TECHNICAL NOTE

Job Name: Land East of Rayleigh Road, Thundersley

Job No: 332210105/350.001

Note No: TN-GEO-02

Date: July 2021

Prepared By: Jonathan Camp

Checked By: **O Belson**

Subject: **Infiltration Assessment at Hadleigh Site Castle Point**

Introduction

Stantec UK has been commissioned jointly by This Land Development Limited (the client) to undertake an infiltration assessment for the site at Land East of Rayleigh Road, Thundersley, Essex, to be referred to hereafter as the 'site'. The assessment is required to determine the viability of shallow sustainable urban drainage systems (SuDS) as part of the site-wide drainage strategy.

The site is centred upon approximate National Grid Reference 580680 188798. A site location plan is presented as **Figure 1**.

The site comprises an irregular shaped piece of land covering approximately 28 hectares, located due north of Daws Heath Road and due east of Rayleigh Road in Rayleigh, Essex. It currently comprises largely open agricultural fields with some horse grazing paddocks, associated stables and a fishing lake.

The site falls from a high point of approximately 80m AOD in the south, to a low point of approximately 30m AOD in the northeast corner.

Published Site Geology

The 1:50,000 series Geological Survey of England and Wales Sheet 258/259 (BGS, 1976) and BGS GeoIndex (onshore) (BSG, 2021) indicate the following geological sequence underlying the Site.

Superficial Deposits
Superficial deposits are shown to be largely absent from the Site, particularly in the centre, west and south suggesting that the bedrock is shallow in these areas. The north east and centre of the Site is underlain by Head Deposits. Glaciofluvial Deposits, Mid Pleistocene – Sand and Gravel underlie the south east Site boundary. A small area of Sand and Gravel of (Uncertain Age and Origin) is recorded in the south west of the Site adjacent to Asquith Avenue.

Bedrock
The Site is underlain by two bedrock formations which roughly divide the Site north and south. The Claygate Member – Clay, Silt and Sand is located across the north and centre (east) of the Site.

Beneath the south and centre (west) of the Site is the Bagshot Formation – Sand.

Ground Investigation

Ground investigation works comprising of the digging of soakaway trial pits and window sampler boreholes were carried out between the 13th and 14th May 2021. The ground investigation was proposed to identify ground conditions and to assess ground drainage potential to help aid in a site wide Drainage Management Strategy.
The investigation comprised a total of twelve soakaway trial pits (TP101 to TP112) and six window sampler boreholes (WS101 to WS106) with standpipe installations to facilitate monitoring. Locations of completed investigation locations are presented on **Figure 2.**

Soakaway trial pits TP101 to TP112 were excavated to a depth of 2m bgl by a JCB back-hoe loader in accordance with BRE 365:2015. All trial pits were logged in accordance with BS5930:2015 (BS EN ISO 14688-1:2002+A1:2013). Upon completion, the pits were backfilled with their arisings and compacted, leaving the soils slightly mounded to accommodate future settlement within the backfill.

Dynamic sampling techniques were used to construct boreholes at six locations (WS101 to WS106) to a target depth of 6.0m bgl. Continuous soil cores were recovered from the WS boreholes in PVC liners, which were split to enable logging of the recovered soils by the on site Engineer in accordance with BS 5930:2015 and BS EN ISO 14688.On completion, all boreholes were installed with nominal 50mm diameter groundwater monitoring pipework. The response zones of each installation were located within both Head Deposits and Claygate Member. Above each response zone a plain pipe and bentonite seal were installed to prevent downward migration of any surface water. The pipework was encased in a gravel filter pack and the plain section pipework was encased with bentonite pellets and a flush cover concreted in place.

The records of the exploratory holes are presented in Appendix 1.

Upon completion of the excavation and logging of the trial pits, infiltration testing was undertaken in seven of them. To facilitate the testing, the trial pits were filled with 20mm diameter gravel over a 1m deep test zone and the testing was undertaken in accordance with (BRE, 2016) by recording the time taken for water to drain away within the test zones.

Ground Conditions

A summary of the stratigraphy encountered across both phases of ground investigation is presented in Table 1 below.

Table 1 Summary of Encountered Stratigraphy

Formation	Top Depth Range (bgl)	Base Depth Range (bgl)
Topsoil/Made Ground	Ground Level	0.20 - 0.5m
Head Deposits	0.20m – 0.50m	1.5m – 5.6m
Claygate Member	1.1m - 5.6m	2.0m – 6.0m

Topsoil
Topsoil was encountered in all locations except TP107 and was typically described as brown friable slightly sandy, slightly gravelly clay with occasional rootlets. The gravel content was recorded as angular to sub-rounded fine to coarse flint.

Made Ground
Made ground was recorded in two locations during the investigation works.
In trial pit TP103 0.4m of made ground was recorded beneath the topsoil and was described as soft orange-brown, very gravelly sandy clay. The sand was recorded as medium to coarse and the gravel content recorded fragments of brick, sandstone, glass and tile.
Trial pit TP107 was the second location to record the presence of made ground. This time from surface, to a depth of 0.3m bgl. The surface was covered by a thin layer of macadam underlain by a soft black to brown very gravelly sandy clay. The gravel contained fragments of clinker, brick, glass and occasional cobbles of angular brick.

Head Deposits
Head Deposits often comprise mixed lithologies depending on the up-slope source the deposits were derived from. Head Deposits were encountered in each of the exploratory hole locations and were typically described as soft to firm orange-brown sandy clay. Occasionally the clay was described as mottled and in certain locations was recorded as becoming stiffer with depth.

The sand content within the Head Deposits was recorded as fine to medium and was also noted to increase in quantity in localised areas with depth. Increased sand and gravel content was noted in locations TP104, TP105 and TP110. Occasional relic roots were also recorded.

Claygate Member

The BGS Lexicon described the Claygate Member as dark grey clay with sand laminaes that passes through thin bands of clays, silts and fine-grained sands.

The ground conditions encountered beneath the Head Deposits on site are considered most likely to represent the Claygate Member, as these deposits encountered included stiff dark grey slightly sandy clays; medium dense brown very clayey silty fine sands and soft orange brown sandy silts.

Groundwater

Groundwater seepages were recorded within some of the exploratory holes during the investigation works. A summary is provided in Table 2 below.

Table 6.2 Groundwater Strikes in Exploratory Holes

Location	Depth (m)	Description Provided
TP106	2.0	Minor flow
TP107	1.5	Moderate seepage
TP108	1.5	Minor seepage
TP109	1.3	Slow flow
TP110	2.0	Minor flow
TP112	1.2	Moderate flow
WS102	4.0	Rose to 3.68m in 20m
WS103	2.0	-
WS104	2.0	Rose to 1.38m in 20 mins.
WS105	4.0	-
WS106	2.0	Rose to 1.95m in 15 mins.

Groundwater levels were monitored in the standpipes installed within the window sample hole locations on two occasions (25th May and 9th of June 2021). A summary of the findings is presented in Table 3 below.

Table 3 Summary of Groundwater levels in Monitoring Wells

Location	Ground Levels (m AOD)	Groundwater Depth			
		25 May 2021		9 June 2021	
		(m bgl)	m AOD	(m bgl)	m AOD
WS101	66.0	3.21	62.8	0.91	65.1
WS102	66.2	0.85	65.4	1.23	64.9
WS103	58.1	0.77	57.3	0.91	57.2
WS104	66.8	1.31	65.5	1.34	65.5
WS105	78.0	1.60	76.4	1.71	76.3
WS106	70.1	0.61	69.5	0.75	69.4

TECHNICAL NOTE

Soakaway Testing

Testing was completed in the twelve trial pits (TP101 to TP112 inclusive) with test zones between 1.00m and 2.00m bgl.

Each of the test excavations were backfilled with supplied gravel and filled with clean water from a water bowser and the fall in water level was recorded over time. Testing was undertaken at each location for a minimum of 35 minutes. The results from contractor's assessment are presented in full as Appendix I and are summarised in Table 6.4 below.

Table 4 Summary of Infiltration Testing Results

Test Location	Ground Conditions	Depth of Infiltration Test (m bgl)	Infiltration Rate (m/s)
TP101	Orange brown mottled grey clay (Head Deposits)	Test 1: 1.00 – 2.00	Test Failed
TP102	Orange brown mottled grey clay (Head Deposits)	Test 1: 1.00 – 2.00	Test Failed
TP103	Orange brown mottled grey clay (Head Deposits)	Test 1: 1.00 – 2.00	Test Failed
TP104	Orange brown very silty sand (Head Deposits over Claygate Member)	**Test 1: 1.00 – 2.00** **Test 2: 1.00 – 2.00** **Test 3: 1.00 – 2.00**	**Test 1: $2.96x10^{-06}$** **Test 2: $1.99x10^{-06}$** **Test 3: $1.79x10^{-06}$**
TP105	Orange brown mottled grey clay (Head Deposits)	Test 1: 1.00 – 2.00	Test Failed
TP106	Orange brown mottled grey clay (Head Deposits)	Test 1: 1.00 – 2.00	Test Failed
TP107	Orange brown mottled grey clay (Head Deposits)	Test 1: 1.00 – 2.00	Test Failed
TP108	Multicoloured sandy clay/clayey sand (Head Deposits)	Test 1: 1.00 – 2.00	Test Failed
TP109	Orange brown mottled grey clay (Head Deposits)	Test 1: 1.00 – 2.00	Test Failed
TP110	Orange brown mottled grey clay (Head Deposits)	Test 1: 1.00 – 2.00	Test Failed
TP111	Orange brown slightly gravelly clay/ clayey sand.(Head Deposits over Claygate Member)	Test 1: 1.00 – 2.00	Test Failed
TP112	Orange brown mottled grey clay (Head Deposits)	Test 1: 1.00 – 2.00	Test Failed

Assessment of Infiltration Testing

Only the soakaway tests undertaken in TP104 yielded infiltration results ranging between 1.79 and $2.96x10^{-6}$. The infiltration tests carried out at the other eleven locations failed, indicating that the water within the soakage pit had failed to reduce by 25% in a 24 hour period.

It was noted from the soil logs that trial pit TP104 was recorded as having a more granular sand layer present between 1.1m and 2.2m depth, which would have been located at the base of the soakage trial pit and therefore facilitated some infiltration in this location.

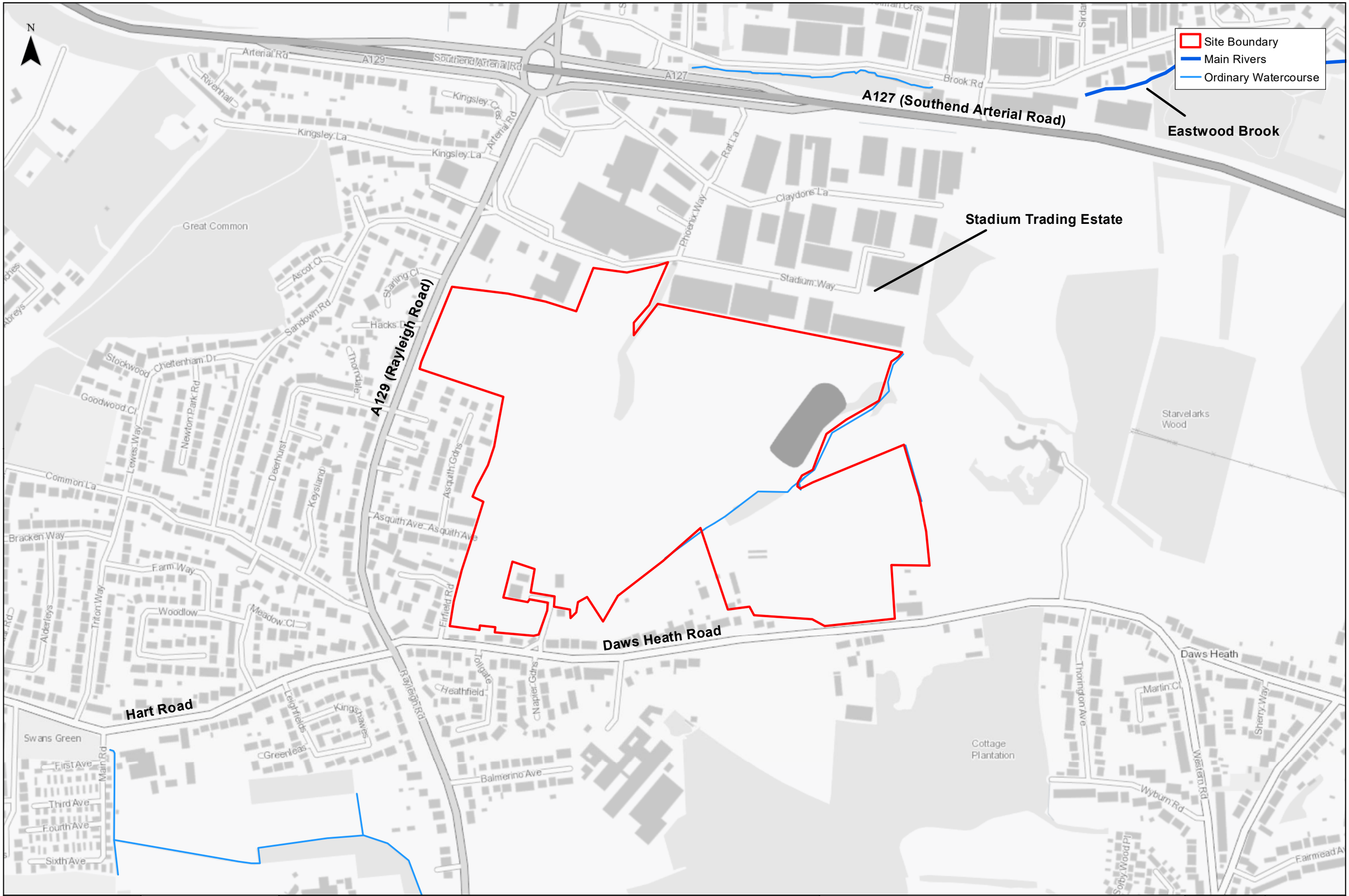
Conclusions

Infiltration testing indicates that soakaway drainage solutions via infiltration are not likely to be suitable where cohesive Head deposits are present.

References

British Geological Survey (1976) Geological Map. Solid and Drift. Southend and Foulness Sheet 258/259
British Geological Survey (2021) BGS Lexicon of Named Rock Units [online] Accessed May 2021
BS 5930 2015 (+A1:2020) Code of practise for ground investigations.
BS 10175:2011 (+A2:2017) Investigation of potentially contaminated sites – code of practice.
BRE Digest 365: 2016 Soakaway design.

