

Consultation Response – 173821/1/0121253 – Land at, Broadfields, Wivenhoe, Colchester

Following receipt of the AWS consultation response dated 23rd May 2022 (REF: 210965), I set out below our response to the points raised.

Surface Water Hierarchy

It is proposed to connect to the existing surface water public sewer to the south east of the application site, to an agreed point with Anglian Water at a rate of 4.0 litres/second. Alternative outfalls have been explored and discounted as follows:-

- Infiltration to the ground – This is the most desirable method of surface water disposal, however certain criteria need to be followed. An intrusive ground investigation has been undertaken by REC Ltd, copies of the borehole location plan and logs are attached to this response. It can be seen that across the majority of the site, groundwater is at levels between 0.35 and 2.0m below ground. It is a requirement of the Environment Agency that any infiltration device need to have a clearance of 1.2m from the base of the structure to the highest groundwater level to ensure that the structure operates properly. This would result in the raising of ground levels by between 1.0 and 2.5m, which is not feasible.
- The next option would be to connect to an exiting watercourse. There are existing watercourses adjacent to the site, but these are much too shallow to utilise and again would require the site to be substantially built up in order for it to operate properly.

- The only available option is to connect to the existing surface water public sewer which is at a much lower level than the watercourse running along the eastern boundary of the site.

I trust that the above response and supporting evidence addresses the outstanding points.







Kind regards

TJ Wilson

Tom Wilson

KEY:



-  Site Boundary
-  Window Sample Location
-  Installed Window Sample Location
-  Soakaway Test Location
-  Overhead Power Line
-  Public Footpath

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Job No. & Title:
1CO108570
Land off Richard
Avenue, Wivenhoe

Client:
Taylor Wimpey
East London

Drawn by: HWW
Approved by: RH
Date: February 2020

Notes:
NOT TO SCALE

Drawing Title:
1CO108570-003
Exploratory Hole
Location Plan

Trial Pit Log

Borehole No.

TP201

Sheet 1 of 1

Project Name:	Land East of Richard Avenue	Proj. ID:	1CO108570	Easting:	604535.00	Hole Type	TP
Location:	Wivenhoe, Essex	Plant:	TB290	Northing:	223077.00	Scale:	1:20
Client:	Taylor Wimpey East London	Crew:	Holmes Plant & Construction Ltd	Level (m AOD):		REC Engineer:	HWW
				Final Depth (m):	2.10		
				Start Date:	21/01/2020		
				End Date:	21/01/2020		

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		0.20 - 0.30	ES1		0.35		Grass over dark brown slightly gravelly sandy CLAY with occasional rootlets. Sand is fine to coarse. Gravel is subangular to well rounded fine to coarse flint and rare quartzite. [TOPSOIL]	1	
		0.35 - 0.70	B1						
		0.50	D1		0.70		Greyish brown very gravelly clayey SAND. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse flint. [KESGRAVE CATCHMENT SUBGROUP]		
		0.50 - 0.60	ES2						
		1.00	D2		1.90		Orangeish brown mottled light grey slightly gravelly SAND with frequent clay lenses. Sand is fine to medium. Gravel is subangular to subrounded fine to coarse flint. [KESGRAVE CATCHMENT SUBGROUP]		
		1.00 - 1.10	ES3						
		1.50	D3						
			1.50 - 1.60	ES4		2.10			<u>..From 1.20mbgl: Light grey mottled orangeish brown.</u>
			1.50 - 1.90	B2					
			1.90 - 2.00	ES5					Light grey to cream fine SAND. [KESGRAVE CATCHMENT SUBGROUP]
		2.00	D4						
							End of Borehole at 2.10m	3	
								4	

Remarks: Location cleared for services using a Cable Avoidance Tool [CAT]. No groundwater encountered. Location terminated at 2.10mbgl, backfilled with arisings in reverse order and made safe upon completion.	Stability: Stable	Pit Dimensions Length: 2.90 Width: 0.60 Depth: 2.10	



Trial Pit Log

Borehole No.






