI - NW HAVERHILL, 31-10-14, LF, SG, GPJ, GINT STD, AGS 3, 1, GDT, 11/12/14

DEPTH All depths, level and thicknesses in metres

GEL AGS BH BETA 995,SI - NW HAVERHILL, 31-10-14, LF,SG,GPJ, GINT STD AGS 3, 1,GDT, 11/12/14

CLIENT: c/o Savills	PROJECT: Land to the North West of Haverhill	GROUND LEVEL	HOLE No. WSG
LOGGED BY: LF FIELDWORK BY: GEL TEMPLATE REF: GEL AGS BH BETA	CHECKED BY: DATE:	EXCAVATION METHOD: Windowless sampler Uncased to 2.0 m	COORDINATES E N DATES 19/11/2014 - 19/11/2014
			SHEET 1 OF 1 PROJECT NO. 995,SI

Date/Time and Depth	Depth of Casing	Depth* of Water	Piez.	Description of Strata	Strata		Graphical Representation					Sampling/In-Situ Testing				Laboratory Testing						Additional Tests and Notes		
					Leg	Reduced Level	Depth	SPT 'N' Value					Depths	Type	No.	Blows	SPT N	<425 %	WC %	PL %	LL %		ρ Mg/m ³	Cu kN/m ²
0	10	20	30	40																				
				TOPSOIL (Dark brown slightly gravelly slightly sandy clay with occasional rootlets. Gravel of angular to subrounded fine to medium flint)		0.00							0											Groundwater not encountered during drilling Metals, PAH, TPH, Moisture content, pH and Sulphate No collapse of sidewalls during drilling Shear vane test = 70kN/m ² Infiltration test undertaken at 0.73m depth Shear vane test = 50kN/m ²
				Dark orange brown fine to medium SAND (HEAD DEPOSITS)		0.40																		
				Firm dark orange brown very sandy slightly gravelly CLAY. Gravel of angular to subrounded fine to medium flint (HEAD DEPOSITS) 1.00 - Becoming gravelly with depth. Gravel is coarse flint 1.10 - 1.70 - Becoming black speckled		0.70							1											
				Orange brown clayey gravelly SAND. Gravel of angular to rounded fine to coarse chalk and flint (HEAD DEPOSITS)		1.70																		
						2.00							2											Windowless sample hole completed at 2.00m depth

<p>*WATER Standing water level Water strikes</p>	<p>PIEZOMETER </p>	<p>Upper seal Response zone Lower seal </p>	<p>SAMPLE AND TEST KEY D Small disturbed sample B Bulk disturbed sample U Undisturbed sample P Piston sample J Disturbed jar sample ES Environmental soil sample W Water Sample</p>	<p>S Standard penetration test C Cone penetration test K Permeability test</p>	<p>Blows SPT blows for each 75mm increment SPT N (35) Undisturbed sample blow count N = SPT N value (blows after seating) N*120 = Total blows/penetration including seating <425 Sample % passing 425 micron sieve</p>	<p>Geosphere Environmental Ltd Brightwell Barns, Ipswich Road, Bightwell, Suffolk, IP10 0BJ Telephone: 01603 298 076 Fax: 01603 298 075</p>	<p>PROJECT No 995,SI SHEET 1 OF 1 HOLE No. WSG</p>
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DEPTH All depths, level and thicknesses in metres

GEL AGS BH BETA 995,SI - NW HAVERHILL, 31-10-14, LF,SG,GPJ, GINT STD AGS 3, 1,GDT, 11/12/14

CLIENT: c/o Savills		PROJECT: Land to the North West of Haverhill			GROUND LEVEL			HOLE No. WSH		
LOGGED BY: LF FIELDWORK BY: GEL TEMPLATE REF: GEL AGS BH BETA		CHECKED BY: DATE:		EXCAVATION METHOD: Windowless sampler Uncased to 2.0 m			COORDINATES E N			SHEET 1 OF 1
							DATES 19/11/2014 - 19/11/2014			PROJECT NO. 995,SI

Date/Time and Depth	Depth of Casing	Depth* of Water	Piez.	Description of Strata	Strata		Graphical Representation					Sampling/In-Situ Testing				Laboratory Testing						Additional Tests and Notes	
					Leg	Reduced Level	Depth	SPT 'N' Value					Depths	Type	No.	Blows	SPT N	<425 %	WC %	PL %	LL %		ρ Mg/m ³
							0	10	20	30	40												
				TOPSOIL (Dark brown slightly gravelly clay. Gravel of angular to subrounded fine to medium flint)		0.00						0											Groundwater not encountered during drilling
				Firm orange brown slightly gravelly CLAY with occasional sandy pockets. Gravel of angular to subrounded fine to medium flint (HEAD DEPOSITS) 0.40 - Becoming orange brown/grey mottled with depth		0.30						0.20	J	1									Borehole collapsed to 1.7m on completion Infiltration test undertaken at 0.24m depth
				0.40 - Becoming orange brown/grey mottled with depth								0.40	J	2									Shear vane test = 61kN/m ²
				0.90 - Becoming slightly sandy with depth																			Shear vane test = 40kN/m ²
				1.70 - 2.00 - With a sandy clay pocket																			Shear vane test = 36kN/m ²
				Soft yellow brown/grey mottled sandy gravelly CLAY. Gravel of angular to rounded fine to coarse flint and chalk (LOWESTOFT FORMATION)		1.80																	Shear vane test = 23kN/m ² Windowless sample hole completed at 2.0m depth
						2.00																	

<p>*WATER Standing water level</p> <p> Water strikes</p>	<p>PIEZOMETER </p>	<p>Upper seal </p> <p>Response zone </p> <p>Lower seal </p>	<p>SAMPLE AND TEST KEY</p> <p>D Small disturbed sample</p> <p>B Bulk disturbed sample</p> <p>U Undisturbed sample</p> <p>P Piston sample</p> <p>J Disturbed jar sample</p> <p>ES Environmental soil sample</p> <p>W Water Sample</p>	<p>S Standard penetration test</p> <p>C Cone penetration test</p> <p>K Permeability test</p>	<p>Blows SPT N</p> <p>SPT N = SPT N value (blows after seating)</p> <p>N*120 = Total blows/penetration including seating</p> <p><425 Sample % passing 425 micron sieve</p>	<p>Geosphere Environmental Ltd Brightwell Barns, Ipswich Road, Bightwell, Suffolk, IP10 0BJ Telephone: 01603 298 076 Fax: 01603 298 075</p>	<p>PROJECT No 995,SI</p> <p>SHEET 1 OF 1</p> <p>HOLE No. WSH</p>
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DEPTH All depths, level and thicknesses in metres

CLIENT: c/o Savills		PROJECT: Land to the North West of Haverhill			GROUND LEVEL				HOLE No. WSI			
LOGGED BY: LF FIELDWORK BY: GEL TEMPLATE REF: GEL AGS BH BETA		CHECKED BY: DATE:		EXCAVATION METHOD: Windowless sampler Uncased to 2.0 m			COORDINATES E N				SHEET 1 OF 1	
							DATES 19/11/2014 - 19/11/2014				PROJECT NO. 995,SI	

Date/Time and Depth	Depth of Casing	Depth of Water	Piez.	Description of Strata	Strata		Graphical Representation					Sampling/In-Situ Testing				Laboratory Testing						Additional Tests and Notes		
					Leg	Reduced Level	Depth	SPT 'N' Value					Depths	Type	No.	Blows	SPT N	<425 %	WC %	PL %	LL %		ρ Mg/m ³	Cu kN/m ²
								0	10	20	30	40												
				TOPSOIL (Dark brown slightly gravelly clay. Gravel of angular to subrounded fine to medium flint)		0.00							0	J	1									Groundwater not encountered during drilling Metals, PAH, TPH, Moisture content, pH and Sulphate No collapse of sidewalls during drilling
				Firm brown slightly sandy slightly gravelly CLAY. Gravel of angular to subrounded fine to medium flint (HEAD DEPOSITS)		0.25							0.10	J	2									
				Firm becoming stiff brown/grey mottled gravelly CLAY. Gravel of angular to subrounded fine to coarse flint and subrounded to rounded chalk (LOWESTOFT FORMATION)		0.90							0.30	J									Shear vane test = 62kN/m ²	
						2.00								1	C	22 22 23	9							Shear vane test = 78kN/m ²
														2										Shear vane test = 80kN/m ²
														3										Shear vane test = 76kN/m ² Widow sample hole completed at 2.0m depth
														4										

GEL AGS BH BETA 995,SI - NW HAVERHILL, 31-10-14, LF, SG, GPJ, GINT STD AGS 3, 1, GDT, 11/12/14

*WATER	Standing water level	PIEZOMETER	Upper seal	SAMPLE AND TEST KEY	D Small disturbed sample	S Standard penetration test	Blows	SPT blows for each 75mm increment
▽	Water strikes		Response zone	B Bulk disturbed sample	C Cone penetration test	SPT N	(35) Undisturbed sample blow count	
			Lower seal	U Undisturbed sample	K Permeability test		N = SPT N value (blows after seating)	
				P Piston sample			N*120 = Total blows/penetration including seating	
				J Disturbed jar sample			Sample % passing 425 micron sieve	
				ES Environmental soil sample				
				W Water Sample				

DEPTH All depths, level and thicknesses in metres

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PROJECT No 995,SI	SHEET 1 OF 1	HOLE No. WSI
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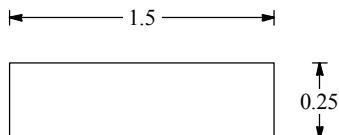
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TRIAL PIT LOG

Project Land to the North West of Haverhill		Client c/o Savills		TRIAL PIT No TP1
Job No 995,SI	Date 28-10-14 28-10-14	Ground Level (m)	Co-Ordinates ()	
Fieldwork By GEL		Logged By SG		Sheet 1 of 1

Depth	DESCRIPTION	Legend	Depth	No	Remarks/Tests
0.00-0.35	TOPSOIL (Dark brown slightly gravelly clay. Gravel is fine to medium flint with occasional fine to medium brick fragments)				Groundwater not encountered during excavation No collapse of sidewalls during excavation Trial pit completed at 1.5m depth
0.35-1.50	Stiff dark yellow brown slightly gravelly CLAY. Gravel is fine to medium flint and chalk (LOWESTOFT FORMATION)				
0.80 - 1.50	- Becoming gravelly				
1.00 - 1.50	- Becoming dark grey with occasional cobble of flint and chalk				

GEL:AGS:TP BETA_995,SI - NW HAVERHILL_31-10-14_LF,SG.GPJ GINT STD AGS 3_1.GDT 11/12/14



Shoring/Support: NONE
 Stability: STABLE

All dimensions in metres Scale 1:20.83333333333333	Method Trial Pit/trench	Plant Used MECHANICAL EXCAVATOR	Checked By AD
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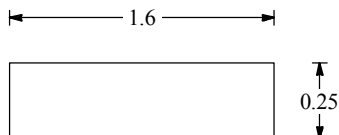
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TRIAL PIT LOG

Project Land to the North West of Haverhill		Client c/o Savills		TRIAL PIT No TP2
Job No 995,SI	Date 28-10-14 28-10-14	Ground Level (m)	Co-Ordinates ()	
Fieldwork By GEL		Logged By SG		Sheet 1 of 1