FIGURES



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HADLEIGH SITE, CASTLE POINT

Site Location

0 250 500 m

1:5,000 @ A3	Date: 28/01/2021
Drawn: MD	Checked: SK
Figure 47268/4003/GIS001a	Rev B

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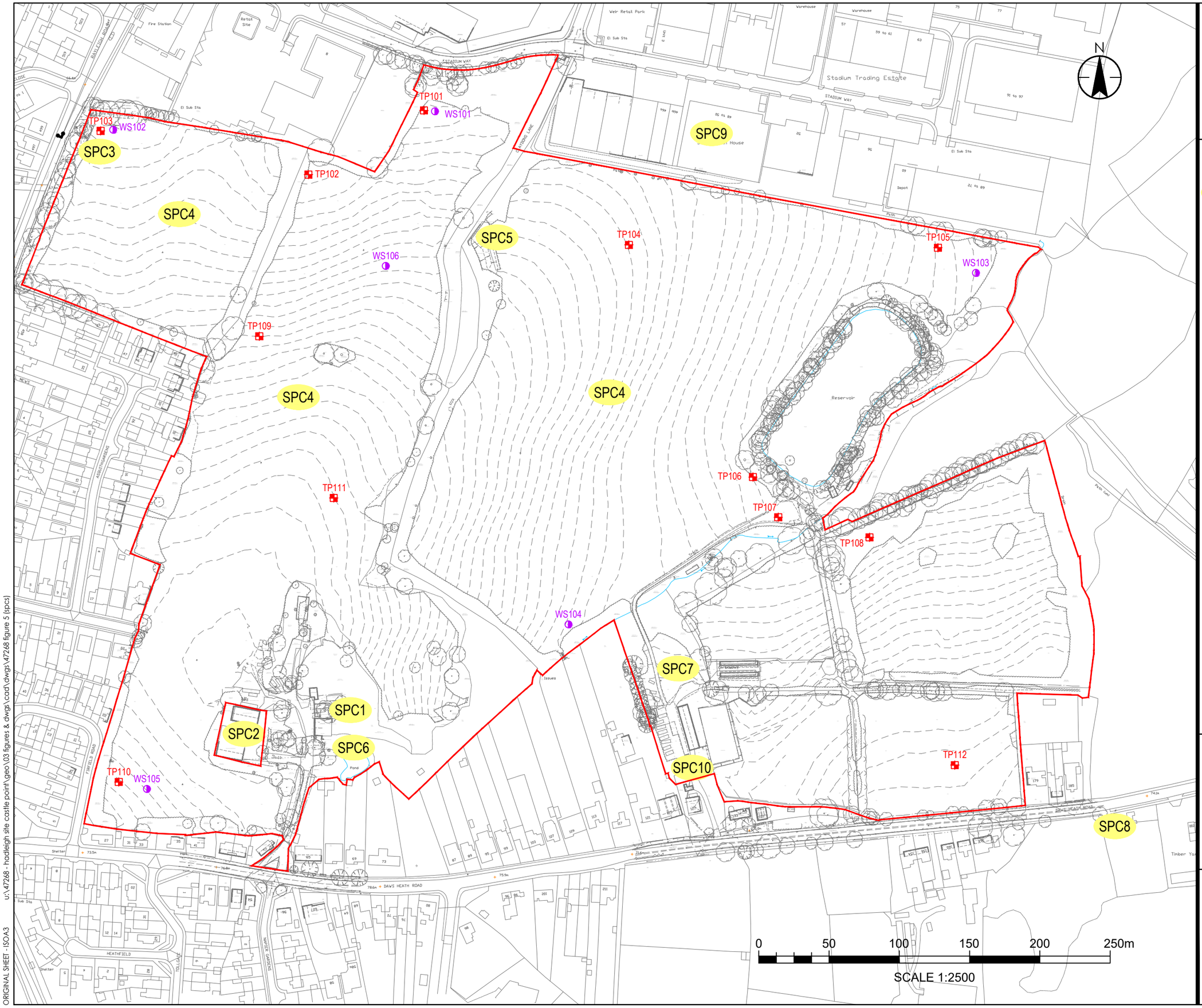

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Key

- SPC_ Sources of Potential Contamination (SPC)
- Proposed Trial Pit Locations
- Proposed Window Sample Locations

Client/Project: this Land.™

Land East of Rayleigh Road, Hadleigh

Prepared:	Checked:	Date:
davco	JC	2021.06.30

Title

Sources of Potential Contamination (SPC) and Ground Investigation Locations for Drainage Assessment

Revision:	Figure
0	5

APPENDIX 1
Investigation Logs and Infiltration Test Results

WINDOWLESS DYNAMIC SAMPLE RECORDS

L	Liner sample
D	Small disturbed sample
SPT	Standard penetration test using a split spoon sampler N Value is uncorrected, but the hammer energy ratio is provided (in remarks)
IP xx	Initial penetration during the SPT recorded in millimetres. If initial penetration equals or exceeds 450 mm the test is aborted.
S x,x	SPT seating drive blow count given by the summation of the blows 'X' required to drive the seating length
T x,x,x,x	SPT test drive blow count 'N' given by the summation of the blows 'X' required to drive the seating length (300 mm)
X*Y	Incomplete standard penetration test where the seating/test drive could not be completed. The blows 'X' represent the total blows for the given length of seating drive 'Y' (mm)
dd/mm/yy: 1.0 **dd/mm/yy: dry**	Date, water level at the borehole depth at the end of shift and the start of the following shift

Each sample type is numbered sequentially with depth and relates to the depth range quoted

All depths and measurements are given in metres, except as noted

Strata descriptions complied by visual examination of samples obtained during boring, after BS 5930:2015+A1:2020 and modified in accordance with laboratory test results where applicable

A F Howland Associates
Geotechnical Engineers

Site Castle Point, Hadleigh			**Number** WS101
Machine : Dando Terrier 2002 **Method :** Windowless Dynamic Sampling	**Dimensions** 102mm to 2.00m 87mm to 4.00m 75mm to 6.00m	**Ground Level (mOD)** 66.09	**Client** Stantec	**Job Number** 21.133
	Location 580276 E 189335 N	**Dates** 14/05/2021	**Engineer**	**Sheet** 1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
0.00-0.30	D1				(0.30)	TOPSOIL (Brown friable silty sandy slightly gravelly clay. Gravel is angular to subrounded fine to coarse flint.		
				65.79	0.30	Occasional rootlets)		
0.60-0.80	D2					Soft becoming firm grey orange mottled silty sandy CLAY. Occasional relic rootlets		
1.20-1.65	SPT N=13	DRY	IP 0/S 1,2 T 2,4,3,4					
1.20-1.65	D3				(2.50)			
1.70-1.90	D4							
2.00-2.45	SPT N=14	DRY	IP 0/S 2,2 T 3,3,4,4					
2.00-2.45	D5							
2.80-3.00	D6			63.29	2.80	Medium dense brown very clayey silty fine SAND		
3.00-3.45	SPT N=16	DRY	IP 0/S 1,1 T 3,3,4,6					
3.00-3.45	D7							
3.60-3.90	D8							
4.00-4.45	SPT N=14	DRY	IP 0/S 1,2 T 3,3,3,5					
4.00-4.45	D9				(3.00)			
4.80-5.00	D10							
5.00-5.45	SPT N=14	DRY	IP 0/S 3,3 T 2,2,5,5					
5.00-5.45	D11							
5.60-6.00	D12							
				60.29	5.80			
					(0.20)	Stiff grey silty sandy CLAY		
			14/05/2021:DRY	60.09	6.00			
						Complete at 6.00m		

Remarks
1. Location CAT scanned prior to excavation
2. Hand dug inspection pit to 1.20 m
3. No groundwater encountered
4. Slotted Standpipe installed to 5.00 m
5. SPT Hammer Energy Ratio = 68%

Scale (approx)	Logged By
1:40	SW

Figure No. 21.133.WS101

A F Howland Associates
Geotechnical Engineers

Site	Borehole Number
Castle Point, Hadleigh	WS101

Installation Type	Dimensions	Client	Job Number
Single Installation	Internal Diameter of Tube [A] = 50 mm	Stantec	21.133

Location	Ground Level (mOD)	Engineer	Sheet
580276 E 189335 N	66.09		1/1

Legend	Water	Instr (A)	Level (mOD)	Depth (m)	Description
			65.89	0.20	Concrete
					Bentonite Seal
			65.09	1.00	
					Slotted Standpipe
			61.09	5.00	
					General Backfill
			60.09	6.00	

Groundwater Strikes During Drilling

Date	Time	Depth Struck (m)	Casing Depth (m)	Inflow Rate	Readings				Depth Sealed (m)
					5 min	10 min	15 min	20 min	

Groundwater Observations During Drilling

Date	Start of Shift					End of Shift				
	Time	Depth Hole (m)	Casing Depth (m)	Water Depth (m)	Water Level (mOD)	Time	Depth Hole (m)	Casing Depth (m)	Water Depth (m)	Water Level (mOD)
14/05/21							6.00		DRY	

Instrument Groundwater Observations

Inst. [A] Type : Slotted Standpipe

Date	Instrument [A]			Remarks
	Time	Depth (m)	Level (mOD)	

Remarks

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Geotechnical Engineers

Site	Number
Castle Point, Hadleigh	WS102

Machine / Method	Dimensions	Ground Level (mOD)	Client	Job Number
Machine : Dando Terrier 2002 **Method :** Windowless Dynamic Sampling	102mm to 2.00m 87mm to 4.00m 75mm to 6.00m	66.21	Stantec	21.133
	Location 580052 E 189333 N	**Dates** 13/05/2021	**Engineer**	**Sheet** 1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
0.00-0.20	D1			66.01	(0.20) 0.20	TOPSOIL (Brown friable silty sandy slightly gravelly clay. Gravel is angular to subrounded fine to coarse flint. Occasional rootlets)		
0.30-0.50	D2					Soft becoming firm light greyish brown orange mottled silty sandy CLAY. Occasional relic rootlets		
1.20-1.70 1.20-1.65	SPT D3 N=9	DRY	IP 50/S 1,1 T 2,2,3,2					
1.80-2.00	D4				(3.60)			
2.00-2.48 2.00-2.45	SPT D5 N=7	DRY	IP 30/S 2,1 T 1,2,2,2					
2.80-3.00	D6							
3.00-3.45 3.00-3.45	SPT N=15 D7	DRY	IP 0/S 1,2 T 4,3,4,4			.... band of light brown very clayey silty fine sand from 3.70 m to 3.80 m		▼1
3.70-3.80 3.80-4.00	D8 D9			62.41	3.80	Stiff dark grey silty slightly sandy CLAY		▽1
4.00-4.45	D10		Moderate(1) at 4.00m, rose to 3.68m in 20 mins, not sealed.					
4.00-4.45	SPT N=10	3.95	IP 0/S 2,2 T 2,2,3,3					
5.00-5.45	SPT N=11	4.50	IP 0/S 2,2 T 2,3,3,3		(2.20)			
5.00-5.45	D11							
			13/05/2021:4.47m	60.21	6.00	Complete at 6.00m		

Remarks
1. Location CAT scanned prior to excavation
2. Hand dug inspection pit to 1.20 m
3. Groundwater struck at 4.00 m and rose to 3.95 m in 5 mins, 3.77 m in 10 mins, 3.70 m in 15 mins and 3.68 m in 20 mins
4. Slotted Standpipe installed to 5.00 m
5. SPT Hammer Energy Ratio = 68%

Scale (approx)	Logged By
1:40	SW

Figure No.
21.133.WS102

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Site	Borehole Number
Castle Point, Hadleigh	WS102

Installation Type	Dimensions	Client	Job Number
Single Installation	Internal Diameter of Tube [A] = 50 mm	Stantec	21.133

Location	Ground Level (mOD)	Engineer	Sheet
580052 E 189333 N	66.21		1/1

Legend	Water	Instr (A)	Level (mOD)	Depth (m)	Description
			66.01	0.20	Concrete
					Bentonite Seal
			65.21	1.00	
					Slotted Standpipe
	▼1				
	▽1				
			61.21	5.00	
					General Backfill
			60.21	6.00	

Groundwater Strikes During Drilling

Date	Time	Depth Struck (m)	Casing Depth (m)	Inflow Rate	Readings 5 min	Readings 10 min	Readings 15 min	Readings 20 min	Depth Sealed (m)
13/05/21		4.00		Moderate	3.95	3.77	3.70	3.68	NOT

Groundwater Observations During Drilling

Date	Start of Shift Time	Start of Shift Depth Hole (m)	Start of Shift Casing Depth (m)	Start of Shift Water Depth (m)	Start of Shift Water Level (mOD)	End of Shift Time	End of Shift Depth Hole (m)	End of Shift Casing Depth (m)	End of Shift Water Depth (m)	End of Shift Water Level (mOD)
13/05/21							6.00		4.47	61.74

Instrument Groundwater Observations

Inst. [A] Type : Slotted Standpipe

Date	Instrument [A] Time	Instrument [A] Depth (m)	Instrument [A] Level (mOD)	Remarks

Remarks

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Geotechnical Engineers

Site	Number
Castle Point, Hadleigh	WS103

Machine / Method	Dimensions	Ground Level (mOD)	Client	Job Number
Machine : Dando Terrier 2002 Method : Windowless Dynamic Sampling	102mm to 2.00m 87mm to 4.00m 75mm to 6.00m	58.11	Stantec	21.133
	Location 580658 E 189249 N	**Dates** 14/05/2021	**Engineer**	**Sheet** 1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
0.00-0.30	D1				(0.30)	TOPSOIL (Brown friable silty sandy slightly gravelly clay. Gravel is angular to subrounded fine to coarse flint. Occasional rootlets)		
				57.81	0.30			
0.50-0.70	D2					Soft becoming firm light greyish brown orange mottled silty sandy CLAY. Occasional angular to subrounded fine to medium flint gravel. Some relic rootlets		
1.20-1.73	SPT	DRY	IP 80/S 1,2					
1.20-1.65	D3							
	N=6		T 1,1,2,2					
1.70-1.90	D4							
2.00-2.45	D5		Slow(1) at 2.00m, fell to 2.10m in 20 mins, not sealed.		(3.50)			1 1
2.00-2.50	SPT	2.19	IP 50/S 2,1					
	N=8		T 2,2,2,2					
2.80-3.00	D6							
3.00-3.46	SPT	2.90	IP 10/S 2,2					
3.00-3.45	D7							
	N=12		T 3,3,3,3					
				54.31	3.80			
3.80-4.00	D8					Stiff dark grey silty CLAY		
4.00-4.45	SPT	3.12	IP 0/S 2,2					
	N=12		T 3,2,4,3					
4.00-4.45	D9							
4.80-5.00	D10				(2.20)			
5.00-5.45	SPT	4.05	IP 0/S 3,4					
	N=17		T 4,3,5,5					
5.00-5.45	D11							
5.70-6.00	D12							
			14/05/2021:DRY	52.11	6.00	Complete at 6.00m		

Remarks
1. Location CAT scanned prior to excavation
2. Hand dug inspection pit to 1.20 m
3. Groundwater struck at 2.00 m and rose to 2.19 m in 5 mins, 2.15 m in 10 mins, 2.12 m in 15 mins and 2.10 m in 20 mins
4. Slotted Standpipe installed to 6.00 m
5. SPT Hammer Energy Ratio = 68%

Scale (approx)	Logged By
1:40	SW

Figure No.
21.133.WS102

A F Howland Associates
Geotechnical Engineers

Site	Borehole Number
Castle Point, Hadleigh	**WS103**

Installation Type	Dimensions	Client	Job Number
Single Installation	Internal Diameter of Tube [A] = 50 mm	Stantec	21.133

Location	Ground Level (mOD)	Engineer	Sheet
580658 E 189249 N	58.11		1/1

Legend	Water	Instr (A)	Level (mOD)	Depth (m)	Description
			57.91	0.20	Concrete
					Bentonite Seal
			57.11	1.00	
	▽1 ▼1				
					Slotted Standpipe
			52.11	6.00	

Groundwater Strikes During Drilling

Date	Time	Depth Struck (m)	Casing Depth (m)	Inflow Rate	Readings 5 min	Readings 10 min	Readings 15 min	Readings 20 min	Depth Sealed (m)
14/05/21		2.00		Slow	2.19	2.15	2.12	2.10	NOT

Groundwater Observations During Drilling

Date	Start of Shift: Time	Depth Hole (m)	Casing Depth (m)	Water Depth (m)	Water Level (mOD)	End of Shift: Time	Depth Hole (m)	Casing Depth (m)	Water Depth (m)	Water Level (mOD)
14/05/21							6.00		DRY	