TP202

Sheet 1 of 1

Project Name:	Land East of Richard Avenue	Proj. ID:	1CO108570	Easting:	604525.00	Hole Type	TP
Location:	Wivenhoe, Essex	Plant:	TB290	Northing:	223160.00	Scale:	1:20
Client:	Taylor Wimpey East London	Crew:	Holmes Plant & Construction Ltd	Level (m AOD):		REC Engineer:	HWW
				Final Depth (m):	2.55		
				Start Date:	21/01/2020		
				End Date:	21/01/2020		

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description				
		Depth (m)	Type	Results								
		0.20 - 0.30	ES1		0.40			Grass over dark brown slightly sandy slightly gravelly CLAY with occasional rootlets. Sand is fine to medium. Gravel is subangular to subrounded fine to coarse flint. [TOPSOIL]	1			
		0.50 - 0.60 0.50 - 1.00	ES2 B1							Greyish brown to brown slightly gravelly sandy CLAY. Sand is fine to coarse. Gravel is subangular to well rounded fine to coarse flint and rare quartzite. [KESGRAVE CATCHMENT SUBGROUP]		
		1.00 - 1.10	ES3		1.10			Orangeish brown mottled light grey slightly gravelly very clayey SAND. Sand is fine to coarse. Gravel is subrounded to rounded fine to coarse flint. [KESGRAVE CATCHMENT SUBGROUP]				
		1.50 - 1.60 1.50 - 2.00	ES4 B2									
				2.00 - 2.10 2.00 - 2.50	ES5 B3		2.00				Brown to light brown SAND with occasional clay lenses. Sand is fine. [KESGRAVE CATCHMENT SUBGROUP]	2
				2.45 - 2.55	ES6							
					2.55			End of Borehole at 2.55m	3			
									4			

Remarks: Location cleared for services using a Cable Avoidance Tool [CAT]. No groundwater encountered. Location terminated at 2.55mbgl, backfilled with arisings in reverse order and made safe upon completion.	Pit Dimensions		
	(m)		
	Length:	2.90	
	Width:	0.50	
Stability: Stable	Depth:	2.55	

   		<h1>Trial Pit Log</h1>			Borehole No. TP203 Sheet 1 of 1				
Project Name: Land East of Richard Avenue		Proj. ID: 1CO108570		Easting: 604606.00 Northing: 223091.00		Hole Type TP			
Location: Wivenhoe, Essex		Plant: TB290		Level (m AOD): Final Depth (m): 1.60		Scale: 1:20			
Client: Tayloe Wimpey East London		Crew: Holmes Plant & Construction Ltd		Start Date: 21/01/2020 End Date: 21/01/2020		REC Engineer: HWW			
Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		0.00 - 0.35	B1				Grass over dark brown slightly sandy slightly gravelly CLAY with occasional rootlets. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse flint. [TOPSOIL]		
		0.40 - 0.50	ES1		0.35		Greyish brown to brown slightly gravelly sandy CLAY. Sand is medium to coarse. Gravel is subangular to rounded fine to coarse flint. [KESGRAVE CATCHMENT SUBGROUP]		
		0.40 - 0.60	B2						
		0.60 - 0.70	ES2		0.60		Orangeish brown mottled light grey slightly gravelly SAND with frequent clay lenses. Sand is fine to medium. Gravel is subangular to rounded fine to coarse flint. [KESGRAVE CATCHMENT SUBGROUP]		
		1.00 - 1.50	B3		0.85		Light grey slightly gravelly very clayey SAND with low cobble content. Sand is fine to medium. Gravel is subangular to well rounded fine to coarse flint. Cobbles are subangular to subrounded flint. [KESGRAVE CATCHMENT SUBGROUP]	1	
	1.20 - 1.30	ES3							
				1.60		End of Borehole at 1.60m			
Remarks: Location cleared for services using a Cable Avoidance Tool [CAT]. No groundwater encountered. Location terminated at 1.60mbgl, backfilled with arisings in reverse order and made safe upon completion.								Pit Dimensions Length: 2.80 Width: 0.65 Depth: 1.60	 CONCEPT LIFE SCIENCES <small>DELIVERING SCIENCE</small>
Stability: Stable									



Trial Pit Log

Borehole No.





TP204

Sheet 1 of 1

Project Name:	Land East of Richard Avenue	Proj. ID:	1CO108570	Easting:	604609.00	Hole Type	TP
Location:	Wivenhoe, Essex	Plant:	TB290	Level (m AOD):		Scale:	1:20
Client:	Taylor Wimpey East London	Crew:	Holmes Plant & Construction Ltd	Final Depth (m):	2.50	REC Engineer:	HWW
				Start Date:	22/01/2020		
				End Date:	22/01/2020		