Depth	DESCRIPTION	Legend	Depth	No	Remarks/Tests
0.00-0.30	TOPSOIL (Dark brown clay with occasional medium gravel of flint)				Groundwater not encountered during excavation No collapse of sidewalls during excavation
0.30-1.40	Firm becoming stiff dark yellow brown slightly gravelly CLAY. Gravel of fine to coarse flint and chalk with occasional cobble of chalk and flint (LOWESTOFT FORMATION)				
	0.60 - Becoming pale grey/orange brown mottled		0.60-0.80	1B	CBR
	1.00 - Becoming very gravelly				
					Trial pit completed at 1.4m depth

GEL:AGS:TP BETA_995,SI - NW HAVERHILL_31-10-14_LF,SG.GPJ GINT STD AGS 3_1.GDT 11/12/14



Shoring/Support: NONE
 Stability: STABLE

All dimensions in metres Scale 1:20.833333333333	Method Trial Pit/trench	Plant Used MECHANICAL EXCAVATOR	Checked By AD
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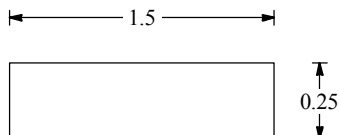
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TRIAL PIT LOG

Project Land to the North West of Haverhill		Client c/o Savills		TRIAL PIT No TP3
Job No 995,SI	Date 28-10-14 28-10-14	Ground Level (m)	Co-Ordinates ()	
Fieldwork By GEL		Logged By SG		Sheet 1 of 1

Depth	DESCRIPTION	Legend	Depth	No	Remarks/Tests
0.00-0.25	TOPSOIL (Dark brown clay with occasional medium gravel of flint)				Groundwater not encountered during excavation No collapse of sidewalls during excavation Trial pit completed at 1.5m depth
0.25-1.50	Firm becoming stiff dark yellow brown CLAY with frequent fine to coarse gravel of flint and chalk and occasional roots (2mm) (LOWESTOFT FORMATION)				
	0.65 - Becoming gravelly				
	0.90 - Becoming pale grey/orange brown mottled				

GEL:AGS:TP BETA_995,SI - NW HAVERHILL, 31-10-14, LF,SG.GPJ GINT STD AGS 3_1.GDT 11/12/14



Shoring/Support: NONE
 Stability: STABLE

All dimensions in metres Scale 1:20.833333333333	Method Trial Pit/trench	Plant Used MECHANICAL EXCAVATOR	Checked By AD
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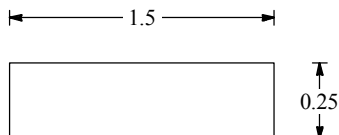
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TRIAL PIT LOG

Project Land to the North West of Haverhill		Client c/o Savills		TRIAL PIT No TP4
Job No 995,SI	Date 28-10-14 28-10-14	Ground Level (m)	Co-Ordinates ()	
Fieldwork By GEL		Logged By SG		Sheet 1 of 1

Depth	DESCRIPTION	Legend	Depth	No	Remarks/Tests
0.00-0.25	TOPSOIL (Dark grey brown clay with frequent fine to medium gravel of chalk, flint and occasional coarse gravel of brick fragments)				Groundwater not encountered during excavation
0.25-1.50	Firm becoming stiff dark yellow brown slightly gravelly CLAY. Gravel is fine to coarse chalk and flint (LOWESTOFT FORMATION)				No collapse of sidewalls during excavation
0.55	- Becoming gravelly		0.60-0.70	1B	Moisture content, CBR
0.90	- Becoming pale grey with occasional cobbles of chalk, flint and ironstone				
Trial pit completed at 1.5m depth					

GEL:AGS:TP BETA_995,SI - NW HAVERHILL_31-10-14_LF,SG.GPJ GINT STD AGS 3_1.GDT 11/12/14



Shoring/Support: NONE
 Stability: STABLE

All dimensions in metres Scale 1:20.833333333333	Method Trial Pit/trench	Plant Used MECHANICAL EXCAVATOR	Checked By AD
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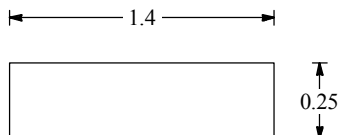
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TRIAL PIT LOG

Project Land to the North West of Haverhill		Client c/o Savills		TRIAL PIT No TP5
Job No 995,SI	Date 28-10-14 28-10-14	Ground Level (m)	Co-Ordinates ()	
Fieldwork By GEL		Logged By SG		Sheet 1 of 1

Depth	DESCRIPTION	Legend	Depth	No	Remarks/Tests
0.00-0.30	TOPSOIL (Dark grey brown clay with frequent fine to medium gravel of flint, chalk and occasional coarse gravel of brick fragments)				Groundwater not encountered during excavation No collapse of sidewalls during excavation
0.30-1.50	Firm becoming stiff dark yellow brown CLAY with occasional fine to medium gravel of flint and chalk (LOWESTOFT FORMATION)				
	0.60 - Becoming gravelly				
	0.90 - Becoming pale grey with occasional cobbles of flint and chalk				
					Trial pit completed at 1.5m depth

GEL:AGS:TP BETA_995.SI - NW HAVERHILL_31-10-14_LF.SG.GPJ GINT STD AGS 3_1.GDT 11/12/14



Shoring/Support: NONE
 Stability: STABLE

All dimensions in metres Scale 1:20.833333333333	Method Trial Pit/trench	Plant Used MECHANICAL EXCAVATOR	Checked By AD
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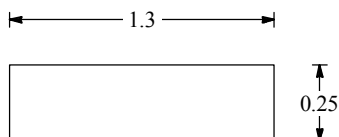


TRIAL PIT LOG

Project Land to the North West of Haverhill		Client c/o Savills		TRIAL PIT No TP6
Job No 995,SI	Date 29-10-14 29-10-14	Ground Level (m)	Co-Ordinates ()	
Fieldwork By GEL		Logged By SG		Sheet 1 of 1

Depth	DESCRIPTION	Legend	Depth	No	Remarks/Tests
0.00-0.30	TOPSOIL (Dark grey brown clay with frequent fine to medium gravel of flint, chalk and occasional coarse gravel of brick fragments)				No collapse of sidewalls during excavation
0.30-1.50	Firm becoming stiff dark yellow brown very gravelly CLAY. Gravel is fine to coarse flint, chalk and occasional cobble of chalk (LOWESTOFT FORMATION)		0.70-1.00	1B	
	1.05 - Becoming pale grey				Very slow inflow of water at 1.5 m Rising to 1.45m after 20 minutes Trial pit completed at 1.5m depth

GEL:AGS:TP BETA_995,SI - NW HAVERHILL, 31-10-14, LF,SG.GPJ GINT STD AGS 3_1.GDT 11/12/14



Shoring/Support: NONE
 Stability: STABLE

All dimensions in metres Scale 1:20.833333333333	Method Trial Pit/trench	Plant Used MECHANICAL EXCAVATOR	Checked By AD
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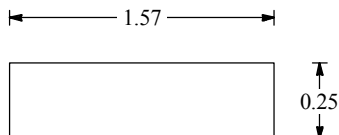
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TRIAL PIT LOG

Project Land to the North West of Haverhill		Client c/o Savills		TRIAL PIT No TP7
Job No 995,SI	Date 30-10-14 30-10-14	Ground Level (m)	Co-Ordinates ()	
Fieldwork By GEL		Logged By SG		Sheet 1 of 1

Depth	DESCRIPTION	Legend	Depth	No	Remarks/Tests
0.00-0.30	TOPSOIL (Dark grey brown clay with frequent fine to medium gravel of flint, chalk and occasional coarse gravel of brick fragments)				No collapse of sidewalls during excavation
0.30-1.20	Firm dark yellow brown very gravelly CLAY. Gravel is fine to coarse flint, chalk and occasional cobble of flint (HEAD DEPOSITS) 0.80 - Becoming pale grey				
1.20-1.80	Soft orange brown very gravelly sandy CLAY. Gravel is fine to coarse chalk and flint (HEAD DEPOSITS)				Slight seepage inflow of water at 1.8 m Trial pit completed at 1.9m depth
1.80-1.90	Stiff dark grey CLAY with frequent fine to coarse gravel of chalk and flint (LOWESTOFT FORMATION)				

GEL:AGS:TP BETA_995,SI - NW HAVERHILL, 31-10-14, LF,SG.GPJ GINT STD AGS 3_1.GDT 11/12/14



Shoring/Support: NONE
 Stability: STABLE

All dimensions in metres Scale 1:20.833333333333	Method Trial Pit/trench	Plant Used MECHANICAL EXCAVATOR	Checked By AD
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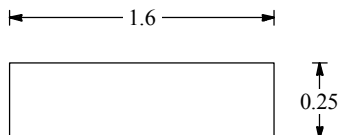
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TRIAL PIT LOG

Project Land to the North West of Haverhill		Client c/o Savills		TRIAL PIT No TP8
Job No 995,SI	Date 30-10-14 30-10-14	Ground Level (m)	Co-Ordinates ()	
Fieldwork By GEL		Logged By SG		Sheet 1 of 1

Depth	DESCRIPTION	Legend	Depth	No	Remarks/Tests
0.00-0.30	TOPSOIL (Dark grey brown clay with frequent fine to medium gravel of flint, chalk and occasional gravel of brick fragments)				Groundwater not encountered during excavation No collapse of sidewalls during excavation
0.30-1.05	Firm becoming stiff dark yellow brown gravelly CLAY. Gravel is fine to coarse flint and chalk (LOWESTOFT FORMATION) 0.60 - Becoming dark yellow brown/pale grey mottled with occasional cobble of chalk 0.80 - Becoming pale grey				
					Trial pit completed at 1.05m depth

GEL:AGS:TP BETA_995.SI - NW HAVERHILL_31-10-14_LF.SG.GPJ GINT STD AGS 3_1.GDT 11/12/14



Shoring/Support: NONE
 Stability: STABLE

All dimensions in metres Scale 1:20.833333333333	Method Trial Pit/trench	Plant Used MECHANICAL EXCAVATOR	Checked By AD
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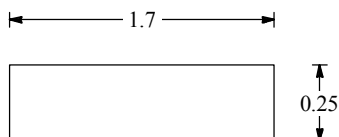
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TRIAL PIT LOG

Project Land to the North West of Haverhill		Client c/o Savills		TRIAL PIT No TP9
Job No 995,SI	Date 30-10-14 30-10-14	Ground Level (m)	Co-Ordinates ()	
Fieldwork By GEL		Logged By SG		Sheet 1 of 1

Depth	DESCRIPTION	Legend	Depth	No	Remarks/Tests
0.00-0.30	TOPSOIL (Dark grey brown clay with frequent fine to medium gravel of flint, chalk and occasional coarse gravel of brick fragments)				Groundwater not encountered during excavation No collapse of sidewalls during excavation
0.30-0.70	Firm dark brown CLAY with occasional fine to coarse gravel of flint (HEAD DEPOSITS)				
0.70-1.50	Firm becoming stiff dark yellow brown gravelly CLAY. Gravel of fine to coarse flint and chalk (LOWESTOFT FORMATION)				
					Trial pit completed at 1.5m depth