Instrument Groundwater Observations

Inst. [A] Type : Slotted Standpipe

Date	Instrument [A] Time	Depth (m)	Level (mOD)	Remarks

Remarks

A F Howland Associates
Geotechnical Engineers

Site Castle Point, Hadleigh			**Number** WS104
Machine : Dando Terrier 2002 **Method :** Windowless Dynamic Sampling	**Dimensions** 102mm to 2.00m 87mm to 3.00m 63mm to 4.00m	**Ground Level (mOD)** 66.80	**Client** Stantec	**Job Number** 21.133
	Location 580373 E 188983 N	**Dates** 14/05/2021	**Engineer**	**Sheet** 1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
0.00-0.40	D1				(0.40)	TOPSOIL (Brown friable silty sandy slightly gravelly clay. Gravel is angular to subrounded fine to coarse flint. Occasional rootlets)		
				66.40	0.40	Soft becoming firm light greyish brown orange mottled silty sandy CLAY. Occasional relic rootlets		
0.70-0.90	D2				(1.30)			
1.20-1.71	SPT	DRY	IP 60/S 3,4					▼1
1.20-1.65	D3							
	N=29		T 6,6,8,9					
				65.10	1.70	Medium dense brown very clayey silty fine SAND		
1.70-1.90	D4							
2.00-2.45	D5		Moderate(1) at 2.00m, rose to 1.38m in 20 mins, not sealed.					▽1
2.00-2.45	SPT N=21	1.62	IP 0/S 1,3 T 3,5,5,8					
2.80-3.00	D6				(2.30)			
3.60-3.80	D7							
			14/05/2021:1.40m	62.80	4.00	Complete at 4.00m		

Remarks
1. Location CAT scanned prior to excavation
2. Hand dug inspection pit to 1.20 m
3. Groundwater struck at 2.00 m and rose to 1.62 m in 5 mins, 1.46 m in 10 mins, 1.40 m in 15 mins and 1.38 m in 20 mins
4. Slotted Standpipe installed to 3.00 m
5. SPT Hammer Energy Ratio = 68%

Scale (approx)	Logged By
1:40	SW

Figure No. 21.133.WS104

A F Howland Associates
Geotechnical Engineers

Site	Borehole Number
Castle Point, Hadleigh	**WS104**

Installation Type	Dimensions	Client	Job Number
Single Installation	Internal Diameter of Tube [A] = 50 mm	Stantec	21.133

Location	Ground Level (mOD)	Engineer	Sheet
580373 E 188983 N	66.80		1/1

Legend	Water	Instr (A)	Level (mOD)	Depth (m)	Description
			66.60	0.20	Concrete
					Bentonite Seal
			66.30	0.50	
	▼1				
					Slotted Standpipe
	▽1				
			63.80	3.00	
					General Backfill
			62.80	4.00	

Groundwater Strikes During Drilling

Date	Time	Depth Struck (m)	Casing Depth (m)	Inflow Rate	Readings 5 min	Readings 10 min	Readings 15 min	Readings 20 min	Depth Sealed (m)
14/05/21		2.00		Moderate	1.62	1.46	1.40	1.38	NOT

Groundwater Observations During Drilling

Date	Start of Shift Time	Start of Shift Depth Hole (m)	Start of Shift Casing Depth (m)	Start of Shift Water Depth (m)	Start of Shift Water Level (mOD)	End of Shift Time	End of Shift Depth Hole (m)	End of Shift Casing Depth (m)	End of Shift Water Depth (m)	End of Shift Water Level (mOD)
14/05/21							4.00		1.40	65.40

Instrument Groundwater Observations

Inst. [A] Type : Slotted Standpipe

Date	Instrument [A] Time	Instrument [A] Depth (m)	Instrument [A] Level (mOD)	Remarks

Remarks

A F Howland Associates
Geotechnical Engineers

Site Castle Point, Hadleigh			**Number** WS105
Machine : Dando Terrier 2002 **Method :** Windowless Dynamic Sampling	**Dimensions** 102mm to 2.00m 87mm to 4.00m 75mm to 6.00m	**Ground Level (mOD)** 78.04	**Client** Stantec	**Job Number** 21.133
	Location 580082 E 188888 N	**Dates** 13/05/2021	**Engineer**	**Sheet** 1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
0.00-0.20	D1				(0.30)	TOPSOIL (Brown friable silty sandy slightly gravelly clay. Gravel is angular to subrounded fine to coarse flint.		
0.30-0.50	D2			77.74	0.30	Occasional rootlets)		
						Soft becoming firm light greyish brown orange mottled silty sandy CLAY. Occasional relic rootlets		
1.20-1.65	SPT N=12	DRY	IP 0/S 2,3 T 3,3,3,3					
1.20-1.65	D3							
1.80-2.00	D4							
2.00-2.45	SPT N=11	DRY	IP 0/S 1,1 T 2,3,3,3		(3.40)			
2.00-2.45	D5					.... Becoming firm orange silty fine to medium sandy clay		
2.80-3.00	D6							
3.00-3.46	SPT	DRY	IP 10/S 2,2					
3.00-3.45	D7 N=15		T 3,4,4,4					
3.70-3.80	D8			74.34	3.70	Firm becoming stiff brown silty sandy CLAY		
3.80-4.00	D9							
4.00-4.45	D10		Seepage(1) at 4.00m.					▽1
4.00-4.45	SPT N=17	DRY	IP 0/S 2,3 T 4,4,4,5			.... Small pockets of fine to medium orange sand from 4.20 m to 6.00 m in firm to stiff clay		
					(2.30)			
5.00-5.45	SPT N=17	DRY	IP 0/S 2,3 T 3,4,5,5					
5.00-5.45	D11							
			13/05/2021:DRY	72.04	6.00	Complete at 6.00m		

Remarks
1. Location CAT scanned prior to excavation
2. Hand dug inspection pit to 1.20 m
3. Groundwater seepage at 4.00 m
4. Slotted Standpipe installed to 6.00 m
5. SPT Hammer Energy Ratio = 68%

Scale (approx)	Logged By
1:40	SW

Figure No. 21.133.WS105

A F Howland Associates
Geotechnical Engineers

Site	Borehole Number
Castle Point, Hadleigh	WS105

Installation Type	Dimensions	Client	Job Number
Single Installation	Internal Diameter of Tube [A] = 50 mm	Stantec	21.133

Location	Ground Level (mOD)	Engineer	Sheet
580082 E 188888 N	78.04		1/1

Legend	Water	Instr (A)	Level (mOD)	Depth (m)	Description
			77.84	0.20	Concrete
					Bentonite Seal
			77.04	1.00	
	▽1				Slotted Standpipe
			72.04	6.00	

Groundwater Strikes During Drilling

Date	Time	Depth Struck (m)	Casing Depth (m)	Inflow Rate	Readings 5 min	Readings 10 min	Readings 15 min	Readings 20 min	Depth Sealed (m)
13/05/21		4.00		Seepage					

Groundwater Observations During Drilling

Date	Start of Shift Time	Start of Shift Depth Hole (m)	Start of Shift Casing Depth (m)	Start of Shift Water Depth (m)	Start of Shift Water Level (mOD)	End of Shift Time	End of Shift Depth Hole (m)	End of Shift Casing Depth (m)	End of Shift Water Depth (m)	End of Shift Water Level (mOD)
13/05/21							6.00		DRY	

Instrument Groundwater Observations

Inst. [A] Type : Slotted Standpipe

Date	Instrument [A] Time	Instrument [A] Depth (m)	Instrument [A] Level (mOD)	Remarks

Remarks

A F Howland Associates
Geotechnical Engineers

Site Castle Point, Hadleigh			**Number** WS106
Machine : Dando Terrier 2002 **Method :** Windowless Dynamic Sampling	**Dimensions** 102mm to 3.00m 87mm to 5.00m 65mm to 6.00m	**Ground Level (mOD)** 70.13	**Client** Stantec	**Job Number** 21.133
	Location 580242 E 189259 N	**Dates** 13/05/2021	**Engineer**	**Sheet** 1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
0.00-0.30	D1				(0.30)	TOPSOIL (Brown friable silty sandy slightly gravelly clay. Gravel is angular to subrounded fine to coarse flint.		
				69.83	0.30	Occasional rootlets)		
0.60-0.80	D2					Soft becoming firm light greyish brown orange mottled silty sandy CLAY. Occasional relic rootlets		
1.20-1.75	SPT	DRY	IP 100/S 1,2					
1.20-1.65	D3							
	N=7		T 1,2,2,2					
1.80-2.00	D4							
2.00-2.45	D5		Moderate / Slow(1) at 2.00m, rose to 1.95m in 20 mins, not sealed.					
2.00-2.50	SPT	DRY	IP 50/S 2,1					
	N=7		T 1,2,2,2					
2.80-3.00	D6				(5.30)			
3.00-3.46	SPT	2.10	IP 10/S 2,2					
3.00-3.45	D7							
	N=12		T 2,3,3,4					
3.80-4.00	D8							
4.00-4.47	SPT	2.98	IP 20/S 2,1					
4.00-4.45	D9							
	N=12		T 3,2,4,3					
4.80-5.00	D10							
5.00-5.45	SPT	3.30	IP 0/S 2,2					
	N=17		T 3,4,5,5					
5.00-5.45	D11							
5.60-6.00	D12			64.53	5.60	Stiff dark grey silty slightly sandy CLAY		
					(0.40)			
			13/05/2021:3.51m	64.13	6.00	Complete at 6.00m		

Remarks
1. Location CAT scanned prior to excavation
2. Hand dug inspection pit to 1.20 m
3. Groundwater struck at 2.00 m and rose to 2.10 m in 5 mins, 1.97 m in 10 mins, 1.95 m in 15 mins and 20 mins
4. Slotted Standpipe installed to 4.00 m
5. SPT Hammer Energy Ratio = 68%

Scale (approx)	Logged By
1:40	SW

Figure No. 21.133.WS106

A F Howland Associates
Geotechnical Engineers

Site	Borehole Number
Castle Point, Hadleigh	WS106

Installation Type	Dimensions	Client	Job Number
Single Installation	Internal Diameter of Tube [A] = 50 mm	Stantec	21.133

Location	Ground Level (mOD)	Engineer	Sheet
580242 E 189259 N	70.13		1/1

Legend	Water	Instr (A)	Level (mOD)	Depth (m)	Description
			69.93	0.20	Concrete
			69.13	1.00	Bentonite Seal
	▼1				
			66.13	4.00	Slotted Standpipe
			64.13	6.00	General Backfill

Groundwater Strikes During Drilling

Date	Time	Depth Struck (m)	Casing Depth (m)	Inflow Rate	Readings 5 min	Readings 10 min	Readings 15 min	Readings 20 min	Depth Sealed (m)
13/05/21		2.00		Moderate / Slow	2.10	1.97	1.95	1.95	NOT

Groundwater Observations During Drilling

Date	Start of Shift Time	Start of Shift Depth Hole (m)	Start of Shift Casing Depth (m)	Start of Shift Water Depth (m)	Start of Shift Water Level (mOD)	End of Shift Time	End of Shift Depth Hole (m)	End of Shift Casing Depth (m)	End of Shift Water Depth (m)	End of Shift Water Level (mOD)
13/05/21							6.00		3.51	66.62

Instrument Groundwater Observations

Inst. [A] Type : Slotted Standpipe

Date	Instrument [A] Time	Instrument [A] Depth (m)	Instrument [A] Level (mOD)	Remarks

Remarks

APPENDIX B: CABLE PERCUSSIVE BOREHOLE RECORDS

B	Bulk disturbed sample
D	Small disturbed sample
ES	Environmental sample
U	100 mm diameter undisturbed open tube drive sample
X blows	The associated figure 'X' is the number of blows to drive the sample tube over the given depth range
SPT	Standard penetration test using a split spoon sampler
SPT(C)	Cone penetration test using a solid cone
X,X/X,X,X,X	Blows per increment during the standard penetration test. The initial value relates to the seating drive (150 mm) and the remaining four to the 75 mm increments of the test length
N=X	SPT blow count 'N' given by the summation of the blows 'X' required to drive the full test length (300 mm)
X*/Y	Incomplete standard penetration test where the seating drive could not be completed. The blows 'X' represent the total blows for the given length of seating drive 'Y' (mm)
X/Z	Incomplete standard penetration test where the seating drive was achieved but the full test length was not. The blows 'X' represent the total blows for the given test length 'Z' (mm)
dd/mm/yy: 1.0 dd/mm/yy: dry	Date, water level at the borehole depth at the end of shift and the start of the following shift

Each sample type is numbered sequentially with depth and relates to the depth range quoted

All depths and measurements are given in metres, except as noted

Strata descriptions complied by visual examination of samples obtained during boring, after BS 5930:2015 and modified in accordance with laboratory test results where applicable

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Site	Trial Pit Number
Castle Point, Hadleigh	TP101

Excavation Method	Dimensions	Ground Level (mOD)	Client	Job Number
JCB 3CX	2.00 m x 0.45 m x 2.00 m	65.76	Stantec	21.133
	Location	**Dates**	**Engineer**	**Sheet**
	580270 E 189339 N	11/05/2021		1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
					(0.10)	TOPSOIL(Dark brown clay with rootlets)		
0.10-1.00	D1			65.66	0.10	Firm to stiff orange brown and grey mottled CLAY		
1.00-1.90	D2				(1.80)			
1.90-2.00	D3			63.86	1.90			
					(0.10)	Yellowish brown sandy SILT		
				63.76	2.00	Complete at 2.00m		

Plan

Remarks

1. Location CAT scanned prior to excavation
2. No groundwater encountered
3. Trial pit remained open and sidewalls stable during excavation.
4. Pit backfilled with gravel to 1.0 m and then arisings to surface
5. Soakage test performed between 1.0 m and 2.0 m

Scale (approx)	Logged By	Figure No.
1:20	CJL	21.133.TP101

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Soakage Test (BRE Digest 365)

Site : Castle Point, Hadleigh

Client : Stantec

Engineer :

Job Number 21.133

Sheet 1 / 12

Location	Date	Level	Location
TP101	11/05/2021	65.76 mOD	E: 580270 N: 189339

Pit Width (m)	0.45
Pit Depth (m)	2.00
Pit Length (m)	2.00

Soil type at test level	Orange-brown mottled grey CLAY
Groundwater	None
Drain discharge depth	Not known
Sidewall stability	Stable
Stone filled or open pit	Stone filled

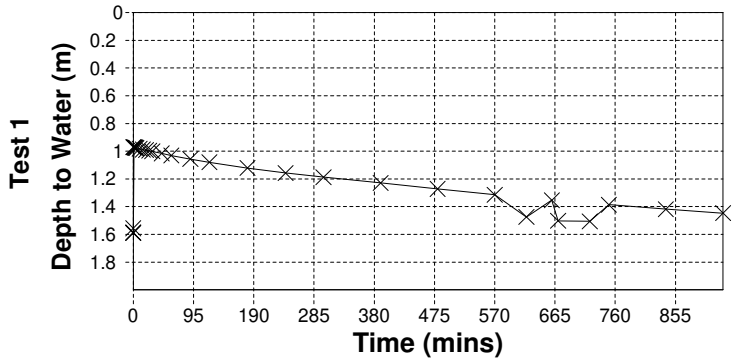
	1
Effective depth (m)	1.03
Volume outflowing between 75% & 25% (m3)*	
Mean surface area through which outflow occurs (m2)	
Time for outflow between 75% & 25% (min)	
SOIL INFILTRATION RATE (ms-1), f	Test Failed

Remarks

1. Soakage test undertaken between 1.0 m and 2.0 m
2. No groundwater encountered
3. Datalogger serial no. 10226020
4. Test 1 carried out on 11/05/21

* Volume outflowing reduced to account for granular backfill used during testing (30 % of free volume assumed).

