



CP Logistics UK Reading Propco Limited
Theale
Reading
Mineral Resource Assessment



# **ENVIRONMENT**

CP Logistics UK Reading Propco Limited
Theale
Reading
Mineral Resource Assessment

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August 2023



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# 1. INTRODUCTION

#### Instruction

- 1.1 This report has been produced in support of a planning application for land at the Hoad Way, Theale.
- 1.2 The development comprises a full planning application for the construction of 2 employment units for flexible uses within Class E (light industrial), B2 and/or B8 of the Use Classes Order (including ancillary office provision) with associated enabling works, access from Hoad Way, parking, and landscaping. The plans are presented as **Appendix 1**.
- 1.3 The application site lies within a Mineral Safeguarding Area (MSA), and mineral resource mapping available to Berkshire County Council indicates that there may be construction aggregates underlying the site.

#### Scope of Work

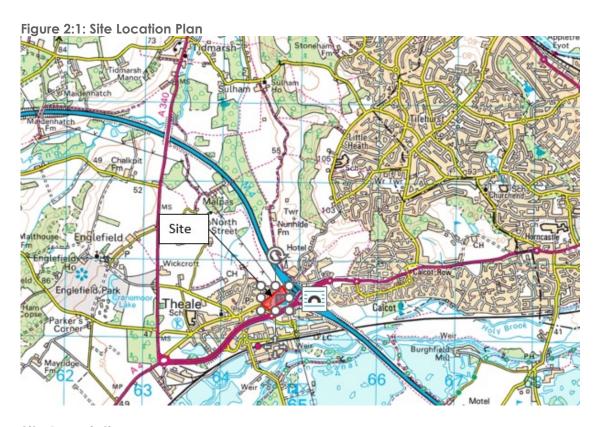
- 1.4 A Mineral Resource Assessment is required for the application site encompassing intrusive investigation. Consideration should be given to whether prior extraction or part prior extraction are feasible where a viable resource is found to be underlying the site.
- 1.5 The Minerals Resource Assessment should provide the following information as further detailed below:
  - The type of mineral resource(s) thought to be present;
  - the potential extent of sterilisation which could occur as a result of the development in terms of tonnage;
  - Economic value and viability of the mineral, i.e., the market interest;
  - Site specific considerations that may affect feasibility or acceptability of extraction from the Site; and
  - Potential options for prior or part prior extraction including the amount that could be extracted, nearby operators that could extract and process the material, or opportunities for on-site use.



# 2. THE SITE

#### **Site Location**

2.1 The site is located off Hoard Way, Theale, Reading located at national grid reference 464810, 171413. The location of the site is shown in **Figure 2:1.** 



#### **Site Description**

- 2.2 The layout of the site with the main features is presented as **Drawing 1**.
- 2.3 The site is a broadly rectangular shaped field covering an area of 5.5 hectares. The site is broadly flat, with minor elevation fluctuations ranging between 45m above ordinance datum (AOD) in the north west and 44m AOD in the south east.
- 2.4 The field was left to grass at the time of the walkover (September 2018) with knee-high vegetation growth. An area of hummocky vegetation was present in the south west corner of the site, deep ruts were noted in this location indicating that it was prone to being boggy. Within the southern and western boundaries, areas of dense vegetation were present. An electricity pylon is located in the east of the site.
- 2.5 The site boundary was formed by fencing along the western and southern boundaries, dense tree growth to the east, and a mixture of fencing and hedgerows along the northern boundary. Beyond the boundary, steep embankments lead to the M4 slip road to the north east and A4 to the south east, with smaller embankments leading up to Hoad Way to the south west and High Street to the north west. A garage, offices and a



contractor storage compound are located immediately adjacent to the north western boundary, whilst an electricity substation is located adjacent to the site entrance in the northern corner of the site.

- 2.6 Further afield, overgrown scrubland and residential premises are present to the north, retail premises are located beyond the M4 to the east, the village of Theale is located to the west, and commercial premises are located to the south.
- 2.7 Access to the site was gained through an open entry in the northern corner of the site, with a locked gate halfway along the north western boundary.

### **Site History**

- 2.8 The site has historically remained largely undeveloped, with some minor buildings located in the west of the site. Some minor watercourses used to be present along the southern, western, and central areas of the site which have likely been infilled.
- 2.9 Off site, two garages and a possible petrol filling station have been located adjacent to the north west boundary. The site boundaries have been embanked following development of the M4 (east) and A4 (south).

#### **Previous Reports**

- 2.10 BWB have previously undertaken the following reports, which discuss the ground conditions at the site:
  - BWB Consulting Ltd for CP Logistics UK Reading Propco Limited, Theale, Reading, Phase 1 and 2 Geo-Environmental Assessment; Reference THR-BWB-ZZ-XX-RP-YE-0001\_Ph1&2, P8, dated July 2023.
- 2.11 It is assumed that the reader has familiarity with the above report and as such information has been included within this report, where relevant.

#### Phase 1 and 2 Geo-Environmental Assessment Report

2.12 The Phase 2 report incorporated ground investigation data acquired from 16 trial pits, 4 dynamic sampler boreholes, 6 cable percussive boreholes, 2 gas and groundwater monitoring visits and geotechnical and chemical analysis of soils. An exploratory hole location plan is presented as **Drawing 2**. Copies of the logs and gas and ground water monitoring results are presented as **Appendices 2** and **3** respectively.



### 3. GROUND CONDITIONS

#### **Published Information**

- 3.1 British Geological Survey (BGS) published geological mapping, including the BGS 1:50,000 Solid and Drift Sheet 268, Reading, dated 2000 and the online BGS Geology of Britain viewer, indicate that the site is underlain by Alluvial deposits (clay, silt, sand and gravel) across the majority of the site, excluding the north west corner. The Beenham Grange Gravel (sand and gravel) is mapped in the north west corner of the site and could potentially be present underlying the Alluvial deposits. The Langley Silt Member (clay and silt) is mapped marginally encroaching within the site's eastern extents.
- 3.2 The bedrock geology is indicated to comprise the Seaford Chalk Formation, described as firm white chalk with conspicuous semi-continuous nodular and tabular flint seams. Hard grounds and thin marls are known from the lowest beds. Some flint nodules are large to very large.

#### Phase 2 Geo-Environmental Report

3.3 The ground conditions recorded confirmed the published geology as discussed above, comprising Topsoil over Alluvium, over Beenham Sands and Gravels, over the Seaford Chalk Formation, with the Alluvium locally absent in the north west of the site. Limited Made Ground was encountered at the site. A cross section through the site is presented as **Drawing 3**.

#### Topsoil/ Made Ground

- 3.4 Topsoil was encountered in all investigation locations to thickness of between 0.2m and 0.45m thick. The stratum was commonly encountered as clayey, gravelly sand, or sandy, gravely clay with frequent rootlets.
- 3.5 Gravels were commonly recorded as angular to rounded flint and quartzite, however rare coal and tile inclusions were also noted, leading to it being described as Made Ground.
- 3.6 Elsewhere on site, Made Ground was sporadically encountered. Within TP11, a slightly sandy slightly gravelly clay with organic relics was encountered from 0.35m to 1.1m, however barrier tape was noted at 0.9m. Given the location next to an old drain, and the sub-horizontal interface of the underlying gravels, it is considered likely that the material is reworked Alluvial deposits utilised to infill the drainage channel.
- 3.7 Within TP04, ground conditions were recorded as gravelly clayey sand over sandy clayey gravel. Whilst no obvious anthropogenic impact was noted in the material, it was the only location on site where granular material was located above the cohesive Alluvium. Given its location in an area where an old water course was located, it was hypothesised that the granular material was reworked natural deposits used to infill the river channel.



### Alluvium

- 3.8 Alluvial deposits were recorded in the majority of exploratory hole locations across the site, excluding DS02 DS04 in the north west of the site. The Alluvium was encountered directly under the Topsoil/Made Ground and proven to depths of between 0.5m and 2.1m below ground (bgl).
- 3.9 The Alluvium was commonly encountered as a soft or very soft (occasionally firm) gravelly sandy clay with varying inclusions of organic relics. The inclusions of organic relics ranged from occasional to frequent and abundant in the areas in close proximity to former watercourses/ drains. The Alluvium was occasionally encountered as peaty clay (BH06 0.3m to 1.55m; TP09 0.7m to 1.5m; TP16 0.75m to 0.9m) or an organic clay (TP02 0.3m to 0.7m; TP03 0.3m to 0.8m; TP05 0.4m to 0.7m; TP12 0.35m to 0.9m; TP16 0.45m to 0.75m).

# Beenham Sand and Gravel Member

- 3.10 The Beenham Sand and Gravel Member was recorded in all locations across the site, encountered from between 0.25m bgl and 2.1m bgl. Where the extent of the gravels was proven in the cable percussive boreholes, the thickness ranged from 1.0m in BH06 to 5.3m in BH04.
- 3.11 The material was commonly encountered as slightly sandy, occasionally slightly clayey gravel of flint and occasional chalk. Standard Penetration Testing (SPT) N60 values within the strata ranged from 6 to 27, indicative of a loose to medium dense material The SPT N60 values were quite varied, however display a general increase with depth.

#### Seaford Chalk Formation

3.12 The chalk was encountered underlying the gravels in all cable percussive boreholes, at depths ranging from 3.0m to 6.5m bgl. The stratum was initially encountered as a very soft or soft gravelly clay with gravels of weak chalk and occasional flint. The strata became more competent with depth and was encountered as a slightly silty gravel (flint and chalk) from depths of between 4.0m bgl (BH02) and 6.5m bgl (BH04).

#### **Ground Model**

3.13 The recorded ground conditions are summarised in **Table 3:1** below.

Table 3:1: Summary of Ground Conditions

Stratum	Top De	pth (m)	Base D	epth (m)	Thickne	ess (m)	SPT N Value		
	Min	Max	Min	Max	Min	Max	Min	Max	
Topsoil	G	)L	0.20	0.45	0.20	0.45	NR	NR	
Made Ground	G	)L	0.25	1.10	0.25	1.10	NR	NR	
Alluvium	0.20	0.90	0.50	2.10	0.10	1.70	12*	13*	
Beenham Grange Gravel Member			3.00	6.50	1.00	5.30	5	21	



Stratum	Top De	pth (m)	Base D	epth (m)	Thickne	ess (m)	SPT N Value		
	Min	Max	Min	Max	Min	Max	Min	Max	
Seaford Chalk Formation	3.00	6.50	10.00	10.00	>3.50	>7.00	0	17	
*	SPTs impo	acted by u	underlyin	g granular	material				

# Hydrogeology

- 3.14 During the investigation, groundwater was encountered within the Beenham Gravel and Sand Member at all exploratory hole locations at depths of between 1.0m and 2.0m bgl. Additionally, a perched pocket of groundwater was identified at 0.4m bgl in TP04 within Made Ground.
- 3.15 During the groundwater monitoring, resting groundwater levels were recorded between 0.53m bgl and 2.0m bgl, which correlates to between 43.42m and 43.64m AOD. An inferred groundwater flow diagram is presented as **Drawing 4**, indicating general groundwater flow is towards the east. The boreholes have response zones predominantly within the gravels; however, a response zone was also located within the Alluvium and chalk also. Therefore, the monitoring indicates that the groundwater bodies at the site are in hydraulic continuity with each other.
- 3.16 Groundwater levels appear quite consistent across the site, and in areas of increased Alluvium thickness, groundwater levels were noted to rise above the levels of the gravels indicating that the Alluvium is locally confining the underlying aquifer.

### **Contamination Observations**

- 3.17 No visual or olfactory evidence of contamination was identified during the ground investigation.
- 3.18 During the gas and groundwater monitoring, marginally elevated PID readings of 24.4ppm and 64.2ppm were recorded within DS01 and DS03.



### 4. SAND AND GRAVEL MINERAL RESOURCE

### **Background**

- 4.1 The site is located within a Minerals Safeguarding Area (MSA) as identified in West Berkshire Council Minerals and Waste Local Plan (2022 2037) (MWLP).
- 4.2 Policy 9 of the MWLP states that:
  - "Minerals Safeguarding

'Minerals Safeguarding Areas' (MSAs) have been defined which safeguard the following from sterilisation by non-mineral development:

- a. Known construction aggregate mineral deposits(31);
- b. Existing (including those with planning permission yet to be implemented) and allocated mineral extraction sites;

In addition, the following Minerals Infrastructure is safeguarded against development that would unnecessarily prevent or prejudice the operation of the infrastructure:

c. Potential, planned and existing minerals associated infrastructure, including rail sites and mineral processing plant sites.

Non-mineral development in Minerals Safeguarding Areas or affecting Minerals Safeguarded Infrastructure may be considered acceptable in the following circumstances:

- d. The proposal would not prejudice or detrimentally affect the extraction of underlying mineral resources, or the operation of a planned or existing mineral extraction site, or the operation of potential, planned or existing minerals associated infrastructure; or
- e. It can be demonstrated that the underlying mineral is of no economic, or potential economic value, or that the mineral could not be extracted from the site for other valid planning reasons; or
- f. Where a mineral resource underlies a prospective development site and prior extraction, or partial prior extraction of the mineral resources can be undertaken in advance of, or as part of, the proposed development; or
- g. It can be demonstrated that the need for the proposed development outweighs the need to conserve the mineral resources, or maintain the operational capability of the minerals associated infrastructure; or
- h. The proposed development is aligned with the specifications for a site allocated within an adopted local plan or neighbourhood plan, and the allocation was considered in light of this safeguarding policy."
- 4.3 The purpose of this report is to assess the existing ground conditions at the site with respect to the above criteria and to present this assessment such that the recovery or otherwise of the Sand and Gravel mineral beneath the site can be considered.



### **Potential Sand and Gravel Deposits**

4.4 The ground conditions beneath the site are discussed in detail in **Section 3.0**. An analysis of this data with respect to the granular Beenham Sand and Gravel Member has been undertaken; quantities are based on statistical derivatives and are presented in **Table 4:1** below.

Table 4:1: Statistical Analysis

Element	Mean	Standard Deviation
Overburden Thickness (m)	1.10	0.53
Sand and Gravel Thickness (m)	2.97	1.56
Groundwater depth (m bgl)	1.29	0.54
Sand and Gravel thickness above groundwater (m)	0.16	1.15

- 4.5 Intrusive investigation works have shown that the Alluvium encountered beneath the site is primarily cohesive and has been assumed as part of the overburden. Particle Size Distribution testing of samples of the Beenham Sand and Gravel recorded most samples to have between 10.3% and 2.1% fines, although one sample recorded fins of over 20%.
- 4.6 For quantitative analysis, cohesive elements overlying the mineral have been considered as part of the overburden and would require stripping and on-site storing during any mineral abstraction exercise. **Table 3:1** also indicates the variability in the potential resource available.
- 4.7 The total area of the proposed development is approximately 5.5 hectares. The site final redevelopment levels are approximately 1.0-1.5m above existing levels therefore it is not anticipated that the existing ground will be significantly disturbed. There will be a need to support adjoining land which will reduce the workable area by at least 20%. The resultant potential workable area is therefore some 4.4 hectares.
- 4.8 **Table 4:2** presents the resultant volumes of sand and gravel that could potentially be abstracted from beneath the site. It should be noted that the BGS have suggested that some deposits can be considered uneconomic to abstract if less than 10 hectares in area.