GEL:AGS:TP BETA_995.SI - NW HAVERHILL, 31-10-14, LF,SG.GPJ GINT STD AGS 3_1.GDT 11/12/14



Shoring/Support: NONE
 Stability: STABLE

All dimensions in metres Scale 1:20.833333333333	Method Trial Pit/trench	Plant Used MECHANICAL EXCAVATOR	Checked By AD
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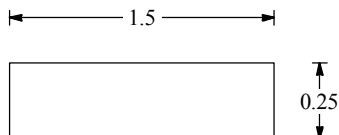
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TRIAL PIT LOG

Project Land to the North West of Haverhill		Client c/o Savills		TRIAL PIT No TP10
Job No 995,SI	Date 30-10-14 30-10-14	Ground Level (m)	Co-Ordinates ()	
Fieldwork By GEL		Logged By SG		Sheet 1 of 1

Depth	DESCRIPTION	Legend	Depth	No	Remarks/Tests
0.00-0.30	TOPSOIL (Dark grey brown clay with frequent fine to medium gravel of flint, chalk and occasional coarse gravel of brick)				Groundwater not encountered during excavation No collapse of sidewalls during excavation
0.30-0.70	Firm dark brown CLAY with occasional fine to coarse gravel of flint (HEAD DEPOSITS)				
0.70-1.40	Firm becoming stiff dark yellow brown gravelly CLAY. Gravel is fine to coarse flint and chalk (LOWESTOFT FORMATION) -0.95 - Becoming pale grey/dark yellow brown mottled				
					Trial pit completed at 1.4m depth

GEL:AGS:TP BETA_995,SI - NW HAVERHILL, 31-10-14, LF,SG.GPJ GINT STD AGS 3_1.GDT 11/12/14



Shoring/Support: NONE
 Stability: STABLE

All dimensions in metres Scale 1:20.833333333333	Method Trial Pit/trench	Plant Used MECHANICAL EXCAVATOR	Checked By AD
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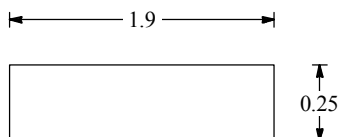
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 Fax: 01603 298 075

TRIAL PIT LOG

Project Land to the North West of Haverhill		Client c/o Savills		TRIAL PIT No TP11
Job No 995,SI	Date 30-10-14 30-10-14	Ground Level (m)	Co-Ordinates ()	
Fieldwork By GEL		Logged By SG		Sheet 1 of 1

Depth	DESCRIPTION	Legend	Depth	No	Remarks/Tests
0.00-0.30	TOPSOIL (Dark grey brown clay with frequent fine to medium gravel of flint, chalk and occasional coarse gravel of brick fragments)				Groundwater not encountered during excavation No collapse of sidewalls during excavation
0.30-1.30	Firm becoming stiff dark yellow brown CLAY with frequent fine to coarse gravel of flint and chalk (LOWESTOFT FORMATION)				
					Trial pit completed at 1.3m depth

GEL:AGS:TP BETA_995.SI - NW HAVERHILL, 31-10-14, LF,SG.GPJ GINT STD AGS 3_1.GDT 11/12/14



Shoring/Support: NONE
 Stability: STABLE

All dimensions in metres Scale 1:20.833333333333	Method Trial Pit/trench	Plant Used MECHANICAL EXCAVATOR	Checked By AD
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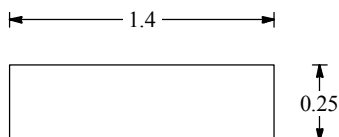
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TRIAL PIT LOG

Project Land to the North West of Haverhill		Client c/o Savills		TRIAL PIT No TP12
Job No 995,SI	Date 30-10-14 30-10-14	Ground Level (m)	Co-Ordinates ()	
Fieldwork By GEL		Logged By SG		Sheet 1 of 1

Depth	DESCRIPTION	Legend	Depth	No	Remarks/Tests
0.00-0.35	TOPSOIL (Dark grey brown clay with frequent fine to medium gravel of flint, chalk and occasional coarse gravel of brick fragments)				Groundwater not encountered during excavation No collapse of sidewalls during excavation
0.35-1.40	Firm becoming stiff dark yellow brown gravelly CLAY. Gravel is fine to coarse flint and chalk (LOWESTOFT FORMATION)				
	0.80 - Becoming dark yellow brown/pale grey mottled				
					Trial pit completed at 1.4m depth

GEL:AGS:TP BETA_995.SI - NW HAVERHILL_31-10-14_LF.SG.GPJ GINT STD AGS 3_1.GDT 11/12/14



Shoring/Support: NONE
 Stability: STABLE

All dimensions in metres Scale 1:20.833333333333	Method Trial Pit/trench	Plant Used MECHANICAL EXCAVATOR	Checked By AD
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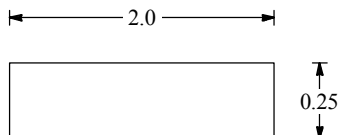
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TRIAL PIT LOG

Project Land to the North West of Haverhill		Client c/o Savills		TRIAL PIT No TP13
Job No 995,SI	Date 30-10-14 30-10-14	Ground Level (m)	Co-Ordinates ()	
Fieldwork By GEL		Logged By SG		Sheet 1 of 1

Depth	DESCRIPTION	Legend	Depth	No	Remarks/Tests
0.00-0.25	TOPSOIL (Dark grey brown clay with frequent fine to medium gravel of flint, chalk and occasional coarse gravel of brick fragments)				Groundwater not encountered during excavation No collapse of sidewalls during excavation
0.25-1.40	Firm becoming stiff dark yellow brown CLAY with frequent fine to coarse gravel of chalk and flint (LOWESTOFT FORMATION)		0.70-0.80	1B	
	0.80 - Becoming dark grey/dark yellow brown mottled				Moisture content, CBR
	0.90 - With occasional cobble of flint and chalk				
Trial pit completed at 1.4m depth					

GEL:AGS:TP BETA_995.SI - NW HAVERHILL, 31-10-14, LF,SG.GPJ GINT STD AGS 3_1.GDT 11/12/14



Shoring/Support: NONE
 Stability: STABLE

All dimensions in metres Scale 1:20.833333333333	Method Trial Pit/trench	Plant Used MECHANICAL EXCAVATOR	Checked By AD
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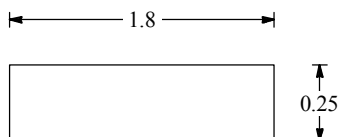


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TRIAL PIT LOG

Project Land to the North West of Haverhill		Client c/o Savills		TRIAL PIT No TP14
Job No 995,SI	Date 31-10-14 31-10-14	Ground Level (m)	Co-Ordinates ()	
Fieldwork By GEL		Logged By LF		Sheet 1 of 1

Depth	DESCRIPTION	Legend	Depth	No	Remarks/Tests
0.00-0.30	TOPSOIL (Dark brown slightly gravelly clay with occasional rootlets. Gravel of angular to subrounded fine to coarse flint and occasional fine brick and charcoal fragments)				Groundwater not encountered during excavation No collapse of sidewalls during excavation
0.30-1.40	Firm becoming stiff orange brown gravelly CLAY. Gravel of subrounded to rounded fine to coarse chalk and angular to subrounded fine to coarse flint (LOWESTOFT FORMATION)				
	1.00 - Becoming pale brown				Trial pit completed at 1.4m depth



Shoring/Support: NONE
 Stability: STABLE

GEL:AGS:TP BETA_995,SI - NW HAVERHILL, 31-10-14, LF,SG.GPJ GINT STD AGS 3_1.GDT 11/12/14

All dimensions in metres Scale 1:20.833333333333	Method Trial Pit/trench	Plant Used MECHANICAL EXCAVATOR	Checked By AD
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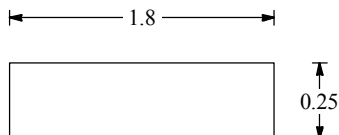
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TRIAL PIT LOG

Project Land to the North West of Haverhill		Client c/o Savills		TRIAL PIT No TP15
Job No 995,SI	Date 31-10-14 31-10-14	Ground Level (m)	Co-Ordinates ()	
Fieldwork By GEL		Logged By LF		Sheet 1 of 1

Depth	DESCRIPTION	Legend	Depth	No	Remarks/Tests
0.00-0.25	TOPSOIL (Dark brown slightly gravelly clay with occasional rootlets. Gravel of angular to subrounded fine to coarse flint and occasional fine brick and charcoal fragments)				Groundwater not encountered during excavation No collapse of sidewalls during excavation
0.25-1.10	Firm becoming stiff brown gravelly CLAY. Gravel of subrounded to rounded fine to coarse chalk and angular to subrounded fine to coarse flint (LOWESTOFT FORMATION) 0.50 - With occasional cobbles of chalk 0.70 - Becoming brown/grey mottled				
					Trial pit completed at 1.1m depth

GEL:AGS:TP BETA_995,SI - NW HAVERHILL, 31-10-14, LF,SG.GPJ GINT STD AGS 3_1.GDT 11/12/14



Shoring/Support: NONE
 Stability: STABLE

All dimensions in metres Scale 1:20.833333333333	Method Trial Pit/trench	Plant Used MECHANICAL EXCAVATOR	Checked By AD
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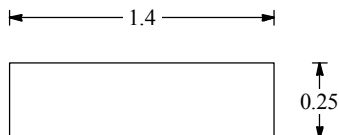


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TRIAL PIT LOG

Project Land to the North West of Haverhill		Client c/o Savills		TRIAL PIT No TP16
Job No 995,SI	Date 31-10-14 31-10-14	Ground Level (m)	Co-Ordinates ()	
Fieldwork By GEL		Logged By LF		Sheet 1 of 1

Depth	DESCRIPTION	Legend	Depth	No	Remarks/Tests
0.00-0.30	TOPSOIL (Dark brown slightly gravelly clay with occasional rootlets. Gravel of angular to subrounded fine to coarse flint and occasional fine brick and charcoal fragments)				Groundwater not encountered during excavation No collapse of sidewalls during excavation
0.30-1.40	Firm becoming stiff orange brown gravelly CLAY. Gravel of subrounded to rounded fine to coarse chalk and angular to subrounded fine to coarse flint (LOWESTOFT FORMATION) 0.70 - With a cobble of metamorphic material 0.90 - Becoming brown/grey mottled 1.00 - With occasional iron oxide staining				
					Trial pit completed at 1.4m depth



Shoring/Support: NONE
 Stability: STABLE

GEL:AGS:TP BETA_995,SI - NW HAVERHILL, 31-10-14, LF,SG.GPJ GINT STD AGS 3_1.GDT 11/12/14

All dimensions in metres Scale 1:20.833333333333	Method Trial Pit/trench	Plant Used MECHANICAL EXCAVATOR	Checked By AD
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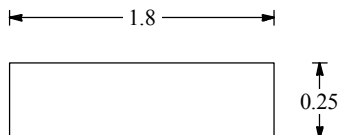
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TRIAL PIT LOG

Project Land to the North West of Haverhill		Client c/o Savills		TRIAL PIT No TP17
Job No 995,SI	Date 31-10-14 31-10-14	Ground Level (m)	Co-Ordinates ()	
Fieldwork By GEL		Logged By LF		Sheet 1 of 1