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		0.30 - 0.60	B1		0.30		Grass over dark greyish brown slightly sandy gravelly CLAY with occasional rootlets. Sand is fine. Gravel is angular to subrounded fine to coarse flint and rare quartzite. [TOPSOIL]	1	
		0.40 - 0.50	ES1				Brownish light grey clayey gravelly SAND. Sand is medium to coarse. Gravel is angular to rounded fine to coarse flint and quartzite. [KESGRAVE CATCHMENT SUBGROUP]		
		0.60 - 1.00	B2		0.60		Brown mottled blueish grey gravelly SAND with frequent clay lenses. Sand is fine to coarse. Gravel is subangular to well rounded fine to coarse flint, quartzite and rare chalk. [KESGRAVE CATCHMENT SUBGROUP]		
		0.70 - 0.80	ES2				<u>..From 1.00mbgl: Clayey.</u>		
		1.00 - 1.50	B3		1.80				
		2.00	D1	HVP=108 HVP=109 HVP=98					
		2.00							
		2.00							
		2.00							
		2.50	D2	HVP=110 HVP=79 HVP=89	2.50		Blueish light grey slightly sandy slightly gravelly CLAY with frequent roots and rootlets. Sand is medium to coarse. Gravel is subrounded to well rounded fine to coarse flint and quartzite. [KESGRAVE CATCHMENT SUBGROUP]		
2.50									
2.50									
2.50									
							End of Borehole at 2.50m	3	
								4	

Remarks: Location cleared for services using a Cable Avoidance Tool [CAT]. Groundwater encountered as a seepage between 1.20 and 1.40mbgl. Location terminated at 2.50mbgl due to groundwater. Location backfilled with arisings in reverse order and made safe upon completion.	Stability: Unstable	Pit Dimensions Length: 2.95 Width: 0.65 Depth: 2.50	

   		<h1>Trial Pit Log</h1>			Borehole No. TP205 Sheet 1 of 1			
Project Name: Land East of Richard Avenue		Proj. ID: 1CO108570		Easting: 604662.00 Northing: 223277.00		Hole Type TP		
Location: Wivenhoe, Essex		Plant: TB290		Level (m AOD): Final Depth (m): 1.80		Scale: 1:20		
Client: Tayloe Wimpey East London		Crew: Holmes Plant & Construction Ltd		Start Date: 22/01/2020 End Date: 22/01/2020		REC Engineer: HWW		
Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
▼		0.50 - 0.60	ES1		0.40		Grass over greyish dark brown slightly sandy slightly gravelly CLAY with occasional rootlets. Sand is fine to coarse. Gravel is angular to subrounded fine to coarse flint. [TOPSOIL]	1
		0.50 - 1.00	B1					
		1.00	D1		1.20		Brownish light grey mottled orangeish brown slightly sandy slightly gravelly CLAY. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse flint and quartzite. [KESGRAVE CATCHMENT SUBGROUP] <i>Between 1.40 and 1.50mbgl: Claystone.</i> <i>From 1.50mbgl: Sandy.</i>	
		1.00 - 1.10	ES2					
		1.50	D2		1.80		End of Borehole at 1.80m	2
								3
								4

Remarks:

Location cleared for services using a Cable Avoidance Tool [CAT]. Groundwater encountered as a seepage at 0.40mbgl. Location terminated at 1.80mbgl due to trial pit collapse. Location backfilled with arisings in reverse order and made safe upon completion.

Stability: Unstable

Pit Dimensions

Length: 3.10
Width: 0.51
Depth: 1.80





Trial Pit Log

Borehole No.

TP206

Sheet 1 of 1

Project Name:	Land East of Richard Avenue	Proj. ID:	1CO108570	Easting:	604498.00	Hole Type:	TP
Location:	Wivenhoe, Essex	Plant:	TB290	Northing:	223235.00	Scale:	1:20
Client:	Taylor Wimpey East London	Crew:	Holmes Plant & Construction Ltd	Level (m AOD):		REC Engineer:	HWW
				Final Depth (m):	2.00		
				Start Date:	22/01/2020		
				End Date:	22/01/2020		

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
▼		0.20 - 0.30	ES1		0.40		Grass over brownish dark grey slightly gravelly sandy CLAY with occasional rootlets. Sand is fine to coarse. Gravel is subangular to well rounded fine to coarse flint. [TOPSOIL]	1	
		0.50 - 1.00	B1						Light greyish brown mottled orangeish brown slightly gravelly sandy CLAY. Sand is medium to coarse. Gravel is subangular to well rounded fine to coarse flint. [COVER SAND]
		0.60 - 0.70	ES2		1.10			Light grey and orangeish brown clayey very sandy GRAVEL. Sand is medium to coarse. Gravel is rounded to well rounded fine to coarse flint. [KESGRAVE CATCHMENT SUBGROUP]	
		1.20 - 1.30	ES3				2.00		
	1.20 - 1.50	B2						3	
								4	

Remarks: Location cleared for services using a Cable Avoidance Tool [CAT]. No groundwater as a seepage at 1.10mbgl. Location terminated at 2.00mbgl, backfilled with arisings in reverse order and made safe upon completion. Stability: Stable	Pit Dimensions (m)		
	Length:	3.25	
	Width:	0.60	
	Depth:	2.00	



Trial Pit Log

Borehole No.