Table 4:2: Potential Extraction Volume of Sand and Gravel

Element	Quantity (m³)
Overburden	48,400
Sand & Gravel (total)	130,680
Sand & Gravel (above groundwater)	7,040

4.9 In order to maximise the quantities of extracted sand and gravel, **Table 4:2** indicates that there would have to be extensive dewatering measures put in place. Given the relatively high permeability of the deposit, such dewatering would lead to significant



additional costs. In addition, the dewatering and associated groundwater drawdown in the local area would run the risk of destabilising nearby structures including the electricity pylon on site and residential properties to the north and west and infrastructure around the site including the M4 motorway to the east. Large excavations / quarrying that may influence the National Highways (NH) asset would need to be done in consultation with HE and would likely require a full site of works in accordance with CD622 to ensure we weren't destabilising their asset.

- 4.10 The groundwater is likely to be in continuity with the underlying Chalk and therefore dewatering may not be practical without installation of deep retaining walls socketed into the Chalk Aquifer.
- 4.11 Utilising four 4 x 2 rigid tipper vehicles with a nominal carrying capacity of some 10 tonnes would result in some 21,000 vehicular movements to and from the site. An additional 21,000 vehicular movements would be required to transport infill material to provide the required finished site levels giving total vehicular movements, in addition to redevelopment traffic, of approximately 42,000 movements. Utilising 8 x 4 rigid tippers, if allowable, would reduce this to some 21,000 movements.



# 5. CONCLUSIONS

- 5.1 Based upon ground investigations undertaken in and around the site, not insignificant deposits of sand and gravel exist, however the following issues of extraction are likely to render the deposit economically and environmentally unviable:
  - Limited suitable / easily accessible resource thickness;
  - High groundwater levels and saturation of the gravel deposit;
  - Dewatering and stability issues, including associated costs; and
  - Vehicular movements and resultant environmental impact.
- 5.2 As such it is concluded that in accordance with Policy 9 (e) of the MWLP the deposit is of little commercial interest and is unlikely to be so in the future. Furthermore, due to the proximity of the M4 and the potential for deep excavations to destabilise the asset that NH would object to extraction of the mineral or limit the extraction to a levels that is economically unviable.
- 5.3 The mineral resource will remain in the ground beyond the life span of the building; therefore, development will not permanently sterilise the resource should it become economically viable to extract in the future.



# **DRAWINGS**



Drawing 1: Site Layout Plan





Drawing 2: Exploratory Hole Location Plan





**Drawing 3: Inferred Geological Cross Section** 

Project Id: NTE2460 Title: Section Line Project Title: Theale, Reading Vertical Scale: 1:64 Location: Theale, Reading Horizontal Scale: 1:1215 Client: First Panattoni Engineer: BH03 BH02 Legend Key BH06 Made Ground TOPSOIL 0.30 Made Ground 44 Made Ground 0.30 0.45 MADE Alluvium GROUND 43 43 Beenham Grange Beenham Grang Sandy CLAY Gravel Member Beenham Grange 1.55 Alluvium Beenham Grange 2.00 Beenham Grange Sandy gravelly Gravel Member 42 42 Beenham Grange Gravel Member Beenham Grange Sandy gravelly Seaford Chalk organic CLAY Formation 41 41 Beenham Grange Seaford Chalk Silty sandy organic CLAY Seaford Chalk Seaford Chalk Silty sandy gravelly CLAY 5.00 Seaford Chalk Sandy organic CLAY 39 39 Seaford Chalk Formation Sandy GRAVEL 38 38 Clayey sandy GRÁVEL Gravelly 37 37 SAND Silty gravelly CLAY 36 36 Gravelly CLAY Silty GRAVEL 35 35 10.00 10.00 33.00 34 34 389.92 68.91 0.00 Chainage (m) 18.19 10.62 Offset (m) 44.22 44.51 44.51 8. 15 Elevation (mAOD)



Drawing 4: Inferred Groundwater Flow Diagram





# **APPENDICES**



Appendix 1: Proposed Site Masterplan

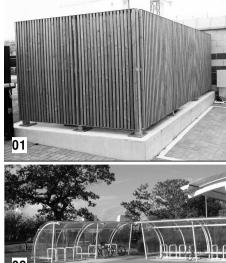


**Boundaries** 

Red Line Boundary

NDA

— Security Fence



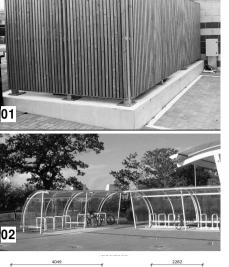
01 WASTE MANAGEMENT STORE Concrete base with 2.4m high timber palisade fencing with galvanized structure. P1 26/07/23 P2 03/08/23 P3 04/08/23 P4 08/08/23

P5 09/08/23

Revised Layout.

Access to Unit 1 moved. Car Park layout updated. ELF Update site layout as per latest comments from Panattoni.

Issued for Planning.



02 BICYCLE STORE Urban Engineering 'Series A' or similar and approved Polycarbonate transparent sheets with polyester powder coated steel frame. Colour: White (BS00E55) Sheffield steel cycle racks or similar and approved to accommodate 10 cycles per shelter.

Arrangement and quantity of Cycle Stands within the Cycle Store area in accordance with planning requirements

Refer to site plan for location and positioning.

03 BOUNDARY SECURITY FENCE



Typical Paladin Fencing:
The perimeter of the service yards will be provided with 2.4m high paladin fencing. Post and panels to be black finish. Fences to be suitably set back from vehicular areas to reduce risk of accidental impact. Fencing / landscaping to be co-ordinated such that a maximum gap beneath fence is 100mm.

04 KNEE RAIL FENCING Made from softwood guaranteed for 25 years. Galvanised strap for longer life 5 year treatment guarantee Height 1.20m with planed finish.



05 DOCK APRON RETAINING WALL External retaining walls to the sides of the dock access will be also of fair faced concrete. Armco barrier galvanised mild steel and handrailing is to be provided adjacent to the retaining wall to level access ramps. The barrier uprights are to be surface fixed to the concrete.



access road, vehicle gate is to be black steel paladin, 2.4m high to BS 1722-12:2006 (including concrete foundations). Gates to hinge open and be able to be held in the open position by providing bolt sleeves. Posts to be square section powder coated black steel with capped tops, cast in concrete bases.

07 AUTO CANTILEVERED SLIDING GATE

2.4m high Paladin automated sliding Gates.



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PANATTONI

Theale, Reading

Waterfront House 2a Smith Way Grove Park Enderby

Leicester LE19 1SX

Drawing Name:

Site Plan

Drawing Stage: Planning Status:

SGP File Ref: 18-095-SGP-ZZ-ZZ-M3-A-00000

Drawing Number: XX-XXX-SGP-ZZ-ZZ-DR-A- 131001 Project Code Originator Volume Level Type Role Number

18-095 26/07/23 ELF MMS As indicated @ A1 **P5** 

**Red Line Boundary** (Hectares) Area (Acres) Site Gross Area 5.43 hectare 13.41 acres 5.43 hectare 13.41 acres

Planning Site Area Schedule Area (Acres) 2.42 acres 0.98 hectare Net Dev Area Unit 2 1.04 hectare 2.58 acres Total Area 2.02 hectare 4.99 acres

**UNIT 1 GIA Area Schedule** 933.06 ft<sup>2</sup> 4,475.16 ft<sup>2</sup> 43,375.58 ft<sup>2</sup> Unit 1 GF Core 86.68 m<sup>2</sup> 415.76 m<sup>2</sup> 4,029.72 m<sup>2</sup> 4,556.45 m<sup>2</sup> Unit 1 Mezzanine Office Unit 1 Warehouse 49,045.27 ft<sup>2</sup>

**UNIT 2 GIA Area Schedule** 261.48 ft<sup>2</sup> 86.68 m<sup>2</sup> 415.76 m<sup>2</sup> 933.06 ft<sup>2</sup> 4,475.16 ft<sup>2</sup> Unit 2 GF Core Unit 2 Mezzanine Office 4,561.56 m<sup>2</sup> 49,100.20 ft<sup>2</sup> Unit 2 Warehouse 54,769.90 ft<sup>2</sup>

**TOTAL GIA** Area (m²) Area (ft²) 9,644.74 m<sup>2</sup> 103,815.17 ft<sup>2</sup> 9,644.74 m<sup>2</sup> 103,815.17 ft<sup>2</sup>

**GEA Schedule** Area (m²) 9,889.97 m<sup>2</sup> 106,454.73 ft<sup>2</sup> Total GEA: 9,889.97 m<sup>2</sup> 106,454.73 ft<sup>2</sup>

SCALE 1:1000



Appendix 2: BWB Exploratory Hole Records

BOREHOLE LOG Scale 1:50 Sheet 1 of 2

LOCATION ID Project Name: Theale, Reading Ground Level (m AOD): 45.43 Project Number: NTE2460 Eastings: 464828.05 **BH01** Client: First Panattoni Northings: 171597.35 Dando 2000 Rig: Engineer: CR Checker: Hole Type: CP Start & End Date: 25/09/2018

Hole Type: (		Danie	do 2000   Start & End Date: 25/09	9/2018			gineer	. (	CR Checker:			
Groundw	vater		Strata			Sampl	es			In-Situ Tests		
Strike Strike Details	Well	Level (m AOD) & [Thickness (m)]	Description	Legend Depth (m bgl)	Type (Ublows)	From (m)	To (m)	Туре	Depth (m)	Result	Casing Depth (Water Leve	
		[0.20] _ 45.23 = [1.40] _	Firm friable light brown slightly silty slightly sandy CLAY with occasional rootlets.  (Topsoil)	0.20	В	0.20	0.50					
		-	Firm friable light brown slightly gravelly sandy CLAY. Gravel is fine to coarse angular to rounded flint.  (Alluvium)		D	0.50	1.00					
1.6m bgl		-			В	1.50	1.50	S	1.20	N=12 (3,2/2,2,3,5)		
1.6m bgl		43.83 - [1.80] <u>-</u>	Medium dense light brown slightly sandy GRAVEL. Gravel is fine to coarse angular to rounded flint. (Beenham Grange Gravel Member)	1.60	D	2.00	2.45	S	2.00	N=20 (3,3/3,5,6,6)	2.00m	
		- - - -									(0.80m bg	
		42.03		3.40	D	3.00	3.00	S	3.00	N=11 (4,3/3,3,3,2)	3.00m (1.00m bg	
		[1.60]	Medium dense light grey slightly sandy GRAVEL. Gravel is fine to coarse angular to rounded flint and chert.  (Beenham Grange Gravel Member)	3.40		4.00	4.00		4.00	N 45 (2.4/4.4.2.4)	4.00	
					D	4.00	4.00	S	4.00	N=15 (3,4/4,4,3,4)	4.00m (2.50m bg	
		40.43 — [5.00]	White slightly silty slightly GRAVEL with moderate cobble content. Gravel is fine to coarse subangular chalk and	5.00	D	5.00	5.00	S	5.00	N=8 (1,2/2,2,2,2)	5.00m (3.10m bg	
		- - - - -	occasional angular to subrounded flint (Seaford Chalk Formation)		В	5.50	5.50					
		- - -						S	6.50	N=9 (2,2/3,2,2,2)	6.50m (3.50m bį	
		-			D	7.00	7.00					
		-			D	8.00	8.00	S	8.00	N=11 (3,3/2,3,2,4)	8.00m (5.20m bg	
					D	9.00	9.00					
		-		*****				S	9.50	N=13 (2,2/2,3,4,4)	9.50m (5.80m bg	
	hiseling				<u> </u>				Lea	end		
		me (hh:mm)	Remarks Reason for Termination:						undwa			

	Chiseling		Remarks		Legend			
From (m bgl)	To (m bgl)	Time (hh:mm)		Sample Type:	Groundwater:	In-Situ Tests		
			Borehole terminated at target depth.	B - Bulk C - Core	Groundwater Strike	C - Cone Penetration Test HSV - Hand Shear Vane		
	Groundwater Remarks:		D - Disturbed ES - Environmental	Resting Groundwater	Test PID - Photo Ionisation Detection Screen			
	Water Added		Groundwater strike not recorded as drillers were adding water to assist drilling. Strike estimated by high groundwater levels recorded during SPT.	Sample	NR = Not	S - Standard Penetration		
From (m bgl)	To (m bgl)	Volume (I)	Other Remarks:	U - Undisturbed	Recorded	Test		
			No visual or olfactory evidence of contamination identified. 2. Borehole installed with 50mm HDPE pipe, rubber bung, gas tap and flush cover.	BWB Consulting Ltd Waterfront House Station Street Nottingham NG2 3DQ	Web: bwbconsulting.com P: 0115 9241100 E: nottingham @bwbconsulting.com	BWB  CONSULTANCY   ENVIRONMEN  INFRASTRUCTURE   BUILDINGS		

BOREHOLE LOG Scale 1:50 Sheet 2 of 2

LOCATION ID	Project Name:	Theale, Reading			Ground Level (m AOD	<b>)):</b> 45.43
DUO1	Project Number:	NTE2460			Eastings:	464828.05
BH01	Client:	First Panattoni			Northings:	171597.35
Hole Type: CP	Rig: Dando 20	00	Start & End Date:	25/09/2018	Engineer: CR	Checker:

			Dun							i. cit citecker.			
Grou		ater		Strata				Sampl	es			In-Situ Tests	1
Strike De	trike etails	Well	Level (m AOD) & [Thickness (m)]	Description	Legend	Depth (m bgl)	Type (Ublows)	From (m)	To (m)	Туре	Depth (m)	Result	Casing Depth 8 (Water Level)
			35.43 — 	White slightly silty slightly GRAVEL with moderate cobble content. Gravel is fine to coarse subangular chalk and occasional angular to subrounded flint (Seaford Chalk Formation)  Hole Terminated at 10.00m bgl.	*. *. *. *. **	10.00	D	10.00	10.00				
			-			- - - - - - -							
			- - - - -			- - - - - - -							
			- - - - -			- - - - - - - - -							
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			- - - - -			- - - - - - -							
			- - - - -			- - - - - - -							
			-										
	Ch	niseling		Barra da							Lea	end	
From (m bgl)			me (hh:mm)	Remarks Reason for Termination:			Si	ample Ty	pe:	Gro	Leg		Tests
				Borehole terminated at target depth.			В	- Bulk - Core				undwater C - Cone ke HSV - Har	Penetration Test nd Shear Vane
				Groundwater Remarks:				- Disturb	ed	_	Z Res	ting Test	to Ionisation

#### D - Disturbed Resting PID - Photo Ionisation Detection Screen S - Standard Penetration ES - Environmental Groundwater Groundwater strike not recorded as drillers were adding water to assist drilling. Strike estimated by high groundwater levels recorded during SPT. Sample NR = Not Water Added U - Undisturbed Recorded From (m bgl) To (m bgl) Volume (l) BWB Consulting Ltd Waterfront House Station Street Nottingham NG2 3DQ Web: bwbconsulting.com 1. No visual or olfactory evidence of contamination identified. 2. Borehole installed with P: 0115 9241100 E: nottingham @bwbconsulting.com 50mm HDPE pipe, rubber bung, gas tap and flush cover.