Elapsed time (mins)	Depth to Water Test 1
0	1.556
1	0.971
2	0.973
3	0.974
4	0.976
5	0.977
10	0.983
15	0.988
20	0.992
25	0.997
30	1.001
45	1.016
60	1.031
90	1.057
120	1.08
180	1.121
240	1.157
300	1.187
390	1.229
480	1.272
570	1.314
620	1.475
660	1.354
670	1.502
720	1.506
750	1.386
840	1.418
930	1.447



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Site	Trial Pit Number
Castle Point, Hadleigh	TP102

Excavation Method	Dimensions	Ground Level (mOD)	Client	Job Number
JCB 3CX	1.90 m x 0.45 m x 190 m	66.72	Stantec	21.133
	Location	**Dates**	**Engineer**	**Sheet**
	580198 E 189305 N	11/05/2021		1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
0.00-0.30	D1			66.62	(0.10) 0.10	TOPSOIL(Dark brown clay with rootlets)		
0.30-1.00	D2					Firm to stiff orange brown and grey mottled CLAY		
1.00-1.90	D3				(1.80)			
				64.82	1.90	Complete at 1.90m		

Plan

Remarks

1. Location CAT scanned prior to excavation
2. No groundwater encountered
3. Trial pit remained open and sidewalls stable during excavation.
4. Pit backfilled with gravel to 0.9 m and then arisings to surface
5. Soakage test performed between 0.9 m and 1.9 m

Scale (approx)	Logged By	Figure No.
1:20	CJL	21.133.TP102

Site : Castle Point, Hadleigh

Client : Stantec

Engineer :

Job Number 21.133

Sheet 2 / 12

Location	Date	Level	Location
TP102	11/05/2021	66.72 mOD	E: 580198 N: 189305

Pit Width (m)	0.45
Pit Depth (m)	1.90
Pit Length (m)	1.90

Soil type at test level	Orange-brown mottled grey CLAY
Groundwater	None
Drain discharge depth	Not known
Sidewall stability	Stable
Stone filled or open pit	Stone filled

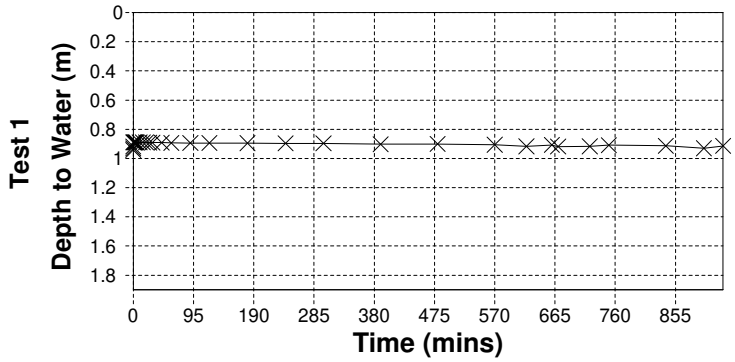
	1
Effective depth (m)	1.01
Volume outflowing between 75% & 25% (m3)*	
Mean surface area through which outflow occurs (m2)	
Time for outflow between 75% & 25% (min)	
SOIL INFILTRATION RATE (ms-1), f	Test Failed

Remarks

1. Soakage test undertaken between 0.9 m and 1.9 m
2. No groundwater encountered
3. Datalogger serial no. 11186040
4. Test 1 carried out on 11/05/21

* Volume outflowing reduced to account for granular backfill used during testing (30 % of free volume assumed).

Elapsed time (mins)	Depth to Water Test 1
0	0.931
1	0.89
2	0.89
3	0.89
4	0.89
5	0.89
10	0.89
15	0.89
20	0.89
25	0.891
30	0.891
45	0.891
60	0.893
90	0.894
120	0.894
180	0.895
240	0.896
300	0.896
390	0.902
480	0.901
570	0.906
620	0.917
660	0.907
670	0.918
720	0.917
750	0.909
840	0.913
900	0.93
930	0.914



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Site	Trial Pit Number
Castle Point, Hadleigh	TP103

Excavation Method	Dimensions	Ground Level (mOD)	Client	Job Number
JCB 3CX	2.00 m x 0.45 m x 2.00 m	66.40	Stantec	21.133
	Location	**Dates**	**Engineer**	**Sheet**
	580048 E 189328 N	11/05/2021		1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
0.00-0.35	D1			66.30	(0.10) 0.10	MADE GROUND (Dark brown gravelly fine to coarse sand. Gravel is angular to rounded fine to coarse concrete and brick)		
0.35-1.10	D2					Soft to firm orange brown and grey mottled CLAY		
1.10-2.00	D3				(1.90)			
				64.40	2.00	Complete at 2.00m		

Plan

Remarks

1. Location CAT scanned prior to excavation
2. No groundwater encountered
3. Trial pit remained open and sidewalls stable during excavation.
4. Pit backfilled with gravel to 1.0 m and then arisings to surface
5. Soakage test performed between 1.0 m and 2.0 m

Scale (approx)	Logged By	Figure No.
1:20	CJL	21.133.TP103

Site : Castle Point, Hadleigh

Client : Stantec

Engineer :

Job Number 21.133

Sheet 3 / 12

Location	Date	Level	Location
TP103	11/05/2021	66.40 mOD	E: 580048 N: 189328

Pit Width (m)	0.45
Pit Depth (m)	2.00
Pit Length (m)	2.00

Soil type at test level	Orange-brown mottled grye CLAY
Groundwater	None
Drain discharge depth	Not known
Sidewall stability	Stable
Stone filled or open pit	Stone filled

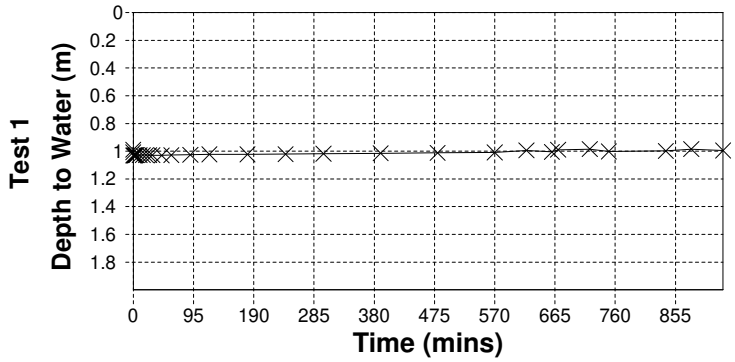
	1
Effective depth (m)	0.97
Volume outflowing between 75% & 25% (m3)*	
Mean surface area through which outflow occurs (m2)	
Time for outflow between 75% & 25% (min)	
SOIL INFILTRATION RATE (ms-1), f	Test Failed

Remarks

1. Soakage test undertaken between 1.0 m and 2.0 m
2. No groundwater encountered
3. Datalogger serial no. 12726020
4. Test 1 carried out on 11/05/21

* Volume outflowing reduced to account for granular backfill used during testing (30 % of free volume assumed).

Elapsed time (mins)	Depth to Water Test 1
0	0.989
1	1.03
2	1.03
3	1.03
4	1.029
5	1.029
10	1.029
15	1.028
20	1.028
25	1.029
30	1.029
45	1.03
60	1.028
90	1.026
120	1.023
180	1.023
240	1.021
300	1.018
390	1.015
480	1.012
570	1.009
620	0.994
660	1.005
670	0.99
720	0.985
750	1.002
840	0.998
880	0.985
930	0.995



A F Howland Associates
Geotechnical Engineers

Excavation Method JCB 3CX	**Dimensions** 2.00 m x 0.45 m x 2.20 m	**Ground Level (mOD)** 67.26	**Client** Stantec
	Location 580434 E 189257 N	**Dates** 11/05/2021	**Engineer**

Site
Castle Point, Hadleigh

Trial Pit Number
TP104

Job Number
21.133

Sheet
1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
0.00-0.30	D1				(0.30)	TOPSOIL (Dark brown clayey very silty fine to coarse sand)		
0.30-1.10	D2			66.96	0.30	Soft to firm orange brown and grey mottled CLAY		
					(0.80)			
1.10-1.90	D3			66.16	1.10	Orange brown very silty fine to medium SAND		
					(1.10)			
1.90-2.20	D4			65.06	2.20	Complete at 2.20m		

Plan

Remarks

1. Location CAT scanned prior to excavation
2. No groundwater encountered
3. Trial pit remained open and sidewalls stable during excavation.
4. Pit backfilled with gravel to 1.2 m and then arisings to surface
5. Soakage test performed between 1.2 m and 2.2 m

Scale (approx)	Logged By	Figure No.
1:20	CJL	21.133.TP104

Soakage Test (BRE Digest 365)

Site : Castle Point, Hadleigh

Client : Stantec

Engineer :

Job Number 21.133

Sheet 4 / 12

Location	Date	Level	Location
TP104	10/05/2021	67.26 mOD	E: 580434 N: 189257

Pit Width (m)	0.40
Pit Depth (m)	2.20
Pit Length (m)	2.00

Soil type at test level	Orange-brown very silty SAND
Groundwater	None
Drain discharge depth	Not known
Sidewall stability	Stable
Stone filled or open pit	Stone filled

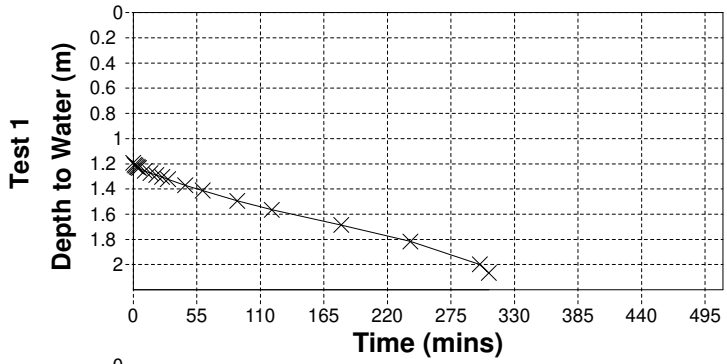
	1	2	3
Effective depth (m)	1.01	1.22	1.11
Volume outflowing between 75% & 25% (m3)*	0.12	0.15	0.13
Mean surface area through which outflow occurs (m2)	3.22	3.73	3.46
Time for outflow between 75% & 25% (min)	211.72	329.14	358.58
SOIL INFILTRATION RATE (ms-1), f	2.96E-6	1.99E-6	1.79E-6

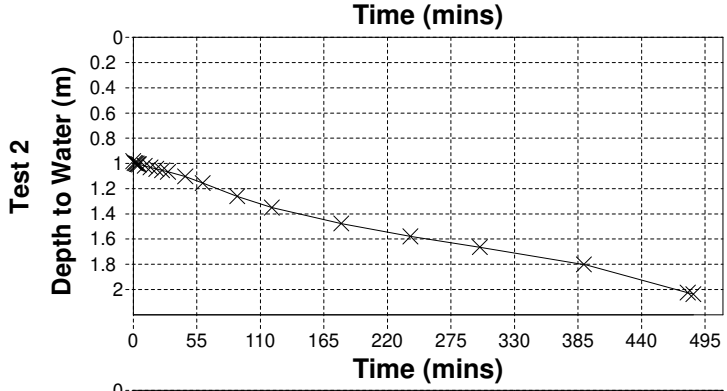
* Volume outflowing reduced to account for granular backfill used during testing (30 % of free volume assumed).

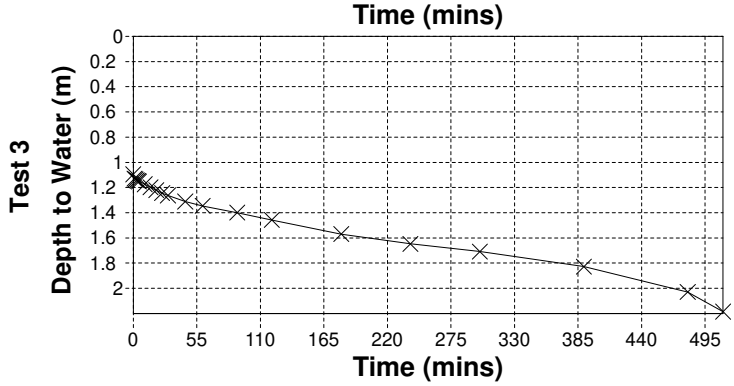
Remarks

1. Soakage test undertaken between 1.2 m and 2.2 m
2. No groundwater encountered
3. Datalogger serial no. 10226030
4. Test 1 carried out on 10/05/21
5. Test 2 carried out on 11/05/21
6. Test 3 carried out on 12/05/21

Elapsed time (mins)	Depth to Water Test 1	Depth to Water Test 2	Depth to Water Test 3
0	1.192	0.982	1.095
1	1.208	0.995	1.129
2	1.216	0.998	1.136
3	1.223	1.002	1.142
4	1.228	1.005	1.147
5	1.233	1.007	1.152
10	1.256	1.019	1.174
15	1.274	1.032	1.199
20	1.289	1.043	1.221
25	1.305	1.055	1.244
30	1.322	1.066	1.263
45	1.371	1.103	1.311
60	1.412	1.155	1.346
90	1.494	1.26	1.399
120	1.565	1.35	1.458
180	1.686	1.476	1.569
240	1.817	1.579	1.647
300	1.998	1.664	1.708
307.833	2.067		
390		1.801	1.828
480		2.025	2.029
484.833		2.037	
510.5			2.185







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Site	Trial Pit Number
Castle Point, Hadleigh	TP105

Excavation Method	Dimensions	Ground Level (mOD)	Client	Job Number
JCB 3CX	1.90 m x 0.45 m x 2.00 m	58.64	Stantec	21.133
	Location	**Dates**	**Engineer**	**Sheet**
	580642 E 189249 N	10/05/2021		1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
0.00-0.20	D1				(0.20)	TOPSOIL (Dark brown sandy clay)		
0.20-0.80	D2			58.44	0.20	Firm orange brown and grey mottled CLAY		
0.80-1.50	D3				(1.80)			
1.50-2.00	D4							
				56.64	2.00	Complete at 2.00m		

Plan

Remarks

1. Location CAT scanned prior to excavation
2. No groundwater encountered
3. Trial pit remained open and sidewalls stable during excavation.
4. Pit backfilled with gravel to 1.0 m and then arisings to surface
5. Soakage test performed between 1.0 m and 2.0 m

Scale (approx)	Logged By	Figure No.
1:20	CJL	21.133.TP105

Soakage Test (BRE Digest 365)

Site : Castle Point, Hadleigh

Client : Stantec

Engineer :

Job Number 21.133

Sheet 5 / 12

Location	Date	Level	Location
TP105	12/05/2021	58.64 mOD	E: 580642 N: 189249

Pit Width (m)	0.45
Pit Depth (m)	2.00
Pit Length (m)	1.90

Soil type at test level	Orange-brown mottled grey CLAY
Groundwater	None
Drain discharge depth	Not known
Sidewall stability	Stable
Stone filled or open pit	Stone filled

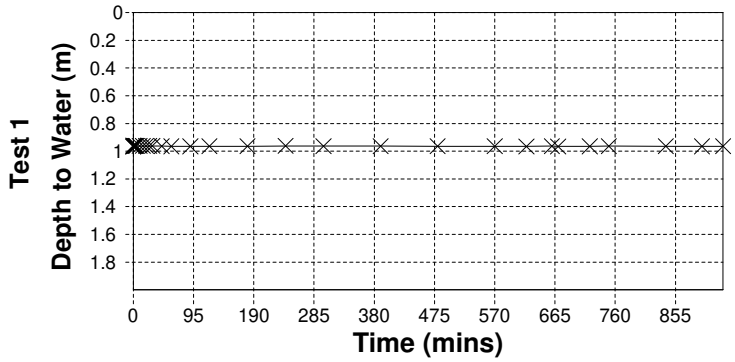
	1
Effective depth (m)	1.04
Volume outflowing between 75% & 25% (m3)*	
Mean surface area through which outflow occurs (m2)	
Time for outflow between 75% & 25% (min)	
SOIL INFILTRATION RATE (ms-1), f	Test Failed

Remarks

1. Soakage test undertaken between 1.0 m and 2.0 m
2. No groundwater encountered
3. Datalogger serial no. 12575011
4. Test 1 carried out on 12/05/21

* Volume outflowing reduced to account for granular backfill used during testing (30 % of free volume assumed).

