Gatwick Airport Northern Runway Project

Environmental Statement
Appendix 10.9.1: Preliminary Risk Assessment

Book 5

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1 Introduction

1.1 General

1.1.1 This document forms Appendix 10.9.1 of the Environmental Statement (ES) prepared on behalf of Gatwick Airport Limited (GAL)for the proposal to make best use of Gatwick Airport's existing runways and infrastructure (referred to within this report as 'the Project').

1.1.2 This document provides the Preliminary Risk Assessment for the Project.

1.2 Preamble

1.2.1 The Preliminary Risk Assessment provides an appraisal of potential areas of land contamination likely to be affected by the Project and forms the main source of information in defining the Baseline Environment (Section 10.6 of **ES Chapter 10: Geology and Ground Conditions** (Doc Ref. 5.1)). It utilises desk based information and data from previous ground investigations to determine whether potential contamination sources resulting from historical/existing activities could cause a risk to future site users, construction workers, adjacent site users, controlled waters and the environment during the construction and operation of the Project. This Preliminary Risk Assessment has been undertaken to identify areas of land contamination that would plausibly cause a risk and thus determine whether control measures or remediation are necessary.

1.3 Legislation, Policy and Guidance

1.3.1 This report has been produced in general accordance with the following:

- Water Environment (Water Framework Directive) Regulations 2017;
- Contaminated Land (England) Regulations 2006;
- Environmental Protection Act 1990;
- Environmental Permitting (England and Wales) Regulations 2016;
- National Planning Policy Framework (2021);
- Airports National Policy Statement (2018);
- National Networks National Policy Statement (2015);
- Department for Environmental, Food and Rural Affairs (DEFRA) Environmental Protection Act 1990: Part 2A - Contaminated Land Statutory Guidance (2012);
- Environment Agency (2020) Land Contamination Risk Management (LCRM)
- Construction Industry Research and Information Association (CIRIA) Document C665: Assessing Risks Posed by Hazardous Ground Gases to Buildings (CIRIA, 2007);
- CIRIA Document C552 – Contaminated land Risk Assessment: A Guide to Good Practice (CIRIA, 2001a);
- CIRIA Document C532 – Control of Water pollution from Construction Sites: Guidance for Consultants and Contractors (CIRIA, 2001b);
- British Standard requirements for the 'Investigation of potentially contaminated sites - Code of practice' (ref. BS10175:2011+A2:2017);
- British Standard requirements for the 'Code of practice for ground investigations' (ref. BS5930:2015); and
- British Standard requirements for the 'Code of practice for the design of protective measures for methane and carbon dioxide ground gases for new buildings' (ref BS8485:2015+A1:2019).

1.3.2 Where appropriate, consideration has also been given to the following:

- The potential for environmental liabilities to occur under other associated regimes, for example the Water Resources Act 1991 and the Environmental Damage (Prevention and Remediation) (England) Regulations 2015; and
- Key constraints on site redevelopment.

1.3.3 Details of the limitations of this type of assessment are described in Annex 1.

1.4 Data Sources

1.4.1 The assessment utilises information obtained from the following sources:

- British Geological Survey (BGS), Geology of Britain Viewer (Website: http://mapapps.bgs.ac.uk/geologyofbritian/home.html);
- Geological Survey of England and Wales, Sheet 302 Horsham, 1:50,000 scale;
- Environment Agency (EA) Groundwater Vulnerability mapping, 1:100,000 scale);
- Groundsure GeoInsight Report (geological and hydrogeological information provided by the BGS and EA;
- Groundsure EnviroInsight Report (landfills and other contaminative land use information provided by the EA, local planning authorities and the BGS);
- Groundsure EnviroInsight Report (recent and historical OS mapping);
- previous geo-environmental investigation and assessment reports;
- Local Planning Authority records;
- Sussex Geodiversity Partnership records; and
- a walkover survey.

2 Baseline Information

2.1 Site History

2.1.1 A site history for Gatwick Airport has been established through review of historical mapping. A brief summary is provided in Table 2.1.1.

Table 2.1.1: Site History

Date	Description
From 1870	The site comprised numerous fields bound by trees and hedgerows with wooded areas. A number of farms were present across the site. Charlwood Park was present in the north of the Project site. Several rivers and tributaries ran across the Project site. A large 'Fish Pond' is indicated in the north of the Project site. An engine tower and gasometer were indicated to the north of Timberham Lodge and south of the Fish Pond. The London, Brighton and South Coast Railway ran north to south through central site where Gatwick Station is identified.
From 1879	An unnamed road bisected the site, orientated approximately north to south. A nursery was present in the south west of the site in 1895.
By 1896	Gatwick Race Course had been constructed in the north east with orchards indicated in the south east.
By 1913 to 1920s	Gatwick Race Course was now labelled as a Golf Course and residential dwellings were now present along the unnamed road. By 1914, a number of cottages and a wind pump were indicated across Westfield Common in the south west of the site. Between 1914 and 1919, numerous additional tracks were indicated along the rail line through the centre of the site.

Date	Description
1930s to 1940s	The Project site had predominantly been developed as an aerodrome. By 1946, numerous possible drains and/or ditches were indicated across the west of the Project site.
1950s	Major airport development had occurred by this time. However, no substantial development was indicated in the east of the site.
From 1960s	Various industrial and commercial land uses were indicated around the airport including 'Works' (Crawley Sewage Treatment Works). Crawter's Brook and the River Mole were indicated to have been partially culverted under the airport development. The course of Crawter's Brook was indicated to have been diverted by approximately.1965. Several farms across Westfield Common were no longer indicated with both the northern and main runways partially occupying this area. Gatwick Golf Course was indicated to have been expanded. Gatwick Rail Station had been renamed Gatwick Airport Station by 1961 and the A23 and A217 were first shown at this time. The central southern portion of the site was labelled as Gatwick Airport between 1961 and 1963.
From 1970s	Further development of the airport had occurred. The runways had been extended across Westfield Common and the traffic control tower was now indicated. The extensive drainage and balancing pond network, and embankments were indicated to be present from around 1973. Between 1973 and 1978, a Timber Yard was indicated in the south east corner of the site along with a Greyhound Training Track. By 1976, the M23, roundabouts and car parks have been constructed to the east of the Project site with embankments either side. The M23 was indicated running westerly from the east into the A23. Main roads had been constructed into the north east and central area of the Project site by around 1976. Further car parks and a large balancing pond were indicated to be present alongside the River Mole in the north east of the site. The London Road (A217) had become more established in the 1970s. By 1977 the Fish Pond in the north of the site was no longer identified as present (potentially infilled).
From 1980s	Land drains were indicated to divert into a surface water feature in the north, and embankments had been constructed south of Charlwood Road, and along the eastern edge of the River Mole. By 1989, the surface water feature in the north, adjacent to Charlwood Park Farmhouse, had been potentially infilled and developed with several carparks. An electrical substation was indicated in the west of the site along with possible bunded areas (likely associated with the fire training area). The eastern most roundabout (named Airport Way Roundabout East) and several commercial buildings have been constructed including a computer centre and a further electrical substation. Further car parking areas had been constructed in the south east. Further expansion of the airport had occurred by this time, including main access roads (Airport Way Roundabout West) and South Terminal Satellite Pier, and fuel depots in the north east. Large embankments were identified to the north of the North Terminal Building along with Pier 5 and ancillary buildings / areas associated with the airport. A fire station was indicated in the central southern area of the airport development by around 1987.
From 2000s	A reservoir bound by embankments was indicated in the south east (adjacent to Crawley Sewage Treatment Works). Further expansion/development of the North Terminal area had occurred.

2.2 Site Walkover

2.2.1 A site walkover was undertaken on the 25 September 2019, the findings of which are presented in detail within Annex 2.

2.3 Environmental Setting

Geology

2.3.1 The stratigraphic sequence beneath the Project site is shown in Table 2.3.1 and on **ES Figure 10.6.1 and ES Figure 10.6.2** (Doc Ref. 5.2).

Table 2.3.1: Geology

Strata	Description and Approximate Thickness
Alluvium	This stratum is indicated to comprise clay, silt, sand, and gravel. Indicated to be present across parts of the west and north of the site (likely associated with the River Mole) and also in the east (likely associated with Gatwick Stream). Likely to be up to several metres in thickness, where present.
Head Deposits	This stratum is indicated to comprise clay, silt, sand, and gravel. Only indicated to be present in a small area in the centre of the site. Likely to be of very limited thickness, where present.
River Terrace Deposits (River Mole)	This stratum is indicated to comprise sand and gravel and is indicated to be present across parts of the west, centre and east of the site. Likely to be up to several metres in thickness, where present.
Weald Clay Formation	This stratum is indicated to comprise mudstone with seams of clay-ironstone in the south east and far east of the site. It is indicated to be absent in the far south of the site. Likely to be of significant thickness beneath the site.
Upper Tunbridge Wells Sand Formation	This stratum is indicated to comprise sandstone and mudstone and is only indicated to be present in the far south of the site. Likely to be of significant thickness.

2.3.2 No geological Sites of Special Scientific Interest (SSSIs) or Local Geological Sites (LGSs) are located within 1 km of the site.

2.3.3 The site is located within a Brick Clay Resource Mineral Safeguarding Area, relating to the Weald Clay Formation.

2.3.4 Further details on site specific geology, based on site investigations carried out across the site to date are provided in the Previous Ground Investigations section.

Hydrogeology

2.3.5 The aquifer classification for each geological stratum is presented in Table 2.3.2.

Table 2.3.2: Aquifer Classification

Strata	Aquifer Classification
Alluvium	Secondary A Aquifer
Head Deposits	Secondary Undifferentiated Aquifer
River Terrace Deposits (River Mole)	Secondary A Aquifer
Weald Clay Formation	Unproductive Stratum
Upper Tunbridge Wells Sand Formation	Secondary A Aquifer

2.3.6 The site is not located within a Source Protection Zone and there are no potable groundwater abstraction licences within the vicinity of the Project site.

2.3.7 One active groundwater abstraction license is recorded approximately 1 km south of the airport boundary. This is licensed for general usage (non-potable) with a permitted maximum annual volume of 47,450 m^3 and maximum daily volume of 130 m^3.

2.3.8 One private water supply (PWS) is located approximately 340 m northeast of the Project site. This is for gardening supply at a single property.

2.3.9 Further details on site specific hydrogeology, based on site investigations carried out across the site to date are provided in the Previous Ground Investigations section below.

Hydrology

2.3.10 The main watercourse flowing through the site is the River Mole. It flows from the south and is culverted under both the main runway and existing northern runway. Upon exiting the culvert, it forms the western and northern boundary of the airport before heading north away from the airport at Hookwood.

2.3.11 Tributaries of the River Mole including Crawter's Brook, the Gatwick Stream, Man's Brook, Burstow Stream and Westfield Stream all flow through or close to the site.

2.3.12 The study area is located within a Surface Water Nitrate Vulnerable Zone (NVZ) and a Surface Water Safeguard Zone (SgZ). A NVZ is an area of land draining into water known to be polluted by nitrates. A SgZ is an area that influences the water quality at water abstraction sites at risk of failing the drinking water protection objectives.

2.3.13 There are no surface water or potable surface water abstraction licences within the vicinity of the Project site.

Environmental Information

2.3.14 Industrial land uses, landfills and other waste facilities, and pollution incidents recorded on site and within an approximate 500 metre buffer are presented in Table 2.3.3.