TP207

Sheet 1 of 1

Project Name:	Land East of Richard Avenue	Proj. ID:	1CO108570	Easting:	604554.00	Hole Type:	TP
Location:	Wivenhoe, Essex	Plant:	TB290	Northing:	223195.00	Scale:	1:20
Client:	Taylor Wimpey East London	Crew:	Holmes Plant & Construction Ltd	Level (m AOD):		REC Engineer:	HWW
				Final Depth (m):	2.55		
				Start Date:	22/01/2020		
				End Date:	22/01/2020		

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
							Grass over greyish dark brown slightly sandy slightly gravelly CLAY with occasional rootlets. Sand is fine to coarse. Gravel is subangular to well rounded fine to coarse flint and rare quartzite. [TOPSOIL]		
		0.50 - 0.60	ES1		0.45		Brown gravelly sandy CLAY. Sand is medium to coarse. Gravel is subangular to rounded fine to coarse flint. [KESGRAVE CATCHMENT SUBGROUP]		
		0.80 - 1.00	B1		0.80		Orange slightly clayey gravelly SAND. Sand is medium to coarse. Gravel is angular to subrounded fine to coarse flint. [KESGRAVE CATCHMENT SUBGROUP]	1	
		0.90 - 1.00	ES2				..From 1.10mbgl: Frequent clay lenses.		
		1.10	D1						
					1.40		Light blueish grey mottled orange slightly gravelly sandy CLAY. Sand is medium to coarse. Gravel is subangular to rounded fine to coarse flint. [KESGRAVE CATCHMENT SUBGROUP]		
		2.00 - 2.55	B2		1.90		Orangeish light brown mottled light grey slightly gravelly SAND. Sand is fine to medium. Gravel is subangular to subrounded fine to medium flint. [KESGRAVE CATCHMENT SUBGROUP]	2	
							..From 2.40mbgl: Light grey to cream.		
					2.55		End of Borehole at 2.55m	3	
								4	

Remarks: Location cleared for services using a Cable Avoidance Tool [CAT]. No groundwater encountered. Location terminated at 2.55mbgl, backfilled with arisings in reverse order and made safe upon completion.	Stability: Stable	Pit Dimensions (m) Length: 3.15 Width: 0.65 Depth: 2.55	



Borehole Log

Borehole No.

WS101

Sheet 1 of 1

Project Name:	Land East of Richard Avenue	Proj. ID:	1CO108570	Easting:	604502.00	Hole Type:	WLS
Location:	Wivenhoe, Essex	Plant:	Archway Dart	Northing:	223197.00	Scale:	1:30
Client:	Taylor Wimpey East London	Crew:	Borehole Solutions North Ltd	Level (m AOD):		REC Engineer:	HWW / AB
				Final Depth (m):	4.00		
				Start Date:	17/12/2019		
				End Date:	17/12/2019		

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		0.10 - 0.20	ES1		0.35		Grass over very soft dark brown slightly sandy slightly gravelly CLAY with occasional rootlets. Sand is fine to medium. Gravel is subangular to subrounded fine to medium flint.		
		0.20 - 0.30	D1						
		0.40 - 0.60	B1		0.70		Dark brown slightly sandy slightly gravelly CLAY with low cobble content. Sand is fine to medium. Gravel is subangular to rounded fine to medium flint. Cobbles are rounded flint.		
		0.50 - 0.60	D2						
		0.50 - 0.60	ES2						
		0.80 - 0.90	D3						
		0.80 - 1.20	B2		1.65		Medium dense light grey and orangeish brown slightly gravelly SAND. Sand is fine to medium. Gravel is subangular to subrounded fine to medium flint.		
		0.90 - 1.00	ES3						
		1.20	SPT	N=35 (5,8/7,10,9,9)					
		1.40 - 1.50	ES4		2.10		Stiff light grey with light brown mottling sandy CLAY. Sand is fine to medium.		
		1.50 - 1.60	D4						
		1.90 - 2.00	D5		3.00		Medium dense light brown and yellowish brown SAND. Sand is fine to medium.		
		2.00	SPT	N=23 (4,6/6,5,5,7)					
		2.20 - 2.30	D6						
		2.50 - 3.00	B3						
	3.00	SPT	N=13 (2,2/3,2,3,5)	4.00		Between 2.75 and 2.85mbgl: Brown slightly clayey SAND. Sand is fine to medium.			
	3.20 - 3.30	D7							
	3.90 - 4.00	D8				Between 3.00 and 3.40mbgl: Light brown.			
						From 3.80mbgl: Gravelly. Gravel is sub-rounded fine to coarse flint.			
						End of Borehole at 4.00m			

Remarks:
 Location cleared for services using a Cable Avoidance Tool [CAT]. Inspection pit hand excavated to 1.20mbgl to clear for shallow services. No groundwater encountered. Location backfilled with arisings in reverse order and made safe upon completion.