Elapsed time (mins)	Depth to Water Test 1
0	0.966
1	0.961
2	0.961
3	0.961
4	0.961
5	0.961
10	0.962
15	0.962
20	0.962
25	0.962
30	0.962
45	0.963
60	0.965
90	0.965
120	0.964
180	0.964
240	0.962
300	0.963
390	0.963
480	0.964
570	0.964
620	0.966
660	0.963
670	0.966
720	0.965
750	0.963
840	0.964
897	0.965
930	0.964



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Site	Trial Pit Number
Castle Point, Hadleigh	TP106

Excavation Method	Dimensions	Ground Level (mOD)	Client	Job Number
JCB 3CX	2.00 m x 0.45 m x 2.00 m	62.42	Stantec	21.133
	Location	**Dates**	**Engineer**	**Sheet**
	580511 E 189085 N	10/05/2021		1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
0.00-0.20	D1				(0.20)	TOPSOIL (Brown very clayey very silty slightly gravelly fine to coarse sand. Gravel is angular fine to medium flint)		
0.20-0.80	D2			62.22	0.20	Soft orange brown and grey mottled CLAY becoming very soft and damp with depth		
0.80-1.80	D3				(1.60)			
1.80-2.00	D4			60.62	1.80	Very soft orange brown and grey mottled very silty CLAY (DAMP)		
					(0.20)			
				60.42	2.00	Complete at 2.00m		

Plan

Remarks

1. Location CAT scanned prior to excavation
2. No groundwater encountered
3. Trial pit remained open and sidewalls stable during excavation.
4. Pit backfilled with gravel to 1.0 m and then arisings to surface
5. Soakage test performed between 1.0 m and 2.0 m

Scale (approx)	Logged By	Figure No.
1:20	CJL	21.133.TP106

Site : Castle Point, Hadleigh

Client : Stantec

Engineer :

Job Number 21.133

Sheet 6 / 12

Location	Date	Level	Location
TP106	10/05/2021	62.42 mOD	E: 580511 N: 189085

Pit Width (m)	0.40
Pit Depth (m)	2.00
Pit Length (m)	2.00

Soil type at test level	Oraneg-brown mottled grey CLAY
Groundwater	1.63 m (seepage)
Drain discharge depth	Not known
Sidewall stability	Stable
Stone filled or open pit	Stone filled

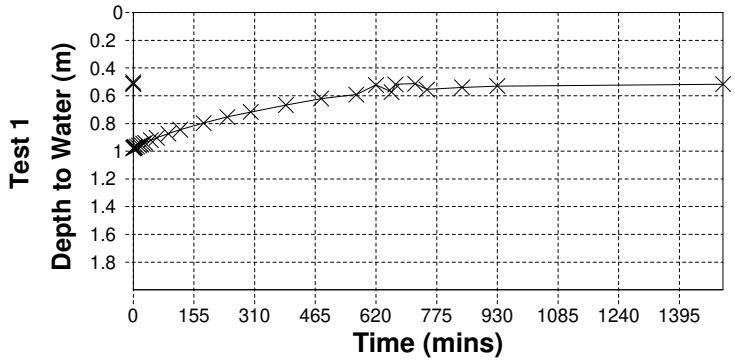
	1
Effective depth (m)	1.02
Volume outflowing between 75% & 25% (m3)*	
Mean surface area through which outflow occurs (m2)	
Time for outflow between 75% & 25% (min)	
SOIL INFILTRATION RATE (ms-1), f	Test Failed

Remarks

1. Soakage test undertaken between 1.0 m and 2.0 m
2. No groundwater encountered. Seepage at 1.63 m
3. Datalogger serial no. 106607020
4. Test 1 carried out on 10/05/21

* Volume outflowing reduced to account for granular backfill used during testing (30 % of free volume assumed).

Elapsed time (mins)	Depth to Water Test 1
0	0.503
1	0.978
2	0.975
3	0.973
4	0.971
5	0.97
10	0.966
15	0.959
20	0.952
25	0.945
30	0.939
45	0.92
60	0.903
90	0.873
120	0.845
180	0.797
240	0.753
300	0.717
390	0.667
480	0.62
570	0.592
620	0.522
660	0.573
670	0.518
720	0.513
750	0.555
840	0.54
930	0.53
1506.5	0.516



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Site	Trial Pit Number
Castle Point, Hadleigh	TP107

Excavation Method	Dimensions	Ground Level (mOD)	Client	Job Number
JCB 3CX	2.00 m x 0.45 m x 1.50 m	61.93	Stantec	21.133
	Location	**Dates**	**Engineer**	**Sheet**
	580529 E 189058 N	11/05/2021		1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
0.00-0.30	D1				(0.30)	MADE GROUND (Dark grey silty slightly gravelly clay. Gravel is angular fine to medium flint)		
0.30-0.80	D2			61.63	0.30	Very soft orange brown and grey mottled CLAY		
0.80-1.50	D3				(1.20)			
			SEEPAGE(1) at 1.50m.	60.43	1.50	Complete at 1.50m		▽1

Plan

Remarks

1. Location CAT scanned prior to excavation
2. Groundwater seepage at 1.50 m
3. Trial pit remained open and sidewalls stable during excavation.
4. Pit backfilled with gravel to 0.5 m and then arisings to surface
5. Soakage test performed between 0.5 m and 1.5 m

Scale (approx)	Logged By	Figure No.
1:20	CJL	21.133.TP107

Site : Castle Point, Hadleigh

Client : Stantec

Engineer :

Job Number 21.133

Sheet 7 / 12

Location	Date	Level	Location
TP107	11/05/2021	61.93 mOD	E: 580529 N: 189058

Pit Width (m)	0.45
Pit Depth (m)	1.50
Pit Length (m)	2.00

Soil type at test level	Orange-brown mottled grey CLAY
Groundwater	None
Drain discharge depth	Not known
Sidewall stability	Stable
Stone filled or open pit	Stone filled

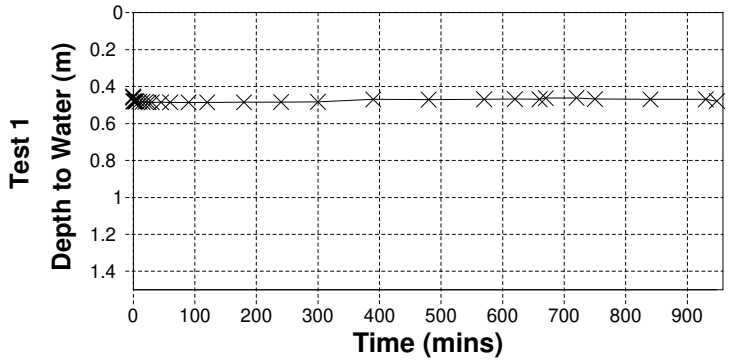
	1
Effective depth (m)	1.02
Volume outflowing between 75% & 25% (m3)*	
Mean surface area through which outflow occurs (m2)	
Time for outflow between 75% & 25% (min)	
SOIL INFILTRATION RATE (ms-1), f	Test Failed

Remarks

1. Soakage test undertaken between 0.5 m and 1.5 m
2. No groundwater encountered
3. Datalogger serial no. 10109050
4. Test 1 carried out on 11/05/21

* Volume outflowing reduced to account for granular backfill used during testing (30 % of free volume assumed).

Elapsed time (mins)	Depth to Water Test 1
0	0.461
1	0.48
2	0.481
3	0.481
4	0.481
5	0.481
10	0.482
15	0.483
20	0.484
25	0.485
30	0.486
45	0.485
60	0.486
90	0.486
120	0.486
180	0.485
240	0.484
300	0.483
390	0.47
480	0.471
570	0.469
620	0.468
660	0.469
670	0.463
720	0.462
750	0.468
840	0.47
930	0.469
948	0.479



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Site	Trial Pit Number
Castle Point, Hadleigh	TP108

Excavation Method	Dimensions	Ground Level (mOD)	Client	Job Number
JCB 3CX	2.00 m x 0.45 m x 2.00 m	63.69	Stantec	21.133
	Location	**Dates**	**Engineer**	**Sheet**
	580592 E 189039 N	10/05/2021		1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
0.00-0.30	D1				(0.30)	TOPSOIL (Brown silty fine to coarse sand with rootlets)		
0.30-1.00	D2			63.39	0.30	Orange brown, grey, golden brown and brown mottled sandy CLAY inter-bedded with clayey sand		
1.00-1.50	D3				(1.70)			
1.50-2.00	D4		SEEPAGE(1) at 1.50m.					▽1
				61.69	2.00	Complete at 2.00m		

Plan

Remarks

1. Location CAT scanned prior to excavation
2. Groundwater seepage at 1.50 m
3. Trial pit remained open and sidewalls stable during excavation.
4. Pit backfilled with gravel to 1.0 m and then arisings to surface
5. Soakage test performed between 1.0 m and 2.0 m

Scale (approx)	Logged By	Figure No.
1:20	CJL	21.133.TP108

Site : Castle Point, Hadleigh

Client : Stantec

Engineer :

Job Number 21.133

Sheet 8 / 12

Location	Date	Level	Location
TP108	10/05/2021	63.69 mOD	E: 580592 N: 189039

Pit Width (m)	0.40
Pit Depth (m)	2.00
Pit Length (m)	2.00

Soil type at test level	Multicoloured sandy CLAY/clayey SAND
Groundwater	1.50 m (seepage)
Drain discharge depth	Not known
Sidewall stability	Stable
Stone filled or open pit	Stone filled

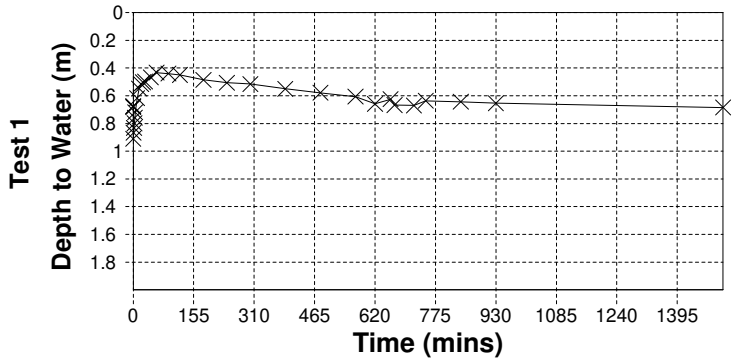
	1
Effective depth (m)	1.09
Volume outflowing between 75% & 25% (m3)*	
Mean surface area through which outflow occurs (m2)	
Time for outflow between 75% & 25% (min)	
SOIL INFILTRATION RATE (ms-1), f	Test Failed

Remarks

1. Soakage test undertaken between 1.0 m and 2.0 m
2. No groundwater encountered. Seepage at 1.50 m
3. Datalogger serial no. 10109020
4. Test 1 carried out on 10/05/21

* Volume outflowing reduced to account for granular backfill used during testing (30 % of free volume assumed).

Elapsed time (mins)	Depth to Water Test 1
0	0.675
1	0.867
2	0.833
3	0.799
4	0.759
5	0.719
10	0.618
15	0.549
20	0.515
25	0.503
30	0.498
45	0.468
60	0.433
90	0.44
120	0.45
180	0.485
240	0.506
300	0.515
390	0.55
480	0.579
570	0.606
620	0.659
660	0.625
670	0.667
720	0.67
750	0.636
840	0.643
930	0.654
1512.333	0.685



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Site	Trial Pit Number
Castle Point, Hadleigh	TP109

Excavation Method	Dimensions	Ground Level (mOD)	Client	Job Number
JCB 3CX	1.90 m x 0.45 m x 1.50 m	72.78	Stantec	21.133
	Location	**Dates**	**Engineer**	**Sheet**
	580151 E 189192 N	11/05/2021		1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
0.00-0.40	D1				(0.40)	TOPSOIL (Dark brown clay)		
0.40-1.00	D2			72.38	0.40	Soft orange brown and grey mottled CLAY		
1.00-1.50	D3		Water strike(1) at 1.30m.		(1.10)			▽1
				71.28	1.50	Complete at 1.50m		

Plan

Remarks

1. Location CAT scanned prior to excavation
2. Groundwater struck at 1.30 m
3. Trial pit remained open and sidewalls stable during excavation.
4. Pit backfilled with gravel to 0.5 m and then arisings to surface
5. Soakage test performed between 0.5 m and 1.5 m

Scale (approx)	Logged By	Figure No.
1:20	CJL	21.133.TP109

Site : Castle Point, Hadleigh

Client : Stantec

Engineer :

Job Number 21.133

Sheet 9 / 12

Location	Date	Level	Location
TP109	11/05/2021	72.78 mOD	E: 580151 N: 189192

Pit Width (m)	0.45
Pit Depth (m)	1.50
Pit Length (m)	1.90

Soil type at test level	Orange-brown mottled grey CLAY
Groundwater	1.30 m (seepage)
Drain discharge depth	Not known
Sidewall stability	Stable
Stone filled or open pit	Stone filled

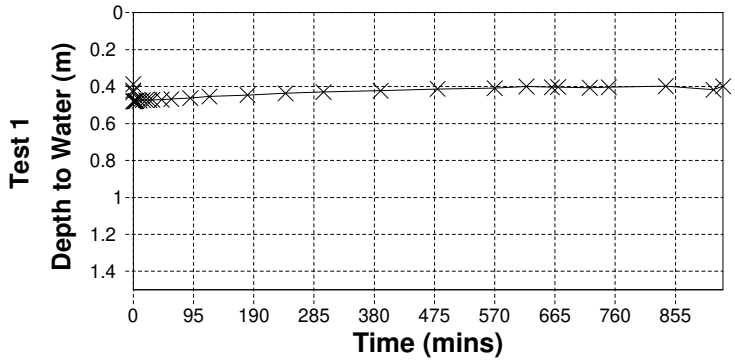
	1
Effective depth (m)	1.02
Volume outflowing between 75% & 25% (m3)*	
Mean surface area through which outflow occurs (m2)	
Time for outflow between 75% & 25% (min)	
SOIL INFILTRATION RATE (ms-1), f	Test Failed

Remarks

1. Soakage test undertaken between 0.5 m and 1.5 m
2. No groundwater encountered. Seepage at 1.30 m
3. Datalogger serial no. 10259010
4. Test 1 carried out on 11/05/21

* Volume outflowing reduced to account for granular backfill used during testing (30 % of free volume assumed).

Elapsed time (mins)	Depth to Water Test 1
0	0.481
1	0.481
2	0.48
3	0.48
4	0.479
5	0.479
10	0.476
15	0.474
20	0.473
25	0.473
30	0.472
45	0.471
60	0.468
90	0.463
120	0.454
180	0.446
240	0.437
300	0.43
390	0.423
480	0.413
570	0.409
620	0.40
660	0.404
670	0.403
720	0.407
750	0.404
840	0.398
915	0.418
930	0.399



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Site	Trial Pit Number
Castle Point, Hadleigh	TP110

Excavation Method	Dimensions	Ground Level (mOD)	Client	Job Number
JCB 3CX	2.00 m x 0.45 m x 2.00 m	77.56	Stantec	21.133
	Location	**Dates**	**Engineer**	**Sheet**
	580072 E 188890 N	11/05/2021		1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
0.00-0.30	D1				(0.30)	TOPSOIL (Dark brown very silty clay)		
0.30-1.00	D2			77.26	0.30	Soft to firm orange brown and grey mottled CLAY		
1.00-2.00	D3				(1.70)			
				75.56	2.00	Complete at 2.00m		

Plan

Remarks

1. Location CAT scanned prior to excavation
2. No groundwater encountered
3. Trial pit remained open and sidewalls stable during excavation.
4. Pit backfilled with gravel to 1.0 m and then arisings to surface
5. Soakage test performed between 1.0 m and 2.0 m

Scale (approx)	Logged By	Figure No.
1:20	CJL	21.133.TP110

Soakage Test (BRE Digest 365)

Site : Castle Point, Hadleigh

Client : Stantec

Engineer :

Job Number 21.133

Sheet 10 / 12

Location	Date	Level	Location
TP110	11/05/2021	77.56 mOD	E: 580072 N: 188890

Pit Width (m)	0.45
Pit Depth (m)	2.00
Pit Length (m)	2.00

Soil type at test level	Orange-brown mottled grey CLAY
Groundwater	None
Drain discharge depth	Not known
Sidewall stability	Stable
Stone filled or open pit	Stone filled

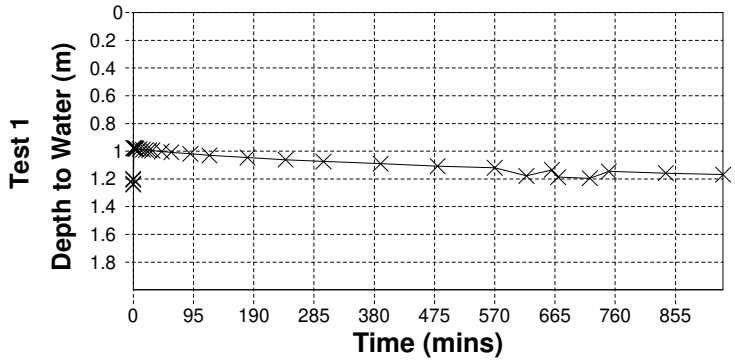
	1
Effective depth (m)	1.02
Volume outflowing between 75% & 25% (m3)*	
Mean surface area through which outflow occurs (m2)	
Time for outflow between 75% & 25% (min)	
SOIL INFILTRATION RATE (ms-1), f	Test Failed

Remarks

1. Soakage test undertaken between 1.0 m and 2.0 m
2. No groundwater encountered
3. Datalogger serial no. 13114031
4. Test 1 carried out on 11/05/21

* Volume outflowing reduced to account for granular backfill used during testing (30 % of free volume assumed).