Table 2.3.3: Environmental Data

Environmental Data	Approx. Distance and Direction
Part A1 and IPPC Authorised Activities	
Installation Name and Detail	
Shell Hydrogen Refueling Station – issued 2017	On site - north
Gatwick Power Station – issued 2006	On site - south
Crawley Sewage Treatment Works CHP – issued 2010	Adjacent – south east
Control of Major Accident Hazards	
Name and Detail	
Shell UK Oil Products Ltd – Gatwick Fuel Farm – Upper Tier	On site - north
Registered Waste Sites	
Name and Description	
Gatwick Waste Care Centre – Special Waste Transfer Station - <25,000 tonnes – issued 2010	On site - central
Austins Land – Landfill accepting Non-Biodegradable Wastes - >25,000 to <75,000 tonnes – issued 1978	On site - east
Platinum International Ltd – Metal Recycling Site - <25,000 tonnes – issued 2017	90 metres - south
Crawley Sewage Treatment Works – Landfill - <25,000 tonnes – issued 2013	Adjacent – south east
DJ Grab Services Ltd – Physical Treatment Facility - >25,000 to <75,000 tonnes – issued 2016	50 metres - north
Simmonds Donald Richard Thomas – Metal Recycling Site - <25,000 tonnes – issued 1994	140 metres - east
Jupp Peter – Treatment of waste to produce soil - <25,000 tonnes – issued 2013	280 metres - east
United Grab Hire Ltd - Physical Treatment Facility - <25,000 tonnes – issued 2013	390 metres - east
National Incidents and Records of Pollution*	
Impact Details	
Significant impact to Gatwick Stream – List 1 substance - 1999	On site – north east
Major impact to water – List 2 substance - 2001	On site – south west
Major impact to water – List 2 substance (surfactants and detergents) - 2002	On site - north
Major impact to water – List 2 substance (biodegradable material or waste) - 2018	On site - north
Major impact to water – List 2 substance (sewage materials) - 2017	On site - east
Significant impact to land and water – List 2 substance (oil or fuel) - 2014	20 metres - south
Significant impact to water – List 2 substance (unspecified) - 2016	On site – south east
Significant impact to water – List 2 substance (gas and fuel oils) - 2002	90 metres - east
Historical Landfill Sites	
Name and Description	
Gatwick Brickworks – inert waste – 1983 to 1984	240 metres north
Blackcomer Wood – inert waste - 1976	330 metres south east

* Significant/major incidents identified only

2.3.15 A number of potential sources of contamination have also been identified from historical mapping. Potential sources of contamination are shown as potential areas of concern (PAOC) in **ES Figure 10.6.3** (Doc Ref. 5.2).

Ground Stability

2.3.16 The site is indicated to have the potential for small scale underground mining in relation to iron ore.

2.3.17 Areas at moderate risk for compressibility are present across the site which appear to correspond to BGS mapped areas of Alluvium.

2.3.18 A moderate risk of slope instability has been identified for a small area along the A23 embankment.

Previous Ground Investigations

Introduction

2.3.19 A number of ground investigations and assessments have been undertaken across the Project site. A summary of the reports available is provided in Annex 3i and the location of the exploratory holes shown in **ES Figure 10.6.4** (Doc Ref. 5.2). Extracts from two recent project specific ground investigations are provided in Annex 3ii.

Site Specific Geology

Topsoil

2.3.20 Topsoil was encountered within Museum Field to depths of between 0.25 metres and 0.40 metres.

Made Ground

2.3.21 Made Ground has been encountered across the majority of the site, averaging approximately 1 m thickness (generally <2 metres). Localised deeper Made Ground was encountered at between 3 metres and 3.9 metres.

2.3.22 A greater thickness of 6.45 metres was encountered directly west of the North Terminal Building which is considered to be a result of the removal of superficial deposits associated with the original course of the Gatwick Stream during construction of Pier 5.

2.3.23 Additionally, up to 5 metres thickness was encountered west of the North Terminal roundabout and up to 7.3 metres at the location of the Airport Way roundabout, considered to be associated with the highways construction.

Superficial Deposits

2.3.24 Superficial deposits of Alluvium, Head and River Terrace Deposits have been encountered across the site associated with former and existing watercourses. These deposits appear to have been commonly excavated to facilitate airport development.

2.3.25 The Alluvium has been encountered up to approximately 2.9 metres in thickness with an average thickness of approximately 1 metre. Localised layers of peat were identified within these deposits.

2.3.26 The River Terrace Deposits were reported to be up to 1.1 metres thickness where present.

Solid Geology

2.3.27 The Weald Clay Formation has been encountered across the site as part of previous investigations to a maximum depth of 35.5 metres (unproven). This comprised mudstone/siltstone with a weathered upper horizon typically comprising a stiff clay.

Site Specific Hydrogeology

2.3.28 Shallow groundwater was generally identified between approximately 0.8 metres and 3 metres below ground level (bgl) within the Made Ground, superficial deposits or weathered Weald Clay Formation.

2.3.29 Groundwater was identified to generally be perched and discontinuous with these deposits.

2.3.30 Deeper groundwater was identified within borehole wells monitored as part of the recent highways ground investigation to 7.21 metres bgl within Made Ground, superficial deposits or weathered/fractured Weald Clay Formation.

Reported Evidence of Contamination

2.3.31 In 2013, an investigation of a fuel leak around Pier 4 (Atkins, 2013) was undertaken due to observations of fuel impacted flood water and free phase contamination within a utilities chamber.

2.3.32 The investigation identified hydrocarbon impacted soils and groundwater with the potential source attributed to underground fuel lines. It is not known if any remediation was completed following this investigation.

2.3.33 In 2017, a ground investigation at the Boeing hangar identified loose asbestos fibres (chrysotile) within a sample of shallow Made Ground and hydrocarbon impacted perched shallow groundwater along with elevated Volatile Organic Compounds (VOCs) in soil gas samples.

2.3.34 Activities within the firefighting area have involved the burning of pools of kerosene fuel and gas in two separate basins. Firefighting foam is used to extinguish the fires.

Soil and Groundwater Contamination Encountered as Part of Previous Investigation

2.3.35 Historical soil and groundwater data obtained as part of the previous investigations have been compared to contemporary assessment criteria, where available. This has been undertaken using historical ground investigation data associated with exploratory holes located within those parts of the Project site where development is proposed.

2.3.36 In order to assess risks to future site users, concentrations of contaminants of concern have been compared to Suitable 4 Use Levels (S4UL) for Human Health Risk Assessment published by Land Quality Management: Chartered Institute of Environmental Health in 2015 (Nathanail et al., 2015). In accordance with the copyright notice the Publication Number for RPS Group is S4UL3177.

2.3.37 The redevelopment of the Project site comprises a commercial scheme and therefore, S4ULs for a commercial land use have been used.

2.3.38 A notable exclusion from the S4ULs is lead. In the absence of a S4UL for lead, the Category 4 Screening Level (C4SL) has been selected, published by DEFRA in 2014. It is noted that the C4SL are based on the acceptance of a low level of toxicological concern, rather than the more conservative standard adopted in the derivation of S4ULs, which are based on a tolerable or minimal level of risk.

2.3.39 The site is located above Secondary A Aquifers relating to the. Alluvium and River Terrace Deposits. Therefore, the results of the groundwater analysis have been compared with Environmental Quality Standards (EQS) freshwater values and where these are not available, the UK Drinking Water Standard (DWS) values. In the absence of both of the aforementioned World Health Organisation (WHO) values have been used.

2.3.40 Screening criteria used for the protection of human health and groundwater are provided in Annex 4.

2.3.41 The available ground gas data included as part of historical ground investigations has been qualitatively assessed.

2.3.42 It is of note that a number of boreholes located within the area of the northern runway recorded a pungent odour, potentially associated with organic materials, within the Alluvium.

Human Health Risk Assessment

2.3.43 Soil sample chemical results have not exceeded the relevant screening criteria protective of future site users.

Controlled Waters Screening Assessment

2.3.44 Table 2.3.4 details exploratory holes for which groundwater samples have exceeded the relevant screening criteria.

2.3.45 Certain laboratory detection levels in samples used in previous ground investigations are higher than the screening criteria. However, for the purposes of a water quality screening exercise this is considered acceptable.

Table 2.3.4: Groundwater Chemical Results Exceeding Screening Criteria

Project Element	Report ID and date (refer Annex 3i)	Exploratory Hole and (Target Geology)	Contaminant and Concentration (ug/l) (pH in pH units)	Screening Criterion (ug/l) - Exceedances in Bold		
				EQS	DWS	WHO ATO
Relocation of Fire Training Ground	11 - 1999	TP11 (Made Ground)*	Copper – 20	**1**	2,000	-
			Nickel – 130	**4**	**50**	-
			Nitrite – 1,400	-	**100**	-
MA1 Main Contractor Compound	18 - 2010	BH03 (Made Ground/ RTD (RPS interpretation)/ Weald Clay)	Cadmium – 1.3	**0.08**	5	-
			Nickel – 99	**4**	**50**	-
			Lead – 5	**1.2**	10	-
			Selenium – 17	-	**10**	-
			Zinc – 18	**10.9**	5,000	-
			Ammoniacal Nitrogen – 1,900	**15**	-	-
			Sulphate – 776,220	**400,000**	**250,000**	-
			Nitrite - 110	-	**100**	-
			1,1 Dichloroethane – 12	NA	NA	NA
			Tetrachloroethene – 16	**10**	**10**	-
			1,4 Dichlorobenzene – 15	20	-	**0.3**
			1,2 Dichlorobenzene 48	**20**	-	**1**
MA1 Main Contractor Compound	17 - 2007	NB1 (Weald Clay)	Ammoniacal Nitrogen – 210	**15**	-	-
			MBAS – 90	NA	NA	NA
			pH – 9.7	**>9**	NA	NA
			Total Alkalinity – 72,000	NA	NA	NA
			EPH (C10-C20) – 380	-	**10**	-
			EPH (C20-C30) – 40	-	**10**	-
		NB2 (Weald Clay)	MBAS – 270	NA	NA	NA
			Nickel – 5	**4**	50	-
			Total Alkalinity – 260,000	NA	NA	NA
			EPH (C10-C20) – 1,200	-	**10**	-
			EPH (C20-C30) – 70	-	**10**	-
			1,1 Dichloroethane – 5	NA	NA	NA
Taxiway Whiskey-Victor-Zulu	36 - 2013	WS19 (Clay)*	pH – 9.1	**>9**	NA	NA
			Potassium – 130,000	-	**12,000**	-
			Manganese – 8,800	**123**	**50**	-

NA = not available

*Groundwater sample taken as grab sample

2.3.46 Exceedances of screening criteria for a number of contaminants of concern, including heavy metals, hydrocarbons and VOCs, have been identified within perched/groundwaters.

2.3.47 Table 2.3.5 identified exploratory holes for which soil leachate samples have exceeded the relevant screening criteria.

Table 2.3.5: Chemical Leachate Results Exceeding Screening Criteria

Project Element	Report ID and date (refer Annex 3i)	Exploratory Hole, Depth and (Geology)	Contaminant and Concentration (ug/l)	Screening Criterion (ug/l) – Exceedances in Bold		
				EQS	DWS	WHO ATO
Charlie Box	31 - 2013	WS08 – 0.9 metres (Made Ground) WS09 – 0.9 metres (Made Ground) WS05 – 2.15 metres (Made Ground)	Fluoranthene – 0.22	**0.0063**	-	-
			Benzo(a)pyrene – 0.04	**0.00017**	**0.01**	-
			Chromium - 63	**4.7**	**50**	-
			Copper - 30	**1**	2,000	-
			Lead - 2	**1.2**	10	-
			Nickel - 40	**4**	50	-
			Zinc - 200	**10.9**	5,000	-
			Fluoranthene – 0.1	**0.0063**	-	-
			Chromium - 28	**4.7**	50	-
			Nickel - 26	**4**	50	-
			Zinc - 66	**10.9**	5,000	-
			Ethylbenzene - 69	-	-	**2**
			m/p Xylene - 270	**30**	-	-
			TPH (C6-C8 aliphatic) – 2,600	-	**10**	-
			TPH (C8-C10 aliphatic) – 14,000	-	**10**	-
		WS06 – 0.9 metres (Made Ground)	TPH (C8-C10 aromatic) – 4,800	-	**10**	-
			TPH (C8-C10 aliphatic) – 1,800	-	**10**	-
			Chromium - 10	**4.7**	50	-
			Copper - 60	**1**	2,000	-
			Lead – 3	**1.2**	10	-
			Nickel - 10	**4**	50	-
			Zinc - 66	**10.9**	5,000	-
			Fluoranthene – 1.4	**0.0063**	-	-
			Benzo(b)fluoranthene – 0.47	**0.00017**	-	-
			Benzo(k)fluoranthene – 0.63	**0.00017**	-	-
			Benzo(a)pyrene – 0.54	**0.00017**	**0.01**	-
			Indeno(123-cd)pyrene – 0.38	**0.00017**	-	-
			Benzo(ghi)perylene – 0.4	**0.00017**	-	-
		WS06 – 1.6 metres (Clay)	TPH (C8-C10 aliphatic) – 590	-	**10**	-

2.3.48 Slight hydrocarbon odours were noted within the Made Ground encountered at WS05 and moderate hydrocarbon odours at WS08. A slight organic odour was noted within the Made Ground encountered at WS06.