Depth	DESCRIPTION	Legend	Depth	No	Remarks/Tests
0.00-0.30	TOPSOIL (Dark brown slightly gravelly clay with occasional rootlets. Gravel of fine to coarse angular to subrounded flint and occasional fine charcoal fragments)				Groundwater not encountered during excavation No collapse of sidewalls during excavation
0.30-1.40	Firm becoming stiff yellow brown gravelly CLAY. Gravel of subrounded to rounded fine to coarse chalk and angular to subrounded fine to coarse flint (LOWESTOFT FORMATION) 0.80 - Becoming yellow brown/grey mottled				
					Trial pit completed at 1.4m depth

GEL:AGS:TP BETA_995,SI - NW HAVERHILL, 31-10-14, LF,SG,GPJ GINT STD AGS 3_1.GDT 11/12/14



Shoring/Support: NONE
 Stability: STABLE


All dimensions in metres Scale 1:20.833333333333	Method Trial Pit/trench	Plant Used MECHANICAL EXCAVATOR	Checked By AD
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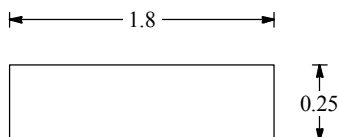


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TRIAL PIT LOG

Project Land to the North West of Haverhill		Client c/o Savills		TRIAL PIT No TP18
Job No 995,SI	Date 31-10-14 31-10-14	Ground Level (m)	Co-Ordinates ()	
Fieldwork By GEL		Logged By LF		Sheet 1 of 1

Depth	DESCRIPTION	Legend	Depth	No	Remarks/Tests
0.00-0.30	TOPSOIL (Dark brown slightly gravelly clay with occasional rootlets. Gravel of fine to coarse angular to subrounded flint and occasional fine charcoal fragments)				Groundwater not encountered during excavation No collapse of sidewalls during excavation
0.30-1.50	Firm becoming stiff yellow brown gravelly CLAY. Gravel of fine to coarse subrounded to rounded chalk and angular to subrounded fine to coarse flint (LOWESTOFT FORMATION)				
					Trial pit completed at 1.5m depth



Shoring/Support: NONE
 Stability: STABLE

GEL:AGS:TP BETA_995,SI - NW HAVERHILL, 31-10-14, LF,SG.GPJ GINT STD AGS 3_1.GDT 11/12/14

All dimensions in metres Scale 1:20.833333333333	Method Trial Pit/trench	Plant Used MECHANICAL EXCAVATOR	Checked By AD
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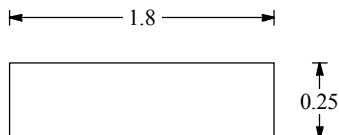


TRIAL PIT LOG

Project Land to the North West of Haverhill		Client c/o Savills		TRIAL PIT No TP19
Job No 995,SI	Date 31-10-14 31-10-14	Ground Level (m)	Co-Ordinates ()	
Fieldwork By GEL		Logged By LF		Sheet 1 of 1

Depth	DESCRIPTION	Legend	Depth	No	Remarks/Tests
0.00-0.25	TOPSOIL (Dark brown slightly gravelly clay with occasional rootlets. Gravel of fine to coarse angular to subrounded flint and occasional fine charcoal fragments)				Groundwater not encountered during excavation No collapse of sidewalls during excavation
0.25-1.50	Firm becoming stiff yellow brown gravelly CLAY. Gravel of subrounded to rounded fine to coarse chalk and angular to subrounded fine to coarse flint (LOWESTOFT FORMATION)				
0.90	Becoming grey/brown mottled				
					Trial completed at 1.5m depth

GEL:AGS:TP BETA_995,SI - NW HAVERHILL, 31-10-14, LF,SG,GPJ GINT STD AGS 3_1.GDT 11/12/14



Shoring/Support: NONE
 Stability: STABLE


All dimensions in metres Scale 1:20.833333333333	Method Trial Pit/trench	Plant Used MECHANICAL EXCAVATOR	Checked By AD
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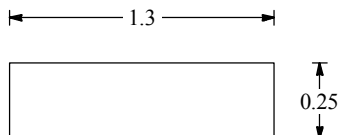
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TRIAL PIT LOG

Project Land to the North West of Haverhill		Client c/o Savills		TRIAL PIT No TP20
Job No 995,SI	Date 18-11-14 18-11-14	Ground Level (m)	Co-Ordinates ()	
Fieldwork By GEL		Logged By LF		Sheet 1 of 1

Depth	DESCRIPTION	Legend	Depth	No	Remarks/Tests
0.00-0.30	TOPSOIL (Dark grey brown slightly gravelly silty clay. Gravel of fine to coarse angular to sub rounded flint)				No collapse of sidewalls during excavation
0.30-1.45	Firm yellow brown grey CLAY. Gravel of angular to subrounded fine to coarse flint and subrounded fine to coarse chalk (LOWESTOFT FORMATION)				
0.60	- Becoming brown/grey mottled				
1.00	- With frequent iron oxide staining				
					Seepage inflow of water at 1.45 m Trial completed at 1.45m depth

GEL:AGS:TP BETA_995.SI - NW HAVERHILL, 31-10-14, LF,SG.GPJ GINT STD AGS 3_1.GDT 11/12/14



Shoring/Support: NONE
 Stability: STABLE

All dimensions in metres Scale 1:20.833333333333	Method Trial Pit/trench	Plant Used MECHANICAL EXCAVATOR	Checked By AD
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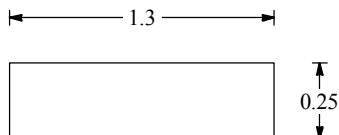
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TRIAL PIT LOG

Project Land to the North West of Haverhill		Client c/o Savills		TRIAL PIT No TP21
Job No 995,SI	Date 18-11-14 18-11-14	Ground Level (m)	Co-Ordinates ()	
Fieldwork By GEL		Logged By LF		Sheet 1 of 1

Depth	DESCRIPTION	Legend	Depth	No	Remarks/Tests
0.00-0.30	TOPSOIL (Dark grey brown slightly gravelly silty clay. Gravel of fine to coarse angular to sub rounded flint)				Groundwater not encountered during excavation No collapse of sidewalls during excavation
0.30-1.35	Firm becoming stiff brown gravelly CLAY. Gravel of angular to subrounded fine to coarse flint and subrounded to rounded fine to coarse chalk (LOWESTOFT FORMATION)				
	1.00 - Becoming light brown				Trial completed at 1.35m depth

GEL:AGS:TP BETA_995.SI - NW HAVERHILL_31-10-14_LF.SG.GPJ GINT STD AGS 3_1.GDT 11/12/14



Shoring/Support: NONE
 Stability: STABLE


All dimensions in metres Scale 1:20.833333333333	Method Trial Pit/trench	Plant Used MECHANICAL EXCAVATOR	Checked By AD
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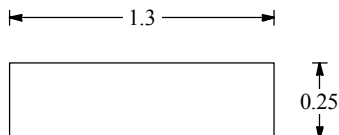


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TRIAL PIT LOG

Project Land to the North West of Haverhill		Client c/o Savills		TRIAL PIT No TP22
Job No 995,SI	Date 18-11-14 18-11-14	Ground Level (m)	Co-Ordinates ()	
Fieldwork By GEL		Logged By LF		Sheet 1 of 1

Depth	DESCRIPTION	Legend	Depth	No	Remarks/Tests
0.00-0.30	TOPSOIL (Dark grey brown slightly gravelly silty clay. Gravel of fine to coarse angular to sub rounded flint)				Groundwater not encountered during excavation No collapse of sidewalls during excavation
0.30-1.45	Firm orange brown Clay (HEAD DEPOSITS) 1.30 - Becoming sandy				
					Trial completed at 1.45m depth



Shoring/Support: NONE
 Stability: STABLE

GEL:AGS:TP BETA_995,SI - NW HAVERHILL_31-10-14_LF,SG.GPJ GINT STD AGS 3_1.GDT 11/12/14

All dimensions in metres Scale 1:20.833333333333	Method Trial Pit/trench	Plant Used MECHANICAL EXCAVATOR	Checked By AD
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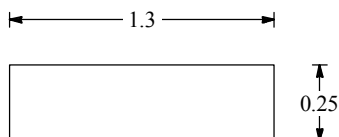
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TRIAL PIT LOG

Project Land to the North West of Haverhill		Client c/o Savills		TRIAL PIT No TP23
Job No 995,SI	Date 18-11-14 18-11-14	Ground Level (m)	Co-Ordinates ()	
Fieldwork By GEL		Logged By LF		Sheet 1 of 1

Depth	DESCRIPTION	Legend	Depth	No	Remarks/Tests
0.00-0.30	TOPSOIL (Dark brown slightly gravelly clay with rootlets. Gravel of angular to subrounded fine to medium flint)				No collapse of sidewalls during excavation
0.30-1.50	Firm orange brown slightly gravelly CLAY. Gravel of angular to subrounded fine to medium flint and chalk (LOWESTOFT FORMATION)				
1.00	Becoming slightly sandy with frequent gravel				
					Seepage inflow of water at 1.2 m
					Trial completed at 1.5m depth

GEL:AGS:TP BETA 995.SI - NW HAVERHILL, 31-10-14, LF,SG.GPJ GINT STD AGS 3_1.GDT 11/12/14



Shoring/Support: NONE
 Stability: STABLE

All dimensions in metres Scale 1:20.833333333333	Method Trial Pit/trench	Plant Used MECHANICAL EXCAVATOR	Checked By AD
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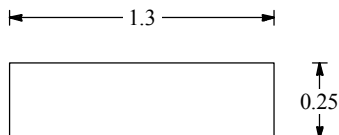


TRIAL PIT LOG

Project Land to the North West of Haverhill		Client c/o Savills		TRIAL PIT No TP24
Job No 995,SI	Date 18-11-14 18-11-14	Ground Level (m)	Co-Ordinates ()	
Fieldwork By GEL		Logged By LF		Sheet 1 of 1

Depth	DESCRIPTION	Legend	Depth	No	Remarks/Tests
0.00-0.28	TOPSOIL (Dark brown slightly gravelly clay with rootlets. Gravel of angular to subrounded fine to medium flint)				Groundwater not encountered during excavation No collapse of sidewalls during excavation
0.28-1.20	Firm becoming stiff brown gravelly CLAY. Gravel of angular to subrounded fine to coarse flint with frequent subrounded fine to coarse chalk (LOWESTOFT FORMATION)				
	1.00 - Becoming grey/brown mottled				Trial completed at 1.2m depth

GEL:AGS:TP BETA_995.SI - NW HAVERHILL_31-10-14_LF.SG.GPJ GINT STD AGS 3_1.GDT 11/12/14



Shoring/Support: NONE
 Stability: STABLE


All dimensions in metres Scale 1:20.833333333333	Method Trial Pit/trench	Plant Used MECHANICAL EXCAVATOR	Checked By AD
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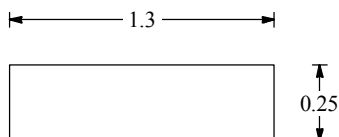
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TRIAL PIT LOG