Elapsed time (mins)	Depth to Water Test 1
0	1.199
1	0.979
2	0.979
3	0.98
4	0.981
5	0.982
10	0.985
15	0.989
20	0.991
25	0.993
30	0.995
45	1.002
60	1.008
90	1.019
120	1.03
180	1.046
240	1.061
300	1.074
390	1.09
480	1.108
570	1.12
620	1.178
660	1.135
670	1.187
720	1.195
750	1.146
840	1.158
930	1.169



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Site	Trial Pit Number
Castle Point, Hadleigh	TP111

Excavation Method	Dimensions	Ground Level (mOD)	Client	Job Number
JCB 3CX	2.00 m x 0.45 m x 2.00 m	77.62	Stantec	21.133
	Location	**Dates**	**Engineer**	**Sheet**
	580208 E 189073 N	11/05/2021		1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
0.00-0.30	D1				(0.30)	TOPSOIL (Dark brown very silty fine to coarse sand with rootlets)		
0.30-1.00	D2			77.32	0.30	Firm orange brown and grey mottled slightly gravelly CLAY. Gravel is rounded fine to coarse flint		
1.00-1.80	D3				(1.50)			
1.80-2.00	D4			75.82	1.80	Golden brown very silty slightly gravelly fine to coarse SAND. Gravel is rounded fine to coarse flint		
					(0.20)			
				75.62	2.00	Complete at 2.00m		

Plan

Remarks

1. Location CAT scanned prior to excavation
2. No groundwater encountered
3. Trial pit remained open and sidewalls stable during excavation.
4. Pit backfilled with gravel to 1.0 m and then arisings to surface
5. Soakage test performed between 1.0 m and 2.0 m

Scale (approx)	Logged By	Figure No.
1:20	CJL	21.133.TP111

Site : Castle Point, Hadleigh

Client : Stantec

Engineer :

Job Number 21.133

Sheet 11 / 12

Location	Date	Level	Location
TP111	11/05/2021	77.62 mOD	E: 580208 N: 189073

Pit Width (m)	0.45
Pit Depth (m)	2.00
Pit Length (m)	1.90

Soil type at test level	Orange-brown slightly gravelly CLAY/clayey SAND
Groundwater	None
Drain discharge depth	Not known
Sidewall stability	Stable
Stone filled or open pit	Stone filled

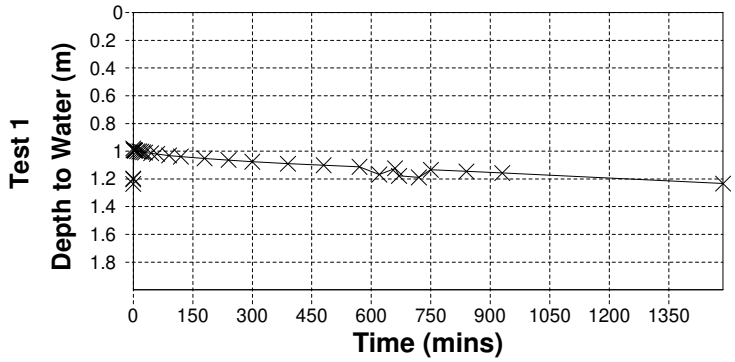
	1
Effective depth (m)	1.02
Volume outflowing between 75% & 25% (m3)*	
Mean surface area through which outflow occurs (m2)	
Time for outflow between 75% & 25% (min)	
SOIL INFILTRATION RATE (ms-1), f	Test Failed

Remarks

1. Soakage test undertaken between 1.0 m and 2.0 m
2. No groundwater encountered
3. Datalogger serial no. 10259030
4. Test 1 carried out on 11/05/21

* Volume outflowing reduced to account for granular backfill used during testing (30 % of free volume assumed).

Elapsed time (mins)	Depth to Water Test 1
0	1.197
1	0.992
2	0.993
3	0.994
4	0.995
5	0.996
10	1.00
15	1.002
20	1.004
25	1.007
30	1.01
45	1.015
60	1.02
90	1.031
120	1.039
180	1.052
240	1.064
300	1.076
390	1.09
480	1.101
570	1.113
620	1.168
660	1.124
670	1.178
720	1.189
750	1.134
840	1.146
930	1.157
1486.5	1.234



A F Howland Associates
Geotechnical Engineers

Site	Trial Pit Number
Castle Point, Hadleigh	TP112

Excavation Method	Dimensions	Ground Level (mOD)	Client	Job Number
JCB 3CX	1.90 m x 0.45 m x 2.10 m	72.83	Stantec	21.133
	Location	**Dates**	**Engineer**	**Sheet**
	580652 E 188879 N	10/05/2021		1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
0.00-0.35	D1				(0.35)	TOPSOIL (Dark brown silty fine to coarse sand with rootlets)		
0.35-0.80	D2			72.48	0.35	Soft orange brown and brown CLAY		
0.80-1.40	D3			72.03	(0.45) 0.80	Very soft orange brown and grey mottled CLAY		
1.40-2.00	D4		SEEPAGE(1) at 1.40m.	71.43	(0.60) 1.40	Soft orange brown and gey mottled CLAY		▽1
				70.73	(0.70) 2.10	Complete at 2.10m		

Plan

Remarks

1. Location CAT scanned prior to excavation
2. Groundwater seepage at 1.40 m
3. Trial pit remained open and sidewalls stable during excavation.
4. Pit backfilled with gravel to 1.1 m and then arisings to surface
5. Soakage test performed between 1.1 m and 2.1 m

Scale (approx)	Logged By	Figure No.
1:20	CJL	21.133.TP112

Soakage Test (BRE Digest 365)

Site : Castle Point, Hadleigh

Client : Stantec

Engineer :

Job Number 21.133

Sheet 12 / 12

Location	Date	Level	Location
TP112	11/05/2021	72.83 mOD	E: 580652 N: 188879

Pit Width (m)	0.40
Pit Depth (m)	2.10
Pit Length (m)	1.90

Soil type at test level	Orange-brown mottled grey CLAY
Groundwater	1.60 m (seepage)
Drain discharge depth	Not known
Sidewall stability	Stable
Stone filled or open pit	Stone filled

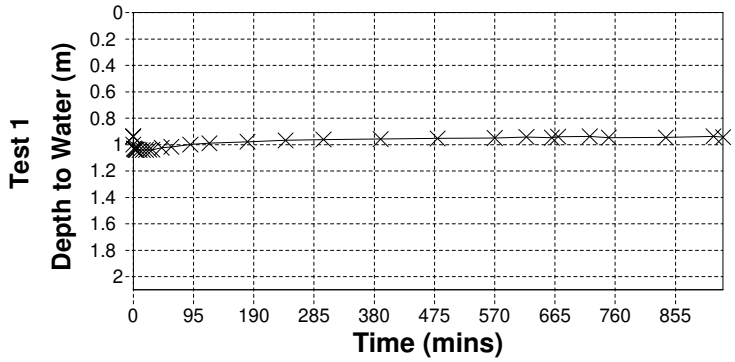
	1
Effective depth (m)	1.10
Volume outflowing between 75% & 25% (m3)*	
Mean surface area through which outflow occurs (m2)	
Time for outflow between 75% & 25% (min)	
SOIL INFILTRATION RATE (ms-1), f	Test Failed

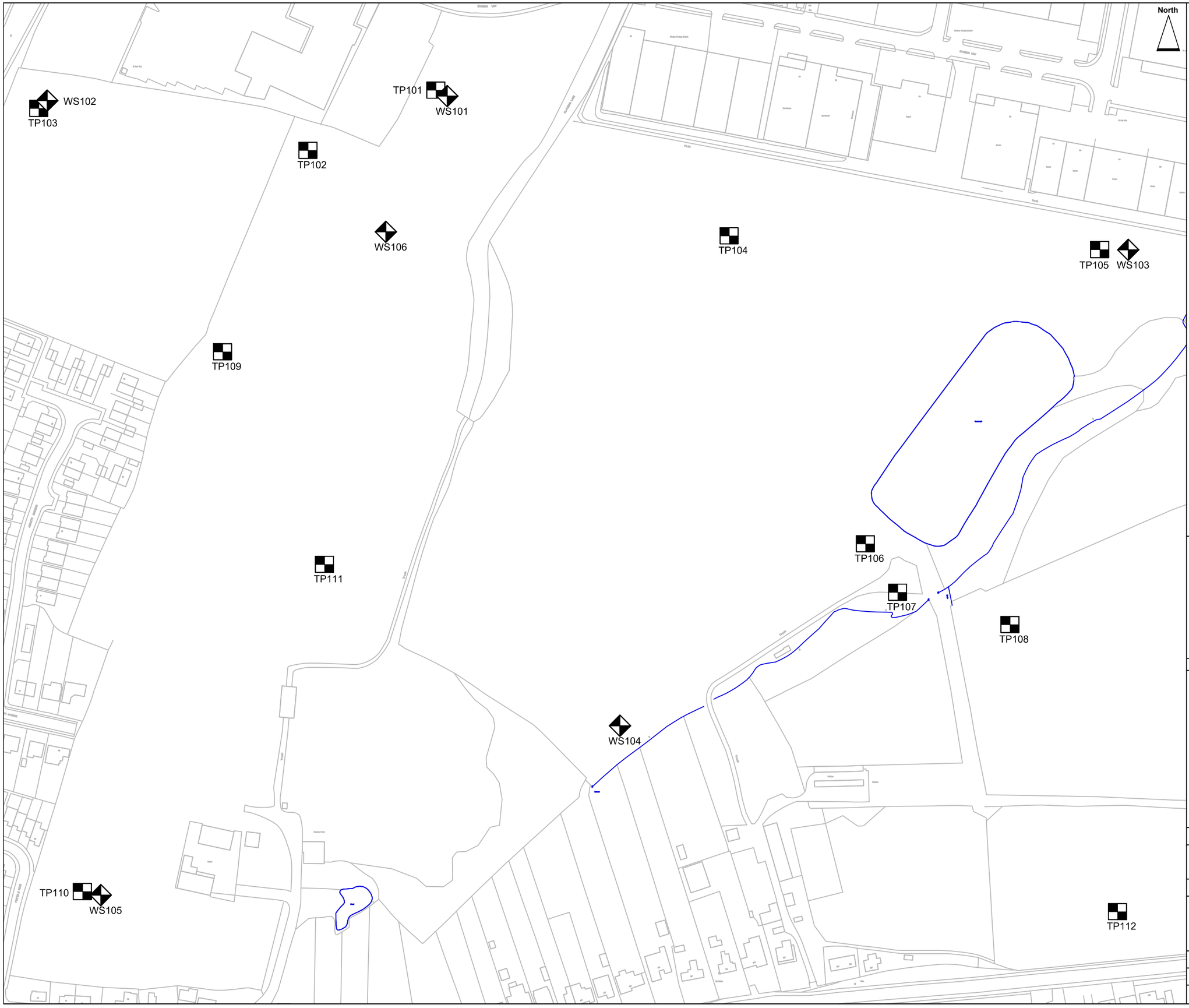
Remarks

1. Soakage test undertaken between 1.1 m and 2.1 m
2. No groundwater encountered. Seepage at 1.60 m
3. Datalogger serial no. 10089010
4. Test 1 carried out on 10/05/21

* Volume outflowing reduced to account for granular backfill used during testing (30 % of free volume assumed).

Elapsed time (mins)	Depth to Water Test 1
0	0.94
1	1.03
2	1.033
3	1.037
4	1.04
5	1.04
10	1.041
15	1.042
20	1.04
25	1.039
30	1.039
45	1.024
60	1.017
90	0.999
120	0.99
180	0.979
240	0.968
300	0.962
390	0.958
480	0.953
570	0.95
620	0.942
660	0.948
670	0.94
720	0.938
750	0.947
840	0.946
915	0.937
930	0.944





Key:

Windowless dynamic sampling location and reference

Trial pit location and reference

Rev	Date	Revision Description	Drwn	Chkd

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Geotechnical Engineers

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mail: admin@howland.co.uk

Client: Stantec

Site:
Castle Point, Hadleigh

Job No.: 21.133

Drawing Title:

EXPLORATORY HOLE LOCATION PLAN

Date: May 2021

Drawing No: 21.133/02

Scale: 1:2000 @ A3

North

Box indicates approximate location of drawing 21.133/02

Scale 1: 50,000 @ A4

A F Howland Associates
Geotechnical Engineers

Site: Castle Point, Hadleigh

SITE LOCATION PLAN

Client : Stantec

Date : May 2021 **Dwg :** 21.133/01

Project Name	Project No:		TRIAL PIT
Hadleigh	**332210105**	Stantec	**TP101**
Client	Start Date / End Date		
This Land	**10/05/2021** / **14/05/2021**		
Contractor	Ground Level		
A F Howlands	**65.76m OD**		
Method/Plant	Coordinates	Logged By: **JC**	Sheet 1 of 1
JCB 3CX	**580270 E** **189338 N**	Checked By: **JEC**	Scale 1:25

(m)	Samples and Insitu Tests			Water	Legend	Depth (Thickness)	Level (m OD)	Stratum Description	Instrumentation /Backfill
	Depth	Type	Results						
	0.10 - 1.00	D1				(0.20) 0.20	65.56	TOPSOIL (Brown friable silty sandy slightly gravelly clay. Gravel is angular to subrounded fine to coarse flint. Occasional rootlets) [TOPSOIL]	
1	1.00 - 1.90	D2				(1.70)		Firm orange brown sandy CLAY. Sand is fine to medium grained. [HEAD DEPOSITS]	
	1.90 - 2.00	D3				1.90 (0.10) 2.00	63.86 63.76	Soft red orange brown sandy SILT. Sand is fine to medium grained. [CLAYGATE MEMBER]	
2								End of Trial Pit at 2.00m	
3									
4									
5									

General Remarks

1. Location CAT scanned prior to excavation 2. No groundwater encountered. 3. Trial pit remained open and sidewalls stable during excavation, 4. Pit backfilled with gravel to 1.0m and then arisings to the surface. 5. Soakage test performed between 1.0m and 2.0m

Water

Strike

Standing

Flow

Stability: Stable

Pit Dimensions

2.00 m

0.45 m

Project Name	Project No:		TRIAL PIT
Hadleigh	**332210105**	Stantec	**TP102**
Client	Start Date / End Date		
This Land	**10/05/2021** / **14/05/2021**		
Contractor	Ground Level		
A F Howlands	**66.72m OD**		
Method/Plant	Coordinates	Logged By: **JC**	Sheet 1 of 1
JCB 3CX	**580198 E** **189305 N**	Checked By: **JEC**	Scale 1:25