Borehole Log

Borehole No.

WS102

Sheet 1 of 1

Project Name:	Land East of Richard Avenue	Proj. ID:	1CO108570	Easting:	604521.00	Hole Type:	WLS
Location:	Wivenhoe, Essex	Plant:	Archway Dart	Northing:	223120.00	Scale:	1:30
Client:	Taylor Wimpey East London	Crew:	Borehole Solutions North Ltd	Level (m AOD):		REC Engineer:	HWW / AB
				Final Depth (m):	3.00		
				Start Date:	17/12/2019		
				End Date:	17/12/2019		

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
[Pattern]	▼	0.20 - 0.30	ES1		0.35	[Pattern]	Grass over very soft greyish brown slightly sandy slightly gravelly CLAY with occasional rootlets. Sand is fine to medium. Gravel is subangular to subrounded fine to coarse flint and quartzite.	1 2 3 4 5 6	
		0.40 - 0.80	B1				[TOPSOIL]		
		0.50 - 0.60	D1				Brown slightly gravelly clayey SAND. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse flint and quartzite.		
		0.50 - 0.60	ES2		[KESGRAVE CATCHMENT SUBGROUP]				
		0.80 - 0.90	ES3		0.90	[Pattern]	Medium dense light grey and orangeish brown slightly gravelly SAND with clay lenses. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse flint.		
		1.00 - 1.10	D2				[KESGRAVE CATCHMENT SUBGROUP]		
		1.00 - 1.10	ES4				.From 1.00mbgl: Very clayey.		
		1.00 - 1.50	B2		1.75	[Pattern]	.From 1.25mbgl: Orangeish brown with rare light grey mottling.		
		1.20	SPT	N=23 (3,5/5,6,7)			Light grey with rare orangeish brown mottling sandy CLAY. Sand is fine to medium.		
		1.80 - 1.90	D3		2.00	[Pattern]	[KESGRAVE CATCHMENT SUBGROUP]		
2.00 - 2.10	D4		Dense brown slightly sandy slightly gravelly CLAY. Sand is fine to medium. Gravel is subangular to rounded fine to medium flint.						
2.00	SPT	N=40 (6,9/10,9,10,11)	3.00	[Pattern]	[KESGRAVE CATCHMENT SUBGROUP]				
2.50 - 2.60	D5				.From 2.20mbgl: Light grey with orangeish brown mottling.				
2.80	D6				.Between 2.40 and 2.65mbgl: Light brown fine to medium SAND.				
2.85			.From 2.65mbgl: Gravelly. Gravel is sub-rounded fine to medium flint.						
2.90 - 3.00			.Between 2.80 and 3.00mbgl: Stiff sandy CLAY.						
2.90			Sand is fine to coarse.						
3.00	SPT	HVP=101 HVP=110 HVP=90 48 (10,23/48 for 225mm)			End of Borehole at 3.00m				

Remarks:
 Location cleared for services using a Cable Avoidance Tool [CAT]. Inspection pit hand excavated to 1.20mbgl to clear for shallow services. Groundwater encountered as a seepage at 2.00mbgl. Location terminated at 3.00mbgl due to SPT refusal. Location backfilled with arisings in reverse order and made safe upon completion.



Borehole Log

Borehole No.

WS103

Sheet 1 of 1

Project Name:	Land East of Richard Avenue	Proj. ID:	1CO108570	Easting:	604566.00	Hole Type:	WLS
Location:	Wivenhoe, Essex	Plant:	Archway Dart	Northing:	223077.00	Scale:	1:30
Client:	Taylor Wimpey East London	Crew:	Borehole Solutions North Ltd	Level (m AOD):		REC Engineer:	HWW / AB
				Final Depth (m):	3.00		
				Start Date:	17/12/2019		
				End Date:	17/12/2019		