2.3.49 The identified exceedances indicate leachable concentrations of heavy metals and hydrocarbons. It is considered that the exceedances for hydrocarbons are generally confined to the Made Ground and close to the boundary of the Made Ground/underlying Weald Clay Formation interface.

2.3.50 The results of leachate analysis suggest that the general quality of Made Ground identified on the site may represent a potential source in the generation of low quality perched groundwater therein.

2.3.51 The locations of the soil, leachate and groundwater exceedances are shown in **ES Figure 10.6.5** (Doc Ref. 5.2).

Ground Gas Monitoring

2.3.52 Ground gas monitoring data is available from approximately seven previous phases of ground investigations. Elevated methane (up to approximately 32.4 %), carbon dioxide (up to approx. 11%), carbon monoxide (up to approximately 313 parts per million (ppm)) and depleted oxygen have been recorded in various parts of the site together with high ground gas flow rates (up to 43.1 litres per hour (l/hr)).

2.3.53 Additionally, soil vapour sampling recorded elevated hydrocarbon vapours during a ground investigation for the construction of the Boeing hangar.

2.3.54 Potential sources of elevated ground gas were attributed to the infilled balancing pond at the North Terminal and a former fuel line at the South Terminal.

2.3.55 Characteristic Situations (CS) assigned to areas across the Project site ranged between CS1 (very low risk) and CS3 (moderate risk). The CS is determined by the modified Wilson and Card classification (CIRIA, 2007). The method uses both gas concentrations and borehole flow rates to define a CS for a site based on the limiting gas volume flow for methane and carbon dioxide.

Unexploded Ordnance

2.3.56 The risk of Unexploded Ordnance (UXO) has been reported for Gatwick Airport and a summary provided below.

UXO Hazard Summary

2.3.57 The main sources of UXO hazard arise from munitions storage/disposal activities undertaken at Gatwick and in the surrounding area during and immediately after World War II. There were munitions supply depots surrounding Gatwick Airport supporting the Royal Air Force (RAF), Home Guard, Special Operations Executive (SOE) and the regular Army prior to the D-Day invasions in 1944.

2.3.58 At the end of World War II, some of the unused munitions at the depots were disposed of locally. This included ordnance returned to the depots which were not required in combat but were primed and fused.

UXO in Made Ground

2.3.59 Post-World War II, during the extension of Gatwick Airport, significant earthworks were undertaken in construction of the airfield.

2.3.60 A large number and wide range of live ordnance was found when excavating within Made Ground across much of the airfield. There is consequently a potential for UXO to be present within the Made Ground across the airport and just outside the airfield perimeter, as proven by these post-World War II UXO finds.

2.3.61 Records of finds to date indicate that such ordnance is likely to comprise close combat munitions such as grenades, mortars, smoke bombs, small arms ammunition, Projector, Infantry, Anti-Tank (PIATs) alongside anti-tank mines and a variety of other ammunition.

2.3.62 The UXO hazard is considered to be confined to the Made Ground. However, potential for some localised munitions stores dating from World War II buried at shallow depth in the natural ground cannot be totally discounted.

3 Preliminary Risk Assessment

3.1 Introduction

3.1.1 An outline conceptual site model (CSM) consists of an appraisal of the source-pathway-receptor 'contaminant linkages' which is central to the approach used to determine the existence of 'contaminated land' according to the definition set out under Part 2A of the Environmental Protection Act 1990. For a risk to exist (under Part 2A), all three of the following components must be present to facilitate a potential 'pollutant linkage'.

- Source referring to the source of contamination (Hazard).
- Pathway for the contaminant to move/migrate to receptor(s).
- Receptor (Target) that could be affected by the contaminant(s).

3.1.2 Receptors include human beings, other living organisms, crops, controlled waters and buildings / structures. The National Planning Policy Framework (2021) used to address contaminated land through the planning process, follows the same principles as those set out under Part 2A. Further details on the Part 2A regime are presented within Annex 5.

3.1.3 Each stage of the potential pollutant linkage sequence has been assessed individually on the basis of information obtained during the walkover and desk study exercise.

3.2 Potential Sources

On-site - Existing

3.2.1 Existing on-site potential sources of contamination representing PAOC are outlined in the following Table 3.2.1 with their locations indicated on **ES Figure 10.6.3** (Doc Ref. 5.2).

Table 3.2.1: Potential Areas of Concern (On Site - Existing)

PAOC ID	Name	Activities
On Site - Existing		
1	Enterprise rent-a-car, Europcar and Herts	Maintenance of hire vehicles, car wash and vehicle refueling (three individual refueling points). Potential petrol and diesel underground storage tanks (USTs).
2	Europcar	Maintenance of hire vehicles, vehicle refueling. Potential petrol and diesel USTs.
3	Avis	Maintenance of hire vehicles, car wash. Potential diesel and petrol USTs.
4	BP petrol filling station (PFS)	PFS – petrol and diesel USTs.
5	BA hangar (Hangar 6)	Servicing of aircraft. Foam release area.
6	Babcock warehouse	Engineering works, Potential aircraft de/anti-icing practice.
7	Shell PFS	PFS – petrol and diesel USTs.
8	Stands 4 and 5	Maintenance of aircraft, storage of waste fuel, chemicals, and oils.
9	Stand 130 to 136 and 140 to 145	De/anti-icer above ground storage tanks (ASTs) and vehicle filling points.

PAOC ID	Name	Activities
10	Fire Station	Maintenance vehicle storage area.
11	TCR	Repair of ground support vehicles, oil ATSs.
12	Virgin Hangar (Hangar 7) /DHL	Waste treatment plant. Foam release area.
13	Fuel Farm	Aviation fuel ASTs and potential underground pipeline.
14	Wet tip	Sewage waste septic tank, lined storage lagoons for contaminated surface water runoff.
15	Fire Fighting Area	Fire training, propane AST and underground pipe, kerosene.
16	Oscar Remote Stands	Refueling area and vehicle wash. Fuel USTs, gas oil AST, soap AST, engine and hydraulic oil ASTs, Adblue IBCs.
17	Stand 574	Maintenance of aircraft, storage of waste fuel, chemicals and oils.
18	Stand 558	Large fuel spill (2019).
19	Esso PFS	PFS – petrol and diesel USTs.
45 to 48, 50, 51, 53 to 55, 57, 60 to 77	Electricity substations	Electricity substations.
79	Boeing hangar	Foam/firewater collection USTs.

3.2.2 Made Ground, likely to be present across the Project site as a result of construction/demolition activities, is also considered to represent a potential source of contaminants of concern.

3.2.3 Made Ground and superficial deposits (in particular Alluvium including peat and organic clays) may represent potential sources of ground gas generation.

On-site – Historical

3.2.4 Historical on-site potential sources of contamination representing PAOC are outlined in the following table with their locations indicated on **ES Figure 10.6.3** (Doc Ref. 5.2).

Table 3.2.2: Potential Areas of Concern (On Site - Historical)

PAOC ID	Name	Activities
On Site - Historical		
21	Timber Yard	Potential timber treatment.
22	Fuel Depots	Potential fuel tanks and pipework.
23	Smithy, Engine House and Tramway Sidings	Smithy, Engine House and Tramway Sidings.
24	Railway Sidings	Railway Sidings.
25 to 32	Tank(s)	Unknown use.
33	Tanks	Unknown use, dates from 1960s / 1970s.
34	Gasometers	Potential pipework, sumps.
35 to 39	Water bodies/ponds	Potential backfill unknown.
40	Balancing Pond	Potential backfill unknown.
41	Reservoir/pond	Potential backfill unknown.
42	Pit	Potential backfill unknown.
43, 44, 49, 52 and 56	Electricity substations	Electricity substations.
80	Former Fire Station	Maintenance vehicle storage area.
81	Former Fire Training Area	Fire training.

Off-site – Existing

3.2.5 The existing off-site potential sources of contamination representing PAOC are outlined in the following table with the locations indicated on **ES Figure 10.6.3** (Doc Ref. 5.2).

Table 3.2.3: Potential Areas of Concern (Off-Site - Existing)

PAOC ID	Name	Activities
Off Site - Existing		
20	Texaco PFS	PFS – petrol and diesel USTs.
59	Crawley STW	Sewage Treatment Works, CHP Plant.

Off-site – Historical

3.2.6 The only existing off-site potential source of contamination representing a PAOC is outlined in the following table with its location indicated on **ES Figure 10.6.3** (Doc Ref. 5.2).

Table 3.2.3: Potential Areas of Concern (Off-Site - Historical)

PAOC ID	Name	Activities
Off Site - Historical		
58	Pollution Incident	Significant impact to water – List 2. substance (unspecified) – 2016.

3.3 Potential Pathways

3.3.1 The risks to future on site human health receptors via the pathways of dermal contact and ingestion will be mitigated in areas of proposed building or hardstanding as the pathway will be inactive. However, in any areas of proposed soft landscaping, the pathways of dermal contact and ingestion could still be active. In addition, there would be potential for the airborne migration of soil/dust from these areas.

3.3.2 There is the potential for ground gas (from on or off-site sources) and volatile contaminants of concern in soil and/or groundwater (if present) beneath the site to impact future site users where buildings are proposed via the inhalation pathway in indoor areas.

3.3.3 There is the potential for contaminants of concern (if present) beneath the site to migrate beneath the Project site via perched groundwater (if present) within granular horizons of the Made Ground, the superficial deposits and the weathered Weald Clay Formation. These contaminants may impact either controlled waters receptors or off-site human heath receptors via the dermal contact, ingestion and vapour inhalation pathways.

3.3.4 The surface water drainage system (where discharging to controlled waters) service corridors and/or subterranean infrastructure corridors could act as preferential pathways for the migration of any potential contaminants of concern.

3.3.5 The Weald Clay Formation is considered to be sufficiently impermeable and thick as to prevent the downward vertical migration of any contaminants within groundwater (if present) to the underlying Tunbridge Wells Sand Formation. This pathway may require consideration where piles that breach the thickness of the Weald Clay Formation are required as part of building construction.

3.4 Potential Receptors

3.4.1 Potential human receptors include future site users, construction workers during site development works and off-site human receptors including workers, residents and general public users on land within or adjacent to the Project site.

3.4.2 Elevated levels of ground gas and depleted oxygen levels have been detected as part of previous investigations. In addition, asbestos has been identified within Made Ground sampled from beneath the Project site. These findings would be taken into account in the design of further ground investigations and remediation strategy (where required) and Health and Safety risk assessments.

3.4.3 Head deposits are indicated to be present in a small area in the centre of the Project site. This stratum are classified as a Secondary Undifferentiated Aquifer. Given this classification, it is not considered to represent potential controlled waters receptor.

3.4.4 The Alluvium (indicated to be present across parts of the north, east and west) of the Project site and River Terrace Deposits (indicated to be present across parts of the west, centre and east) are classified as Secondary A Aquifers and, as such, are considered to be potential controlled waters receptors.

3.4.5 The Tunbridge Wells Sand Formation Secondary A Aquifer at depth is not generally considered a potential receptor given the upper level of protection afforded by the significant thickness of the overlying impermeable Weald Clay Formation. However, this stratum may become a potential receptor where piles that breach the thickness of the Weald Clay Formation are required as part of building construction.