BOREHOLE LOG Scale 1:50 Sheet 1 of 2

Ground Level (m AOD): LOCATION ID Project Name: Theale, Reading 44.51 Project Number: NTE2460 Eastings: 464897.21 **BH02** Client: First Panattoni Northings: 171525.58 Hole Type: CP Rig: Dando 3000 Start & End Date: Engineer: CR Checker: 24/09/2018

	ype: C	P Rig:	Danie	do 3000 Start & End Date: 24/09	0/2018			gineer					
Gro	undw	ater		Strata			Sampl	es			In-Situ Tests		
Strike	Strike Details	Well	Level (m AOD) & [Thickness (m)]	Description	Legend Depth (m bgl)	Type (Ublows)	From (m)	To (m)	Туре	Depth (m)	Result	Casing Depth 8 (Water Level)	
•	1.00m		[0.20] - 44.31 - [1.30] - -	Grass over brown slightly clayey slightly gravelly SAND with frequent rootlets. Gravel is angular to subrounded flint and quartzite.  (Topsoil)  Soft to firm light brown mottled light grey very sandy CLAY with occasional sand pockets.	0.20	В	0.20	0.70					
, I	bgl after 20mins 1.5m bgl		43.01 -	(Alluvium)	1.50	В	1.50	2.00	S	1.20	N=12 (1,1/1,2,4,5)	0.00m (NR	
-	1.5111 061		[1.70]	Medium dense light brown slightly sandy GRAVEL. Gravel is fine to coarse angular to rounded flint. (Beenham Grange Gravel Member)	1.30	В	2.00	2.50	S	2 00	N=11 (2,3/3,3,3,2)	2.00m	
			- - - - -			Б	2.00	2.30	3	2.00	N-11 (2,3/3,3,3,2)	(1.00m bgl	
			41.31 - [0.80] -	Soft white gravelly silty CLAY. Gravel is fine to coarse subangular chalk. (Seaford Chalk Formation)	3.20	В	3.20	4.00	S	3.00	N=11 (2,2/3,2,3,3)	3.00m (1.50m bgl	
			40.51 — [6.00]	White slightly silty slightly GRAVEL with moderate cobble content. Gravel is fine to coarse subangular chalk and occasional angular to subrounded flint (Seaford Chalk Formation)	4.00	В	4.00	4.50	S	4.00	N=0 (0,0/0,0,0,0)	4.00m (2.00m bg	
			- - - - - - - -			В	5.00	5.50	S	5.00	N=4 (1,0/1,1,1,1)	5.00m (3.00m bg	
			- - - - - - - -			В	6.00	6.50	S	6.00	N=4 (1,0/1,0,1,2)	6.00m (3.00m bg	
			-			В	7.50	8.00	S	7.50	N=17 (1,0/2,4,5,6)	7.50m (4.00m bg	
						В	9.00	9.50	S	9.00	N=10 (5,1/0,1,4,5)	9.00m (4.00m bg	
		X			× × × × ×								
	Cł	niseling (m bgl) Ti	me (hh:mm)	Remarks						Leg	end		

	Chiseling		Remarks		Legend	
From (m bgl)	To (m bgl)	Time (hh:mm)	Reason for Termination:	Sample Type:	Groundwater:	In-Situ Tests
			Borehole terminated at target depth.	B - Bulk C - Core	Groundwater Strike	C - Cone Penetration Test HSV - Hand Shear Vane
			Groundwater Remarks:	D - Disturbed ES - Environmental	Resting Groundwater	Test PID - Photo Ionisation Detection Screen
	Water Added		Groundwater encountered at 1.5m rising to 1m after 20 minutes.	Sample U - Undisturbed	NR = Not Recorded	S - Standard Penetration
From (m bgl)	To (m bgl)	Volume (I)	Other Remarks:	BWB Consulting Ltd	Web:	lest
			No visual or olfactory evidence of contamination identified. 2. Borehole backfilled with arisings upon completion.	Waterfront House Station Street Nottingham	bwbconsulting.com P: 0115 9241100 E: nottingham	BVB  CONSULTANCY   ENVIRONMENT

BOREHOLE LOG Sheet 2 of 2

LOCATION ID	Project Name:	Theale, Reading			Ground Level (m AOD	<b>):</b> 44.51
BH02	Project Number:	NTE2460			Eastings:	464897.21
	Client:	First Panattoni			Northings:	171525.58
Hole Type: CP	Rig: Dando 30	00	Start & End Date:	24/09/2018	Engineer: CR	Checker:

## Description   Description	roundwater
White slightly sity slightly GNAVEL with moderate cobble content. Gravel is fine to coarse subangular chalk and common and any sity of submoded flint (Seaford Chalk Formation)  House Terminated at 10 00m bg.  Those Terminated at 10 00m bg.	
(Seaford Chalk Formation) Hole Terminated at 10.00m bgi.	Details Well
Cityles Banada   Depart	
Skeling Demokr   Isografi	
Obsting Departs   Legand	
Ottoling Demarks   Degrad	
Cheeling	
Chaleing Demarks   Depart	
Chiceling	
Chiseling	
Chiseling Pomarks Legend	
	Chiseling
om (m bgl)   To (m bgl)   Time (hh:mm)	
Reason for Termination:  Borehole terminated at target depth.  Sample Type: Groundwater: In-Sit	

	Chiseling		Remarks		<del> </del>				Legend		
From (m bgl)	To (m bgl)	Time (hh:mm)	Reason for Termination:		s	ample Ty	pe:		ndwater:	In-Situ Te	sts
			Borehole terminated at target depth.			- Bulk - Core		$\searrow$	Groundwater Strike	HSV - Hand	netration Test Shear Vane
			Groundwater Remarks:			- Disturb S - Enviro		lacksquare	Resting Groundwater	Test PID - Photo Detection S	
From (m bgl)	Water Added To (m bgl)	Volume (I)	Groundwater encountered at 1.5m rising to 1m after 20 minutes.			ample I - Undistu	ırbed		NR = Not Recorded	S - Standard Test	l Penetration
			Other Remarks:  1. No visual or olfactory evidence of contamination identified. 2. Borehole barisings upon completion.	ackfilled wit	h v s	WB Consul /aterfront tation Stree ottingham G2 3DQ	House et	P: 011 E: not	onsulting.com .5 9241100 tingham oconsulting.com	CONSULTANCY	VB

BOREHOLE LOG Scale 1:50 Sheet 1 of 2

Hole Type: (	CP Rig:	Dan	do 3000 Start & End Date: 24/09	9/2018 - 25/09,	/201	B En	gineer	: (	CR	Checker:	
Groundy	vater		Strata			Sampl	es			In-Situ Tests	
Strike Strike Details	Well	Level (m AOD) & [Thickness (m)]	Description	Legend Depth (m bgl)	Type (Ublows)	From (m)	To (m)	Туре	Depth (m)	Result	Casing Depth & (Water Level)
1.00m bgl after 20mins		[0.30] 44.21 [1.20]	Grass over dark brown slightly clayey slightly gravelly SAND with frequent rootlets. Gravel is angular to subrounded fine to coarse flint and quartzite.  (Topsoil)  Firm brown sandy gravelly CLAY. Gravel is fine to coarse angular to subrounded flint. (Alluvium)	0.30	В	0.10	1.00	S	1.00	N=13 (3,3/2,3,3,5)	1.00m (NR)
1.5m bgl		43.01 - [1.50]	Medium dense light brown slightly sandy GRAVEL. Gravel is fine to coarse angular to rounded flint and occasional chalk.	1.50	В	1.50	2.00	S	2.00	N=16 (1,2/3,5,4,4)	2.00m
		- - -	(Beenham Grange Gravel Member)	_							(1.00m bgl)
		41.51 — [0.50] — 41.01 — [0.50]	Medium dense brown slightly gravelly SAND. Gravel is fine and medium chalk and flint. (Beenham Grange Gravel Member) Light brown slightly sandy GRAVEL with low cobble content. Gravel is fine to coarse angular to rounded flint	3.50	В	3.00	3.50	S		N=19 (1,2/5,4,5,5)	3.00m (1.00m bgl)
	• • • •	40.51 — [1.00]	and occasional chalk. (Beenham Grange Gravel Member)  Very soft cream and orange brown gravelly CLAY. Gravel is fine to coarse angular to rounded chalk. (Seaford Chalk Formation)	4.00	B ES	4.00 4.00	4.50 4.50	S	4.00	N=3 (1,1/1,1,1,0)	4.00m (2.00m bgl)
		39.51 — [5.00]	White slightly silty slightly GRAVEL with moderate cobble content. Gravel is fine to coarse subangular chalk and occasional angular to subrounded flint (Seaford Chalk Formation)	5.00	В	5.00	5.50	S	5.00	N=1 (1,0/1,0,0,0)	5.00m (3.00m bgl)
		-			В	6.00	6.50	S	6.00	N=0 (0,0/0,0,0,0)	6.00m (3.00m bgl)
		- - - - - - -			В	7.50	8.00	S	7.50	N=3 (0,0/1,0,1,1)	7.50m (2.00m bgl)
		- - - - -			В	9.00	9.50	S	9.00	N=7 (4,3/2,1,2,2)	9.00m (3.00m bgl)
					<u> </u>					d	
	Chiseling to (m bgl) Ti	me (hh:mm)	Remarks		_					end	
			Reason for Termination:		S	ample Ty	pe:	Gro	undwa	ter: In-Situ T	ests

	Chiseling		Remarks	Legend		
From (m bgl)	To (m bgl)	Time (hh:mm)	Reason for Termination:	Sample Type:	Groundwater:	In-Situ Tests
From (m bgl)	Water Added To (m bgl)	Volume (I)	Groundwater Remarks:  Groundwater encountered at 1.5m rising to 1m after 20 minutes.	B - Bulk C - Core D - Disturbed ES - Environmental Sample U - Undisturbed	Groundwater Strike Resting Groundwater NR = Not Recorded	C - Cone Penetration Test HSV - Hand Shear Vane Test PID - Photo Ionisation Detection Screen S - Standard Penetration Test
	. 07	.,	Other Remarks:  1. No visual or olfactory evidence of contamination identified. 2. Borehole installed with 50mm HDPE pipe, rubber bung, gas tap and flush cover.	BWB Consulting Ltd Waterfront House Station Street Nottingham NG2 3DQ	Web: bwbconsulting.com P: 0115 9241100 E: nottingham @bwbconsulting.com	BWB  CONSULTANCY   ENVIRONMENT INFRASTRUCTURE   BUILDINGS

BOREHOLE LOG Sheet 2 of 2

LOCATION ID	Project Name:	Theale, Reading			Ground Level (m AOD)	<b>:</b> 44.51
рилэ	Project Number:	NTE2460			Eastings:	464799.12
BH03	Client:	First Panattoni			Northings:	171420.36
Hole Type: CP	Rig: Dando 300	00	Start & End Date:	24/09/2018 - 25/09/2018	Engineer: CR	Checker:

to Description Program	Ground	water		Strata				Sampl	es	In-Situ Tests			
White slightly slightly GRAVEL with moderate cobble concerns from the formation of the form			Level (m AOD) & (Thickness (m))		Legend	Depth	Type (Ublows)	From	To (m)	Туре	Depth	Result	Casing Depth (Water Level)
Controll	Details			White slightly silty slightly GRAVEL with moderate cobble content. Gravel is fine to coarse subangular chalk and occasional angular to subrounded flint (Seaford Chalk Formation)	× × ×						()		
n (m bgl) To (m bgl) Time (hh:mm) Reason for Termination: Sample Type: Groundwater: In-Situ Tests					-	- - - - - - - -				S		N=10 (1,1/1,1,3,5)	10.50m (3.00m bg
n (m bgl) To (m bgl) Time (hh:mm) Reason for Termination: Sample Type: Groundwater: In-Situ Tests			-										
n (m bgl) To (m bgl) Time (hh:mm) Reason for Termination: Sample Type: Groundwater: In-Situ Tests													
n (m bgl) To (m bgl) Time (hh:mm) Reason for Termination: Sample Type: Groundwater: In-Situ Tests													
n (m bgl) To (m bgl) Time (hh:mm) Reason for Termination: Sample Type: Groundwater: In-Situ Tests			-		- - - - - - - - - - - - - - - - - - -	- - - - - -							
n (m bgl) To (m bgl) Time (hh:mm) Reason for Termination: Sample Type: Groundwater: In-Situ Tests						-							
n (m bgl) To (m bgl) Time (hh:mm) Reason for Termination: Sample Type: Groundwater: In-Situ Tests					-								
n (m bgl) To (m bgl) Time (hh:mm) Reason for Termination: Sample Type: Groundwater: In-Situ Tests							<u> </u>				100	and	
Reason for Termination: Sample Type: Groundwater: In-Situ Tests			ime (hh:mm)	Remarks					Legend				
Borehole terminated at target depth.   B - Bulk	, .87	,, .	- ,	Reason for Termination: Sample Type: Groundwater: Ir				iter: In-Situ T	ests				
C - Core Strike HSV - Hand Shear \		1		Borehole terminated at target depth.							→ Gro	undwater C - Cone F	Penetration <sup>-</sup>

	Chiseling	1	Remarks	Legend			
From (m bgl)	To (m bgl)	Time (hh:mm)	Reason for Termination:	Sample Type:	Groundwater:	In-Situ Tests	
			Borehole terminated at target depth.	B - Bulk C - Core	Groundwater Strike	C - Cone Penetration Test HSV - Hand Shear Vane Test	
			Groundwater Remarks:	D - Disturbed ES - Environmental	Resting Groundwater	PID - Photo Ionisation Detection Screen	
From (m bgl)	Water Added To (m bgl)	Volume (I)	Groundwater encountered at 1.5m rising to 1m after 20 minutes.	Sample U - Undisturbed	NR = Not Recorded	S - Standard Penetration Test	
(III bg)	( bgi)		Other Remarks:  1. No visual or olfactory evidence of contamination identified. 2. Borehole installed with 50mm HDPE pipe, rubber bung, gas tap and flush cover.	BWB Consulting Ltd Waterfront House Station Street Nottingham NG2 3DQ	Web: bwbconsulting.com P: 0115 9241100 E: nottingham @bwbconsulting.com	CONSULTANCY   ENVIRONMENT INFRASTRUCTURE   BUILDINGS	

BOREHOLE LOG Scale 1:50 Sheet 1 of 2

LOCATION ID Project Name: Theale, Reading Ground Level (m AOD): 44.13 Project Number: NTE2460 Eastings: 464738.26 **BH04** Client: First Panattoni Northings: 171506.28 Rig: Dando 2000 Engineer: CR Checker: Hole Type: CP Start & End Date: 25/09/2018