(m)	Samples and Insitu Tests			Water	Legend	Depth (Thickness)	Level (m OD)	Stratum Description	Instrumentation /Backfill
	Depth	Type	Results						
	0.00 - 0.30	D1				(0.40)		TOPSOIL (Brown friable silty sandy slightly gravelly clay. Gravel is angular to subrounded fine to coarse flint. Occasional rootlets) [TOPSOIL]	
	0.30 - 1.00	D2				0.40	66.32	Firm to stiff orange brown mottled grey sandy CLAY. Sand is fine to medium grained. [HEAD DEPOSITS]	
1	1.00 - 1.90	D3				(1.50)			
						1.90	64.82	End of Trial Pit at 1.90m	
2									
3									
4									
5									

General Remarks

1. Location CAT scanned prior to excavation 2. No groundwater encountered. 3. Trial pit remained open and sidewalls stable during excavation, 4. Pit backfilled with gravel to 0.9m and then arisings to the surface. 5. Soakage test performed between 0.9m and 1.9m

Water

Strike

Standing

Flow

Stability: Stable

Pit Dimensions

1.90 m

0.45 m

Project Name	Project No:		TRIAL PIT
Hadleigh	**332210105**	Stantec	**TP103**
Client	Start Date / End Date		
This Land	**10/05/2021** / **14/05/2021**		
Contractor	Ground Level		
A F Howlands	**66.40m OD**		
Method/Plant	Coordinates	Logged By: **JC**	Sheet 1 of 1
JCB 3CX	**580048 E** **189328 N**	Checked By: **JEC**	Scale 1:25

(m)	Samples and Insitu Tests			Water	Legend	Depth (Thickness)	Level (m OD)	Stratum Description	Instrumentation /Backfill
	Depth	Type	Results						
	0.00 - 0.35	D1				(0.10) 0.10	66.30	TOPSOIL (Brown friable silty sandy slightly gravelly clay. Gravel is angular to subrounded fine to coarse flint. Occasional rootlets) [TOPSOIL]	
	0.30	ES1				(0.40)		Soft orange brown very gravelly sandy CLAY. Sand is medium to coarse grained. Gravel is medium to coarse angular brick, sandstone. .. fragments of glass and tile [MADE GROUND]	
	0.35 - 1.10	D2				0.50	65.90	Firm orange brown mottled light grey sandy CLAY. Sand is fine to medium grained. ... becoming stiff with depth [HEAD DEPOSITS]	
1	1.10 - 2.00	D3				(1.50)			
2						2.00	64.40	End of Trial Pit at 2.00m	
3									
4									
5									

General Remarks

1. Location CAT scanned prior to excavation 2. No groundwater encountered. 3. Trial pit remained open and sidewalls stable during excavation, 4. Pit backfilled with gravel to 1.0m and then arisings to the surface. 5. Soakage test performed between 1.0m and 2.0m

Water

Strike

Standing

Flow

Stability: Stable

Pit Dimensions

2.00 m

0.45 m

Project Name	Project No:		TRIAL PIT
Hadleigh	**332210105**	Stantec	**TP104**
Client	Start Date / End Date		
This Land	**10/05/2021** / **14/05/2021**		
Contractor	Ground Level		
A F Howlands	**67.26m OD**		
Method/Plant	Coordinates	Logged By: **JC**	Sheet 1 of 1
JCB 3CX	**580434 E** **189257 N**	Checked By: **JEC**	Scale 1:25

(m)	Samples and Insitu Tests			Water	Legend	Depth (Thickness)	Level (m OD)	Stratum Description	Instrumentation /Backfill
	Depth	Type	Results						
	0.00 - 0.30	D1				(0.35)		TOPSOIL (Brown friable silty sandy slightly gravelly clay. Gravel is angular to subrounded fine to coarse flint. Occasional rootlets) [TOPSOIL]	
	0.30 - 1.10	D2				0.35	66.91	Firm to stiff orange brown sandy CLAY. Sand is fine to medium grained. ... increasing in sand content with depth at 1.10m [HEAD DEPOSITS]	
1						(0.75)			
	1.10 - 1.90	D3				1.10	66.16	Orange brown very silty fine to medium SAND [CLAYGATE MEMBER]	
	1.90 - 2.20	D4				(1.10)			
2						2.20	65.06	End of Trial Pit at 2.20m	
3									
4									
5									

General Remarks

1. Location CAT scanned prior to excavation 2. No groundwater encountered. 3. Trial pit remained open and sidewalls stable during excavation, 4. Pit backfilled with gravel to 1.2m and then arisings to the surface. 5. Soakage test performed between 1.2m and 2.2m

Water

Strike

Standing

Flow

Stability: Stable

Pit Dimensions

2.00 m

0.45 m

Project Name	Project No:		TRIAL PIT
Hadleigh	**332210105**	Stantec	**TP105**
Client	Start Date / End Date		
This Land	**10/05/2021** / **14/05/2021**		
Contractor	Ground Level		
A F Howlands	**58.64m OD**		
Method/Plant	Coordinates	Logged By: **JC**	Sheet 1 of 1
JCB 3CX	**580642 E** **189249 N**	Checked By: **JEC**	Scale 1:25

(m)	Samples and Insitu Tests			Water	Legend	Depth (Thickness)	Level (m OD)	Stratum Description	Instrumentation /Backfill
	Depth	Type	Results						
	0.00 - 0.20	D1						TOPSOIL (Brown friable silty sandy slightly gravelly clay. Gravel is angular to subrounded fine to coarse flint. Occasional rootlets) [TOPSOIL]	
	0.20 - 0.80	D2				(0.40)			
						0.40	58.24	Firm orange brown mottled light grey sandy CLAY. Sand is fine to medium grained. ... becoming slightly gravelly with depth [HEAD DEPOSITS]	
	0.80 - 1.50	D3							
1						(1.60)			
	1.50 - 2.00	D4							
2						2.00	56.64	End of Trial Pit at 2.00m	
3									
4									
5									

General Remarks

1. Location CAT scanned prior to excavation 2. No groundwater encountered. 3. Trial pit remained open and sidewalls stable during excavation, 4. Pit backfilled with gravel to 1.0m and then arisings to the surface. 5. Soakage test performed between 1.0m and 2.0m

Water

Strike

Standing

Flow

Stability: Stable

Pit Dimensions

1.90 m

0.45 m

Project Name	Project No:		TRIAL PIT
Hadleigh	**332210105**	Stantec	**TP106**
Client	Start Date / End Date		
This Land	**10/05/2021** / **14/05/2021**		
Contractor	Ground Level		
A F Howlands	**62.42m OD**		
Method/Plant	Coordinates	Logged By: **JC**	Sheet 1 of 1
JCB 3CX	**580511 E** **189085 N**	Checked By: **JEC**	Scale 1:25

(m)	Samples and Insitu Tests			Water	Legend	Depth (Thickness)	Level (m OD)	Stratum Description	Instrumentation /Backfill
	Depth	Type	Results						
	0.00 - 0.20	D1				(0.20)		TOPSOIL (Brown friable silty sandy slightly gravelly clay. Gravel is angular to subrounded fine to coarse flint. Occasional rootlets)	
	0.20 - 0.80	D2				0.20	62.22	[TOPSOIL]	
								Firm orange brown mottled light grey very sandy CLAY. Sand is fine to medium grained. ... becoming soft with depth ... becoming damp with depth	
	0.80 - 1.80	D3						[HEAD DEPOSITS]	
1						(1.60)			
	1.80 - 2.00	D4				1.80	60.62		
						(0.20)		Soft orange brown and grey mottled very silty CLAY [CLAYGATE MEMBER]	
2				▼		2.00	60.42	End of Trial Pit at 2.00m	
3									
4									
5									

General Remarks

1. Location CAT scanned prior to excavation 2. Groundwater encountered as a minor seepage at 2m depth. 3. Trial pit remained open and sidewalls stable during excavation, 4. Pit backfilled with gravel to 1.0m and then arisings to the surface. 5. Soakage test performed between 1.0m and 2.0m

Water

Strike 2.00 m
Standing
Flow Minor seepage

Stability: Stable

Pit Dimensions

2.00 m
0.45 m

Project Name	Project No:		TRIAL PIT
Hadleigh	**332210105**	Stantec	**TP107**
Client	Start Date / End Date		
This Land	**10/05/2021** / **14/05/2021**		
Contractor	Ground Level		
A F Howlands	**61.93m OD**		
Method/Plant	Coordinates	Logged By: **JC**	Sheet 1 of 1
JCB 3CX	**580529 E** **189058 N**	Checked By: **JEC**	Scale 1:25

(m)	Samples and Insitu Tests			Water	Legend	Depth (Thickness)	Level (m OD)	Stratum Description	Instrumentation /Backfill
	Depth	Type	Results						
	0.00 - 0.30	D1				(0.30)		Macadam surfacing over soft black brown very gravelly sandy CLAY. Gravel is clinker, brick and glass. Occasional cobbles of angular brick. Sand is medium to coarse grained. [MADE GROUND]	
	0.20	ES1							
	0.30 - 0.80	D2				0.30	61.63	Firm orange brown mottled light grey sandy CLAY. Sand is fine to medium grained. [HEAD DEPOSITS]	
	0.80 - 1.50	D3				(1.20)			
1									
				▼		1.50	60.43	End of Trial Pit at 1.50m	
2									
3									
4									
5									

General Remarks

1. Location CAT scanned prior to excavation 2. Groundwater encountered as a moderate seepage at 1.5m depth 3. Trial pit remained open and sidewalls stable during excavation, 4. Pit backfilled with gravel to 0.5m and then arisings to the surface. 5. Soakage test performed between 0.5m and 1.5m

Water

Strike 1.50 m
Standing
Flow Moderate seepage

Stability: Stable

Pit Dimensions

2.00 m
0.45 m

Project Name	Project No:		TRIAL PIT
Hadleigh	**332210105**	Stantec	**TP108**
Client	Start Date / End Date		
This Land	**10/05/2021** / **14/05/2021**		
Contractor	Ground Level		
A F Howlands	**63.69m OD**		
Method/Plant	Coordinates	Logged By: **JC**	Sheet 1 of 1
JCB 3CX	**580592 E** **189039 N**	Checked By: **JEC**	Scale 1:25

(m)	Samples and Insitu Tests			Water	Legend	Depth (Thickness)	Level (m OD)	Stratum Description	Instrumentation /Backfill
	Depth	Type	Results						
	0.00 - 0.30	D1				(0.30)		TOPSOIL (Brown friable silty sandy slightly gravelly clay. Gravel is angular to subrounded fine to coarse flint. Occasional rootlets) [TOPSOIL]	
	0.30 - 1.00	D2				0.30	63.39	Firm red orange brown mottled light grey sandy CLAY. Sand is fine to medium grained. .... becoming clayey fine SAND with depth ... arisings recorded as damp from 1.0m depth [HEAD DEPOSITS]	
1	1.00 - 1.50	D3				(1.70)			
	1.50 - 2.00	D4		▼					
2						2.00	61.69	End of Trial Pit at 2.00m	
3									
4									
5									

General Remarks

1. Location CAT scanned prior to excavation 2. Groundwater encountered at 1.5m as a minor seepage 3. Trial pit remained open and sidewalls stable during excavation, 4. Pit backfilled with gravel to 1.0m and then arisings to the surface. 5. Soakage test performed between 1.0m and 2.0m

Water

Strike 1.50 m
Standing
Flow Minor seepage

Stability: Stable

Pit Dimensions

2.00 m
0.45 m

Project Name	Project No:		TRIAL PIT
Hadleigh	**332210105**	Stantec	**TP109**
Client	Start Date / End Date		
This Land	**10/05/2021** / **14/05/2021**		
Contractor	Ground Level		
A F Howlands	**72.78m OD**		
Method/Plant	Coordinates	Logged By: **JC**	Sheet 1 of 1
JCB 3CX	**580151 E** **189192 N**	Checked By: **JEC**	Scale 1:25

(m)	Samples and Insitu Tests			Water	Legend	Depth (Thickness)	Level (m OD)	Stratum Description	Instrumentation /Backfill
	Depth	Type	Results						
	0.00 - 0.40	D1				(0.50)		TOPSOIL (Brown friable silty sandy slightly gravelly clay. Gravel is angular to subrounded fine to coarse flint. Occasional rootlets) [TOPSOIL]	
	0.40 - 1.00	D2				0.50	72.28	Firm to stiff orange brown sandy CLAY. Sand is fine to medium grained. [HEAD DEPOSITS]	
1	1.00 - 1.50	D3				(1.00)			
						1.50	71.28	End of Trial Pit at 1.50m	
2									
3									
4									
5									

General Remarks

1. Location CAT scanned prior to excavation 2. No groundwater encountered. 3. Trial pit remained open and sidewalls stable during excavation, 4. Pit backfilled with gravel to 0.5m and then arisings to the surface. 5. Soakage test performed between 0.5m and 1.5m

Water

Strike 1.30 m
Standing
Flow Slow inflow

Stability: Stable

Pit Dimensions

1.90 m
0.45 m

Project Name	Project No:		TRIAL PIT
Hadleigh	**332210105**	Stantec	**TP110**
Client	Start Date / End Date		
This Land	**10/05/2021** / **14/05/2021**		
Contractor	Ground Level		
A F Howlands	**77.56m OD**		
Method/Plant	Coordinates	Logged By: **JC**	Sheet 1 of 1
JCB 3CX	**580072 E** **188890 N**	Checked By: **JEC**	Scale 1:25

(m)	Samples and Insitu Tests			Water	Legend	Depth (Thickness)	Level (m OD)	Stratum Description	Instrumentation /Backfill
	Depth	Type	Results						
	0.00 - 0.30	D1				(0.30)		TOPSOIL (Brown friable silty sandy slightly gravelly clay. Gravel is angular to subrounded fine to coarse flint. Occasional rootlets) [TOPSOIL]	
	0.30 - 1.00	D2				0.30	77.26	Firm orange brown mottled light grey sandy CLAY. Sand is fine to medium grained. ... increasing in sand content with depth [HEAD DEPOSITS]	
1	1.00 - 2.00	D3				(1.70)			
2				▼		2.00	75.56	End of Trial Pit at 2.00m	
3									
4									
5									

General Remarks

1. Location CAT scanned prior to excavation 2. Groundwater encountered at 2m. 3. Trial pit remained open and sidewalls stable during excavation, 4. Pit backfilled with gravel to 1.0m and then arisings to the surface. 5. Soakage test performed between 1.0m and 2.0m

Water

Strike 2.00 m
Standing
Flow Minor seepage

Stability: Stable

Pit Dimensions

2.00 m
0.45 m

Project Name	Project No:		TRIAL PIT
Hadleigh	**332210105**	Stantec	**TP111**
Client	Start Date / End Date		
This Land	**10/05/2021** / **14/05/2021**		
Contractor	Ground Level		
A F Howlands	**77.62m OD**		
Method/Plant	Coordinates	Logged By: **JC**	Sheet 1 of 1
JCB 3CX	**580208 E** **189073 N**	Checked By: **JEC**	Scale 1:25

(m)	Samples and Insitu Tests			Water	Legend	Depth (Thickness)	Level (m OD)	Stratum Description	Instrumentation /Backfill
	Depth	Type	Results						
	0.00 - 0.30	D1				(0.30)		Dark brown very silty fine to coarse SAND with frequent rootlets [TOPSOIL]	
	0.30 - 1.00	D2				0.30	77.32	Firm orange brown and grey mottled slightly gravelly CLAY. Gravel is rounded fine to coarse flint. [HEAD DEPOSITS]	
1	1.00 - 1.80	D3				(1.50)			
	1.80 - 2.00	D4				1.80	75.82		
						(0.20)		Orange brown very silty slightly gravelly fine to coarse SAND. Gravel is rounded fine to coarse flint. [CLAYGATE MEMBER]	
2						2.00	75.62	End of Trial Pit at 2.00m	
3									
4									
5									