3.4.6 Surface water receptors are considered to comprise the River Mole (flowing through the Project site) and its associated tributaries including Crawter's Brook, the Gatwick Stream, Man's Brook, Burstow Stream and Westfield Stream (which either flow through or close to the Project site).

3.4.7 A groundwater receptor comprising a private water supply (for gardening supply), located approximately 340 m northeast of the site, is considered a potential controlled waters receptor.

3.4.8 The groundwater abstraction located approximately 1 km to the south of the site, is not considered a potential receptor due to the distance and it is located hydraulically up-gradient from the Project site.

4 Conceptual Site Model

4.1 Outline Conceptual Site Model

4.1.1 An outline CSM has been developed for the overall Project site on the basis of the site reconnaissance and desk study. It considers each element of the Project and identifies potential sources, pathways and receptors (ie potential pollutant linkages). The outline CSM is summarised in Table 4.1.1 below.

Table 4.1.1: Outline Conceptual Site Model

Potential Source	Contaminants of Concern	Via	Potential Pathways	Linkage Potentially Active?	Receptors
On site – existing: PAOC 1 to PAOC 20, PAOC 45 to 48, PAOC 50, PAOC 51, PAOC 53 to 55, PAOC 57, PAOC 60 to 77 **On site – historical:** PAOC 21 to PAOC 57, PAOC 44, PAOC 49, PAOC 52, PAOC 56	Metals, inorganics, hydrocarbons, glycols, VOCs, SVOCs, PCBs, PFOS/PFAS, pesticides, herbicides and asbestos	Soil	Direct contact/ingestion	✓[1] ✓	Future site users Construction workers
			Inhalation of volatiles	✓[2] ✓	Future site users Construction workers
			Airborne migration of soil or dust	✓[1] ✓[1] ✓[1]	Future site users Construction workers Off-site users
			Leaching of mobile contaminants	✓ ✓ ×[3]	Alluvium Secondary A Aquifer River Terrace Deposits Secondary A Aquifer Tunbridge Wells Sand Formation Secondary A Aquifer
		Ground water	Direct contact/ingestion	✓[1] ✓ ✓	Future site users Construction workers Off-site users (includes PWS)
			Inhalation of volatiles	✓[2] ✓	Future site users Construction workers Off-site users
			Lateral migration in permeable strata	✓ ✓ ✓ ✓	Alluvium Secondary A Aquifer PWS River Terrace Deposits Secondary A Aquifer River Mole and associated tributaries
Off-site – existing: PAOC 20 and 59	Metals, inorganics, pesticides, PCBs, treatment chemicals, pathogens, hydrocarbons and asbestos	Ground water	Lateral migration and subsequent inhalation of volatiles	✓[2] ✓	Future site users Construction workers
On and off-site: Made Ground / natural strata (including superficial deposits), PAOC 35 to PAOC 42 and PAOC 14 and PAOC 58 or bio-degradation of contamination	Carbon dioxide and methane	Ground Gas	Vertical and lateral migration and subsequent inhalation of ground gas	✓[2] ✓ ✓	Future site users Construction workers Off-site users
			Explosive risks	✓[2] ✓ ✓	Future site users Construction workers Off-site users

Notes:

1 Pathway will be inactive in areas of proposed building cover and hardstanding.

2 Pathway will be inactive in areas where buildings/confined spaces are not proposed.

3 This pathway may be active where piles that breach the thickness of the Weald Clay Formation are required as part of building construction.

5 Conclusions and Recommendations

5.1.1 The Preliminary Risk Assessment has identified a number historical and current potential sources of contamination representing PAOC across the Project site. The outline CSM produced as part of the assessment has identified a number of potential pollutant linkages associated with these sources that may be active where areas of the Project site are proposed for development.

5.1.2 In order to determine requirements for further assessment, the locations of PAOC have been overlain on the boundaries of the proposed development areas and are indicated on **ES Figure 10.6.4** (Doc Ref. 5.2).

5.1.3 Recommendations for each development area have been derived in consideration of:

- PAOC located within the development area boundary;
- whether any buildings are proposed as part of the development (thus requiring consideration of the ground gas/vapour inhalation pathway); and
- pre-existing site investigation data, where available.

5.1.4 A flowchart detailing the recommendation strategy for further works is provided in Annex 6 together with a table detailing recommendations for each development area.

5.1.5 Where recommended, the scope of any further ground investigation will be determined on a case-by-case basis and will be agreed with the Environment Agency/relevant local planning authority prior to its implementation. This is to be secured through either the CoCP (**ES Appendix 5.3.2: Code of Construction Practice** (Doc Ref. 5.3) or through contamination management as a Schedule 2 requirement in the **Draft DCO** (Doc Ref. 2.1). Investigations may include some of the following:

- drilling of boreholes or excavation of trial pits, targeting identified PAOC and pollutant linkages;
- installation of groundwater and gas monitoring wells;
- collection of soil and groundwater samples with chemical analysis of these samples for contaminants of concern;
- ground gas monitoring from wells installed at the site; and
- assessment of ground conditions and generic quantitative risk assessment of soil and groundwater chemical analysis results to determine the potential for the identified potential pollutant linkages to remain active upon development of the area.

5.1.6 Where appropriate, the investigations will include geotechnical testing to provide information on land stability and inform detailed design. Following the ground investigation, a remediation strategy will be implemented, where necessary. At this stage, the strategy is anticipated to comprise the following:

- the proposed remediation technique;
- implementation plan setting out the objectives and requirements of the remediation;
- validation sampling to confirm that remediation objectives have been met; and
- verification report.

5.1.7 The scope of the remediation strategy will be agreed with the Environment Agency/relevant local planning authority prior to its implementation. On completion of the remediation works, a verification report will be sent to the Environment Agency/relevant local planning authority for approval. Subject to the scope of the remediation strategy, the following will be undertaken where appropriate to inform construction activities and the detailed design of the buildings:

- piling risk assessment (in accordance with the Environment Agency guidance (Environment Agency, 2001 and February 2002) including control measures (where appropriate) to mitigate risk to controlled waters during piling installation;
- detailed ground gas risk assessment and gas control measures during construction and to be incorporated into building design (where appropriate); and
- groundwater and/or surface water monitoring.

5.1.8 The remediation strategy will be supported by a Project wide Material Management Plan prepared in accordance with CL:AIRE Code of Practice (CL:AIRE, 2011).

5.1.9 Where, further ground investigation is not recommended at this stage, a discovery strategy would be implemented for that development area as a watching brief for any unanticipated or previously un-encountered contamination. Those within the Project team responsible for land contamination would be contacted, where any significant visual or olfactory evidence of contamination, not previously encountered, is identified by construction workers during the development works. The following shall be considered indicative of soil contamination that may require remediation:

- the presence of free phase contamination (liquid oils);
- fibrous or cement bound materials (potentially asbestos containing materials);
- significant staining and discolouration of exposed soils; and / or
- olfactory evidence of hydrocarbon contamination.

5.1.10 This will be recorded within daily record sheets as set out within the Construction Environmental Management Plan.

5.1.11 Any construction activities in the area of this material would cease until an appropriate plan for dealing with the contamination has been put in place. Geology and Ground Conditions management measures are found within Section 7.4 of **ES Appendix 5.3.2: Code of Construction Practice** (Doc Ref. 5.3).

5.1.12 In terms of construction workers, prior to construction works taking place specific risk assessment will be required in line with Health & Safety requirements. This will enable control measures and appropriate levels of PPE to be implemented.

6 References

Legislation

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7 Glossary

7.1 Glossary of terms

Table 7.1.1: Glossary of Terms

Term	Description
AST	Above ground Storage Tank
BGL	Below ground level
BGS	British Geological Survey
C4SL	Category 4 Screening Level
CHP	Combined Heat and Power
CS	Characteristic Situation
CSM	Conceptual Site Model
DWS	Drinking Water Standard
EA	Environment Agency
EPH	Extractable Petroleum Hydrocarbons
EQS	Environmental Quality Standard
ES	Environmental Statement
GAL	Gatwick Airport Limited
IBC	Integrated Bulk Container
KM	Kilometers
L/Hr	Litres per hour
LGS	Local Geological Site
MBAS	Methylene Blue Active Substances
µg/l	Micrograms per litre
NVZ	Nitrate Vulnerable Zone
PAOC	Potential Areas of Concern
PCB	Polychlorinated Biphenyl
PFAS	Perfluoroalkyl substances
PFOS	Perflyorooctane sulphonic acid
PFS	Petrol Filling Station
pH	Potential of Hydrogen
PIAT	Projector, Infantry, Anti-Tank
PPE	Personal Protective Equipment
PPM	Parts per million
PWS	Private Water Supply
RAF	Royal Air Force
RTD	River Terrace Deposits
S4UL	Suitable 4 Use Levels
SgZ	Safeguard Zone
SOE	Special Operations Executive
SSSI	Site of Special Scientific Interest
STW	Sewage Treatment Works
SVOCs	Semi Volatile Organic Compounds
TPH	Total Petroleum Hydrocarbons
UST	Underground Storage Tank
UXO	Unexploded Ordnance
VOCs	Volatile Organic Compounds
WHO	World Health Organisation
WHO ATO	World Health Organisation Appearance Taste Odour

Annex 1

Assessment Limitations

A1.1 Phase 1 - Environmental Risk Assessment / Desk Study Environmental Review

General Notes

1. A "desk study" means that no site visits have been carried out as any part thereof, unless otherwise specified.
2. This report provides available factual data for the site obtained only from the sources described in the text and related to the site on the basis of the location information provided by the Client.
3. The desk study information is not necessarily exhaustive and further information relevant to the site may be available from other sources.
4. The accuracy of maps cannot be guaranteed and it should be recognised that different conditions on site may have existed between and subsequent to the various map surveys.
5. No sampling or analysis has been undertaken in relation to this desk study.
6. Any borehole data from British Geological Survey sources is included on the basis that: "The British Geological Survey accept no responsibility for omissions or misinterpretation of the data from their Data Bank as this may be old or obtained from non-BGS sources and may not represent current interpretation".
7. Where any data supplied by the Client or from other sources, including that from previous site investigations, have been used it has been assumed that the information is correct. No responsibility can be accepted by RPS for inaccuracies in the data supplied by any other party.
8. This report is prepared and written in the context of an agreed scope of work and should not be used in a different context. Furthermore, new information, improved practices and changes in legislation may necessitate a re-interpretation of the report in whole or in part after its original submission.
9. The copyright in the written materials shall remain the property of the RPS Company but with a royalty-free perpetual licence to the Client deemed to be granted on payment in full to the RPS Company by the Client of the outstanding amounts.
10. The report is provided for sole use by the Client and is confidential to them, their professional advisors, no responsibility whatsoever for the contents of the report will be accepted to any person other than the Client. [Unless otherwise agreed]

A1.1.1 These terms apply in addition to the RPS "Standard Terms & Conditions" (or in addition to another written contract which may be in place instead thereof) unless specifically agreed in writing. (In the event of a conflict between these terms and the said Standard Terms & Conditions, the said Standard Terms & Conditions shall prevail.) In the absence of such a written contract the Standard Terms & Conditions will apply.