Groun	ndwater						In-Situ Tests				
Striko Stri	rike Wall	Level (m AOD) & [Thickness (m)]	Description	Legend Depth		From	To (m)	Type	Depth		Casing Depth 8
Deta	tails	[0.20] _ 43.93 - [1.00]	Firm brown slightly gravelly sandy CLAY with occasional rootlets. Gravel is fine to coarse angular to subrounded flint.  (Topsoil)	0.20	B D	0.20 0.50	0.50	Турс	(m)	Result	(Water Level)
1.00 bgl a 20m	after	42.93 - [5.30] -	Very soft dark brown gravelly sandy CLAY. Gravel is fine to coarse angular to subrounded flint. (Alluvium)  Loose to medium dense light brown slightly sandy GRAVEL. Gravel is fine to coarse angular to rounded flint. (Beenham Grange Gravel Member)	1.20	В	1.50	1.50	S	1.20	N=6 (2,1/1,1,2,2)	
2m	ı bgl	- - - - - -			D	2.00	2.45	S	2.00	N=11 (2,2/3,3,2,3)	2.00m (1.00m bgl)
		- - - - - - -			D	3.00	3.00	S	3.00	N=11 (4,4/4,3,2,2)	3.00m (2.80m bgl)
		- - - - - - -		_	D	4.00	4.00	S	4.00	N=15 (4,3/3,5,4,3)	4.00m (3.10m bgl)
		- - - - - -			D	5.00	5.00	S	5.00	N=17 (3,4/4,4,4,5)	5.00m (3.30m bgl)
		- - - - - - -		_	D	6.00	6.00				
		37.63 - [3.50] - - - - - - - -	White and pale brown slightly clayey slightly silty GRAVEL. Gravel is fine to coarse subangular chalk and occasional angular to subrounded flint. (Seaford Chalk Formation)	6.50	В	6.50	6.50	S	6.50	N=3 (1,1/2,1,0,0)	6.50m (3.70m bgl)
		- - - - - - - -			D	8.00	8.00	S	8.00	N=7 (2,3/2,1,2,2)	8.00m (4.20m bgl)
		- - - - - - -			D	9.00	9.00	S	9.50	N=10 (2,4/2,3,3,2)	9.50m (4.50m bgl)
					Ш,						
Chiseling Remarks Legend											

	Chiseling		Remarks		Legend	
From (m bgl)	To (m bgl)	Time (hh:mm)	Reason for Termination:	Sample Type:	Groundwater:	In-Situ Tests
			Borehole terminated at target depth.	B - Bulk C - Core	Groundwater Strike	C - Cone Penetration Tes HSV - Hand Shear Vane
			Groundwater Remarks:	D - Disturbed ES - Environmental	Resting Groundwater	Test PID - Photo Ionisation Detection Screen
	Water Added		Groundwater encountered at 2m rising to 1m after 20 minutes.	Sample	NR = Not	S - Standard Penetratio
From (m bgl)	To (m bgl)	Volume (I)	Other Remarks:	U - Undisturbed	Recorded	Test
			No visual or olfactory evidence of contamination identified. 2. Borehole backfilled with arisings upon completion.	BWB Consulting Ltd Waterfront House Station Street Nottingham	Web: bwbconsulting.com P: 0115 9241100 E: nottingham	BWB
l				NG2 3DQ	@bwbconsulting.com	CONSULTANCY   ENVIRONME

BOREHOLE LOG Sheet 2 of 2

LOCATION ID	Project Name:	Theale, Reading			Ground Level (m AOD	<b>)):</b> 44.13
BH04	Project Number:	NTE2460			Eastings:	464738.26
	Client:	First Panattoni			Northings:	171506.28
Hole Type: CP	Rig: Dando 200	00	Start & End Date:	25/09/2018	Engineer: CR	Checker:

Groundwater		Strata					Samples			In-Situ Tests					
trike Str	ike tails	Well	Level (m AOD) & [Thickness (m)]	Description	Legend	Depth (m bgl)	Type (Ublows)	From (m)	To (m)	Туре	Depth (m)	Result	Casing Depth (Water Leve		
Dec	Lans		34.13	White and pale brown slightly clayey slightly silty GRAVEL. Gravel is fine to coarse subangular chalk and occasional angular to subrounded flint. (Seaford Chalk Formation)  Hole Terminated at 10.00m bgl.	***************************************	10.00	D	10.00	10.00		(III)		(Water Ecre		
			- - - - - - -			- - - - - - -									
			- - - - - - -			- - - - - -									
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			- - -			- - - - - -									
	Chise	eling		Remarks							Leg	end			
			me (hh:mm)	Reason for Termination:					Sample Type: Groundwater: In-Situ Tests				Tests		
				Borehole terminated at target depth.					B - Bulk				Groundwater C - Cone Penetration		

#### C - Core D - Disturbed Strike Test PID - Photo Ionisation Detection Screen S - Standard Penetration Resting Groundwater Remarks: ES - Environmental Groundwater Groundwater encountered at 2m rising to 1m after 20 minutes. Sample U - Undisturbed NR = Not Recorded Water Added From (m bgl) To (m bgl) Volume (l) BWB Consulting Ltd Waterfront House Station Street Nottingham NG2 3DQ Web: bwbconsulting.com P: 0115 9241100 E: nottingham @bwbconsulting.com 1. No visual or olfactory evidence of contamination identified. 2. Borehole backfilled with arisings upon completion.

BOREHOLE LOG Scale 1:50 Sheet 1 of 2

LOCATION ID Project Name: Theale, Reading Ground Level (m AOD): 44.75 Project Number: NTE2460 Eastings: 464684.01 **BH05** Client: First Panattoni Northings: 171436.14 Dando 3000 Hole Type: CP Rig: **Start & End Date:** 25/09/2018 - 26/09/2018 Engineer: CR Checker:

	JP  Rig:	Dani	do 3000   Start & End Date: 25/09	9/2018 - 26/0	75/20	10	igineer		:R	Checker:	
Groundy	vater		Strata			Samp	les			In-Situ Tests	
Strike Strike Details	Well	Level (m AOD) & [Thickness (m)]	Description	Legend Dep		From (m)	To (m)	Туре	Depth (m)	Result	Casing Depth (Water Level
		[0.30] - 44.45 - [0.70] -	Brown gravelly SAND with occasional rootlets. Gravel is fine to coarse angular to rounded flint.  (Topsoil)  Firm friable gravelly sandy CLAY. Gravel is fine to coarse angular to rounded flint.	0.3	0 B		1.00 1.00				
1.00m bgl after 20mins		43.75 — [0.50] _	(Alluvium)  Brown slightly clayey sandy GRAVEL. Gravel is fine to coarse angular to rounded flint.	1.0	0			S	1.00	N=5 (2,2/1,1,1,2)	1.00m (NI
1.5m bgl		43.25 - [3.40] -	(Beenham Grange Gravel Member)  Medium dense becoming loose brown slightly sandy GRAVEL. Gravel is fine to coarse angular to rounded flint. Becoming light brown from 3.0m.	1.5	0 B	2.00	2.00	S	2.00	N=21 (1,4/6,4,5,6)	2.00m
		- - - - - - - - - - - - - - - - - - -	(Beenham Grange Gravel Member)		В	3.00	3.50	S		N=13 (1,2/3,4,3,3)	3.00m b <sub>1</sub>
		- - - - - - -			В	4.00	4.50	S	4.00	N=9 (1,2/3,3,1,2)	4.00m (3.00m t
		39.85 - [1.10] - - -	Very soft cream gravelly CLAY. Gravel is fine to coarse subangular chalk and angular flint. (Seaford Chalk Formation)	4.9	0 B	5.00	5.50	S	5.00	N=3 (1,1/1,1,1,0)	5.00m (4.00m t
		38.75 — [4.00] <sup>-</sup> - - - -	White slightly silty slightly GRAVEL with moderate cobble content. Gravel is fine to coarse subangular chalk and occasional angular to subrounded flint (Seaford Chalk Formation)	6.0	0 B		6.50 6.50	S	6.00	N=4 (1,0/1,1,1,1)	6.00m (4.00m b
		-			В	7.50	8.00	S	7.50	N=1 (1,0/0,1,0,0)	7.50m (4.00m l
					В	9.00	9.50	S	9.00	N=3 (1,0/1,1,0,1)	9.00m (4.00m t
				******							
	Chiseling		Remarks						Leg	end	

	Chiseling		Remarks		Legend	
From (m bgl)	To (m bgl)	Time (hh:mm)	Reason for Termination:	Sample Type:	Groundwater:	In-Situ Tests
			Borehole terminated at target depth.	B - Bulk C - Core	Groundwater Strike	C - Cone Penetration Test HSV - Hand Shear Vane
			Groundwater Remarks:	D - Disturbed ES - Environmental	Resting Groundwater	Test PID - Photo Ionisation Detection Screen
	Water Added		Groundwater encountered at 1.5m rising to 1m after 20 minutes.	Sample U - Undisturbed	NR = Not Recorded	S - Standard Penetration
From (m bgl)	To (m bgl)	Volume (I)	Other Remarks:	BWB Consulting Ltd	Web:	Test
			No visual or olfactory evidence of contamination identified. 2. Borehole backfilled with arisings upon completion.	Waterfront House Station Street Nottingham	bwbconsulting.com P: 0115 9241100 E: nottingham	BWB CONSULTANCY   ENVIRONMENT

BOREHOLE LOG Sheet 2 of 2

LOCATION ID	Project Name:	Theale, Reading			Ground Level (m AOD)	<b>:</b> 44.75
DHOE	Project Number:	NTE2460			Eastings:	464684.01
BH05	Client:	First Panattoni			Northings:	171436.14
Hole Type: CP	Rig: Dando 300	00	Start & End Date:	25/09/2018 - 26/09/2018	Engineer: CR C	Checker:

Hole Type	: CP Ri	<b>g:</b> Dai	ndo 3000 Start & End Date: 25/0	9/2018 -	- 26/09,	/2018	8 <b>En</b>	gineer	: (	CR	Checker:	
Ground	dwater		Strata				Sampl	es			In-Situ Tests	
Strike Strik	ke ails Well	Level (m AOD) [Thickness (m)		Legend	(III DEI)	Type (Ublows)	From (m)	To (m)	Туре	Depth (m)	Result	Casing Depth & (Water Level)
		34.75	White slightly slity slightly GRAVEL with moderate cobble content. Gravel is fine to coarse subangular chalk and occasional angular to subrounded flint (Seaford Chalk Formation)  Hole Terminated at 10.00m bgl.	******	10.00	D	10.00	10.00	S	10.0	N=3 (1,1/0,1,1,1)	9.00m (4.00m bgl)
					-							
					-							
			- - - - - - - - -		- - - - - - - -							
			- - - - - - - - - -		-							
					-							
					-							
					-							
			- - - - -		-							
	Chiseling		Remarks		1			<u> </u>		Leg	end	
From (m bgl)	To (m bgl)	Time (hh:mn	Reason for Termination:  Borehole terminated at target depth.  Groundwater Remarks:			B C D	ample Ty - Bulk - Core - Disturb	oed	$\geq$	undwa  Gro Strik  Rest	undwater C - Cone Post HSV - Harting PID - Photo	Penetration Test ad Shear Vane to Ionisation
<u> </u>	Water Added		Groundwater encountered at 1.5m rising to 1m after 20 minutes.				ample	circal			Detection	Screen and Penetration

	Chiseling		Remarks		Legend			
From (m bgl)	To (m bgl)	Time (hh:mm)	Reason for Termination:	Sample Type:	Groundwater:	In-Situ Tests		
			Borehole terminated at target depth.  Groundwater Remarks:	B - Bulk C - Core D - Disturbed ES - Environmental	Groundwater Strike Resting Groundwater	C - Cone Penetration Test HSV - Hand Shear Vane Test PID - Photo Ionisation Detection Screen		
From (m bgl)	Water Added To (m bgl)	Volume (I)	Groundwater encountered at 1.5m rising to 1m after 20 minutes.  Other Remarks:	Sample U - Undisturbed	NR = Not Recorded	S - Standard Penetration Test		
			No visual or olfactory evidence of contamination identified. 2. Borehole backfilled with arisings upon completion.	BWB Consulting Ltd Waterfront House Station Street Nottingham NG2 3DQ	Web: bwbconsulting.com P: 0115 9241100 E: nottingham @bwbconsulting.com	BWB  CONSULTANCY   ENVIRONMENT INFRASTRUCTURE   BUILDINGS		

BOREHOLE LOG Scale 1:50 Sheet 1 of 2

LOCATION ID Project Name: Theale, Reading Ground Level (m AOD): 44.00 Project Number: NTE2460 Eastings: 464671.00 **BH06** Client: First Panattoni Northings: 171360.00 Dando 3000 Rig: Checker: Hole Type: CP Start & End Date: 25/09/2018 Engineer: CR

Ground	dwater		Strata			!	Sampl	es			In-Situ Tests	
Strike Strike	e Wall	Level (m AOD) & [Thickness (m)]	Description	Legend	Depth	Туре	From	To (m)	Tyne	Depth	Result	Casing Depth
Detail:	ils Well	[0.30] - 43.70 - [1.25] _	Soft brown slightly silty slightly sandy CLAY with occasional rootlets. \((Topsoil)\)	Sile X	(m bgl)	(Ublows)	(m) 0.10	1.00	Туре	(m)	nesuit	(Water Leve
1.00m bgl afte 20min	ter 🗀 🗀 🔭	- - - - - -	Soft dark brown sandy peaty CLAY with organic odour and organic relics.  (Alluvium)	X   Ship   Ship   X   Ship   X		U	1.00	1.00				
1.5m b	bgl	42.45 _ [0.45] -	Very soft grey and light grey slightly silty slightly sandy slightly gravelly CLAY with occasional organic relics. Gravel		1.55	D	1.50	1.50				
	•• —	42.00 — [1.00] - -	is coarse angular flint. (Alluvium) Medium dense light brown sandy GRAVEL with low cobble content. Gravel is fine to coarse angular to rounded flint.		2.00	B D	2.00	2.00 2.50	S	2.00	N=16 (1,2/3,3,4,6)	2.00m (1.00m b
		41.00 —	(Beenham Grange Gravel Member)  Soft white and pale brown gravelly CLAY. Gravel is fine to coarse subangular chalk and occasional angular to subrounded flint.		3.00	D	3.00	3.00	S	3.00	N=9 (2,3/1,2,3,3)	3.00m (2.00m b
		- - - -	(Seaford Chalk Formation)		- - - - - - - - - - -	В	4.00	4.45	S	4.00	N=7 (0,1/3,2,1,1)	4.00m (3.00m b
		39.00 — [5.00]	White slightly silty slightly GRAVEL with moderate cobble content. Gravel is fine to coarse subangular chalk and	****	5.00	В	5.00	5.50	S	5.00	N=2 (1,0/0,1,1,0)	5.00m (3.00m b
		- - - - - - -	occasional angular to subrounded flint (Seaford Chalk Formation)			В	6.00	6.50	S	6.00	N=5 (1,0/1,1,1,2)	6.00m (3.00m b
		- - - - - - - - - - - - - - - - - - -				В	7.50	8.00	S	7.50	N=3 (1,0/0,1,1,1)	7.50m (4.00m t
		- - - - - - - - - - - - - - - - - - -				В	9.00	9.50	S	9.00	N=12 (1,0/5,3,2,2)	9.00m (4.00m b
		-		×××××								