Project Land to the North West of Haverhill		Client c/o Savills		TRIAL PIT No TP25
Job No 995,SI	Date 18-11-14 18-11-14	Ground Level (m)	Co-Ordinates ()	
Fieldwork By GEL		Logged By SG		Sheet 1 of 1

Depth	DESCRIPTION	Legend	Depth	No	Remarks/Tests
0.00-0.30	TOPSOIL (Brown slightly sandy clay with occasional fine to medium gravel of flint and flint)				No collapse of sidewalls during excavation Perched inflow of water at 0.3 m
0.30-1.40	Firm becoming stiff brown CLAY with occasional fine to coarse gravel of flint and chalk (LOWESTOFT FORMATION)				
0.80	Becoming pale grey/orange brown mottled				
					Trial completed at 1.4m depth

GEL:AGS:TP BETA_995.SI - NW HAVERHILL_31-10-14_LF.SG.GPJ GINT STD AGS 3_1.GDT 11/12/14



Shoring/Support: NONE
 Stability: STABLE

All dimensions in metres Scale 1:20.83333333333333	Method Trial Pit/trench	Plant Used MECHANICAL EXCAVATOR	Checked By AD
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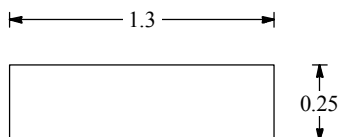
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TRIAL PIT LOG

Project Land to the North West of Haverhill		Client c/o Savills		TRIAL PIT No TP26
Job No 995,SI	Date 18-11-14 18-11-14	Ground Level (m)	Co-Ordinates ()	
Fieldwork By GEL		Logged By LF		Sheet 1 of 1

Depth	DESCRIPTION	Legend	Depth	No	Remarks/Tests
0.00-0.20	TOPSOIL (Brown slightly sandy clay with occasional fine to medium gravel of flint and flint)				
0.20-1.20	Firm becoming stiff orange brown gravelly CLAY. Gravel of angular to rounded fine to coarse flint with frequent chalk (LOWESTOFT FORMATION)				No collapse of sidewalls during excavation
	0.90 - Becoming grey/brown mottled				
					Perched inflow of water at 1.2 m Trial completed at 1.2m depth

GEL:AGS:TP BETA_995,SI - NW HAVERHILL, 31-10-14, LF,SG,GPJ GINT STD AGS 3_1.GDT 11/12/14



Shoring/Support: NONE
 Stability: STABLE

All dimensions in metres Scale 1:20.833333333333	Method Trial Pit/trench	Plant Used MECHANICAL EXCAVATOR	Checked By AD
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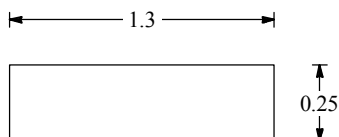
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TRIAL PIT LOG

Project Land to the North West of Haverhill		Client c/o Savills		TRIAL PIT No TP27
Job No 995,SI	Date 18-11-14 18-11-14	Ground Level (m)	Co-Ordinates ()	
Fieldwork By GEL		Logged By LF		Sheet 1 of 1

Depth	DESCRIPTION	Legend	Depth	No	Remarks/Tests
0.00-0.20	TOPSOIL (Brown slightly sandy clay with occasional fine to medium gravel of flint and flint)				Groundwater not encountered during excavation
0.20-1.45	Firm becoming stiff yellow brown gravelly CLAY. Gravel of angular to subrounded fine to coarse flint with frequent subrounded to rounded fine to coarse gravel and cobbles of chalk (LOWESTOFT FORMATION)				No collapse of sidewalls during excavation
	0.80 - Becoming grey/brown mottled				
					Trial completed at 1.45m depth

GEL:AGS:TP BETA_995.SI - NW HAVERHILL_31-10-14_LF.SG.GPJ GINT STD AGS 3_1.GDT 11/12/14



Shoring/Support: NONE
 Stability: STABLE

All dimensions in metres Scale 1:20.83333333333333	Method Trial Pit/trench	Plant Used MECHANICAL EXCAVATOR	Checked By AD
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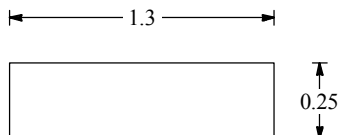


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TRIAL PIT LOG

Project Land to the North West of Haverhill		Client c/o Savills		TRIAL PIT No TP28
Job No 995,SI	Date 19-11-14 19-11-14	Ground Level (m)	Co-Ordinates ()	
Fieldwork By GEL		Logged By SG		Sheet 1 of 1

Depth	DESCRIPTION	Legend	Depth	No	Remarks/Tests
0.00-0.30	TOPSOIL (Dark grey brown slightly sandy clay with occasional fine gravel of flint)				Groundwater not encountered during excavation No collapse of sidewalls during excavation
0.30-1.50	Firm dark orange brown gravelly CLAY. Gravel of fine to coarse flint and chalk (HEAD DEPOSITS) 0.60 - becoming very gravelly 1.10 - with cobble of flint				
					Trial completed at 1.5m depth



Shoring/Support: NONE
 Stability: STABLE

GEL:AGS:TP BETA_995.SI - NW HAVERHILL, 31-10-14, LF,SG.GPJ GINT STD AGS 3_1.GDT 11/12/14

All dimensions in metres Scale 1:20.833333333333	Method Trial Pit/trench	Plant Used MECHANICAL EXCAVATOR	Checked By AD
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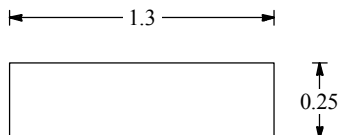


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TRIAL PIT LOG

Project Land to the North West of Haverhill		Client c/o Savills		TRIAL PIT No TP29
Job No 995,SI	Date 19-11-14 19-11-14	Ground Level (m)	Co-Ordinates ()	
Fieldwork By GEL		Logged By SG		Sheet 1 of 1

Depth	DESCRIPTION	Legend	Depth	No	Remarks/Tests
0.00-0.25	TOPSOIL (Dark grey brown slightly sandy clay with occasional fine gravel of flint)				Groundwater not encountered during excavation No collapse of sidewalls during excavation
0.25-0.60	Firm dark orange brown slightly sandy CLAY with occasional fine to coarse gravel of chalk and flint (HEAD DEPOSITS)				
0.60-1.20	Firm becoming stiff pale grey brown/orange brown mottled very gravelly CLAY. Gravel of fine to coarse flint and chalk (HEAD DEPOSITS)		0.70-0.80	1B	CBR
1.20-1.50	Stiff pale grey/pale orange brown mottled gravelly CLAY. Gravel of fine to coarse chalk (LOWESTOFT FORMATION)				Trial completed at 1.5m depth



Shoring/Support: NONE
 Stability: STABLE

GEL:AGS:TP BETA_995,SI - NW HAVERHILL_31-10-14_LF,SG.GPJ GINT STD AGS 3_1.GDT 11/12/14

All dimensions in metres Scale 1:20.833333333333	Method Trial Pit/trench	Plant Used MECHANICAL EXCAVATOR	Checked By AD
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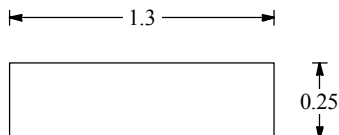


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TRIAL PIT LOG

Project Land to the North West of Haverhill		Client c/o Savills		TRIAL PIT No TP30
Job No 995,SI	Date 19-11-14 19-11-14	Ground Level (m)	Co-Ordinates ()	
Fieldwork By GEL		Logged By SG		Sheet 1 of 1

Depth	DESCRIPTION	Legend	Depth	No	Remarks/Tests
0.00-0.20	TOPSOIL (Dark grey brown slightly sandy clay with occasional fine gravel of flint)				Groundwater not encountered during excavation No collapse of sidewalls during excavation
0.20-0.60	Firm dark orange brown slightly sandy CLAY (HEAD DEPOSITS)		0.20	1J	
			0.40	2J	
0.60-1.50	Stiff pale grey/dark orange brown mottled gravelly CLAY. Gravel of fine to coarse chalk with occasional fine to medium flint (LOWESTOFT FORMATION)				Trial completed at 1.5m depth



Shoring/Support: NONE
 Stability: STABLE

GEL:AGS:TP BETA_995.SI - NW HAVERHILL, 31-10-14, LF,SG.GPJ GINT STD AGS 3_1.GDT 11/12/14

All dimensions in metres Scale 1:20.833333333333	Method Trial Pit/trench	Plant Used MECHANICAL EXCAVATOR	Checked By AD
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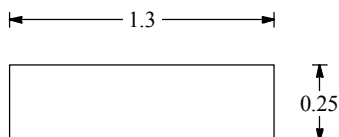


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TRIAL PIT LOG

Project Land to the North West of Haverhill		Client c/o Savills		TRIAL PIT No TP31
Job No 995,SI	Date 19-11-14 19-11-14	Ground Level (m)	Co-Ordinates ()	
Fieldwork By GEL		Logged By SG		Sheet 1 of 1

Depth	DESCRIPTION	Legend	Depth	No	Remarks/Tests
0.00-0.30	TOPSOIL (Dark grey brown slightly sandy clay with occasional fine gravel of flint)		0.20	1J	Groundwater not encountered during excavation No collapse of sidewalls during excavation
0.30-0.65	Firm becoming stiff pale grey/yellow brown mottled gravelly CLAY. Gravel of fine to medium chalk and flint (LOWESTOFT FORMATION)				
0.65-1.50	Stiff dark grey gravelly CLAY. Gravel of fine to medium flint (LOWESTOFT FORMATION)		0.70	2J	Trial completed at 1.5m depth



Shoring/Support: NONE
 Stability: STABLE

GEL:AGS:TP BETA_995,SI - NW HAVERHILL_31-10-14_LF,SG.GPJ GINT STD AGS 3_1.GDT 11/12/14

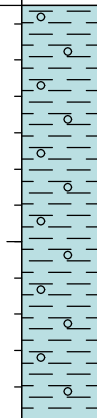
All dimensions in metres Scale 1:20.833333333333	Method Trial Pit/trench	Plant Used MECHANICAL EXCAVATOR	Checked By AD
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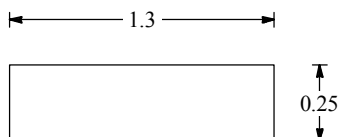
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TRIAL PIT LOG

Project Land to the North West of Haverhill		Client c/o Savills		TRIAL PIT No TP32
Job No 995,SI	Date 19-11-14 19-11-14	Ground Level (m)	Co-Ordinates ()	
Fieldwork By GEL		Logged By SG		Sheet 1 of 1

Depth	DESCRIPTION	Legend	Depth	No	Remarks/Tests
0.00-0.35	TOPSOIL (Dark grey brown slightly sandy clay with occasional fine gravel of flint)				Groundwater not encountered during excavation No collapse of sidewalls during excavation
0.35-1.50	Firm becoming stiff pale grey/yellow brown mottled gravelly CLAY. Gravel is fine to medium chalk with occasional fine to medium flint (LOWESTOFT FORMATION)				
					Trial completed at 1.5m depth