Annex 2

Walkover Observations

A2.1 Site visit was completed of Gatwick airport on the 25th of September 2019

Table A2.1: Summary of on site activities

Section	Description
Site Layout:	The site comprised Gatwick Airport and associated infrastructure including a number of hotels, offices and a railway station. The airport operations included two runways (main and central) located in the south of the site. A number of carparks, two commercial buildings, a British Airways Hangar and warehouse were located to the south of the runways. The land to the far north west of the runway comprised a fire training ground with undeveloped, (likely agricultural) land beyond. The main airport operations area to the north of the runways comprised a Boeing Hangar, Virgin Hangar, a number of aircraft stands and a maintenance area in the north west with car parking areas for long stay parking further to the north west. The central north area comprised a number of taxiways and aircraft stands, a cargo centre, the fire station, storage areas, a fuel farm and further car parking areas. To the north east of the runways were further aircraft stands and taxiways, the two airport terminals and a number of offices and hotels. The airport also comprised an eastern area located beyond the railway line and A23, which comprised a number of car parks, vehicle hire offices and workshops, hotels, offices and fast food restaurants.
Activity / Operations:	For ease of description the site has been separated into the below areas. **Eastern area:** This area is located to the east of the main airport, beyond the railway line and A23. The southern portion of the eastern area comprised woodland with two ponds in the south (anecdotal evidence indicates that these are pollution treatment lagoons, where de-icer contaminated water will be discharged to Crawley Sewage Treatment Works). The center of the eastern area was occupied by a number of long stay car parks, including self-park south, south valet and valet courtyard, as identified on Figure 5.2.1b. The long stay car parks were accessed from Ring Road South. Also located adjacent to the Ring Road to the north of the car parking areas (between self-park south robotics and the coach park on Figure 5.2.1b) were two buildings comprising maintenance areas occupied by Enterprise rent-a-car, Europcar and Herts for the maintenance of hire vehicles. The buildings were also noted to comprise car wash areas and vehicle refueling areas with three individual refueling points noted. Labelling on the refueling points indicated that underground storage tanks of petrol were located below. Two further vehicles hire company maintenance areas were noted within the south valet car parking area. One (located adjacent to the east of Pond G (Figure 5.2.1e) was occupied by Europcar and also appeared to include a refueling area with likely underground fuel storage tanks. An Avis vehicle maintenance area was also located in the east of the site to the south of the forecourt, leading from the south terminal. The maintenance area also appeared to be utilized for the repair of hire vehicles and included a car wash and vehicle refueling facilities with labelling on the dispensing pumps indicating both diesel and petrol underground tanks were present. The northern area of the east of the site comprised a multi-storey car park and forecourt area (leading via aboveground covered walkways to the south terminal), a Hilton Hotel, a Marriott Hotel, two office buildings a drive in McDonalds and KFC restaurant and a petrol filling station operated by BP and associated car parking areas. **South of the runways:** Car parking areas were located to the southwest of the runways which predominantly appeared to be utilised as long stay parking for customers. The south east of the runway included a staff car park area (car park z on Figure 5.2.1b) with a material store to the north of the car park for storage of grit and other hardcore materials reported to be currently utilised for the development of a new taxiway. A British Airways hangar was located adjacent to the east of the car park and was reported to be utilised for the servicing of aircraft. The hangar was not permitted to be accessed as part of the site walkover but appeared to comprise a warehouse / maintenance area on the airside side with offices to the rear. Two large above ground tanks were noted to the rear of the hangar and appeared to be sprinkler water storage tanks, however this was not confirmed. Further car parking and a warehouse noted to be occupied by Mitie (facility management) and Babcock (engineering services) were located to the south east of the runways. A disused aircraft was also located in this area, reported to be utilised for the practicing of de/anti-icing however only water was reported to be used. **Northeast of the runways:** The north east of the runway comprised the South and North Airport Terminals and associated piers and aircraft stands. Hotels, offices and commercial buildings were also located in the landside area of the north east of the site including a police station and a Shell petrol filling station. The airside in the north east of the airport included small engineering areas (one of which was located to the south of stands 4 and 5) and another adjacent to stand 574. The engineering areas were utilised by each air firm for the maintenance of airplanes at the stands and included the storage of waste from the airplanes such as waste fuel and also small amounts of chemicals and oils for use in airplane maintenance. The majority of the non-waste chemicals were noted to be stored on bunds or in bunded stores. Above ground de/anti-icer storage tanks and materials were stored in the area of stands 136 to 140 just north east of the runways.

Section	Description
	Centre north of the runways: A fire station and airside maintenance vehicle storage area were located to the immediate north centre of the runways. Further aircraft stands and a cargo centre (comprising of terraced warehouse units) were present beyond this. The cargo centre occupants included Royal Mail, World Freight Service and Animal Aircare Ltd and TCR (air industry ground support equipment servicing). The unit occupied by TCR was utilised for the repair of ground support vehicles. Further car parking and a waste treatment plant occupied by DHL were located to the north of the Cargo Centre with a fuel farm comprising five large above ground tanks for the storage of aviation fuel located in the far north. The aviation fuel was reported to be transported directly to the tanks via an underground pipeline. Access was not permitted to the fuel farm as part of the site walkover. Adjacent to the fuel farm was a small waste area (referred to as the "wet tip") where sewage waste from the aircraft was disposed of to a septic tank. In addition, the waste area comprised two lined pools for the storage of surface water from the runways / external areas and contaminated water from the runways / external areas. **North west of the runways:** The far northwest of the runways included an area utilised by the fire service for training purposes with undeveloped, likely agricultural land beyond. Two dummy aircraft were located in this area for fire training purposes. An above ground propane storage tank was present in the south west of the fire training area with beneath ground pipework supplying the large dummy aircraft in the centre. A land drain was noted around the fire service training area with a small pond on the southern edge. Additionally, anecdotal evidence indicates there are below ground tanks at the fire training ground which store runoff which may discharge to either Pond A catchment or to Pond M (and onward to Pond D). The area to the north west of the runways also included a Boeing hangar, at that time under development and not yet in use, a Virgin hangar, aircraft stands and a maintenance area (Oscar Remote Stands on Figure 5.2.1a), including refuelling area for ground service vehicles and vehicle wash facilities. A large long stay car parking area was also located beyond the Virgin hangar to the north west of the runways. The majority of the airside vehicles on-site were noted to be electric powered with numerous recharging points located around the airport.
Drainage:	Slot drains were observed in the runway, taxiway and aircraft stand areas. The site representative reported that all drainage within the airside area and possible also the landside area operated by Gatwick drains to a number of ponds located around the airport. The ponds then connect to a water treatment plant located in the north of the site, at Pond D, where the surface water is treated and tested before being discharged to the River Mole. The site representative reported that all drainage within the airside area can be controlled and either closed off or directed to a dedicated pond in the event of a spill. A vehicle refuelling and adjacent car wash were located in the landside maintenance area (Oscar Remote Stands), surface water drains were noted surrounding the vehicle refuelling area and below the vehicle wash. It was not known where the drains discharged to or if an interceptor was present, however, the site representative reported that, similarly to all drainage on-site, the drains entered an on-site pond for treatment. Three adjacent drain covers were noted in the refuelling area vicinity indicating the potential presence of an interceptors. Further refuelling areas and vehicle washes were noted in the eastern area of the site operated by vehicle hire firms. Dedicated surface water drainage was not noted in the vicinity of the vehicle hire maintenance areas in the east of the site excluding the Europcar maintenance area adjacent to the east of Pond G where surface water drains were noted in the vicinity of the refuelling area. It was not known if an interceptor was present in these areas. A septic tank for foul waste from the airplanes was reported to be located in the north of the site north of the fuel farms. This was reported to be collected and disposed of off-site.
Bulk Storage / Tanks:	Five above ground bulk storage tanks of aviation fuel were observed in the fuel farm in the north of the site. The capacity of the tanks was not provided, however, given their size it is considered to be in the millions of litres. It was also not clear if the tanks extended below ground. The tanks were reported to be directly filled from an underground pipeline which was reported to extend from a dedicated port to the airport. Fuel was then reported to be connected to the airplane stands via underground pipework with at least one refuelling point at most aircraft stands. The fuel was reported to be piped through the underground pipework at high pressure. A refuelling area for the fuelling of airside support vehicles was located in the maintenance area (Oscar Remote Stands) in the centre north of the site. The refuelling area was noted to comprise eight dispensing points and five ventilation pipes indicated the presence of approximately five underground fuel storage tanks. The tanks were reported to contain diesel, petrol and gas oil. A refill point for an unleaded petrol underground storage tank was noted with labelling indicating the tank was 29,100 litres in capacity. No other refill points were identified. An above ground bulk storage tank of gas oil (48,500 litres capacity) was also noted in the Oscar Remote Stands area. The tank was noted to comprise an integrally bunded tank with the refill and dispensing points / hose located behind a roller shutter door within the bund. No significant staining was noted in the area. An integrally bunded tank of Adblue was also noted. A 6,500 litre aboveground storage tank reported to comprise soap (SC08 Stand Cleaner) was also noted in this area. The tank was located within a brick bund. The bund was not covered and was filled with an approximately 5cm deep layer of green coloured liquid. It was not clear if this represented a leak from the tank or the combination of a leak and rainwater or other contamination.

Section	Description
	Adjacent to the refuelling area in Oscar Remote Stands was a maintenance warehouse for the servicing of airside support vehicles. Three above ground tanks were noted on a mezzanine level within the warehouse. The tanks were reported to comprise engine and hydraulic oil and were connected by aboveground pipework to refilling and dispensing points. A bunded external store of drums of oil and intermediate bulk containers of Adblue were also noted. Two petrol filling stations were noted on site. A Shell operated PFS was located in the north east of the site, adjacent to the Premier Inn. The forecourt area of the Shell PFS was not accessed and therefore, the number, capacity and contents of the underground tanks was not identified. The second PFS was located in the north east of the site adjacent to the McDonalds restaurant and was operated by BP. Labelling on the refill points for the underground storage tanks indicated the presence of five tanks as below: ▪ 57,730 litres diesel; ▪ 43,120 unleaded petrol; ▪ 14,610 diesel; ▪ 31,120 unleaded petrol; and ▪ 14;610 unleaded petrol. Underground fuel storage tanks containing petrol and diesel are also considered likely to be present beneath the refuelling areas operated by vehicle hire companies in the east of the site. RPS considers that there is the potential for approximately ten underground tanks to be present between the five hire car facilities. Above ground de/anti-icer tanks were noted in the centre of the site in the area of stand 130 to 145. The de/anti-icer tanks comprised four 80,000 litre tanks of ECO2 and two 80,000 litre tanks of KONSIN for the de/anti-icing of the runways, taxi areas and aircraft stands. Above ground pipework connected to small generators was located between the tanks which was operated to fill de/anti-icing vehicles with the de/anti-icer when required, each vehicle was reported to hold 6,000 litres of de/anti-icer. Granular de/anti-icing material (Safegrip SF) was also stored in a covered area adjacent to the tanks. Both ECO2 and KONSIN were utilised for the de/anti-icing of the runways with Type IV reported to be utilised for the de/anti-icing of planes. Three 80,000 litre above ground storage tanks of Type IV for the de/anti-icing of planes were also located in this area. Further above ground storage tanks of de/anti-icer for the aircraft were located in integrally bunded tanks to the south of the fuel farm. The TCR maintenance area included two above ground oil storage tanks of 2,000 litre capacity. The tanks were located internally to the unit. Some staining of the underlying hardstanding was noted.
Waste:	Waste contaminated water from spills and similar events was reported to be cleaned up by a dedicated cleaning vehicle with a vacuum function with the contaminated water then disposed of in the wet tip area, located in the north of the site immediately beyond the aviation fuel farm. The wet tip comprised two pools/pit which appeared to be concrete lined. One pool was for contaminated water and the other was for littered surface water. The surface water pool was reported to be discharged to the drainage system with any litter waste within the pool collected and crushed. Contaminated water was reported to be collected by a waste tanker and disposed of off-site. The waste tanker was reported to be operated by Sweeptank. Contaminated mats and granules following a spill event were also stored in the wet tip area in a covered store in metal 205 litre drums located on plastic bunds. DHL were reported to collect the waste contaminated materials. Containers (metal drums, boxes and intermediate bulk containers) of contaminated rags, waste oil filters, waste oil and waste chemical containers were noted on-site, stored in the air firm maintenance areas, the airside vehicle maintenance area in Oscar Remote Stand and within the TCR maintenance warehouse. An above ground metal waste oil tank and intermediate bulk containers of adblue were located externally to the airside vehicle maintenance area. Both were reported to be collected by DHL. An above ground waste oil tank was also located internally to the TCR maintenance warehouse. The tank was reported to be approximately 2,000 litres in capacity. Contaminated waste from the TCR unit was reported to be collected by Oakwood.
Electricity Substations /Transformers:	Electricity substations were reported to be present on site and were understood to be the responsibility of Gatwick Airport. The site representative was not aware of the location of all the substations however one was noted in the south west and one in the east of the site, adjacent to Pond G The substation adjacent to Pond G was labelled as the responsibility of UK Power Networks. .A large substation is located in the northern section of Car Park B.
Visual Evidence of Contamination:	The site representative reported that, on occasions, the refuelling of planes has resulted in small spills of fuel. Spill kits were located throughout the site and all airside support vehicles were noted to carry spill kits with absorbent booms, granules and specialist clay to block drains. A recent large fuel spill (in 2019) was reported to have occurred in the area of stand 558. The spill was the result of ground works damaging an aviation fuel pipe which caused a large geyser of fuel given the pressure of the pipes. The airport fire service and airside support were reported to have attended the event.
Statutory Nuisance:	The site representative reported no knowledge of any statutory nuisances in relation to the site.
Other Issues:	No Japanese Knotweed or Giant Hogweed (invasive plant species) were readily identified on or adjacent to the site at the time of the survey. (It should be noted that the identification can be limited by the seasons and in areas of dense vegetation growth).