	Chiseling		Remarks		Legend			
From (m bgl)	To (m bgl)	Time (hh:mm)	Reason for Termination:	Sample Type:	Groundwater:	In-Situ Tests		
			Borehole terminated at target depth.	B - Bulk C - Core	Groundwater Strike	C - Cone Penetration Tes HSV - Hand Shear Vane		
			Groundwater Remarks:	D - Disturbed ES - Environmental	Resting Groundwater	Test PID - Photo Ionisation		
	Water Added		Groundwater encountered at 1.5m rising to 1m after 20 minutes.	Sample	NR = Not	Detection Screen S - Standard Penetration		
From (m bgl)	To (m bgl)	Volume (I)	Other Remarks:	U - Undisturbed	Recorded	Test		
			1. No visual or olfactory evidence of contamination identified. 2. Borehole installed with dual 50mm and 19mm HDPE pipe, rubber bung, gas tap and flush cover. 3. Coordinates estimated from topographic survey.	BWB Consulting Ltd Waterfront House Station Street Nottingham NG2 3DQ	Web: bwbconsulting.com P: 0115 9241100 E: nottingham @bwbconsulting.com	CONSULTANCY   ENVIRONMEN INFRASTRUCTURE   BUILDING:		

**BOREHOLE LOG** Scale 1:50 Sheet 2 of 2

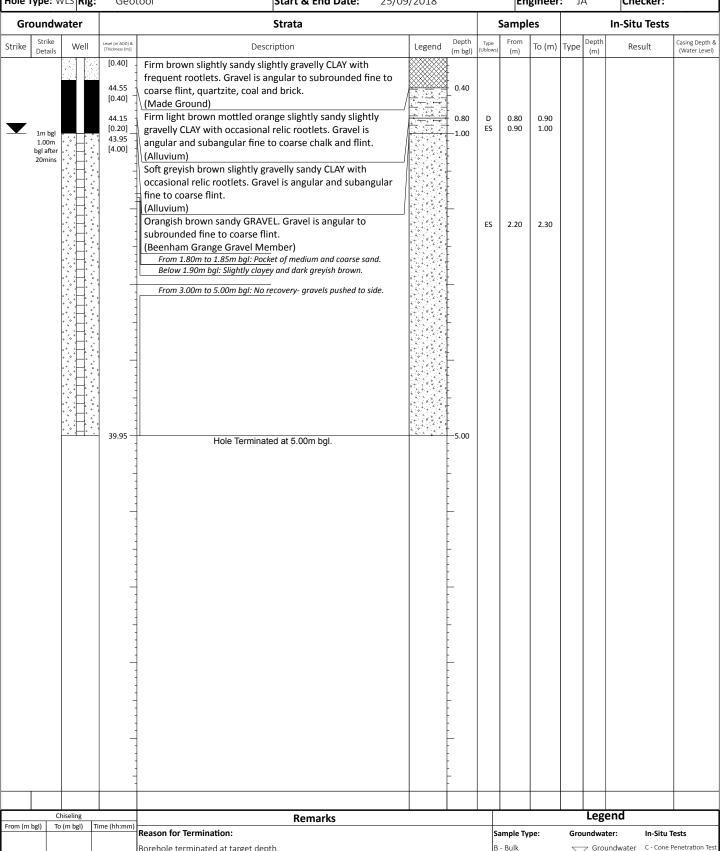
LOCATION ID	Project Name:	Theale, Reading			Ground Level (m AOD	<b>)):</b> 44.00
DUIG	Project Number:	NTE2460			Eastings:	464671.00
BH06	Client:	First Panattoni			Northings:	171360.00
Hole Type: CP	Rig: Dando 300	00	Start & End Date:	25/09/2018	Engineer: CR	Checker:

Hole Type:	CP Rig	: Dan	do 3000 Start & End Date: 25/09	/2018		En	gineer	: (	CR	Checker:	
Ground	water		Strata			Sampl	es			In-Situ Tests	
Strike Strike		Level (m AOD) & [Thickness (m)]	Description	Legend Depth (m bgl)	Type (Ublows)	From (m)	To (m)	Туре	Depth (m)	Result	Casing Depth & (Water Level)
Detail			White slightly silty slightly GRAVEL with moderate cobble content. Gravel is fine to coarse subangular chalk and occasional angular to subrounded flint (Seaford Chalk Formation)  Hole Terminated at 10.00m bgl.	10.00	D	10.00	10.00	S	10.0	N=10 (1,1/2,2,3,3)	10.00m (3.00m bgl)
				  -  -							
				-							
				  -  -  -  -  -  -							
		-		- - - - - - - -							
		-		- - - - - - - - -							
		-		- - - - - - - -							
		-		-							
	Chiseling		Remarks	<u> </u>	Т		<u> </u>		Leg	end	l
		Time (hh:mm)	Reason for Termination: Borehole terminated at target depth.			ample Ty - Bulk	pe:		undwa	ter: In-Situ T	ests Penetration Test
			Groundwater Remarks:		C D	- Core - Disturb			Stri Res	Ke HSV - Han Test Ting PID - Phot	d Shear Vane o Ionisation
w	Vater Added		Groundwater encountered at 1.5m rising to 1m after 20 minutes.			5 - Enviro ample	nmental			undwater Detection	Screen rd Penetration

	Chiseling		Remarks		Legend			
From (m bgl)	To (m bgl)	Time (hh:mm)		Sample Type:	Groundwater:	In-Situ Tests		
			Groundwater Remarks:	B - Bulk C - Core D - Disturbed	Groundwater Strike Resting	C - Cone Penetration Test HSV - Hand Shear Vane Test PID - Photo Ionisation		
From (m bgl)	Water Added To (m bgl)	Volume (I)	Groundwater encountered at 1.5m rising to 1m after 20 minutes.	ES - Environmental Sample U - Undisturbed	Groundwater NR = Not Recorded	Detection Screen S - Standard Penetration Test		
			No visual or olfactory evidence of contamination identified.     Borehole installed with dual 50mm and 19mm HDPE pipe, rubber bung, gas tap and flush cover.     Scoordinates estimated from topographic survey.	BWB Consulting Ltd Waterfront House Station Street Nottingham NG2 3DQ	Web: bwbconsulting.com P: 0115 9241100 E: nottingham @bwbconsulting.com	CONSULTANCY   ENVIRONMENT INFRASTRUCTURE   BUILDINGS		

BOREHOLE LOG Sheet 1 of 1

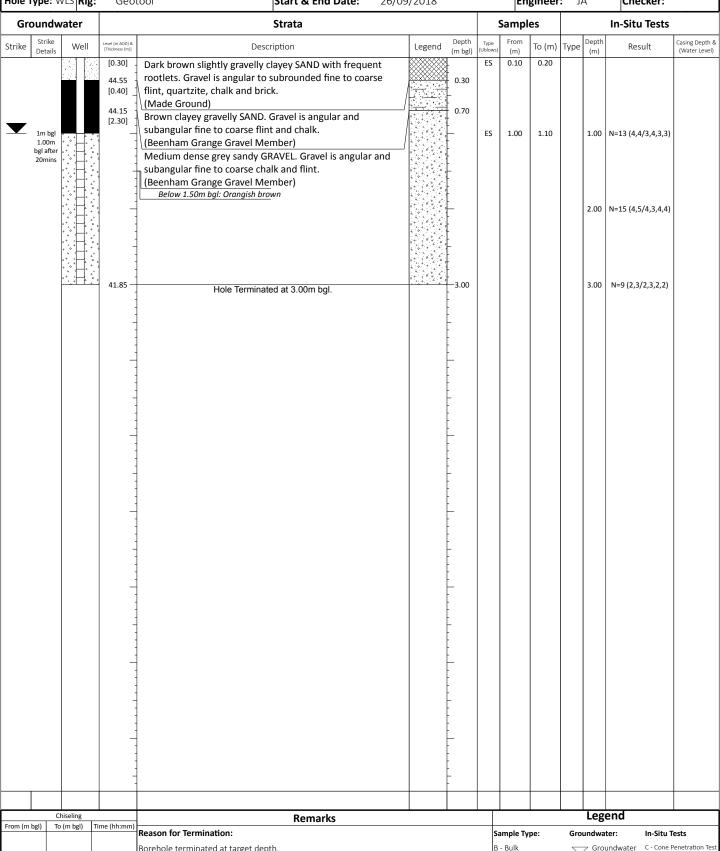
LOCATION ID Project Name: Theale, Reading Ground Level (m AOD): 44.95 Eastings: Project Number: NTE2460 464603.57 **DS01** Client: First Panattoni Northings: 171385.32 Hole Type: WLS Rig: Start & End Date: Engineer: JA Checker: Geotool 25/09/2018



		n								Lagged		
L .		Chiseling	- "	Remarks						Legend		
From (m	bgi) T	o (m bgl)	Time (hh:mm)	Reason for Termination:			Sample	уре:	Gro	undwater:	In-Situ Tests	
				Borehole terminated at target depth.  Groundwater Remarks:			B - Bulk C - Core D - Distu	bed	$\subseteq$	<ul><li>✓ Groundwater</li><li>✓ Strike</li><li>✓ Resting</li></ul>	C - Cone Penetration HSV - Hand Shear Va Test PID - Photo Ionisatio	ane
From (m		ater Added to (m bgl)	Volume (I)	Wet soils noted at 1.0m			ES - Envi Sample U - Undi	onmental turbed		Groundwater NR = Not Recorded	Detection Screen S - Standard Penetra Test	
				Other Remarks:  1. No visual or olfactory evidence of contamination identified. 2. Boreho 50mm HDPE pipe, rubber bung, gas tap and flush cover.	le installed	l with	BWB Con Waterfro Station St Nottingha NG2 3DQ	it House reet	P: 01 E: no	: consulting.com .15 9241100 ottingham vbconsulting.com	CONSULTANCY   ENVIRON INFRASTRUCTURE   BUILD	NMENT

BOREHOLE LOG Sheet 1 of 1

LOCATION ID Project Name: Theale, Reading Ground Level (m AOD): 44.85 Project Number: NTE2460 Eastings: 464621.02 **DS02** Client: First Panattoni Northings: 171404.06 Hole Type: WLS Rig: Checker: Start & End Date: 26/09/2018 Engineer: JA Geotool



		niseling		Remarks			Legend				
From (m bg	gl) To	(m bgl)	Time (hh:mm)	Reason for Termination:		Sample	Туре:	Grou	ındwater:	In-Situ Tests	
				Borehole terminated at target depth.		B - Bull C - Core		$\searrow$		C - Cone Penetration Test HSV - Hand Shear Vane Test	
				Groundwater Remarks:		1	/ironmenta	_	Resting Groundwater	PID - Photo Ionisation Detection Screen	
_ , ,	_	er Added	(1)	Wet soils noted at 1.0m.		Sample U - Uno	listurbed		NR = Not Recorded	S - Standard Penetration Test	
From (m bg	gI) To	(m bgl)	Volume (I)	Other Remarks:			nsulting Ltd	Web:		T	
				No visual or olfactory evidence of contamination identified. 2. Borehole in     Somm HDPE pipe, rubber bung, gas tap and flush cover.	installed with		ont House Street nam	bwbo P: 01 E: no	consulting.com 15 9241100 ttingham bconsulting.com	CONSULTANCY   ENVIRONMENT INFRASTRUCTURE   BUILDINGS	

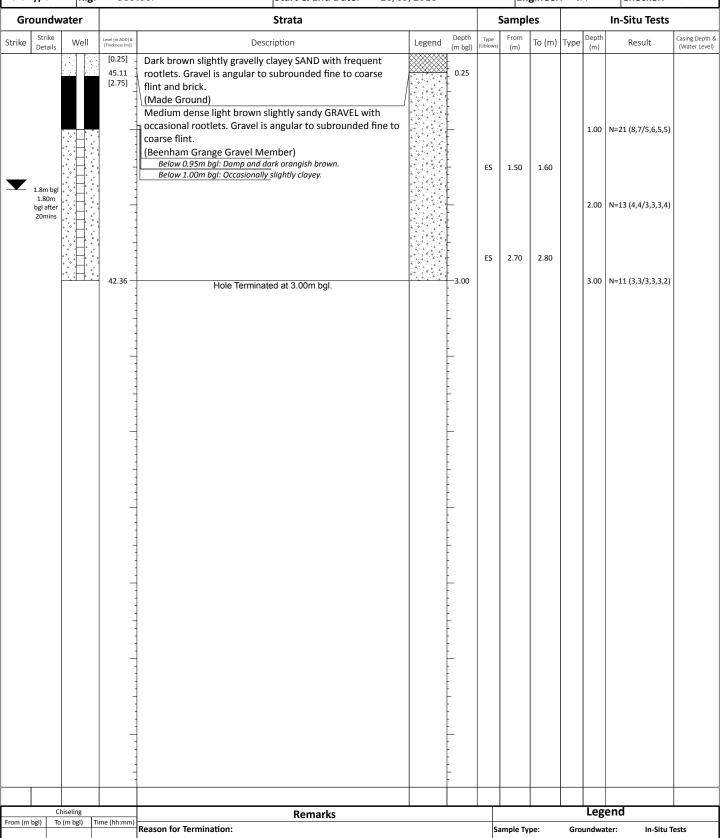
BOREHOLE LOG Scale 1:50 Sheet 1 of 1

lole Type:	: W	LS Rig:	Geot	Start & End Date: 27,	/09/2018		En	gineer	r: J	Α	Checker:	
Ground	dwa	ater		Strata			Sampl	les			In-Situ Tests	
Strike Strike		Well	Level (m AOD) & [Thickness (m)]	Description	Legend Depth (m bgl)	Type (Ublows)	From (m)	To (m)	Туре	Depth (m)	Result	Casing Depth 8 (Water Level)
	bgl m fter	Well	(0.40)	Dark brown slightly gravelly clayey SAND with frequent rootlets. Gravel is angular to subrounded fine to coarse flint, brick and clinker.  (Made Ground)  Orangish brown slightly gravelly clayey SAND with rare rootlets. Gravel is angular and subangular fine to coarse flint.  (Beenham Grange Gravel Member)  Brown slightly sandy GRAVEL. Gravel is angular and subangular fine to coarse flint.  (Beenham Grange Gravel Member)  Below 1.20m bgi: Domp, sandy (medium and coarse) and orangish brown.  Below 1.40m bgi: Occasionally slightly clayey.  Hole Terminated at 5.00m bgl.		ES ES		2.80	Type	(m)	Result	
				Downaulra						Leg	and	
		seling		Remarks							Ellu	
rom (m bgl)			me (hh:mm)			E.	amnia T	me.	6			Toete
m (m bgl)			me (hh:mm)	Reason for Termination:		Sa	ample Ty	/pe:	Gro	oundwa		Tests