GEL:AGS:TP BETA_995.SI - NW HAVERHILL_31-10-14_LF.SG.GPJ GINT STD AGS 3_1.GDT 11/12/14



Shoring/Support: NONE
 Stability: STABLE


All dimensions in metres Scale 1:20.833333333333	Method Trial Pit/trench	Plant Used MECHANICAL EXCAVATOR	Checked By AD
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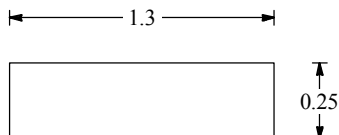
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TRIAL PIT LOG

Project Land to the North West of Haverhill		Client c/o Savills		TRIAL PIT No TP33
Job No 995,SI	Date 19-11-14 19-11-14	Ground Level (m)	Co-Ordinates ()	
Fieldwork By GEL		Logged By SG		Sheet 1 of 1

Depth	DESCRIPTION	Legend	Depth	No	Remarks/Tests
0.00-0.25	TOPSOIL (Dark grey brown slightly sandy clay with occasional fine gravel of flint)				Groundwater not encountered during excavation No collapse of sidewalls during excavation
0.25-1.50	Firm becoming stiff pale grey/yellow brown gravelly CLAY. Gravel is fine to medium chalk with occasional fine to medium flint (LOWESTOFT FORMATION)				
					Trial completed at 1.5m depth

GEL:AGS:TP BETA_995.SI - NW HAVERHILL_31-10-14_LF.SG.GPJ GINT STD AGS 3_1.GDT 11/12/14



Shoring/Support: NONE
 Stability: STABLE

All dimensions in metres Scale 1:20.833333333333	Method Trial Pit/trench	Plant Used MECHANICAL EXCAVATOR	Checked By AD
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APPENDIX 7 – INFILTRATION TEST RESULTS

DRAFT

Time [min]	Depth to Water [mbgl]	Borehole Dimensions [m]	
		Diameter	Depth
0	1.48	0.101	1.80
1	1.48		
2	1.48		
3	1.48		
4	1.48		
5	1.48		
10	1.48		
15	1.48		
20	1.48		
30	1.48		
45	1.48		
60	1.48		
90	1.48		
120	1.48		

Infiltration Rate Calculations		
Parameter	Unit	Result
<i>height</i>		
h_{25}	[m]	1.5600
h_{75}	[m]	1.7200
$h_{75}-h_{25}$	[m]	0.160
<i>time</i>		
t_{75}	[s]	N/A
t_{25}	[s]	N/A
$t_{75} - t_{25}$	[s]	N/A
<i>effective volume</i>		
v_{75-25}	[m ³]	1.28E-03
<i>effective area</i>		
a_{p50}	[m ²]	5.88E-02
<i>infiltration rate</i>		
f	[m/s]	N/A

Borehole WS3

Run 1 of 1

Test Date 29/10/2014

Groundwater Encountered at: n/a

Soakage Rate

mbgl - metres below ground level

SITE NW Haverhill	CLIENT Savills	REPORT NO 995,GI	SITE SUPERVISION LF	CALCULATIONS SG	CHECKED BY AD	DATE 05 December 2014
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Time [min]	Depth to Water [mbgl]	Borehole Dimensions [m]	
0	1.41	Diameter	Depth
1	1.41	0.101	1.89
2	1.41	Infiltration Rate Calculations	
3	1.41	Parameter	Unit
4	1.41	Result	
5	1.41	<i>height</i>	
10	1.41	h₂₅	[m] 1.5300
15	1.41	h₇₅	[m] 1.7700
20	1.41	h₇₅-h₂₅	[m] 0.240
30	1.41	<i>time</i>	
45	1.41	t₇₅	[s] N/A
60	1.41	t₂₅	[s] N/A
90	1.41	t₇₅ - t₂₅	[s] N/A
120	1.41	<i>effective volume</i>	
		v₇₅₋₂₅	[m ³] 1.93E-03
		<i>effective area</i>	
		a_{p50}	[m ²] 8.41E-02
		<i>infiltration rate</i>	
		f	[m/s] N/A

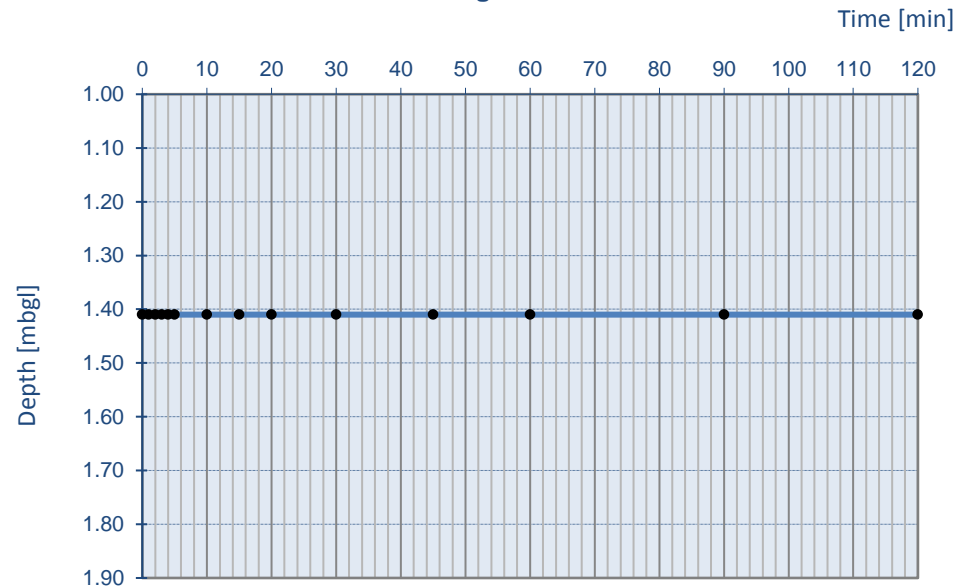
Borehole WS6

Run 1 of 1

Test Date 29/10/2014

Groundwater Encountered at: n/a

Soakage Rate



mbgl - metres below ground level

SITE	CLIENT	REPORT NO	SITE SUPERVISION	CALCULATIONS	CHECKED BY	DATE
NW Haverhill	Savills	995,GI	LF	SG	AD	05 December 2014

BOREHOLE INFILTRATION TEST - BRE DIGEST 365

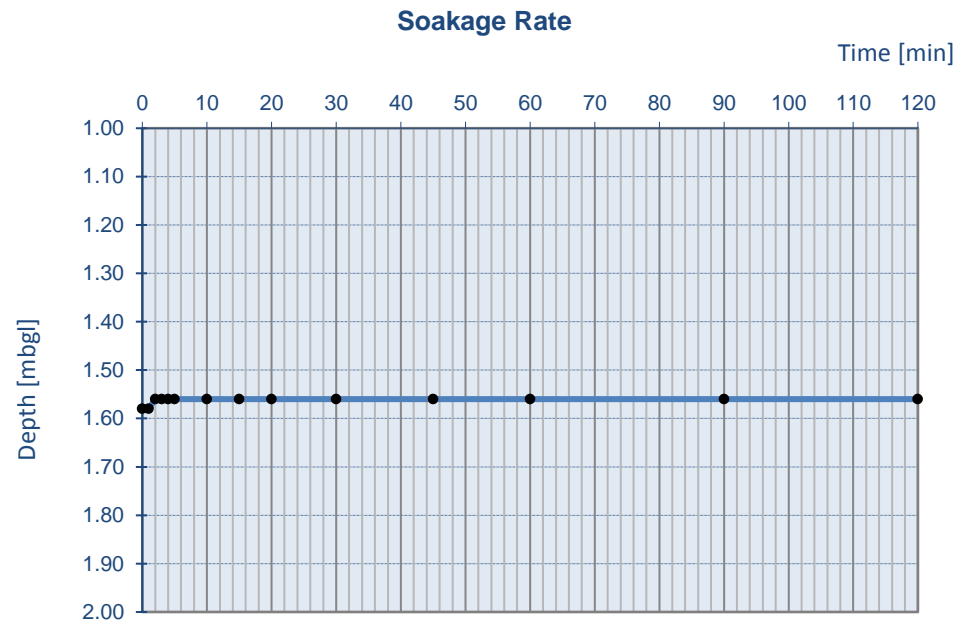
Time [min]	Depth to Water [mbgl]	Borehole Dimensions [m]	
		Diameter	Depth
0	1.58	0.101	2.00
1	1.58		
2	1.56		
3	1.56		
4	1.56		
5	1.56		
10	1.56		
15	1.56		
20	1.56		
30	1.56		
45	1.56		
60	1.56		
90	1.56		
120	1.56		
Infiltration Rate Calculations			
Parameter	Unit	Result	
<i>height</i>			
h₂₅	[m]	1.6500	
h₇₅	[m]	1.8500	
h₇₅-h₂₅	[m]	0.200	
<i>time</i>			
t₇₅	[s]	N/A	
t₂₅	[s]	N/A	
t₇₅ - t₂₅	[s]	N/A	
<i>effective volume</i>			
v₇₅₋₂₅	[m ³]	1.61E-03	
<i>effective area</i>			
ap₅₀	[m ²]	8.73E-02	
<i>infiltration rate</i>			
f	[m/s]	N/A	

Borehole WS8

Run 1 of 1

Test Date 29/10/2014

Groundwater Encountered at: n/a



mbgl - metres below ground level

SITE NW Haverhill	CLIENT Savills	REPORT NO 995,GI	SITE SUPERVISION LF	CALCULATIONS SG	CHECKED BY AD	DATE 05 December 2014
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Time [min]	Depth to Water [mbgl]	Borehole Dimensions [m]	
		Diameter	Depth
0	0.15	0.101	1.68
1	0.15		
2	0.15		
3	0.15		
4	0.15		
5	0.15		
10	0.15		
15	0.15		
20	0.15		
30	0.15		
45	0.15		
60	0.15		
90	0.15		
120	0.15		

Infiltration Rate Calculations		
Parameter	Unit	Result
<i>height</i>		
h_{25}	[m]	0.5325
h_{75}	[m]	1.2975
$h_{75}-h_{25}$	[m]	0.765
<i>time</i>		
t_{75}	[s]	N/A
t_{25}	[s]	N/A
$t_{75} - t_{25}$	[s]	N/A
<i>effective volume</i>		
v_{75-25}	[m ³]	6.14E-03
<i>effective area</i>		
a_{p50}	[m ²]	2.51E-01
<i>infiltration rate</i>		
f	[m/s]	N/A

Borehole WS12

Run 1 of 1

Test Date 30/10/2014

Groundwater Encountered at: n/a

Soakage Rate

The graph plots Depth [mbgl] on the y-axis (0.00 to 1.70) against Time [min] on the x-axis (0 to 120). A horizontal line of data points is plotted at a depth of approximately 0.15 mbgl, indicating that the water level in the borehole did not change significantly over the 120-minute test duration.

mbgl - metres below ground level

SITE NW Haverhill	CLIENT Savills	REPORT NO 995,GI	SITE SUPERVISION LF	CALCULATIONS SG	CHECKED BY AD	DATE 05 December 2014
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Time [min]	Depth to Water [mbgl]	Borehole Dimensions [m]	
		Diameter	Depth
0	0.70	0.101	1.97
1	0.70		
2	0.70		
3	0.70		
4	0.70		
5	0.70		
10	0.70		
15	0.70		
20	0.70		
30	0.70		
45	0.70		
60	0.70		
90	0.70		
120	0.70		