The Surrounding Area

A2.1.1 The site is located in an area of mixed commercial, agricultural and residential area land uses. At the time of the site inspection, neighbouring land consisted of the following:

Table A2.2: Neighbouring Land Uses

Direction	Description
North:	Agricultural land with residential properties beyond.
East:	Agricultural land and residential properties.
South:	Agricultural land and industrial estate.
West:	Agricultural land and residential properties.

The River Mole was observed to run along the northern edge of the site

Annex 3

Previous Ground Investigation Reports Summary

Table A3.1: Summary of Existing Ground Investigation Reports

No	Report Title	GAL Reference	Date	In Genesis Area?	Purpose	GI Scope	Soil Samples?	GW Samples?	GW Level Monitoring? Long term?	Ground Gas Monitoring?	Interpretation of Environmental Results?
1	A380 On Stand 125 – Site Investigation Report (appendix to document)	2A125-00-C-911-SUR-000001	14/03/2012	N (Stand 125)	Determine structural strength of concrete and ability to handle traffic	4 concrete cores 4 WS holes 4 DCP tests	2 (metals, total TPH, PAH 16)	N	N	N	N
2	Geotechnical Design Report – Airfield Operations Building (AOB)	2S169-XX-C-XXX-PDR-00007	04/04/2012	N (AOB)	GDR for new AOB	6 WS holes 2 GW/Gas MW	N	N	Y (2 rounds - March 2012)	Y (2 rounds – March 2012)	N - No gas RA undertaken
3	Airfield Taxiway Papa November (P&N)– Pavement Investigation Test Report	2AFLD-00-C-911-SUR-000001	17/04/2018	N (taxiway P&N – no plan or coordinates for locations of core samples)	Pavement investigation	11 concrete cores	N	N	N	N	N
4	South Terminal Northern Extension Structural Assessment of Spare Capacity in the Existing Structure	20206-XX-S-247-BOD-000026	05/06/2018	N (extension to Bloc hotel, located in South Terminal)	Structural assessment for proposed extension to the existing Bloc hotel, includes SI and associated GDR (as appendices to the main report)	2 dynamic sampling and RC follow on boreholes 2 GW MW 2 CPT 4 TP	2 (metals, speciated PAH, phenol, cyanide and asbestos screen)	N	N	N	N
5	Phase I Environmental Site Assessment	10509471	June 2017	N (Boeing Hangar)	Desk study prior to construction of Boeing Hanger	None – included review of previous Arcadis SI report	NA	NA	NA	NA	NA
	Phase II Environmental Site Assessment	No reference	June 2017		SI prior to construction of Boeing Hangar	19 WS 2 surface water samples 2 sediment samples 4 TP 12 vapour boreholes 5 spoil heap samples	42 (metals, cyanide, VOCs, SVOCs, PAH, phenol, EPH, asbestos, PCBs, pesticides/ herbicides	21 (metals, VOCs, SVOCs and EPH) Surface water were also analysed for cyanide, PCBS, PFAS, PFOS and PFOA	Y (1 round)	N but vapour samples collected (ground gases, TPH and VOCs)	Y
	Focused Soil and Groundwater Investigation for PFAS	41525212	09/11/2019		Provide further information on PFAS, following Phase II SI	5 WS 5 MW 2 surface soil samples	12 (PFAS and asbestos screen)	4 (PFAS)	Y (1 round)	N	Y
	Phase 2 Gatwick Boeing Hangar Geo Environmental Interpretative Report	20000-XX-B-911-PDR-000006	July 2017		SI prior to construction of Boeing Hangar	15 RC boreholes 22 TP 22 CPT	46 (metals, cyanide, speciated PAH, banded TPH, VOCs, AC and asbestos) and 10 leachate tests	19 (metals, cyanide, phenols, speciated PAH, TPH CWG and VOC)	Y (6 rounds over 2.5 months)	Y (6 rounds)	Y
	GDR – Boeing Hangar	20760-00-C-915-TDT-000001	10/11/2017		GDR to enable design of hangar	23 CPT 4 TP	N	N	N	N	N

No	Report Title	GAL Reference	Date	In Genesis Area?	Purpose	GI Scope	Soil Samples?	GW Samples?	GW Level Monitoring? Long term?	Ground Gas Monitoring?	Interpretation of Environmental Results?
	Gatwick Boeing Hangar - Ground Investigation Report	20000-XX-B-911-PDR-000001	February 2017	Y (Code E Hangar, Larkins Road diversion)	SI prior to construction of Boeing Hangar	13 dynamic sampling and RC boreholes 7 TP	10 (metals, asbestos, PAH and TPH CWG)	3 (Metals, PAH, phenols). GW samples collected during drilling	N	N	N
	Gatwick Boeing Hangar – Geo Environmental Interpretative report	20760-XX-R-911-SUR-000002	February 2017		Interpretation of 20000-XX-B-911-PDR-000001 report	NA	As above				Y
	Gatwick Hangar – Geotechnical Interpretative Report	20760-XX-R-911-SRC-00002	March 2017		Interpretation of 20000-XX-B-911-PDR-000001 report	NA	NA	NA	NA	NA	NA
6	Crawters Brook Bird Netting - Ground Investigation Report	20000-XX-C-871-SRC-000001	14/03/2016	Y (FCA Car Park X) (along Perimeter Road South)	Provide information for bird netting over Crawters Brook Stream	5 WS	4 (metals, PAHs, TPH CWG, asbestos, cyanide, phenol and WAC)	N	N	N	N
7	Report on a Geotechnical Investigation - Dax	20206-00-C-911-SUR-000001	November 2012	Y (Coaching Gates) (in Southern Terminal, next to end of shuttle)	Geotechnical SI for new building	2 WS	N	N	N	N	N
8	Factual Ground Investigation Report - De-Icing tanks	J13784 v2	22/10/2018	N	Proposed to locate new free-standing bunded de-icing tanks	3 WS 2 PBT 4 concrete cores 4 DCP	2 (metals, banded TPH, phenol, PAHs, WAC)	N	N	N	N
9	Ground Investigation - South Terminal International Departures Lounge (IDL)	20206-00-SR-900-000001 rev 1	August 1998	N	Geotechnical SI for proposed extension to IDL	2 CP	N	N	N	N	N
10	South Terminal External Security Building – Ground Investigation Specification	22152-XX-C-911-SPE-000004/5	11/10/2017	Not relevant – specification document, no GI undertaken		NA	NA	NA	NA	NA	NA
11	Fire Training Ground – Geotechnical and Contamination Assessment	106400/0100	September 1999	Y (fire training area, Taxiway Juliet West Spur)	Proposed to redevelop current fire training ground with a fire training rig	12 TP	17 (metals, PAH, phenol, asbestos, TPH and TEM)	5 (metals, TOC, nitrate, iron, manganese, BOD and COD) from trial pits	N	N	Y
	Laboratory Analysis Letter Report	No reference	22/08/2002		Unknown – very little information provided		N	4 (inorganics and oil fingerprinting)	N	N	N

No	Report Title	GAL Reference	Date	In Genesis Area?	Purpose	GI Scope	Soil Samples?	GW Samples?	GW Level Monitoring? Long term?	Ground Gas Monitoring?	Interpretation of Environmental Results?
12	Long Term Storage Lagoon Nr 1	22150-XX-C-870-UDT-000017	03/12/2013	N (to east of South Terminal)	Refurbish existing storage lagoon (Pond D) – drainage calculations	6 WS	N	N	N	N	N
13	Report on a Ground Investigation at New Engineering Stores	12255	March 2011	N	Provide information for foundation design of stores	14 Concrete cores 12 DCP 8 WS	N	N	N	N	N
14	Gatwick Batching Plant – land contamination results and Trial Pit Narrative Document	22196-00-C-864-TDT-000001	29/01/2018	Y (one of construction compounds)	Provide information of geotechnical properties of soil	5 TP	5 (metals, asbestos, PAHs and TPH CWG)	N	N	N	Y
15	Gatwick Stream Flood Attenuation – Contaminated Soil Sampling from the Control structure & Haul Road Results	22089-XX-U-871-REP-000004	13/12/2013	N	Not provided	3 soil samples	3 (metals, phenol, e-coli, PAHs, TPH CWG	N	N	N	N
16	Gatwick Taxiway and AGL Rehabilitation – Pavement Site Investigation	20000-XX-R-XXX-SUR-000002	05/06/2013	N (TPs on north side of Taxiway 42 S)	Not provided	25 Concrete cores 2 TP	N	N	N	N	N
17	Gatwick Airport Maintenance Base – Groundwater Monitoring and Risk Assessment	20064-XX-C-911-SUR-000001	January 2007	Y (one of the construction compounds	Monitoring before, during and after demolition of buildings on the maintenance base	4 CP 4 MW	16 soil and 3 sediment samples (metals, asbestos, cyanide, EPH, PAH, VOCs and SVOCs)	3 rounds carried out from 4 newly installed wells and 8 pre-existing wells (metals, EPH, PAH, VOCs and SVOCs)	3 rounds (only 1 completed at time of reporting)	N	Y
18	Report on a Ground Investigation at London Gatwick Airport South Terminal - Hangar 5 & Building P7	20062-00-SR-247-000001 Rev 1.0	15/02/2010	Y (one of the construction compounds)	Prior to demolition of buildings, to be replaced by a logistics centre	3 CP and 3 MW 2 WS	12 (metals, cyanide, asbestos PAH, VOC, SVOCs)	3 (metals, cyanide, PAH, VOC, SVOCs)	1 round	N	N
19	Jubilee House Coach Parking – Ground Investigation Test Report	20700-00-S-200-TST-000001	11/11/2016	N	Proposed construction of new bus/coach pick-up area	3 WS 3 CBR	1 (WAC)	N	N	N	N
20	Main and North Runway Rehabilitation – Ground Investigation Report	2000-XXC-4191-REP-00003	08/12/2017	Y (northern runway)	Rehabilitation of runways, taxiways	22 Cores with WS follow-on	N – Hydrocarbon contamination noted on logs	N	N	N	N
21	Maintenance Base – Hangar Decommission	Y– duplicate of Report 17									