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		0.20 - 0.30	ES1		0.35		Grass over soft dark brown slightly sandy slightly gravelly CLAY with occasional rootlets. Sand is fine to medium. Gravel is subangular to subrounded fine to medium flint.		
		0.50 - 0.60	ES2				[TOPSOIL]		
		0.70 - 1.20	B1		0.70		Brown slightly gravelly SAND. Sand is fine to medium. Gravel is subangular to subrounded fine to medium flint.		
		0.80 - 0.90	ES3				[KESGRAVE CATCHMENT SUBGROUP]		
		1.00		HVP=80	1.30		Firm to stiff blueish light grey mottled orangeish brown slightly sandy CLAY. Sand is fine.		
		1.10 - 1.20	D1				[KESGRAVE CATCHMENT SUBGROUP]		
		1.10		HVP=100					
		1.20	SPT	N=24 (5,3/4,5,7,8)					
		1.25		HVP=91	1.60 - 1.70		Dense orangeish brown mottled blueish light grey slightly clayey SAND. Sand is fine to coarse.		
			D2				[KESGRAVE CATCHMENT SUBGROUP]		
		2.00	SPT1		2.60		<u>From 1.60mbgl: Orangeish brown.</u>		
	2.00	SPT		<u>Between 1.80 and 1.90mbgl: Blueish light grey.</u>					
	2.10 - 2.20	D3	N=36 (6,9/9,8,10,9)	<u>Between 2.00 and 2.30mbgl: Slightly gravelly. Gravel is rounded medium flint.</u>					
		2.80 - 2.90	D4		3.00		Very dense brown slightly gravelly SAND. Sand is fine to medium. Gravel is angular to subrounded fine to medium flint.		
	3.00	SPT2		[KESGRAVE CATCHMENT SUBGROUP]					
	3.00	SPT	N=50 (5,9/13,15,19,3)				End of Borehole at 3.00m		

Remarks:
 Location cleared for services using a Cable Avoidance Tool [CAT]. Inspection pit hand excavated to 1.20mbgl to clear for shallow services. No groundwater encountered. Location terminated at 3.00mbgl due to SPT refusal. 50mm internal diameter groundwater monitoring standpipe installed to 3.00mbgl and finished with a flush fitting cover set in concrete.



Borehole Log

Borehole No.

WS104

Sheet 1 of 1

Project Name:	Land East of Richard Avenue	Proj. ID:	1CO108570	Easting:	604570.00	Hole Type:	WLS
Location:	Wivenhoe, Essex	Plant:	Archway Dart	Northing:	223207.00	Scale:	1:30
Client:	Taylor Wimpey East London	Crew:	Borehole Solutions North Ltd	Level (m AOD):		REC Engineer:	HWW / AB
				Final Depth (m):	3.00		
				Start Date:	18/12/2019		
				End Date:	18/12/2019		

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		0.20 - 0.30	D1		0.40		Grass over soft dark brown slightly sandy slightly gravelly CLAY with occasional rootlets. Sand is fine to medium. Gravel is angular to subrounded fine to coarse flint.	1	
		0.30 - 0.40	ES1				[TOPSOIL]		
		0.50 - 0.60	D2		0.60		Brown slightly gravelly sandy CLAY. Sand is fine to coarse. Gravel is subangular to subrounded fine to medium flint.	1	
		0.50 - 0.60	ES2				[COVER SAND]		
		0.70 - 0.80	ES3		1.00		Orangeish brown mottled light grey slightly gravelly sandy CLAY. Sand is fine to medium. Gravel is angular to subrounded fine to medium flint.	1	
		0.70 - 1.00	B1				[KESGRAVE CATCHMENT SUBGROUP]		
		0.80 - 0.90	D3				<i>From 0.85mbgl: Gravelly.</i>		
		1.10 - 1.20	D4		1.40		Dense orangeish brown gravelly SAND. Sand is medium to coarse. Gravel is angular to subrounded fine to coarse flint.	2	
		1.20	SPT1	N=41 (9,13/13,11,9,8)			[KESGRAVE CATCHMENT SUBGROUP]		
		1.20	SPT		1.60		Stiff light grey with orangeish brown mottling slightly gravelly sandy CLAY. Sand is fine to medium. Gravel is subangular to rounded fine to coarse flint.	2	
		1.40 - 1.50	D5				[KESGRAVE CATCHMENT SUBGROUP]		
		1.55		HVP=105	2.30		Dense yellowish brown slightly clayey SAND. Sand is fine to medium.	2	
		1.70 - 1.80	D6				[KESGRAVE CATCHMENT SUBGROUP]		
		1.90 - 2.15	B2		3.00		<i>From 1.90mbgl: Light brown to cream.</i>	3	
		2.00	SPT	N=45 (7,9/9,9,12,15)			[KESGRAVE CATCHMENT SUBGROUP]		
	2.40 - 2.50	D7		3.00		<i>From 2.15mbgl: Yellowish brown.</i>	3		
	3.00	SPT2	N=50 (6,6/14,14,19,3)			[KESGRAVE CATCHMENT SUBGROUP]			
	3.00	SPT				<i>From 2.80mbgl: Brown.</i>			
						<i>From 2.90mbgl: Light grey with rare orangeish brown mottling.</i>			
						End of Borehole at 3.00m			