Infiltration Rate Calculations		
Parameter	Unit	Result
<i>height</i>		
h_{25}	[m]	1.0250
h_{75}	[m]	1.6750
$h_{75}-h_{25}$	[m]	0.650
<i>time</i>		
t_{75}	[s]	N/A
t_{25}	[s]	N/A
$t_{75} - t_{25}$	[s]	N/A
<i>effective volume</i>		
v_{75-25}	[m ³]	5.22E-03
<i>effective area</i>		
a_{p50}	[m ²]	2.05E-01
<i>infiltration rate</i>		
f	[m/s]	N/A

Borehole WS14

Run 1 of 1

Test Date 30/10/2014

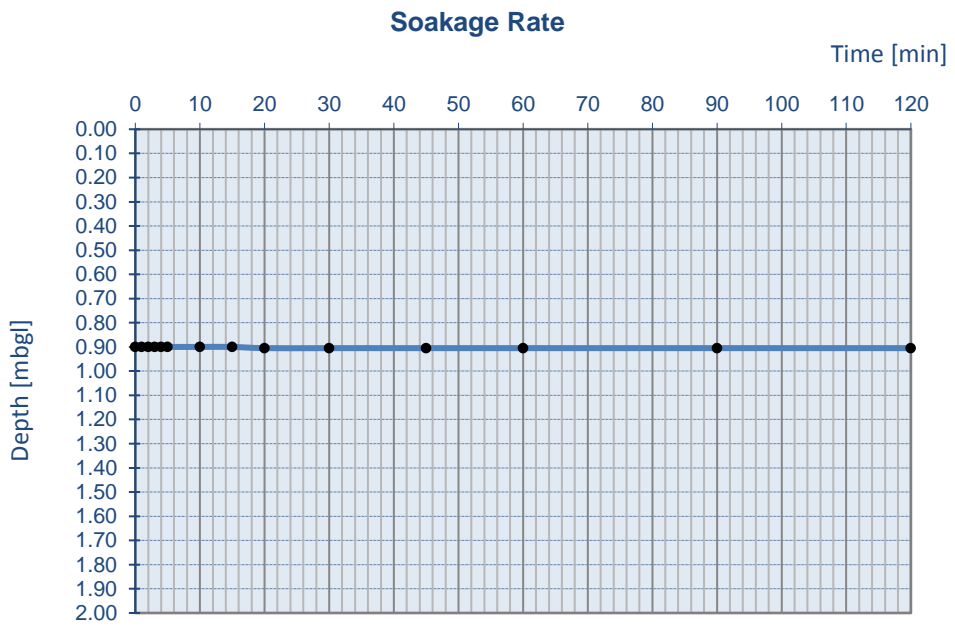
Groundwater Encountered at: n/a

Soakage Rate

mbgl - metres below ground level

SITE NW Haverhill	CLIENT Savills	REPORT NO 995,GI	SITE SUPERVISION LF
		CALCULATIONS SG	CHECKED BY AD
			DATE 05 December 2014

Time [min]	Depth to Water [mbgl]	Borehole Dimensions [m]		Infiltration Rate Calculations				Soakage Rate
		Diameter	Depth	Parameter	Unit	Result	Time [min]	
0	0.900	0.101	2.00	<i>height</i>				
1	0.900			h_{25}	[m]	1.1737		
2	0.900			h_{75}	[m]	1.7250		
3	0.900			$h_{75}-h_{25}$	[m]	0.551		
4	0.900			<i>time</i>				
5	0.900			t_{75}	[s]	N/A		
10	0.900			t_{25}	[s]	N/A		
15	0.900			$t_{75} - t_{25}$	[s]	N/A		
20	0.905			<i>effective volume</i>				
30	0.905			v_{75-25}	[m ³]	4.43E-03		
45	0.905			<i>effective area</i>				
60	0.905			ap_{50}	[m ²]	1.83E-01		
90	0.905			<i>infiltration rate</i>				
120	0.905			f	[m/s]	N/A		
				<i>Soakage Rate</i>				
				Groundwater Encountered at: n/a				
				Borehole WS15				
				Run 1 of 1				
				Test Date 30/10/2014				



mbgl - metres below ground level

SITE NW Haverhill	CLIENT Savills	REPORT NO 995,GI	SITE SUPERVISION LF	CALCULATIONS SG	CHECKED BY AD	DATE 05 December 2014
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Time [min]	Depth to Water [mbgl]	Borehole Dimensions [m]	
		Diameter	Depth
0	0.69	0.101	2.00
1	0.69		
2	0.69		
3	0.69		
4	0.69		
5	0.69		
10	0.69		
15	0.69		
20	0.69		
30	0.69		
45	0.69		
60	0.69		
90	0.69		
120	0.69		

Infiltration Rate Calculations		
Parameter	Unit	Result
<i>height</i>		
h_{25}	[m]	1.0175
h_{75}	[m]	1.6725
$h_{75}-h_{25}$	[m]	0.655
<i>time</i>		
t_{75}	[s]	N/A
t_{25}	[s]	N/A
$t_{75} - t_{25}$	[s]	N/A
<i>effective volume</i>		
v_{75-25}	[m ³]	5.26E-03
<i>effective area</i>		
a_{p50}	[m ²]	2.16E-01
<i>infiltration rate</i>		
f	[m/s]	N/A

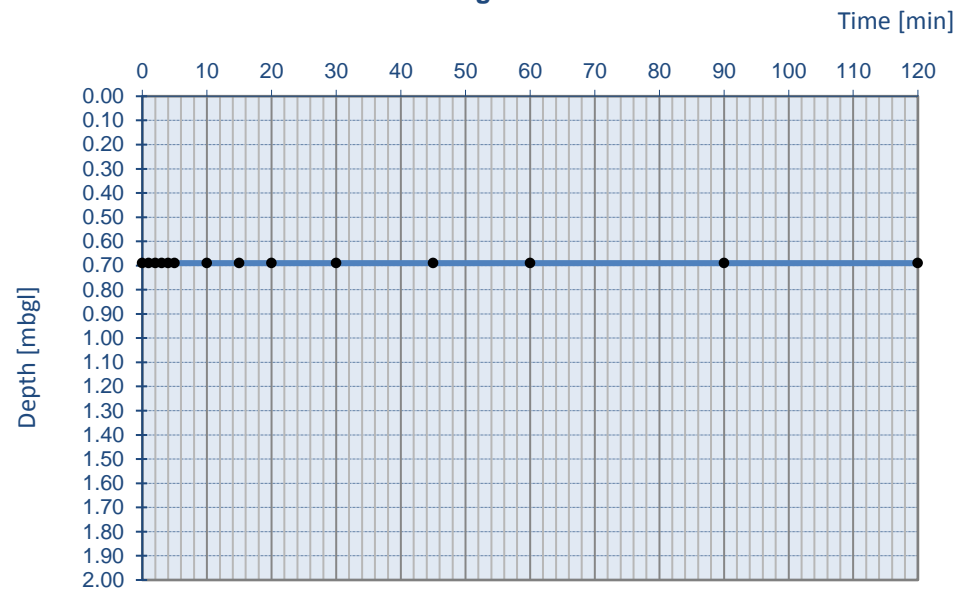
Borehole WSB

Run 1 of 1

Test Date 18/11/2014

Groundwater Encountered at: n/a

Soakage Rate



mbgl - metres below ground level

SITE	CLIENT	REPORT NO	SITE SUPERVISION	CALCULATIONS	CHECKED BY	DATE
NW Haverhill	Savills	995,GI	LF	SG	AD	05 December 2014

Time [min]	Depth to Water [mbgl]	Borehole Dimensions [m]					
0	0.550	Diameter	Depth				
1	0.550	0.101	2.00				
2	0.550	Infiltration Rate Calculations					
3	0.560	Parameter	Unit				
4	0.560	Result					
5	0.560	<i>height</i>					
10	0.560	h_{25}	[m] 0.9125				
15	0.560	h_{75}	[m] 1.6375				
20	0.570	$h_{75}-h_{25}$	[m] 0.725				
30	0.580	<i>time</i>					
45	0.595	t_{75}	[s] N/A				
60	0.600	t_{25}	[s] N/A				
90	0.610	$t_{75} - t_{25}$	[s] N/A				
120	0.620	<i>effective volume</i>					
		v_{75-25}	[m ³] 5.82E-03				
		<i>effective area</i>					
		a_{p50}	[m ²] 2.38E-01				
		<i>infiltration rate</i>					
		f	[m/s] N/A				
SITE NW Haverhill		CLIENT Savills	REPORT NO 995,GI	SITE SUPERVISION LF	CALCULATIONS SG	CHECKED BY AD	DATE 05 December 2014

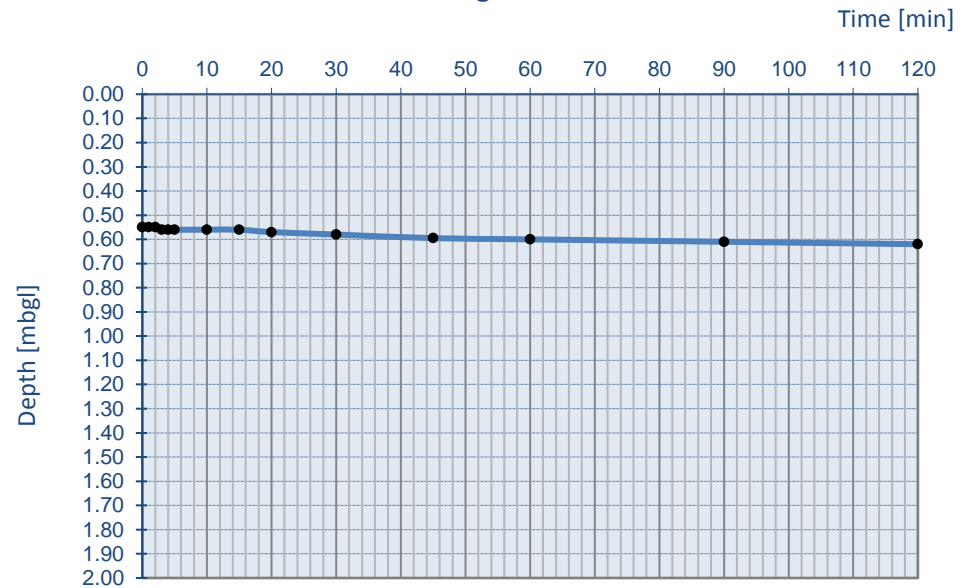
Borehole WSD

Run 1 of 1

Test Date 18/11/2014

Groundwater Encountered at: n/a

Soakage Rate



mbgl - metres below ground level

Time [min]	Depth to Water [mbgl]	Borehole Dimensions [m]		Infiltration Rate Calculations				Soakage Rate
		Diameter	Depth	Parameter	Unit	Result	Time [min]	
0	0.730	0.090	2.00	<i>height</i>				
1	0.750			h_{25}	[m]	1.0475		
2	0.760			h_{75}	[m]	1.6825		
3	0.765			$h_{75}-h_{25}$	[m]	0.635		
4	0.765			<i>time</i>				
5	0.770			t_{75}	[s]	N/A		
10	0.790			t_{25}	[s]	N/A		
15	0.800			$t_{75} - t_{25}$	[s]	N/A		
20	0.810			<i>effective volume</i>				
30	0.830			v_{75-25}	[m ³]	4.05E-03		
60	0.870			<i>effective area</i>				
90	0.900			a_{p50}	[m ²]	1.86E-01		
120	0.930			<i>infiltration rate</i>				
180	0.970			f	[m/s]	N/A		
				<i>Soakage Rate</i>				
				mbgl - metres below ground level				
SITE NW Haverhill	CLIENT Savills	REPORT NO 995,GI	SITE SUPERVISION LF	CALCULATIONS SG	CHECKED BY AD	DATE 05 December 2014		