No	Report Title	GAL Reference	Date	In Genesis Area?	Purpose	GI Scope	Soil Samples?	GW Samples?	GW Level Monitoring? Long term?	Ground Gas Monitoring?	Interpretation of Environmental Results?
22	MSCP 7 – Ground Investigation Report	20000-XX-C-734-SUR-000001	09/01/2017	N	Proposed construction of new car park	6 dynamic sample with RC follow-on	10 (WAC)	N	N	N	N
	MSCP 7 – Geo-environmental Desk Study	20700-XX-U-911-TDT-00000220700-XX-U-911-TDT-000002	August 2016			Desk Study	N	N	N	N	N
	MSCP 7 – Ground Investigation Report	20700-XX-C-911-TDT-000001	12/10/2016			As report 20000-XX-C-734-SUR-000001	10 (WAC)	N	N	N	Y
	MSCP 7 Site Investigation – Additional Groundwater Monitoring and Reporting	20700-XX-C-911-TDT-000002 Rev02	23/07/2017				N	N	4 rounds (8 months)	N	N
23	MSCP 4 – Geo-environmental Desk Study	22081-XX-U-911-TDT-000001	20/06/2017	Y (Hotel and ST Forecourt)	Proposed construction of new car park	Desk Study	N	N	N	N	N
	MSCP 4 – Ground Investigation Report	20000-XX-B-911-TDT-000001	17/01/2018			3 dynamic samples 2with RC follow-on 3 MW 9 WS	18 (metals, PAH, TPH CWG, phenols, asbestos and WAC)	3 (pH, sulphate, magnesium)	3 rounds (4 months)	N	N
	MSCP 4 – Ground Investigation Report	22081-XX-C-911-TDT-000001	05/03/2018			As report 20000-XX-B-911-TDT-000001					Y
24	NT Car Park J Ditch Remediation Design Report	20724-XX-X-864-ROP-000002	18/11/11	Y (MSCP J, NT Forecourt)	Investigation of ditch instability and settlement in car park	2 RC 1 WS 4 TP 3 ditch water sample points	7 (metals, PAH, TPH, SVOCs, VOCs, TEM, asbestos and WAC)	3 (metals, PAH, TPH, SVOCs and VOC)	N	N	Y
25	North Terminal Extension – Interpretative Geoenvironmental Report	20700-XX-RP-900-000003	27/03/2009	N	Proposed extension to North Terminal	9 RC + 7 MW 10 WS + 8 MW 14 DP 16 Cores 20 DCP	28 (metals, RPH, PAH, TPH CWG, VOCs, SVOCs and WAC) – no laboratory certificates	5 (metals, VOCs, SVOCs, EPH and PAH) – no laboratory certificates	4 rounds (over 1.5 months)	4 rounds (over 1.5 months)	Y
	North Terminal Redevelopment –	20700-XX-S-247—	01/07/52013			None – desktop review	N	N	N	N	N

No	Report Title	GAL Reference	Date	In Genesis Area?	Purpose	GI Scope	Soil Samples?	GW Samples?	GW Level Monitoring? Long term?	Ground Gas Monitoring?	Interpretation of Environmental Results?
	Geotechnical Desktop Site Appraisal	BOD-0000241									
26	Gatwick Car Park Survey Zones F&G Factual Report	20000-XX-B-911-PDR-000005	July 2017	N	Proposed overdecking of car park	5 RC + 3 MW 10 WS	14 (metals, PAH, TPH CWG, asbestos, cyanide)	3 (inorganics)	3 rounds (over 1 month)	N	N
	Car Park Decking – Ground Investigation Report	20600-XX-C-911-TDT-000001	20/07/2019			As report 20000-XX-B-911-PDR-000005					Y
	South Terminal Decking Zones F&G – Geotechnical Design Report	20600-020-U-247-SPE-000001	18/01/2018								N
	South Terminal Decking Zones F 7 G – Geotechnical Design Report Sprinkler Tank	20600-00-U-247-SPE-000002	09/07/2018		Proposed sprinkler tank base at car park F&G	1 WS + 1 MW 2 TP	N	N	2 rounds (2 weeks)	N	NA
27	Pier 1 and Pier 2 Developments – Contaminated Land Site Investigation Interpretative Report	20209-XX-SR-200-000002 & 20340-XX-SR-200-000002	January 2010	N	Proposed redevelopment of Pier 1 and Pier 2	1 CP + 1 MW 9 WS + 2 MW 3 TP	12 (metals, EPH, TPH CWG, PCBS, VOCs, PAH, WAC)	N (wells dry)	1 round	N	Y
28	Pier 4	Not relevant – specification document, no ground investigation undertaken									
29	Report on a Ground Investigation at Gatwick North Terminal Pier 5	SE-RRG-F-001	26/01/2011	Y (NT IDL Expansion)	Redevelop Pier 5 – new link bridges, 2nd floor extension	2 RC + 2 MW 3 WS	5 (metals, cyanide, TPH CWG, PAH, VOC, PCB, asbestos and WAC)	N	1 round	N	N
	Pier 5 Reconfiguration – Environmental and Geotechnical Interpretative Report	20704-XX-BR-XXX-000001	12/09/2011			As report SE-RRG-F-001					Y
30	Pier 6 Surveys – Log & HWD report	2TQ01-00-R-911-SUR-000003	31/07/2018	N	Proposed realignment of Quebec Taxiway	14 Cores 14 DCP 11 TP	N	N	N	N	NA
31	Pier 6 Extension – Trial Pit Testing Report	20709-00-R-911-SUR-000003	June 2013	N	Redevelopment of Pier 6	7 TP	2 (metals, asbestos, cyanide, PAH, TPH CWG)	N	N	N	N

No	Report Title	GAL Reference	Date	In Genesis Area?	Purpose	GI Scope	Soil Samples?	GW Samples?	GW Level Monitoring? Long term?	Ground Gas Monitoring?	Interpretation of Environmental Results?
	Gatwick Pier 6 Extension – Fuel Leakage Investigation	20709-00-C-911-STD-000001	June 2013			8 CP – 8 MW 5 WS – 5 MW	N	2 rounds of sampling (metals, PAH, TPH CWG) – no laboratory certificates	6 rounds (2 months)	N	Y
	Ground Gas Investigation – Pier 6 Extension	20709-00-C-911-STD-000002	February 2013			4 CP – 4 MW 8 WS – 8 MW	N	N	6 rounds (over three months)	6 rounds (over three months)	Y
	Gatwick North Terminal Pier 6 Extensions – Pavement Investigation Report	20709-00-R-911-SUR-000007	10/07/2013	Y (Charlie Box, N Runway Exits)		42 Cores	N	N	N	N	N
	Pier 6 Extension – Factual Ground Investigation Report	20709-00-R-911-SUR-000005	June 2013	N		As report 20709-00-C-911-STD-000001 (includes laboratory certificates)					N
	Pier 6 Survey Works – Stand 103 – Borehole 10 & 11 Report	2S103-00-R-911-SUR-000004	05/07/2018			2 WS with RC follow on – 2 MW	3 (metals, TPH CWG, PAH, SVOCs, VOCs and asbestos)	N	N	N	N
32	Project Engineering List	Not relevant – no reports in folder									
33	Public Transport DDA Access – Ground Investigation Report	20000-XX-C-734-SUR-000002	09/01/2017	N	Improving access to local transport	1 WS with RC follow on – 1 MW 1 trial trench 4 TP	7 (metals, PAH, BTEX, PCB, WAC)	N	2 rounds (1 week)	N	N
	Public Transport DDA Access – Combined Ground Investigation Report & Geotechnical Design Report	20000-XX-R-734-SUR-000001	11/04/2017			As report 20000-XX-C-734-SUR-000002					Y
34	Redevelopment of Hangar 5 & Building P7	Y – duplicate of report 18									
35	Geotechnical Report on Ground Investigation – Sub-Station G	20226-00-C-734-SRC-000001	July 2015	Y (one of the construction compounds)	Redevelop the sub-station and relocated within a car park	7 Cores 2 TP with DCPs	7 (metals, PAH, TPH CWG and WAC)	N	N	N	N
36	Southern Terminal Baggage & Pier 1 – Factual Site Investigation Report	20209-XX-C-XXX-REP-000001	28/03/2012	N	Redevelop the current Pier 1 – include changes to the existing piers and taxiways and new baggage facility	22 RC 6 WS 14 CBR	N	N	N	N	N

No	Report Title	GAL Reference	Date	In Genesis Area?	Purpose	GI Scope	Soil Samples?	GW Samples?	GW Level Monitoring? Long term?	Ground Gas Monitoring?	Interpretation of Environmental Results?
	Pier 1 & Baggage Project Report on a Ground Investigation – Phase 3	20220-00-R-911-SUR-000004	21/06/2013	N		4 CP with RC follow on – 2 MW 4 WS	N	N	4 rounds (weekly)		N
	ST Baggage & Pier 1 Project – Contamination Survey Phase A Report	20220-00-R-911-SUR-000001	29/04/2013	Y (ST IDL Expansion)		7 dynamic sample and RC follow on – 6 MW 9 TP 3 surface water samples from Gatwick Stream	28 (metals, asbestos, TPH CWG, VOCs and SVOCs)	10 (metals, inorganics, TPH CWG, VOCs and SVOCs)	1 round		N
	ST Baggage + Pier 1 Geoenvironmental Conceptual Site Model	20209-XX-C-900-REP-000001	28/09/2012			None – desk based assessment	N	N	N	N	N
	Contaminated Strategy Report – Gatwick Airport South Terminal Baggage & Pier 1 Project	20220-00-H-XXX-TDT-000001	23/09/2013			None – desk based assessment	N	N	N	N	N
	South Terminal Baggage and Pier 1 Contaminated Land Risk Assessment and Remediation Strategy	20220-XX-C-911-BOD-000001	31/05/2013	Y (Taxiway Victor, Taxiway Whiskey-Victor-Zulu)		12 WS with RC follow on – 12 MW 7 TP 3 surface water samples 19 WS 7 TP	38 (metals, BTEX, VOC, SVOCs, PAH, TPH CWG, PCBs and asbestos)	19 (VOCs, SVOCs, PAH, TPH CWG and metals)	4 rounds (weekly)		Y
	ST Baggage & Pier 1 – Contaminated Land Verification Report	Report corrupted – illegible				Report corrupted – illegible					
	Drawing – Findings of Contaminated Land Assessment	20220-XX-C-911-GA-000013	30/05/2013			Drawing					
	Drawing – Existing Geological Conditions Layout	20220-XX-C-915-GA-000001	13/12/2012			Drawing					
	Drawing – Ground Investigation Hole Location Plan	20220-XX-C-911-GA-000012	13/12/2012			Drawing					
37	Southern Terminal Baggage Project – Report on a Ground Investigation	20203-00-SR-911-000014	18/02/2010	N	Redevelop area as strategic hub	2 CP – 2 MW 1 RC – 1 MW 1 WS 8 TP	5 (metals, PCBs, PAH, EPH, VOCs, phenol and asbestos)	N	1 round	1 round	N

No	Report Title	GAL Reference	Date	In Genesis Area?	Purpose	GI Scope	Soil Samples?	GW Samples?	GW Level Monitoring? Long term?	Ground Gas Monitoring?	Interpretation of Environmental Results?
38	Southern Terminal ULD External Storage Facility – Ground Investigation Report	22118-00-C-915-TST-000001	18/10/2017	N	New pavement and additional stillage units	5 TP	N	N	N	N	N
	ULD External Storage Facility – Trial Pit Test Results	22118-00-C-915-TST-000003	18/10/2017			As above (comprised the 5 trial pit logs)					
39	Gatwick STAD Project – Ashdown House Ramp and Canopy area Report	20362-00-C-911-SUR-000001	16/01/2013	N	Determine bearing capacity for canopy structure	1 WS	N	N	N	N	N
40	Strategic Power Resilience Project (Control Tower) – Site Investigation Report	20473-XX-C-XXX-SRC-000001	14/11/2018	N	Determine whether leaching of diesel fuels from adjacent underground fuel tanks had occurred	2 WS	2 (metals, PAH, EPH, GRO, BTEX, PCBs, asbestos and WAC)	N	N	N	Y
41	Taxiway and AGL Rehabilitation	N – duplicate of report 16									
42	UXO and EXO Surveys – New Hangar	20760-XX-R-911-SRC-000001	18/11/2016	N	Undertaken prior to construction of Boeing Hangar	NA	NA	NA	NA	NA	NA
43	Westfield Stream Gatwick – Ground Investigation Report	No reference on report	January 2015	Y (Pond A and potential area for flood compensation)	Design of diversion of the Westfield Stream	3 WS with RC follow on – 1 MW 11 TP	20 (metals, asbestos, cyanide, PAH and TPH) – no laboratory certificates provided	N	1 round	N	Y
44	Main and North Runway Rehabilitation	Y – original version (v0) of report 20									
45	Public Transport and DDA Access	Y– duplicate of report 33 (Ground Investigation Report, ref: 20000-XX-C-734-SUR-000002									
46	Gatwick Northern Runway Project, Museum Field	No reference on report	March 2022	Y (Flood compensation area)	FCA investigation	3 CP with RC follow on – 3 MW	N	N	2 rounds Data logger 17 Feb to 25 March 2022	N	N
47	Gatwick North Runway Project, Highways	No reference on report	July 2022	Y (Surface access)	Highways investigation	10 CP with RC follow on, 1 WS with RC follow on, 9 WS, 1 RC, 4 TP, 6 HP – 13 MW	N	N	Weekly rounds 23 May to 28 June Data logger 14 May to 3 July 2022	N	N

WS – window sample borehole

TP – trial pit

HP – hand dug pit

CPT – cone penetration test

MW – monitoring well

GDR – Geotechnical Design Report

RC – rotary core

PBT – plate bearing tests

DCP – dynamic cone penetrometer test

CP – cable percussion borehole

CBR – California Bearing Ratio

Annex 4

Ground Investigation Report Extracts

N
W
E
S

Notes:
Site Plan created using HoleBASE SI incorporating Bing Maps included under licence with Bentley Ltd.