## Borehole terminated at target depth. Z G. . Strike HSV - Hand Shear Vane Test PID - Photo Ionisation C - Core D - Disturbed Resting **Groundwater Remarks:** ES - Environmental Groundwater Detection Screen S - Standard Penetration Wet soils noted at 1.2m. NR = Not Recorded Sample U - Undisturbed Water Added From (m bgl) To (m bgl) Volume (l) BWB Consulting Ltd Waterfront House Station Street Nottingham NG2 3DQ Web: bwbconsulting.com 1. No visual or olfactory evidence of contamination identified. 2. Borehole installed with P: 0115 9241100 50mm HDPE pipe, rubber bung, gas tap and flush cover. E: nottingham @bwbconsulting.com

BOREHOLE LOG Sheet 1 of 1

LOCATION ID Project Name: Theale, Reading Ground Level (m AOD): 45.36 Project Number: NTE2460 Eastings: 464660.24 **DS04** Client: First Panattoni Northings: 171443.81 Checker: Hole Type: WLS Rig: Start & End Date: Engineer: JA Geotool 28/09/2018



		iseling		Remarks						Legend			
From (m bgl	l) To	(m bgl) T	Time (hh:mm)	Reason for Termination:		s	ample Ty	pe:	Grou	undwater:	In	-Situ Tes	its
				Borehole terminated at target depth.			- Bulk - Core		$\searrow$	∠ Groundwa Strike	HS	V - Hand S	netration Tes Shear Vane
				Groundwater Remarks:			- Disturb S - Enviro			Resting Groundware	ator		lonisation reen
	_	er Added		Wet soils noted at 1.8m.			ample I - Undistu	ırbod		NR = Not Recorded	S -	Standard	Penetration
From (m bgl	l) To	(m bgl)	Volume (I)	Other Remarks:		-			Lee				
				No visual or olfactory evidence of contamination identified. 2. Borehol     Somm HDPE pipe, rubber bung, gas tap and flush cover.	le installed with	V Si N	WB Consu /aterfront tation Stre ottingham G2 3DQ	House et	P: 01 E: no	: consulting.cor 15 9241100 ittingham /bconsulting.c	co	DNSULTANCY	ENVIRONMEN

TRIAL P	IT	LO	G											Scale: 1	:20		Sheet 1 of
LOCATION ID:	Proj	ect N	lame:	The	ale, Readin	g											
TP01	Proj	ect N	lumb	er: NTE	2460										D:+ D:		()
11.01	Clie	nt:		First	t Panattoni										PIT DIM	ensior	Degree
Hole Type: TP	Plar	nt: Jo	CB 3C	X	Start & Er	nd Date:	26/0	9/2018				5	Stabilit	y: Sigr	nificant si	de wall c	ollapse in gravels.
Ground Level (	m AC	)D):	44.	65	Eastings 8	& Northings:	: 464	523E 171370N				Er	nginee	r: JA		Che	cker:
Groundwater						Strata						S	ample	s		In-Si	tu Tests
Strike Strike Details Bac	ckfill	evel (m AOD)	Thickn ess			Descri	iption		Le	egend (m b	th Ty	ре	From (m)	To (m)	Туре	Depth (m)	Result
		44.40	0.25m	rootlet: flint, qu (Topsoi	s. Gravel is uartzite and il)	fine to coars	se angul	with abundant ar to subangular		0.2	E	:S	0.10	0.10	HSV	0.30	(92, 80, 56)kPa
			0.75m	slightly	gravelly Cl nded flint.			e slightly sandy coarse angular to									(-,-,-,-,-
1m bgl 1.00m bgl after 20mins			0.50m	fine to	coarse ang am Grange	ular to subro Gravel Mer	ounded i			1.0	E	3	1.30	1.30			
		43.15			ŀ	Hole Terminated	d at 1.50m	bgl.		1.5	U						
					Po	marks					+				Lege	nd	
leason for Termi rial pit terminate Groundwater No ignificant ground	ed du	e to in			lwater and p						B - E D - E	Distur Envir			Groun  Strike  Restin	trikes: dwater	In-Situ Tests: HSV - Hand Shear Vane Test PID - Photo Ionisatio Detector Test
Other Remarks: No visual or olf	factor	y evid	ence o	of contam	ination iden	tified. 2. Trial	l pit backf	illed with arisings u	ipon com	npletion.	Wat Stat Not		am	bwb E: n @b	o: oconsultir ottinghar wbconsul 115 9241	n ting.com	BVVE CONSULTANCY   ENVIRONME INFRASTRUCTURE   BUILDING

TRI	AL	PIT	LC	G											Scale: 1	:20		Sheet 1 of 1
LOCA	TION I	): Pro	oject N	Name:	The	ale, Reac	ling											
TI	P02	Pro	oject N	Numb	er: NTE	2460										Pit Dim	ancio	as (m)
••	02	Cli	ent:		First	Panatto	ni									FIL DIII	iensioi	Degrees
Hole Ty			int: J	CB 3C	CX .	Start &	End Date:		26/09/20	018						nificant si	1	collapse in gravels.
	d Leve	l (m A	OD):	44.	34	Easting	s & Northin	igs:	464660E	171389N			1	Engine				cker:
Ground	Strike		Level (m	Thickn			Stra							Sample			In-S Depth	itu Tests
Strike	Details	Backfill	AOD)	ess	Soft to	firm bro	De wn slightly و	escription		LAV with	Lege	end (m b)	Type	From (m	To (m)	Туре	(m)	Result
	0.70m		44.04	0.30m 0.40m	abunda subang (Topsoi Soft to with fre to subre (Alluviu	int rootle ular flint l) firm darl equent re ounded f im)	ets. Gravel is and quartz c brown slig elic rootlets flint.	s fine t ite. ghtly gr i. Grave	o coarse avelly sar	angular to ndy organic CLA o coarse angula	ar	0.30						
	bgl after 20mins		43.04	0.60m	sandy C flint. (Alluviu	CLAY. Gra	vel is fine to	o coars	e angulai	slightly gravelly to subrounde		1.30	D	1.20	1.20	HSV	0.80	(8, 12, 12)kPa
	1.4m bgl		42.84	0.20m	fine to	coarse a	slightly cla ngular to su ge Gravel M Hole Termin	ibroun Iembe	ded flint. r)	/EL. Gravel is		- 1.51						
Reason	n for Ter	minati	ion·				Remarks						Sampl	es:	Groun	Lege		In-Situ Tests:
Trial pi	t termin	ated d	ue to ii		of ground		d poor stabilit	ty					B - Bul D - Dis	k turbed wironment		Grour Strike Restin	ndwater	In-Situ Tests: HSV - Hand Shear Vane Test PID - Photo Ionisation Detector Test
	Remarks		ory evid	dence :	of contam	ination id	entified. 2. T	rial pit l	backfilled <sup>,</sup>	with arisings upo	n comp	letion.	Water		e bwl E: n @b	b: bconsultii ottinghar wbconsu 1115 9241	m Iting.com	BWB  CONSULTANCY   ENVIRONMENT INFRASTRUCTURE   BUILDINGS

TRIAL	_							Scale: 1	:20		Sheet 1 of 1
LOCATION ID	): Pro	ject N	Name:	Theale, Reading							
TP03			Numb	er: NTE2460					Pit Din	nensio	ns (m)
00	Clie	ent:		First Panattoni							Degrees
Hole Type: TP	Pla	nt: J	CB 3C	X Start & End Date: 26/09/2018					nificant si	ide wall d	collapse in gravels.
Ground Level	(m A	OD):	44.	22 <b>Eastings &amp; Northings:</b> 464727E 171369N		E	Enginee	er: JA		Che	cker:
Groundwater				Strata		!	Sample	es		In-S	itu Tests
Strike Strike Details	Backfill	Level (m AOD)	Thickn ess	Description	Legend (m bgl)	Туре	From (m)	To (m)	Туре	Depth (m)	Result
1.20m bgl after 20mins bgl		43.92 43.42 42.72	0.30m	Soft dark brown slightly gravelly sandy CLAY with frequent rootlets. Gravel is fine to coarse angular to subrounded flint and quartzite. (Topsoil)  Soft dark brown slightly silty slightly gravelly organic CLAY with frequent organic relics. Gravel is fine to coarse angular to subrounded flint. (Alluvium)  Very soft to soft bluish grey slightly silty slightly sandy slightly gravelly CLAY. Gravel is fine to coarse angular to subrounded flint. (Alluvium)  Orangish brown slightly sandy slightly clayey GRAVEL. Gravel is fine to coarse angular to subrounded flint. (Beenham Grange Gravel Member)  Hole Terminated at 1.90m bgl.	0.30    1.50	ES D	1.00	1.00	HSV	1.00	(14, 12, 12)kPa
					-						
				Remarks					Lege	nd	
Reason for Terr Trial pit termina Groundwater I Significant grou	ated di	ue to ii		of groundwater and poor stability		Sample B - Bulk D - Distu ES - Env Sample	urbed ironmenta		Grour  Strike  Restin	itrikes:	In-Situ Tests: HSV - Hand Shear Vane Test PID - Photo Ionisation Detector Test
Other Remarks  1. No visual or o		ry evid	dence (	of contamination identified. 2. Trial pit backfilled with arisings upon	completion.		ham	e bwk E: n @b	o: oconsultii ottinghar wbconsu 115 9241	m Iting.com	BWB  CONSULTANCY   ENVIRONMENT INFRASTRUCTURE   BUILDINGS

TRIAL													Scale: 1	:20		Sheet 1 of
LOCATION ID	): Pro	ject N	lame	: The	eale, Readin	g										
TP04		ject N	lumb		E2460									Pit Dim	nensior	ns (m)
	Clie				t Panattoni											Degree
Hole Type: TP	Pla	nt: J	CB 30	CX	Start & Er	nd Date:	26/09/2018	8				Stabilit	y: Sign	ificant si	de wall c	ollapse in gravels.
Ground Level	(m A	OD):	44	.44	Eastings 8	& Northings:	464766E 1	71399N			E	nginee	er: JA		Che	cker:
Groundwater			T			Strata			_		9	Sample	s		_	tu Tests
Strike Strike Details B	Backfill	Level (m AOD)	Thickn ess			Descript			Legend	Depth (m bgl)	Туре	From (m)	To (m)	Туре	Depth (m)	Result
		44.24	0.20m	rootlet flint, q		fine to coarse	avelly SAND we angular to su			0.20	F.C.	0.20	0.20			
0.4m		44.04	0.20m	to coar Natura	rse angular al Material)		y clayey SAND ed flint. (Possil	. Gravel is fine ble reworked		0.40	ES	0.30	0.30			
			0.50m	Orangi fine to rework		ular to subrou	clayey GRAVEl unded flint. (P									
		43.54	1.20m	Soft to silty gr subrou	firm light gravelly CLAY. Inded flint. In western fa	Gravel is fine (Strata record	orange slightly e to coarse ang ded between 2			0.90	D	1.20	1.20	HSV	1.20	(34, 28, 34)kPa
1.8m bgl		42.34							× × × × × × × × × × × × × × × × × × ×	2.10				HSV	1.80	(33, 37, 30)kPa
		42.24	0.10m	angula	ir to subang nam Grange			e to coarse		- 2.20						
										- - - - - - - - -						
Reason for Terr	minati	on:			Re	marks					Samples		Gra	Lege		In-Situ Tests:
Trial pit termina  Groundwater N  Minor ingress a	ated du	ue to ir			<u> </u>	oor stability					B - Bulk D - Distu			Groun  Strike  Restin	dwater	HSV - Hand Shear Vane Test PID - Photo Ionisatio Detector Test
Other Remarks  1. No visual or o		ry evic	lence	of contam	nination iden	tified. 2. Trial p	oit backfilled wit	th arisings upon c	completi	ion.		ham	bwb E: no @bv	o: oconsultir ottinghar wbconsul 115 9241	n ting.com	BWE  CONSULTANCY   ENVIRONME INFRASTRUCTURE   BUILDING

TR	IAL	PIT	LC	G												Scale: 1	:20		Sheet 1 of 1
LOCA	ATION I	D: Pro	oject N	lame	: The	ale, Read	ding												
<b>T</b>	P05	Pro	oject N	lumb	er: NTE	2460											D.1 D.		( )
•	PUS	Cli	ent:		First	t Panatto	oni										Pit Dim	nensio	ns (m) Degrees
Hole Ty	ype: TP	Pla	int: J	CB 3C	CX	Start &	End Date:		26/09/20	018					Stabilit	y: Sigr	nificant si	ide wall o	ollapse in gravels.
Grou	nd Leve	l (m A	OD):	44.	.54	Easting	s & Northing	gs:	464719E	171449N				E	nginee	er: JA		Che	cker:
Groun	dwater						Stra	ta						9	Sample	es .		1	itu Tests
Strike	Strike Details	Backfill	Level (m AOD)	Thickn ess				scription				Legend	Depth (m bgl)	Туре	From (m)	To (m)	Туре	Depth (m)	Result
	1.5m bgl		44.14 43.84 43.64	0.40m  0.30m  0.20m	Soft dan organic subroun (Alluviu Very so (Alluviu Below O. Orangis angular	rk brown: relics anded flir um) oft light g coarse a um) 1.80m bgl: sh brown r to suba	n slightly grand odour. Grant. grey slightly singular to sul	velly sa avel is sandy g bangul VEL. Gi	andy org fine to co gravelly C lar flint. ravel is fi	anic CLAY with coarse angular CLAY. Gravel is	to		0.70	ES D	0.30 0.60 0.80	0.30 0.60 0.80	HSV	0.80	(10, 12, 16)kPa
							Remarks										Lege	nd	
Trial pi	dwater	nated d	ue to ir		of ground	lwater an	d poor stabilit	У						Samples B - Bulk D - Distu ES - Envi Sample			Groun  Strike  Restin	strikes: idwater	In-Situ Tests: HSV - Hand Shear Vane Test PID - Photo Ionisation Detector Test
ł	<b>Remark</b> visual or		ory evic	dence	of contam	ination id	lentified. 2. Tr	rial pit b	oackfilled <sup>,</sup>	with arisings up	on cor	mpletio	on.		nam	e bwb E: n @b	o: oconsultir ottinghar wbconsul 115 9241	m Iting.com	BWB  CONSULTANCY   ENVIRONMENT INFRASTRUCTURE   BUILDINGS