Remarks:
 Location cleared for services using a Cable Avoidance Tool [CAT]. Inspection pit hand excavated to 1.20mbgl to clear for shallow services. No groundwater encountered. Location terminated at 3.00mbgl due to SPT refusal. 50mm internal diameter groundwater monitoring standpipe installed to 3.00mbgl and finished with a flush fitting cover set in concrete.



Borehole Log

Borehole No.

WS105

Sheet 1 of 1

Project Name:	Land East of Richard Avenue	Proj. ID:	1CO108570	Easting:	604570.00	Hole Type:	WLS
Location:	Wivenhoe, Essex	Plant:	Archway Dart	Northing:	223244.00	Scale:	1:30
Client:	Taylor Wimpey East London	Crew:	Borehole Solutions North Ltd	Level (m AOD):		REC Engineer:	HWW / AB
				Final Depth (m):	2.00		
				Start Date:	18/12/2019		
				End Date:	18/12/2019		

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		0.20 - 0.30	D1		0.30				
		0.20 - 0.30	ES1						
		0.30 - 0.60	B1		0.60				
		0.40 - 0.50	D2						
		0.40 - 0.50	ES2		0.80				
		0.70 - 0.80	D3						
		0.70 - 0.80	ES3		1.20				
		1.10 - 1.20	ES4						
		1.20 - 1.70	B2		1.70				
		1.20	SPT	N=33 (7,7,12,10,6,5)					
1.90 - 2.00	D4		2.00						
2.00	SPT	N=50 (11,10/15,11,13,11)							

Remarks:
 Location cleared for services using a Cable Avoidance Tool [CAT]. Inspection pit hand excavated to 1.20mbgl to clear for shallow services. Groundwater encountered as a seepage at 0.65mbgl, rising to 0.49mbgl after 60 minutes. Location terminated at 2.00mbgl due to SPT refusal and borehole collapse. 50mm internal diameter groundwater monitoring standpipe installed to 1.50mbgl and finished with a flush fitting cover set in concrete.



Borehole Log

Borehole No.

WS106

Sheet 1 of 1

Project Name:	Land East of Richard Avenue	Proj. ID:	1CO108570	Easting:	638951.00	Hole Type:	WLS
Location:	Wivenhoe, Essex	Plant:	Archway Dart	Northing:	279338.00	Scale:	1:30
Client:	Taylor Wimpey East London	Crew:	Borehole Solutions North Ltd	Level (m AOD):		REC Engineer:	HWW / AB
				Final Depth (m):	2.00		
				Start Date:	18/12/2019		
				End Date:	18/12/2019		

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		0.20 - 0.30	D1		0.30			Grass over dark brown slightly gravelly sandy CLAY with occasional rootlets. Sand is fine to coarse. Gravel is angular to subrounded fine to coarse flint. [TOPSOIL]	
		0.20 - 0.30	ES1						
		0.40 - 0.50	D2		1.15			Greyish brown mottled orangeish brown slightly gravelly clayey SAND. Sand is fine to coarse. Gravel is angular to subrounded fine to coarse flint. [KESGRAVE CATCHMENT SUBGROUP]	
		0.40 - 0.50	ES2						
		0.40 - 0.80	B1		1.65			Dense light grey to brown slightly clayey sandy GRAVEL. Sand is fine to coarse. Gravel is angular to subrounded fine to coarse flint. [KESGRAVE CATCHMENT SUBGROUP]	
		0.70 - 0.80	D3						
		0.70 - 0.80	ES3		2.00			Stiff to very stiff grey with rare orangeish brown mottling slightly sandy CLAY. Sand is fine. [KESGRAVE CATCHMENT SUBGROUP] <i>From 1.65mbgl: Slightly sandy.</i>	
		1.10 - 1.65	B2						
		1.20 - 1.30	D4		2.00			End of Borehole at 2.00m	
		1.20	SPT	N=32 (9,13/11,7,7,7)					
		1.70 - 1.80	D5		2.00				
		1.70		HVP=130					
1.75		HVP=128	2.00						
1.80		HVP=130							
1.90 - 2.00	D6		2.00						
1.90		HVP=130							
1.95		HVP=130	2.00						
2.00	SPT	N=50 (12,17/11,15,16,8)							

Remarks:
 Location cleared for services using a Cable Avoidance Tool [CAT]. Inspection pit hand excavated to 1.20mbgl to clear for shallow services. Groundwater encountered as a strike at 0.35mbgl. Location terminated at 2.00mbgl due to drilling rig sinking into soft ground. 50mm internal diameter groundwater monitoring standpipe installed to 1.50mbgl and finished with a flush fitting cover set in concrete.