Time [min]	Depth to Water [mbgl]	Borehole Dimensions [m]	
		Diameter	Depth
0	0.24	0.090	2.00
1	0.26		
2	0.36		
3	0.43		
5	0.48		
10	0.63		
20	0.68		
30	0.69		
60	0.68		
90	0.68		
120	0.68		

Infiltration Rate Calculations		
Parameter	Unit	Result
<i>height</i>		
h_{25}	[m]	0.6050
h_{75}	[m]	1.3350
$h_{75}-h_{25}$	[m]	0.730
<i>time</i>		
t_{75}	[s]	N/A
t_{25}	[s]	540.00
$t_{75} - t_{25}$	[s]	N/A
<i>effective volume</i>		
v_{75-25}	[m ³]	4.65E-03
<i>effective area</i>		
a_{p50}	[m ²]	2.97E-01
<i>infiltration rate</i>		
f	[m/s]	N/A

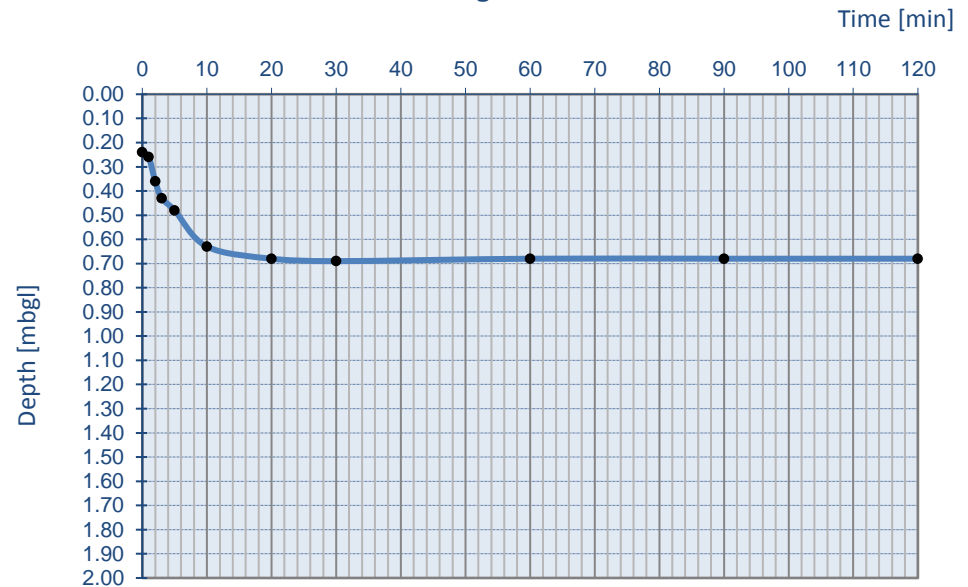
Borehole WSH

Run 1 of 1

Test Date 19/11/2014

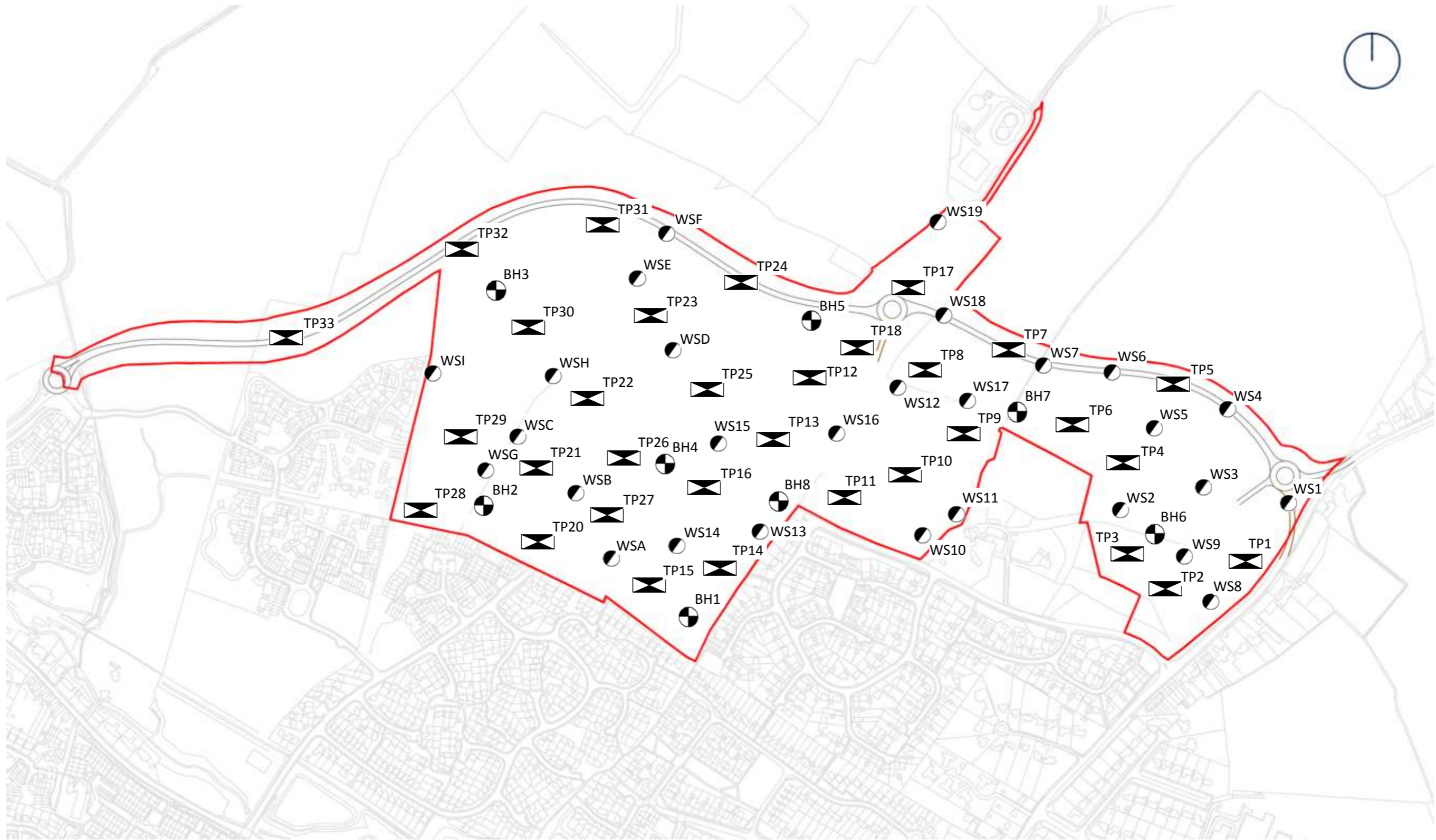
Groundwater Encountered at: n/a

Soakage Rate



mbgl - metres below ground level

SITE NW Haverhill	CLIENT Savills	REPORT NO 995,GI	SITE SUPERVISION LF	CALCULATIONS SG	CHECKED BY AD	DATE 05 December 2014
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LEGEND:

- Proposed borehole locations
- Proposed Trial Pit Locations
- Site Boundary
- Proposed window sample locations



geosphere environmental ltd

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SITE
 Land to the north west of Haverhill, Suffolk

TITLE
 Exploratory Hole Location Plan
CLIENT
 c/o Savills

Ref.
 995,SI
DRAWN BY
 SG

DRAWING NO.
 995,SI / Rev 0
CHECKED
 AD

DATE
 December 2014
SCALE
 Not to scale

Appendix G





Wormald Burrows Partnership Limited

Civil Engineering Consultants

12a-18a Hitchin Street, Biggleswade, SG18 8AX Tel: (01767) 317244 Fax: (01767) 315434

Haverhill North

Drainage Maintenance Proposals

Road Gullies

The highway drainage system will be offered to Suffolk County Council for adoption. They will then be responsible for the regular maintenance of road gullies and connecting pipework and ensuring that the public highway drains properly.

Any sections of highway which are not adopted will be maintained by either a private management company who will be responsible for the regular maintenance of gullies and connecting pipework and ensuring that that these areas of private highway drain properly or the eventual owners of the properties.

Sewers and Flow Control

The main surface and foul water drainage systems will be offered to Anglian Water for adoption. This will include the flow control devices which will limit surface water flows to an agreed greenfield rate.

Anglian Water will then be responsible for the regular maintenance of these systems which receive flows from all parts of the development.

Attenuation Tank (Geocellular crates)

The attenuation tank is located within the Local Centre parking areas. This element of the sustainable drainage system will be managed by a private management company. The geocellular crates will be fitted with a central access pipe to allow for CCTV surveys and jetting out of the tank. Access manholes are provided at either end for easy access.

The tank has been designed for easy maintenance which will comprise:

- Inspect inlet manhole on a monthly basis for the first 6 months, and then 6 monthly after that and identify any areas which are not operating correctly.
- Occasional tasks – clean out silt traps and CCTV survey tank annually
- Remedial work - repairing damage where necessary

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Attenuation Ponds

The surface water attenuation ponds will ordinarily be dry and should only fill during heavy rainfall events, so will more than often appear as a grassed depression in the public open space rather than a water feature. However, as it is difficult to predict when a heavy rainfall event is likely to occur it is important that the ponds are maintained all year round.

Maintenance will be the responsibility of a private management company and will comprise of the following:

- Undertake an inspection of the ponds at annual intervals to assess the stability of the ponds banks and remedial activities carried out when necessary.
- Regular litter picking and grass cutting and checking of inlet and outlet headwalls.
- De-silting of the inlet and outlet pipes and headwalls should be carried out during a period of low rainfall, at a time that it can be anticipated that major storms will not occur. It should always be noted that the ponds will fill up rapidly over a period of a few hours in the event that a critical storm occurs.

Headwalls

There shall be a pre-cast headwall at each inlet and outlet of each pond, as the ponds; and headwalls form part of a combined system, one headwall being blocked up could prevent the entire system from drainage as desired therefore it is imperative that flows are not impeded by blocked up headwalls.

Maintenance of the headwalls will be the responsibility of a private management company and will comprise of the following:

- At quarterly intervals and following extreme storm events; check each headwall and grill for signs of blockage.
- At annual intervals; the inlets, connecting pipework and outlets from the pond should be checked and all ends of the pipes are clear of weed growth, silt and debris. Also check that the outfall into the ordinary watercourse is clear and unobstructed.
- Remove any accumulated vegetation and rubbish off site.
- At annual intervals and following extreme storm events, undertake an assessment of the structural integrity of the headwalls and safety grille and fittings; repair or replace as necessary.