TR	IAL	PIT	LC	G										Scale: 1	:20		Sheet 1 of 1
LOCA	ATION I	D: Pro	oject N	lame:	: The	ale, Reading					_						
Т	P06	Pro	oject N	lumb	er: NTE	2460									Dit Di-		()
•	- 00	Cli	ent:		First	Panattoni									Pit Dim	iensior	Degrees
Hole Ty	ype: TP	Pla	int: J	CB 3C	CX	Start & End D	ate:	26/09/201	8				Stabilit	y: Sign	nificant si	de wall c	ollapse in gravels.
Groui	nd Leve	el (m A	OD):	45.	02	Eastings & No	orthings:	464692E 1	71461N			E	nginee	r: JA	ı	Che	cker:
Groun	dwater		I	I I			Strata			1		S	ample	s			itu Tests
Strike	Strike Details	Backfill	Level (m AOD)	Thickn			Descripti			Legend	Depth (m bgl)	Туре	From (m)	To (m)	Type	Depth (m)	Result
	1.5m bgl		44.62 44.52	0.40m	rootlets flint. (Topsoi  Soft firr gravelly coarse (Alluviu Dark gr angular	m light brown in CLAY with occur of CLAY with occur angular to sub im) eyish brown sa to subrounde am Grange Gra	mottled or casional ro rounded fl andy GRAV d flint.	ange slightly otlets. Grave int. EL. Gravel is	sandy I is fine to		0.40	B	1.70	1.70			
						D	rleo								1		
Trial pi		nated d	ue to ir	ngress	of ground	Remain water and poor						Samples B - Bulk D - Distu ES - Envi			Groun Strike Restin	trikes: dwater	In-Situ Tests: HSV - Hand Shear Vane Test PID - Photo Ionisation
Signifi		undwa		ress fro	om gravels	i.						Sample				dwater	Detector Test
ł	<b>Remarl</b> visual or		ory evic	dence (	of contam	ination identified	d. 2. Trial pi	t backfilled wi	th arisings upon c	ompleti	on.		nam	bwb E: no @bv	o: oconsultir ottinghar wbconsul 115 9241	n ting.com	BWB  CONSULTANCY   ENVIRONMENT INFRASTRUCTURE   BUILDINGS

TRIA	AL F	PIT	LO	G												Scale: 1	:20		Sheet 1 of 1
LOCATION	ON ID	: Pro	ject N	lame:	The	ale, Reac	ding												
TP	<b>07</b>	Pro	ject N	lumb	er: NTE	2460											D:+ D:		()
	0,	Clie	ent:		First	t Panatto	ni										PIT DIM	nensio	Degrees
Hole Type			nt: J	CB 3C	X	Start &	End Date:		26/09/20	)18					Stabilit	y: Sigr	nificant si	ide wall d	ollapse in gravels.
Ground	Level	(m A	OD):	44.	76	Easting	s & Northin	gs:	464708E	171506N				E	nginee	er: JA		Che	cker:
Groundw							Stra	ita						S	ample	:S		1	itu Tests
	etails B	ackfill	Level (m AOD)	ess	<b>D</b>	-P-I-II		scription				end (	Depth m bgl)	Туре	From (m)	To (m)	Туре	Depth (m)	Result
20 1.	.20m bgl ifter omins .45m bgl		44.41	0.35m	rootlet: flint, qu (Topsoi  Soft to with fre rounde (Alluviu Below 0  Greyish angular (Beenh	s. Gravel uartzite a il) firm oral equent re ed flint. B um) 550m bgl: e r to subre	is fine to co and brick. ngish brown ootlets. Grav ecoming gra	oarse and sight vel is fiey from well. Gratt.	ly gravelly ine to coan 0.5m.	y sandy CLAY urse angular to			0.35	ES D	0.20	0.20			
												$\dagger$							
							Remarks								1	<u> </u>	Lege		
Groundw	ermina vater N	ted du	ue to ir		of ground		d poor stabilit	ty						Samples B - Bulk D - Distu ES - Envi Sample			Z Strike Restin	ndwater	In-Situ Tests: HSV - Hand Shear Vane Test PID - Photo Ionisation Detector Test
Other Re	marks	:					entified. 2. T	rial pit l	backfilled v	with arisings upo	n comp	letior	n.		nam	bwb E: n @b		m Iting.com	BWB CONSULTANCY   ENVIRONMENT INFRASTRUCTURE   BUILDINGS

TR	IAL	PIT	LC	G												Scale: 1	:20		Sheet 1 of 1
LOCA	TION I	D: Pro	oject N	lame	: The	ale, Re	eading												
Т	P08	Pro	oject N	lumb	er: NTE	2460											Dit Di-		()
•	F 00	Cli	ent:		First	t Pana	ttoni										PIT DIM	nensio	Degrees
Hole Ty	ype: TP	Pla	nt: J	CB 3C	CX	Start	& End	Date:	2	26/09/20	18				Stabilit	y: Sigr	nificant si	ide wall o	ollapse in gravels.
Groui	nd Leve	l (m A	OD):	44.	.79	Easti	ngs & N	Northings	s: 4	164743E	171470N			E	nginee	er: JA		Che	cker:
Groun	dwater		I	I 1	Ī			Strata	a						Sample	es .		1	itu Tests
Strike	Strike Details	Backfill	Level (m AOD)	Thickn	5 11		1. 1.1		cription			Legen	d Depth (m bgl)	Туре	From (m)	To (m)	Туре	Depth (m)	Result
	1.5m bgl		43.99	0.40m	frequer subrour (Topsoi Soft light sandy C coarse (Alluviu Greyish subrour	nt root nded f il) ht gree CLAY w angula um) n brow nded f	y occasi y occasi yith occ ar to su yn sand fine to o	ravel is find occasion	nottled rootlet r flint. L. Grav int.	coarse a pal. d orange es. Grave	SAND with ngular to  slightly gravelly I is fine to		0.40	ES	1.40	1.40			
													-						
							De:	arks									1		
Reaso	n for Te	rminat	ion:				Rem	arks						Samples	5:	Groun	Lege dwater S		In-Situ Tests:
Trial p	it termir	nated d	ue to ii	ngress	of ground	water	and poo	or stability						B - Bulk D - Distu			Grour	ndwater	HSV - Hand Shear Vane Test
	<b>dwater</b> dwater			at 1.5n	n rising to	was 1.	40m bgl	after 20 n	minute	S.					ronmenta		<ul><li>Restin</li></ul>		PID - Photo Ionisation Detector Test
ł	<b>Remark</b> visual or		ory evid	dence	of contam	ination	n identifi	ed. 2. Tria	al pit ba	ackfilled v	vith arisings upon	comple <sup>:</sup>	tion.		nam	bwb E: n @b	o: oconsultii ottinghar wbconsu 115 9241	m Iting.com	BWB  CONSULTANCY   ENVIRONMENT INFRASTRUCTURE   BUILDINGS

TRIAL F	PIT	LO	G													Scale: 1	:20		Sheet 1 of 1
LOCATION ID	: Proj	ect N	lame:	: Th	eale, R	eading													
<b>TP09</b>	Proj	ect N	lumb	er: NT	E2460												Di+ Dim	nensior	20 (20)
11 03	Clie	nt:		Fir	st Pana	ttoni											ווו שווו	iensioi	Degree.
Hole Type: TP	Plar	nt: J	CB 3C	ΣX	Start	& End	Date:		24/09/2	018					Stabili	ty: Sigr	nificant si	ide wall c	ollapse in gravels.
Ground Level	(m AC	)D):	44.	15	Easti	ings &	Northin	gs:	464826E	171434	N			E	ngine	er: JA		Che	cker:
Groundwater							Stra	ta						!	Sample	es		In-S	tu Tests
Strike Strike Details B	ackfill <sup>L</sup>	evel (m AOD)	Thickn ess				Des	scription				Legen	d Depth (m bgl)	Туре	From (m)	To (m)	Туре	Depth (m)	Result
		43.70 43.45	0.45m	Very s CLAY. and q (Alluv Very s CLAY v (Alluv	ent roo e flint a bil) oft ora Gravel uartzite ium) oft to s with fre ium)	ngish b is angu e.	rown sli lar to su k browr relic ma	ightly subround	r to sub andy sli ded fine ly sandy	SAND wrounded ghtly grato coars peaty or	velly e flint ganic		0.45	D ES	0.50	0.50	HSV	0.50	(12, 16, 12)kPa
1.80m bgl after 20mins 2m bgl		42.15 42.05	0.50m	angula (Alluv Light a	ar to su ium) grey slig prounde	ghtly cled fine range 6	ded fine	ndy GR se flint lember	AVEL. Go	ravel is a			2.00						
Page to T	nin					Rem	arks							c- ·			Lege		In Ch. 7
Reason for Tern Trial pit termina Groundwater N Significant groun	ted du	e to ir				and poo	or stabilit	у						B - Bulk D - Distu ES - Env Sample	urbed ironmenta		Z Strike Restin	ndwater	In-Situ Tests: HSV - Hand Shear Vane Test PID - Photo Ionisation Detector Test
<b>Other Remarks</b> : 1. No visual or o		y evic	lence (	of contar	mination	n identif	ied. 2. Tr	rial pit b	oackfilled	with arisi	ngs upon (	complet	ion.		ham	e bwk E: n @b	b: oconsultin ottinghar wbconsu 115 9241	m Iting.com	BVVB  CONSULTANCY   ENVIRONMENT INFRASTRUCTURE   BUILDING

TR	IAL	PIT	LC	G													Scale: 1	:20		Sheet 1 of :
LOCA	ATION I	D: Pro	oject N	lame:	: The	ale, Re	ading													
▎┰	P10	Pro	oject N	lumb	er: NTE	2460												D.1 D.		( )
•	LIO	Cli	ent:		First	t Panat	toni											PIT DIM	nensio	Degree:
	ype: TP		int: J	CB 3C	CX	Start	& End [	Date:	2	4/09/20	018					Stabilit	y: Sign	nificant si		collapse in gravels.
Grou	nd Leve	l (m A	OD):	44.	88	Easti	ngs & No	orthings	<b>s:</b> 4	64795E	171463	N				inginee			Che	cker:
	dwater		Level (m	Thiston				Strata	1							Sample			_	itu Tests
Strike	Strike Details	Backfill	AOD)	ess	Drown	cliabth	, clayou		ription	IV CAND	with fre	auont	Legend	(m bgl)	Туре	From (m)	To (m)	Type	Depth (m)	Result
			44.58	0.30m 0.50m	rootlets flint an (Topsoi Light bi frequer coarse (Beenh	s. Grav id quar il) rown s nt root flint ar nam Gr	rel is ang tzite. lightly c lets. Gra nd chalk ange Gra	gular to s layey sli avel is ar avel Me	ghtly g ngular mber)	gravelly to subr	SAND wounded	ith fine to		0.30	ES D	0.40	0.40			
	1.30m bgl after 20mins 1.4m bgl		43.38	0.70m	angular	r to sul	brounde ange Gr		o coar mber)	se flint a	and chal			1.50	В	1.40	1.40			
			<u> </u>				Rema	rks						1				Lege	nd	
Trial pi	dwater	nated d	ue to ir		of ground										Samples B - Bulk D - Distu ES - Envi Sample			Groun  Strike  Restin	Strikes: ndwater	In-Situ Tests: HSV - Hand Shear Vane Test PID - Photo Ionisation Detector Test
ł	<b>Remark</b> visual or		ory evid	dence	of contam	nination	identifie	d. 2. Tria	al pit ba	ackfilled v	with arisin	ngs upon c	completi	ion.		nam	bwb E: n @b	o: oconsultir ottinghar wbconsul 115 9241	m Iting.com	BWB  CONSULTANCY   ENVIRONMENT INFRASTRUCTURE   BUILDINGS

TRIAL	PIT	LO	G									Scale: 1	:20		Sheet 1 of
LOCATION ID	: Pro	ject N	lame:	: The	ale, Reading										
TP11			lumb	er: NTE	2460								Dit Dim	nensior	os (m)
	Clie	ent:		First	Panattoni								TI DIII	16113101	Degree
Hole Type: TP	Pla	nt: J	CB 3C	X	Start & End Date:	24/09/20	18				Stabilit	y: Sign	ificant si	de wall c	ollapse in gravels.
Ground Level	(m A	OD):	44.	92	Eastings & Northing	<b>s:</b> 464779E	171505N			E	nginee	r: JA		Che	cker:
Groundwater					Strat	a		_		9	Sample	s		In-Si	tu Tests
Strike Strike Details B	ackfill	Level (m AOD)	Thickn ess			ription		Legend	Depth (m bgl)	Туре	From (m)	To (m)	Туре	Depth (m)	Result
		44.57	0.35m	frequer coarse (Made	rown slightly clayey sl nt rootlets. Gravel is a flint. Ground) firm orangish brown :	ngular to subr	ounded fine to		- 0.35						
			0.75m	CLAY w subrou (Made	ith frequent organic r nded fine to coarse fl Ground) n bgl: Gravel strata is shal	elics. Gravel is int.	angular to								
		42.02			n bgl: Barrier tape in east i		e wall.		-	ES	0.90	0.90			
		43.82	0.60m	of sligh	rown slightly sandy G tly clayey sand. am Grange Gravel Me		asional pockets		- 1.10						
1.50m bgl after 20mins 1.7m bgl		43.22			Hole Terminal	ed at 1.70m bgl.			- - - - 1.70	B ES	1.50 1.50	1.50 1.50			
					Remarks								Lege	nd	
Reason for Tern Trial pit termina Groundwater N Gignificant grou	ted du	ue to ir			water and poor stability					Samples B - Bulk D - Distu ES - Envi Sample			dwater S Groun Strike Restin	<b>trikes:</b> dwater	In-Situ Tests: HSV - Hand Shear Vane Test PID - Photo Ionisatio Detector Test
Other Remarks No visual or c		ry evid	lence (	of contam	ination identified. 2. Tri	al pit backfilled v	vith arisings upon c	ompletio	on.		nam	bwb E: no @bv	o: oconsultir ottinghar wbconsul 115 9241	n ting.com	BWE CONSULTANCY   ENVIRONMI

TRI	AL	PIT	LO	G											Scale: 1	:20		Sheet 1 of 1
LOCA	TION I	D: Pro	oject N	lame:	: The	ale, Read	ing											
  -	P12	Pro	oject N	lumb	er: NTE	2460												( )
	12	Cli	ent:		First	t Panatto	ni									Pit Dim	nensioi	ns (m) Degrees
Hole Ty	rpe: TP	Pla	int: J	CB 3C	CX	Start &	End Date:		24/09/201	18				Stabilit	y: Sigr	nificant si	de wall d	ollapse in gravels.
Grour	d Leve	l (m A	OD):	44.	43	Eastings	& Northing	gs:	464746E 1	171533N			E	nginee	er: JA		Che	cker:
Groun	dwater						Strat	ta					9	Sample	:S		_	itu Tests
Strike	Strike Details	Backfill	Level (m AOD)	Thickn ess	_			cription			Leger	nd Depth (m bgl)	Туре	From (m)	To (m)	Туре	Depth (m)	Result
	0.90m bgl after 20mins 1.1m bgl		44.08 43.83 43.53 43.33	0.35m 0.25m 0.30m 0.40m	rootlets flint, qu (Made  Very so CLAY w (Alluviu  Very so occasio (Alluviu  Very so gravelly coarse (Alluviu  Orangis angular	s. Gravel Lartzite a Ground) oft dark b ith occas Lam) oft dark g onal relic Lam) oft light g y CLAY. G offlint. Bec Lam) sh brown r to subror	is angular to nd tile. rown slightly ional relic ro	y silty sootlets orangi alar to silly tow rey san to coa ember	sh brown subrounded ards base dy GRAVE	ndy organic  CLAY with  slightly ed fine to .			D D ES	0.10 0.50 0.75 1.00 1.00	0.10 0.50 0.75 1.00 1.00			
	<b>n for Te</b> t termir			ngress	of ground		Remarks    poor stability	у					Samples B - Bulk		Groun	Lege Idwater S Groun Strike	trikes: dwater	In-Situ Tests: HSV - Hand Shear
	dwater ant gro			ess fro	om gravels	5.							D - Distu ES - Envi Sample	ES - Environmental Resting PID - Photo Ionisation				Vane Test PID - Photo Ionisation Detector Test
	isual or olfactory evidence of contamination identified. 2. Trial pit backfilled with arisings upon completion. S										Waterfr Station S	WB Consulting Ltd Vaterfront House ation Street ottingham © bwbconsulting.com E: nottingham © bwbconsulting.com						