Borehole Log

Borehole No.

WS107

Sheet 1 of 1

Project Name:	Land East of Richard Avenue	Proj. ID:	1CO108570	Easting:	604648.00	Hole Type:	WLS
Location:	Wivenhoe, Essex	Plant:	Archway Dart	Northing:	223282.00	Scale:	1:30
Client:	Tayloe Wimpey East London	Crew:	Borehole Solutions North Ltd	Level (m AOD):		REC Engineer:	HWW / AB
				Final Depth (m):	1.20		
				Start Date:	18/12/2019		
				End Date:	18/12/2019		

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description		
		Depth (m)	Type	Results						
		0.20 - 0.30	ES1		0.30			Grass over dark greyish brown slightly sandy slightly gravelly CLAY with occasional rootlets. Sand is fine. Gravel is angular to rounded fine to coarse flint. [TOPSOIL]		
		0.30 - 0.60	B1							
		0.40 - 0.50	ES2							
		0.50 - 0.60	D1		0.60					Orangeish brown and greyish brown slightly sandy slightly gravelly CLAY. Sand is fine to medium. Gravel is subrounded to rounded fine to coarse flint. [COVER SAND]
		0.60 - 1.00	B2							
		0.80 - 0.90	ES3							
		0.90 - 1.00	D2							
1.00	SPT1									
1.20	SPT	N=50 (10,13/10,12,14,14)	1.20	Dense to very dense brown gravelly SAND. Sand is medium to coarse. Gravel is angular to rounded fine to coarse flint and quartzite. [KESGRAVE CATCHMENT SUBGROUP] From 1.00mbgl: <i>Brownish grey with rare orangeish brown mottling.</i> End of Borehole at 1.20m						

Remarks:
 Location cleared for services using a Cable Avoidance Tool [CAT]. Inspection pit hand excavated to 1.20mbgl to clear for shallow services. Groundwater encountered as a strle at 0.40mbgl, rising to 0.30mbgl after 30 minutes. Location terminated at 1.20mbgl due to SPT refusal. Location backfilled with arisings in reverse order and made safe upon completion.



Borehole Log

Borehole No.

WS108

Sheet 1 of 1

Project Name:	Land East of Richard Avenue	Proj. ID:	1CO108570	Easting:	604513.00	Hole Type:	WLS
Location:	Wivenhoe, Essex	Plant:	Archway Dart	Northing:	223267.00	Scale:	1:30
Client:	Taylor Wimpey East London	Crew:	Borehole Solutions North Ltd	Level (m AOD):		REC Engineer:	HWW / AB
				Final Depth (m):	1.50		
				Start Date:	18/12/2019		
				End Date:	18/12/2019		

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
[Pattern]		0.20 - 0.30	ES1		0.35	[Pattern]	Grass over dark grey slightly sandy slightly gravelly CLAY with occasional rootlets. Sand is fine to medium. Gravel is angular to subrounded fine to coarse flint and chert.	1	
		0.50 - 0.60	ES2				[Pattern]		[TOPSOIL]
		0.50 - 1.00	B2		[Pattern]	Very dense orangeish brown and light grey very clayey very sandy GRAVEL. Sand is fine to coarse. Gravel is angular to rounded fine to coarse flint, quartzite and chert. [KESGRAVE CATCHMENT SUBGROUP]			
		1.00	SPT1		[Pattern]	From 1.00mbgl: Very gravelly.			
		1.00 - 1.50	D1		[Pattern]				
		1.20	SPT	50 (14,20/50 for 150mm)	[Pattern]				
	1.40	SPT2		1.50	[Pattern]		2		
	1.50	SPT	50 (23,24/50 for 150mm)			[Pattern]		End of Borehole at 1.50m	
								3	
								4	
								5	
								6	

Remarks:
 Location cleared for services using a Cable Avoidance Tool [CAT]. Inspection pit hand excavated to 1.20mbgl to clear for shallow services. No groundwater encountered. Location terminated at 1.50mbgl due to SPT refusal. Location backfilled with arisings in reverse order and made safe upon completion.