General Remarks

1. Location CAT scanned prior to excavation 2. No groundwater encountered. 3. Trial pit remained open and sidewalls stable during excavation, 4. Pit backfilled with gravel to 1.0m and then arisings to the surface. 5. Soakage test performed between 1.0m and 2.0m

Water

Strike

Standing

Flow

Stability: Stable

Pit Dimensions

2.00 m

0.45 m

Project Name	Project No:		TRIAL PIT
Hadleigh	**332210105**	Stantec	**TP112**
Client	Start Date / End Date		
This Land	**10/05/2021** / **14/05/2021**		
Contractor	Ground Level		
A F Howlands	**72.83m OD**		
Method/Plant	Coordinates	Logged By: **JC**	Sheet 1 of 1
JCB 3CX	**580652 E** **188879 N**	Checked By: **JEC**	Scale 1:25

(m)	Samples and Insitu Tests			Water	Legend	Depth (Thickness)	Level (m OD)	Stratum Description	Instrumentation /Backfill
	Depth	Type	Results						
	0.00 - 0.35	D1				(0.35)		TOPSOIL (Brown friable silty sandy slightly gravelly clay. Gravel is angular to subrounded fine to coarse flint. Occasional rootlets) [TOPSOIL]	
	0.35 - 0.80	D2				0.35	72.48	Firm orange brown mottled light grey very sandy CLAY. Sand is fine to medium grained. [HEAD DEPOSITS]	
	0.80 - 1.40	D3				(1.75)			
	1.40 - 2.00	D4				2.10	70.73	End of Trial Pit at 2.10m	

General Remarks

1. Location CAT scanned prior to excavation 2. Groundwater encountered from 1.2m 3. Trial pit remained open and sidewalls unstable during excavation, 4. Pit backfilled with gravel to 1.1m and then arisings to the surface. 5. Soakage test performed between 1.1m and 2.1m

Water

Strike 1.20 m
Standing
Flow Moderate inflow

Stability: Unstable beyond 2m

Pit Dimensions

1.90 m
0.45 m

Project Name	Project No:		WINDOW SAMPLE
Hadleigh	**332210105**	Stantec	**WS101**
Client	Start Date / End Date		
This Land	**14/05/2021** / **14/05/2021**		
Contractor	Ground Level		
A F Howlands	**66.09m OD (OSGB)**		
Method/Plant	Coordinates (OSGB)	Logged By: **SW**	Sheet 1 of 1
Dando Terrier 2002	**580276 E** **189335 N**	Checked By: **JC**	Scale 1:40

(m)	Samples and Insitu Tests			Water	Legend	Depth (Thickness)	Level (m OD)	Stratum Description	Instrumentation /Backfill
	Depth	Type	Results						
	0.00 - 0.30	D1				(0.30)		TOPSOIL (Brown friable silty sandy slightly gravelly clay. Gravel is angular to subrounded fine to coarse flint. Occasional rootlets)	
						0.30	65.79	[TOPSOIL]	
	0.60 - 0.80	D2						Soft becoming firm grey orange mottled silty sandy CLAY. Occasional relic rootlets	
1								[HEAD DEPOSITS]	
	1.20	S	N=13						
	1.20 - 1.65	D3							
						(2.50)			
	1.70 - 1.90	D4							
2	2.00	S	N=14						
	2.00 - 2.45	D5							
	2.80 - 3.00	D6				2.80	63.29		
3	3.00	S	N=16					Medium dense brown very clayey silty fine SAND	
	3.00 - 3.45	D7						[CLAYGATE MEMBER]	
	3.60 - 3.90	D8							
4	4.00	S	N=14						
	4.00 - 4.45	D9							
						(3.00)			
	4.80 - 5.00	D10							
5	5.00	S	N=14						
	5.00 - 5.45	D11						*Medium dense brown very clayey silty fine SAND*	
	5.60 - 6.00	D12							
						5.80	60.29		
						(0.20)		Stiff grey silty sandy CLAY	
6						6.00	60.09	[LONDON CLAY FORMATION?]	
								End of Window Sample at 6.00m	
7									
8									

General Remarks

1. Location CAT scanned prior to excavation2. Hand dug inspection pit to 1.20 m3. No groundwater encountered4. Slotted Standpipe installed to 5.00 m5. SPT Hammer Energy Ratio = 68%

Water Strike			Window Sample Run			
Strike	Time (mins)	Rose to	Start	End	Dia. (mm)	Rec. %

Project Name	Project No:		WINDOW SAMPLE
Hadleigh	**332210105**	Stantec	**WS102**
Client	Start Date / End Date		
This Land	**13/05/2021** / **13/05/2021**		
Contractor	Ground Level		
A F Howlands	**66.21m OD (OSGB)**		
Method/Plant	Coordinates (OSGB)	Logged By: **SW**	Sheet 1 of 1
Dando Terrier 2002	**580052 E** **189333 N**	Checked By: **JC**	Scale 1:40

(m)	Samples and Insitu Tests			Water	Legend	Depth (Thickness)	Level (m OD)	Stratum Description	Instrumentation /Backfill
	Depth	Type	Results						
	0.00 - 0.20	D1				(0.20)		TOPSOIL (Brown friable silty sandy slightly gravelly clay. Gravel is angular to subrounded fine to coarse flint. Occasional rootlets)	
	0.30 - 0.50	D2				0.20	66.01	[TOPSOIL]	
								Soft becoming firm light greyish brown orange mottled silty sandy CLAY. Occasional relic rootlets	
1								[HEAD DEPOSITS]	
	1.20	S	N=9						
	1.20 - 1.65	D3							
	1.80 - 2.00	D4							
2	2.00	S	N=7			(3.60)			
	2.00 - 2.45	D5							
	2.80 - 3.00	D6							
3	3.00	S	N=15						
	3.00 - 3.45	D7							
	3.70 - 3.80	D8		▼					
	3.80 - 4.00	D9				3.80	62.41	*.... Band of light brown very clayey silty fine sand from 3.70 m to 3.80 m*	
4	4.00	S	N=10	▽				Stiff dark grey silty slightly sandy CLAY	
	4.00 - 4.45	D10						[CLAYGATE MEMBER]	
						(2.20)			
5	5.00	S	N=11						
	5.00 - 5.45	D11						*Stiff dark grey silty slightly sandy CLAY*	
6						6.00	60.21	End of Window Sample at 6.00m	
7									
8									

General Remarks

1. Location CAT scanned prior to excavation2. Hand dug inspection pit to 1.20 m3. Groundwater struck at 4.00 m and rose to 3.95 m in 5 mins, 3.77 m in 10 mins, 3.70 m in 15 mins and 3.68 m in 20 mins4. Slotted Standpipe installed to 5.00 m5. SPT Hammer Energy Ratio = 68%

Water Strike			Window Sample Run			
Strike	Time (mins)	Rose to	Start	End	Dia. (mm)	Rec. %

Project Name	Project No:		WINDOW SAMPLE
Hadleigh	**332210105**	Stantec	**WS103**
Client	Start Date / End Date		
This Land	**14/05/2021** **14/05/2021**		
Contractor	Ground Level		
A F Howlands	**58.11m OD (OSGB)**		
Method/Plant	Coordinates (OSGB)	Logged By: **SW**	Sheet 1 of 1
Dando Terrier 2002	**580658 E** **189249 N**	Checked By: **JC**	Scale 1:40

(m)	Samples and Insitu Tests			Water	Legend	Depth (Thickness)	Level (m OD)	Stratum Description	Instrumentation /Backfill
	Depth	Type	Results						
	0.00 - 0.30	D1				(0.30)		TOPSOIL (Brown friable silty sandy slightly gravelly clay. Gravel is angular to subrounded fine to coarse flint. Occasional rootlets)	
						0.30	57.81	[TOPSOIL]	
	0.50 - 0.70	D2						Soft becoming firm light greyish brown orange mottled silty sandy CLAY. Occasional angular to subrounded fine to medium flint gravel. Some relic rootlets	
1								[HEAD DEPOSITS]	
	1.20	S	N=6						
	1.20 - 1.65	D3							
	1.70 - 1.90	D4							
2	2.00	S	N=8			(3.50)			
	2.00 - 2.45	D5							
	2.80 - 3.00	D6							
3	3.00	S	N=12						
	3.00 - 3.45	D7							
	3.80 - 4.00	D8				3.80	54.31	Stiff dark grey silty CLAY	
4	4.00	S	N=12					[CLAYGATE MEMBER]	
	4.00 - 4.45	D9							
	4.80 - 5.00	D10				(2.20)			
5	5.00	S	N=17						
	5.00 - 5.45	D11						*Stiff dark grey silty CLAY*	
	5.70 - 6.00	D12							
6						6.00	52.11	End of Window Sample at 6.00m	
7									
8									

General Remarks

1. Location CAT scanned prior to excavation2. Hand dug inspection pit to 1.20 m3. Groundwater struck at 2.00 m and rose to 2.19 m in 5 mins, 2.15 m in 10 mins, 2.12 m in 15 mins and 2.10 m in 20 mins4. Slotted Standpipe installed to 6.00 m5. SPT Hammer Energy Ratio = 68%

Water Strike			Window Sample Run			
Strike	Time (mins)	Rose to	Start	End	Dia. (mm)	Rec. %

Project Name	Project No:		WINDOW SAMPLE
Hadleigh	**332210105**	Stantec	**WS104**
Client	Start Date / End Date		
This Land	**14/05/2021** / **14/05/2021**		
Contractor	Ground Level		
A F Howlands	**66.80m OD (OSGB)**		
Method/Plant	Coordinates (OSGB)	Logged By: **SW**	Sheet 1 of 1
Dando Terrier 2002	**580373 E** **188983 N**	Checked By: **JC**	Scale 1:40

(m)	Samples and Insitu Tests			Water	Legend	Depth (Thickness)	Level (m OD)	Stratum Description	Instrumentation /Backfill
	Depth	Type	Results						
	0.00 - 0.40	D1				(0.40)		TOPSOIL (Brown friable silty sandy slightly gravelly clay. Gravel is angular to subrounded fine to coarse flint. Occasional rootlets) [TOPSOIL]	
						0.40	66.40	Soft becoming firm light greyish brown orange mottled silty sandy CLAY. Occasional relic rootlets [HEAD DEPOSITS]	
	0.70 - 0.90	D2							
1						(1.30)			
	1.20	S	N=29						
	1.20 - 1.65	D3							
	1.70 - 1.90	D4				1.70	65.10	Medium dense brown very clayey silty fine SAND [BAGSHOT FORMATION]	
2	2.00	S	N=21						
	2.00 - 2.45	D5							
	2.80 - 3.00	D6				(2.30)			
3									
	3.60 - 3.80	D7							
4						4.00	62.80	End of Window Sample at 4.00m	
5									
6									
7									
8									

General Remarks

1. Location CAT scanned prior to excavation2. Hand dug inspection pit to 1.20 m3. Groundwater struck at 2.00 m and rose to 1.62 m in 5 mins, 1.46 m in 10 mins, 1.40 m in 15 mins and 1.38 m in 20 mins4. Slotted Standpipe installed to 3.00 m5. SPT Hammer Energy Ratio = 68%

Water Strike			Window Sample Run			
Strike	Time (mins)	Rose to	Start	End	Dia. (mm)	Rec. %

Project Name	Project No:		WINDOW SAMPLE
Hadleigh	**332210105**	Stantec	
Client	Start Date / End Date		**WS105**
This Land	**13/05/2021** / **13/05/2021**		
Contractor	Ground Level		
A F Howlands	**78.04m OD (OSGB)**		
Method/Plant	Coordinates (OSGB)	Logged By: **SW**	Sheet 1 of 1
Dando Terrier 2002	**580082 E** **188888 N**	Checked By: **JC**	Scale 1:40

(m)	Samples and Insitu Tests			Water	Legend	Depth (Thickness)	Level (m OD)	Stratum Description	Instrumentation /Backfill
	Depth	Type	Results						
	0.00 - 0.20	D1				(0.30)		TOPSOIL (Brown friable silty sandy slightly gravelly clay. Gravel is angular to subrounded fine to coarse flint. Occasional rootlets) [TOPSOIL]	
	0.30 - 0.50	D2				0.30	77.74	Soft becoming firm light greyish brown orange mottled silty sandy CLAY. Occasional relic rootlets [HEAD DEPOSITS]	
1									
	1.20	S	N=12						
	1.20 - 1.65	D3							
	1.80 - 2.00	D4							
2	2.00	S	N=11			(3.40)			
	2.00 - 2.45	D5							
								.... Becoming firm orange silty fine to medium sandy clay	
	2.80 - 3.00	D6							
3	3.00	S	N=15						
	3.00 - 3.45	D7							
	3.70 - 3.80	D8				3.70	74.34	Firm becoming stiff brown silty sandy CLAY [CLAYGATE MEMBER]	
	3.80 - 4.00	D9							
4	4.00	S	N=17	▼					
	4.00 - 4.45	D10						*.... Small pockets of fine to medium orange sand from 4.20 m to 6.00 m in firm to stiff clay*	
						(2.30)			
5	5.00	S	N=17						
	5.00 - 5.45	D11						*Firm becoming stiff brown silty sandy CLAY*	
6						6.00	72.04	End of Window Sample at 6.00m	
7									
8									

General Remarks

1. Location CAT scanned prior to excavation2. Hand dug inspection pit to 1.20 m3. Groundwater seepage at 4.00 m4. Slotted Standpipe installed to 6.00 m5. SPT Hammer Energy Ratio = 68%

Water Strike			Window Sample Run			
Strike	Time (mins)	Rose to	Start	End	Dia. (mm)	Rec. %

Project Name	Project No:		WINDOW SAMPLE
Hadleigh	**332210105**	Stantec	**WS106**
Client	Start Date / End Date		
This Land	**13/05/2021** / **13/05/2021**		
Contractor	Ground Level		
A F Howlands	**70.13m OD (OSGB)**		
Method/Plant	Coordinates (OSGB)	Logged By: **SW**	Sheet 1 of 1
Dando Terrier 2002	**580242 E** **189259 N**	Checked By: **JC**	Scale 1:40

(m)	Samples and Insitu Tests			Water	Legend	Depth (Thickness)	Level (m OD)	Stratum Description	Instrumentation /Backfill
	Depth	Type	Results						
	0.00 - 0.30	D1				(0.30)		TOPSOIL (Brown friable silty sandy slightly gravelly clay. Gravel is angular to subrounded fine to coarse flint. Occasional rootlets) [TOPSOIL]	
						0.30	69.83	Soft becoming firm light greyish brown orange mottled silty sandy CLAY. Occasional relic rootlets [HEAD DEPOSITS]	
	0.60 - 0.80	D2							
1									
	1.20	S	N=7						
	1.20 - 1.65	D3							
	1.80 - 2.00	D4							
2	2.00	S	N=7	▼					
	2.00 - 2.45	D5							
	2.80 - 3.00	D6							
3	3.00	S	N=12			(5.30)			
	3.00 - 3.45	D7							
	3.80 - 4.00	D8							
4	4.00	S	N=12						
	4.00 - 4.45	D9							
	4.80 - 5.00	D10							
5	5.00	S	N=17					*Stiff dark grey silty slightly sandy CLAY*	
	5.00 - 5.45	D11							
	5.60 - 6.00	D12				5.60	64.53		
						(0.40)		Stiff dark grey silty slightly sandy CLAY [CLAYGATE MEMBER]	
6						6.00	64.13	End of Window Sample at 6.00m	
7									
8									

General Remarks

1. Location CAT scanned prior to excavation2. Hand dug inspection pit to 1.20 m3. Groundwater struck at 2.00 m and rose to 2.10 m in 5 mins, 1.97 m in 10 mins, 1.95 m in 15 mins and 20 mins4. Slotted Standpipe installed to 4.00 m5. SPT Hammer Energy Ratio = 68%

Water Strike			Window Sample Run			
Strike	Time (mins)	Rose to	Start	End	Dia. (mm)	Rec. %