TRIAI		_						Scale: 1:	20		Sheet 1 of
LOCATION	N ID:	Proj	ect N	lame:	Theale, Reading						
TP1	3			lumb	er: NTE2460				Pit Dim	nensior	ns (m)
		Clie	nt:		First Panattoni			L'	TC DIII		Degree
Hole Type: T				CB 3C	X Start & End Date: 24/09/2018			•	ificant si	1	ollapse in gravels.
Ground Le	vel (r	m AC	)D):	45.	20 <b>Eastings &amp; Northings:</b> 464813E 171587N	Eng	ginee	r: JA		Che	cker:
Groundwate					Strata	Sar	nple	s			itu Tests
Strike Strik Detai			evel (m AOD)	Thickn ess	Description Legend Depth (m bgl) Type	e Fro	om (m)	To (m)	Type	Depth (m)	Result
1.7n bgl 1.85i bgl afte 20min	m I		44.20 43.50	0.65m	Brown slightly clayey slightly gravelly SAND with frequent rootlets. Gravel is angular to subrounded fine to coarse, flint and tile. (Made Ground)  Firm to stiff brown mottled light grey and orangish brown friable slightly gravelly CLAY. Gravel is angular to subrounded fine to coarse flint. (Alluvium)  Soft brown mottled light grey slightly sandy slightly gravelly CLAY. Gravel is angular to subrounded fine to coarse flint. (Alluvium)  Brown slightly clayey sandy GRAVEL. Gravel is angular to subrounded fine to coarse flint. (Beenham Grange Gravel Member)  Hole Terminated at 2.30m bgl.	11	0.50	1.25	HSV	1.25	(38, 38, 38)kPa
					Remarks				Lege	nd	
eason for rial pit terrial pit	minate	ed du	e to ir		ES - EI Samp	ulk isturbe inviron	ed mental		Strike Restin Groun	dwater	In-Situ Tests: HSV - Hand Shear Vane Test PID - Photo Ionisatio Detector Test
ther Rema	arks:				of contamination identified. 2. Trial pit backfilled with arisings upon completion.  BWB Water Statio Nottir	Level  Web: bwbconsulting.com E: nottingham  Web: bwbconsulting.com  Bwbconsulting.com  Bwbconsulting.com  Bwbconsulting.com  Bwbconsulting.com  Bwbconsulting.com  Bwbconsulting.com  B			BWE  CONSULTANCY   ENVIRONME INFRASTRUCTURE   BUILDING		

TR	IAL	PIT	LC	G											Scale: 1	:20		Sheet 1 of 1
LOCA	ATION I	D: Pro	oject N	lame:	: The	ale, Read	ing											
T	P14	Pro	oject N	lumb	er: NTE	2460										Dit Dim	oncio	os (m)
•		Cli	ent:		First	t Panatto	ni									PIL DIII	nensio	Degrees
Hole Ty	ype: TP	Pla	int: J	CB 3C	CX	Start &	End Date:		24/09/201	18				Stabilit	y: Sign	nificant si	ide wall d	ollapse in gravels.
Grour	nd Leve	l (m A	OD):	44.	98	Eastings	& Northing	gs: 4	464837E 1	171563N			E	nginee	er: JA		Che	cker:
Groun	dwater						Strat	ta					9	Sample	:S			tu Tests
Strike	Strike Details	Backfill	Level (m AOD)	ess	<b>D</b>	alta la idea		scription		tile Comment	Legend	Depth (m bgl)	Туре	From (m)	To (m)	Туре	Depth (m)	Result
			44.68 44.23	0.30m 0.45m	rootlets and qua (Topsoi Orangis occasio to coan (Alluviu	s. Gravel artzite. il) sh brown onal rootl se flint a um) sh brown	slightly sandets. Gravel is duartzite.	dy sligl s angu e.	nded fine htly grave lar to sub	with frequent to coarse flint Illy CLAY with rounded fine EL. Gravel is and quartzite.		0.30	D	0.60	0.60			
•	1.5m bgl		43.28	0.95m			ge Gravel Mo	ember	•)	iu quartzite.		1.70	ES	1.40	1.40			
							Remarks									1		
Trial pi <b>Groun</b>	ason for Termination: all pit terminated due to ingress of groundwater and poor stability  bundwater Notes: nificant groundwater ingress from gravels.												B - Bulk D - Distu	O - Disturbed Strike Vane Test S - Environmental Resting PID - Photo Ionisation				
ł	er <b>Remarks:</b> Divisual or olfactory evidence of contamination identified. 2. Trial pit backfilled with arisings upon completion.										Waterfr Station :	WB Consulting Ltd Vaterfront House ation Street ottingham  © bwbconsulting.com  E: nottingham  © bwbconsulting.com						

TRIAL P	IT LO	G					Scale: 1	:20		Sheet 1 of 1
LOCATION ID:	Project N	lame:	Theale, Reading							
TP15	Project N	lumbe	r: NTE2460					D.1 D.		( )
11.13	Client:		First Panattoni					Pit Dim	iensior	Degree:
Hole Type: TP	Plant: J	CB 3C	Start & End Date: 24/09/2018			Stabilit	t <b>y</b> : Sigr	nificant si	de wall c	ollapse in gravels.
Ground Level (	m AOD):	44.6	<b>Eastings &amp; Northings:</b> 464877E 171559N		E	Enginee	er: JA		Che	cker:
Groundwater			Strata		:	Sample	es		In-S	itu Tests
Strike Strike Details Ba	ckfill Level (m	Thickn ess	Description	Legend Depth (m bgl)	Туре	From (m)	To (m)	Туре	Depth (m)	Result
1.4m bgl	44.26	0.40m	Brown slightly clayey slightly gravelly SAND with frequent rootlets. Gravel is angular to subrounded flint and quartzite. (Topsoil)  Firm to stiff orangish brown mottled light grey slightly sandy slightly gravelly CLAY with occasional rootlets. Gravel is angular to subrounded flint and quartzite. (Alluvium)  Orangish brown slightly clayey sandy GRAVEL. Gravel is angular to subrounded flint and quartzite. (Beenham Grange Gravel Member)  Below 1.10m bgl: Dark grey.  Hole Terminated at 1.70m bgl.	1.00	ES	1.30	1.30			
Groundwater No Significant ground Other Remarks:	ed due to ir otes: dwater ingr	ess fro	Remarks  of groundwater and poor stability  m gravels.  of contamination identified. 2. Trial pit backfilled with arisings upon	completion.	Sample BWB Co	urbed ironmenta onsulting L ont House Street ham	atd Wellbwk E: n @b	Strike Restin Groun Level	trikes: dwater g dwater ng.com n ting.com	In-Situ Tests: HSV - Hand Shear Vane Test PID - Photo Ionisatio Detector Test  CONSULTANCY   ENVIRONMENT INFRASTRUCTURE   BUILDING

TRI	AL I	PIT	LC	G													Scale: 1	.:20		Sheet 1 of 1
LOCA	TION IE	): Pro	oject N	lame:	: Th	neale,	Readin	g												
Т	<b>216</b>	Pro	ject N	lumb	er: NT	TE246	0											Di+ Dim		22 (22)
• • •	10	Clie	ent:		Fir	rst Par	nattoni											PIT DIF	nensio	Degree:
Hole Ty	oe: TP	Pla	nt: J	CB 3C	ΣX	Sta	rt & Er	nd Date	<b>:</b> :	24/09	9/2018					Stabili	ty: Sig	nificant s	ide wall o	ollapse in gravels.
Groun	d Level	(m A	OD):	44.	13	Eas	tings 8	& North	ings:	4649	06E 171	L477N			E	Engine	er: JA		Che	cker:
Ground	lwater							St	trata						:	Sample	es		In-S	itu Tests
Strike	Strike Details	Backfill	Level (m AOD)	Thickn ess					Description	on			Legen	d (m bgl)	Туре	From (m)	To (m)	Туре	Depth (m)	Result
	0.80m bgl after 20mins		43.68 43.38 43.23 42.93	0.45m  0.30m  0.15m  0.50m	Very s grave subro (Alluv Very s (Alluv Very s chalk. (Alluv Light	soft or elly CLA counded vium) soft da vium) soft lig el is and vium) grey s bround	rangish AY with d fine t ark bro ght gre- igular t lightly ded fin Grange	brown freque to coars wn san y and g to subro	becoment rootse flint a dy peat reenish bunded sandy G	ning gredelets. Grand quality CLAY. In grey sing fine ar	ey organ ravel is a artzite. lightly g nd medi Gravel nd chall	ravelly CLAY. um flint and is angular k.		1.20	D ES D B	0.80 0.80 1.00	0.80 0.80 1.00	HSV	1.00	(20, 20, 18)kPa (10, 11, 12)kPa
Passa-	for Ter	minati	or:				Re	marks							Ca			Lege		In City Tooks
Trial pit	termina	ated d	ue to ir		of grour		er and p	oor stab	pility						B - Bulk D - Disto ES - Env Sample	urbed ironmenta		Z Strike Resti	ndwater e ng ndwater	In-Situ Tests: HSV - Hand Shear Vane Test PID - Photo Ionisation Detector Test
	Remarks		ory evic	dence (	of contai	aminati	on iden	tified. 2	. Trial pi	t backfil	led with	arisings upon (	complet	tion.		ham	e bw E: r @b	bconsulti nottingha	m Ilting.com	BVB  CONSULTANCY   ENVIRONMENT INFRASTRUCTURE   BUILDING

Theale, Reading Mineral Resource Assessment August 2023 THR-BWB-ZZ-XX-RP-CE-1003\_MS



Appendix 3: Gas and Groundwater Monitoring Results

## BWB GAS AND GROUNDWATER MONITORING

Site:		Theale, Reading					
Client:		First Panattoni					
Job No.:		NTE2460					
Date:		27th September 2018					
Start / End Time:		07:10 - 10:50					
Engineer:		ZT					
Monitoring Equipment:	Gas Meter ID	BWB00957					
	PID ID	BWB00961					
	Dip Tape						
	Other						



Weather Conditions	Start	End
(Dry / Raining)	DRY	DRY
Cloud Cover (Oktas)	2	1
Wind Strength (m/s)	0.6	0.4
Wind Direction (from)	E	E
Temperature (°C)	6.0	13.0
Barometric Pressure (mb)	1022	1024
(Rising/ Falling)		rising
PID - Air		
PID - Calibration Gas		

Relative Pressure	Flow	(l/hr)	Methan	e (%v/v)	Carbon Dia	xide (%v/v)	Oxyger	n (%v/v)	Hydrogen Sulphide	Carbon Monoxide	PID	Depth to	Base of Response	Free-Phase Product Level	Groundwater	Notes	
Location Reference	Pressure (mbar)	Peak	Steady	Peak	Steady	Peak	Steady	Min	Steady	(ppm)	(ppm)	(ppm)	water (m)	Zone (m)	Top (m)	Elevation (m AOD)	
Ambient Air Start (Calibration)	()															(	
Ambient Air Finish (Calibration)																	
BH01			<0.1		<0.1		0.4		20.3	<1	<1	0.8	1.89	4.36		43.54	
вноз			<0.1		<0.1		0.2		20.8	<1	<1	0.1	1.07	3.68		43.44	
BH06 (S)		65.5	<0.1		<0.1		0.3		20.6	<1	<1	<0.1	0.55	1.23		43.56	
BH06 (D)			<0.1		<0.1		0.3		20.6	<1	<1	<0.1	0.53	10.04		43.58	
DS01			<0.1		<0.1		0.4		19.8	<1	<1	64.2	1.32	5.00		43.63	
D\$02			<0.1		<0.1		<0.1		20.2	<1	<1	0.7	1.21	3.03		43.64	
D\$03			<0.1		<0.1		0.6		20.0	<1	<1	24.4	1.77	4.99		43.64	
D\$04		-0.3	<0.1		<0.1		0.3		19.7	<1	<1	1.8	1.72	3.04		43.64	

## BWB GAS AND GROUNDWATER MONITORING

Site:		Theale, Reading				
Client:		First Panattoni				
Job No.:		NTE2460				
Date:		3rd October 2018				
Start / End Time:		99:00 - 10:00				
Engineer:		ZT				
Monitoring Equipment:	Gas Meter ID	BWB00957				
	PID ID	BWB00961				
	Dip Tape					
	Other					

NR = Not Recorded Dry = No Groundwater



Weather Conditions	Start	End
(Dry / Raining)	DRY	DRY
Cloud Cover (Oktas)	1	1
Wind Strength (m/s)	0.9	0.5
Wind Direction (from)	S	SE
Temperature (°C)	14.0	14.0
Barometric Pressure (mb)	1024	1022
(Rising/ Falling)		FALLING
PID - Air		
PID - Calibration Gas		

	Relative Pressure	Flow	(l/hr)	Methan	e (%v/v)	Carbon Dio	xide (%v/v)	Oxygei	ı (%v/v)	Hydrogen Sulphide	Carbon Monoxide	PID	Depth to	Base of Response	Free-Phase Product Level	Groundwater	Notes
Location Reference	Pressure (mbar)	Peak	Steady	Peak	Steady	Peak	Steady	Min	Steady	(ppm)	(ppm)	(ppm)	water (m)	Zone (m)	Top (m)	Elevation (m AOD)	
Ambient Air Start (Calibration)																	
Ambient Air Finish (Calibration)																	
BH01		0.3	<0.1		<0.1		0.8		20.3	<1	<1	<0.1	2.00	4.35		43.43	
вн03		-27.2	<0.1		<0.1		0.2		21.2	<1	<1	0.1	1.09	3.70		43.42	
BH06 (S)		-0.1	<0.1		<0.1		<0.1		21.4	<1	<1	<0.1	0.53	1.59		43.58	
BH06 (D)		-0.3	<0.1		<0.1		0.4		21.1	<1	<1	0.4	0.55	9.99		43.56	
DS01		0.1	<0.1		<0.1		1.2		18.6	<1	<1	14.3	1.33	4.99		43.62	
DS02			<0.1		<0.1		0.4		20.0	<1	<1	0.2	1.31	3.04		43.54	
DS03			<0.1		<0.1		0.1		20.8	<1	<1	0.3	1.89	4.95		43.52	
DS04			<0.1		<0.1		0.8		20.2	<1	<1	0.3	1.92	2.94		43.44	