Scale:
1:1500

Surveyed By:
SOCOTEC

Surveyed Date:
FEB 2022

Key:

Cable percussion with rotary follow-on exploratory boreholes

SITE PLAN

SOCOTEC

Project ID:
D2001-22

Project Title:
Gatwick Northern Runway Project
Museum Field

Client:
VINCI Construction UK Limited
trading as Taylor Woodrow

Figure:
A2

APPENDIX B
EXPLORATORY HOLE RECORDS

Key to Exploratory Hole Records	Key
Hammer Energy Ratio Report	Hammer Reference AR3762
Borehole Logs	BH1 MF, BH2 MF and BH3 MF

Key to Exploratory Hole Records

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SAMPLES

Undisturbed

U	Driven tube sample	nominally 100 mm diameter and 100% recovery unless otherwise stated
UT	Driven thin wall tube sample	
TW	Pushed thin wall tube sample	
P	Pushed piston sample	
CBR	CBR mould sample	
BLK	Block sample	
C	Core sample (from rotary core) taken for laboratory testing.	

Disturbed

D	Small sample (including samples recovered from SPT)
B	Bulk sample
LB	Large Bulk sample (comprising more than one container as required)

Other

W	Water sample	
G	Gas sample	
ES	Soil sample	Environmental chemistry samples (in more than one container where appropriate)
EW	Water sample	

Comments to samples

Sequential sample reference numbers are assigned to every sample taken during hole construction.

NR - No Recovery. Used where tube sampling has been attempted but no sample obtained (for whatever reason).

Samples not shown on exploratory hole logs:

- subsamples / specimens taken for on-site testing, eg point load testing
- samples taken from borehole installations (ie water or gas) after hole construction

DYNAMIC SAMPLING

Dynamic sampling includes 'window' and 'windowless' sampling methods, with and without a sample liner respectively

DYS	Dynamic sampling range showing tube / liner recovery (rec.) and diameter. Material retained as separate samples.
L	Retained complete liner sample (with sample reference number)

IN SITU/FIELD TESTS

SPT S or SPT C	Standard Penetration Test, open shoe (S) or solid cone (C). The Standard Penetration Test is defined in BS EN ISO 22476-3:2005+A1:2011. The open shoe configuration is used without a sample liner unless shown otherwise. Samples recovered by SPT open shoe are shown as type D. The incremental blow counts are given in the Field Records column; each increment is 75 mm unless stated otherwise and any penetration under self-weight in mm (SW) is noted. Where the full 300 mm test drive is achieved the total number of blows for the test drive is presented as N = ** in the Test column. Where the test drive blows reach the limiting value (usually 50) the total blow count beyond the seating drive is given (without the N = prefix). See Note 7 also.
IV	*in situ*/field vane shear strength, peak (p) and remoulded (r), kPa
HV	Hand vane shear strength, peak (p) and remoulded (r), kPa
PP	Pocket penetrometer test, converted to shear strength, kPa
KFH, KRH, KPI	Permeability tests : KFH = falling head, KRH = rising head, KPI = packer inflow (water pressure test). Results presented on separate report sheets.
PID	VOC concentration using hand-held photo-ionisation detector, ppmv

DRILLING RECORDS

Classification of discontinuity state - as defined in BS 5930:2015+A1:2020

TCR	Total Core Recovery, %
SCR	Solid Core Recovery, %
RQD	Rock Quality Designation, %
If	Fracture spacing, mm - presented as minimum, mode (or 'typical' value) and maximum spacing.
FI	Fracture Index - presented as number of fractures per metre. (Used as alternative to Fracture Spacing)
NI	Non-intact - used to indicate where the core is fragmented (ie non-Solid Core).
NA	Not-applicable - used where a measurement is inappropriate (eg for non-rock materials, zones of no recovery)
NIDD	Non-intact Drilling Induced – used to indicate where rock believed to be non-fractured in the ground has been recovered as Non-intact due to the drilling process. (Used only where specified)
NDP	No Discontinuities Present – used to indicate where core is non-fractured. (Used only where specified as alternative representation to showing a single If value for the depth range of non-fractured core.)
CRF	Core Recovered in the Following run (length in m) – used to indicate length adjustment to TCR (and SCR, RQD and If accordingly) where slipped/dropped core from a core run has been recovered in the subsequent run.
AZCL	Assessed Zone of Core Loss – used to indicate estimated depth range corresponding to core loss (for TCR<100 %). Assumed to be at the start of the core run where no judgement is possible. Not shown for core loss less than 5 %.

Flush returns – presented as estimated percentage in the Records column, with colour where relevant.

Notes:
See report text for full references of standards.
Updated June 2021 v1.3 col

Key

Key to Exploratory Hole Records

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GROUNDWATER

▼ Groundwater entry

▽ Depth to groundwater after observation period

INSTALLATIONS Any installations are shown on the Exploratory Hole Record in the rightmost Backfill column with appropriate graphic.

Standpipe/ piezometer

SP	Standpipe
SPIE	Standpipe piezometer
PPIE	Pneumatic piezometer
EPIE	Electronic piezometer

Plain Pipe 

Slotted Pipe 

Piezometer Tip 

Inclinometer or Slip Indicator

ICE	Biaxial inclinometer
ICM	Inclinometer tubing for use with probe
SLIP	Slip indicator

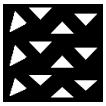
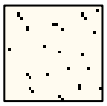
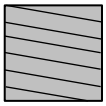
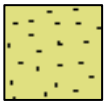
Settlement Points

ESET	Electronic settlement cell/gauge
ETM	Magnetic extensometer settlement point

Pressure Cells

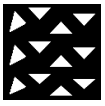
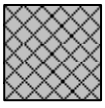
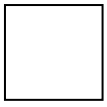
EPCE	Electronic embedment pressure cell
PPCE	Electronic push-in pressure cell

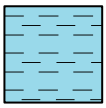
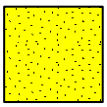
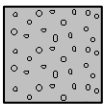
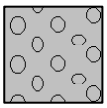
INSTALLATION / BACKFILL LEGENDS A legend describing the installation is shown in the rightmost column. Legend symbols used to describe the backfill materials are indicated below.

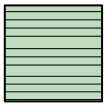
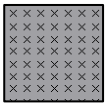
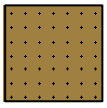
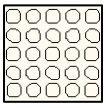
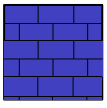
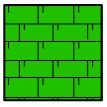
Macadam 
Concrete 
Grout 
Bentonite 
Sand 
Gravel 
Arisings 

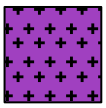
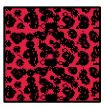
STRATUM LEGENDS The legend symbols used for graphical representation of soils, rocks and other materials on the borehole logs are shown below. For soils with significant proportions of secondary soil types, a combination of two or more symbols is used.

Note that the Made Ground / Fill stratum legend does not differentiate between engineered and non-engineered anthropogenic materials.

Macadam 
Concrete 
Topsoil 
Made Ground / Fill 
Peat 
Void or No Information 

Clay 
Silt 
Sand 
Gravel 
Cobbles 
Boulders 
Coal 

Mudstone 
Siltstone 
Sandstone 
Conglomerate 
Breccia 
Limestone 
Chalk 

Igneous (Fine) 
Igneous (Med) 
Igneous (Coarse) 
Metamorphic (Fine) 
Metamorphic (Med) 
Metamorphic (Coarse) 
Tuff 

Notes:
See report text for full references of standards.
Updated June 2021 v1.3 col

Key to Exploratory Hole Records

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NOTES

1 **Geological materials** are described in accordance with BS 5930:2015+A1:2020, which is compliant with BS EN ISO 14688-1:2018 and 14689-1:2018 for soils and rocks respectively.

2 The **consistency** determined during description for fine soils (clay and silt) is reported for strata where undisturbed samples are available. Where the logger considers that the samples may not be representative of the in situ condition, for whatever reason, the reported consistency may be omitted, or qualified using the terms *Probably* (where the logger is reasonably confident of the assessment, or *Possibly* where there is less certainty.

3 The presence of **very coarse particles** (cobbles and boulders) is included in the stratum descriptions on logs using the proportional terminology of BS 5930 where possible. However, due to their relatively large size in relation to the diameter of boreholes, and volumes of samples recovered, these records may not be fully representative of their size and frequency in the ground. Where sample mass precludes a reliable estimate of the proportion of very coarse particles, their presence may be described using undefined qualitative terms, eg occasional, frequent, etc, or by noting the number of cobbles/boulders observed.

4 The **declination of bedding and joints** is given with respect to the normal to the core axis, ie perpendicular to the direction of drilling. In a vertical borehole this will therefore correspond to the dip.

5 The assessment of **SCR, RQD and Fracture Spacing** excludes all non-natural fractures (ie drilling induced) where these can be positively identified.

6 Observations of discernible **groundwater entries** during the advancement of the exploratory hole are given at the foot of the log and in the Legend column. The absence of a recorded groundwater entry should not, however, be interpreted as a groundwater level below the base of the borehole. Under certain conditions groundwater entry may not be observed, for instance, drilling with water flush or overwater, or boring at a rate faster than water can accumulate in the borehole. Similarly, where water entry observations do exist, groundwater may also be present at higher elevations in the ground than where recorded in the borehole. In addition, where appropriate, water levels in the hole at the time of recovering individual samples or carrying out in situ tests and at shift changes are given in the Records column.

7 The borehole logs present the results of **Standard Penetration Tests** recorded in the field without correction or interpretation. However, in certain ground conditions (eg high hydraulic head or where very coarse particles are present) some judgement may be necessary in considering whether the results are representative of in situ mass conditions.

8 | Date | Time |
| --- | --- |
| Casing | Water |

Overnight pauses in hole progress are shown by a horizontal line together with records of casing depth and water level at the start and end of shift, together with the corresponding date and time. Casing depths and water levels are also shown at the time of tube sampling and Standard Penetration Tests.

REFERENCES

1 BS EN ISO 14688-1:2018 : Geotechnical investigation and testing - Identification and classification of soil. Part 1 Identification and description. British Standards Institution

2 BS EN ISO 14689 : 2018 : Geotechnical investigation and testing - Identification and classification of rock. British Standards Institution

3 BS EN ISO 22476-3:2005+A1 : 2011 : Geotechnical investigation and testing - Field testing. Part 3 Standard penetration test. British Standards Institution

4 BS 5930:2015+A1:2020 : Code of practice for ground investigations. British Standards Institution

Notes:
See report text for full references of standards.
Updated June 2021 v1.3 col

Key

SPT Hammer Energy Test Report

in accordance with BSEN ISO 22476-3:2005

ARCHWAY ENGINEERING (UK) LTD
AINLEYS INDUSTRIAL ESTATE
ELLAND
WEST YORKSHIRE
HX5 9JP

SPT Hammer Ref:	AR3762
Test Date:	03/09/2021
Report Date:	03/09/2021
File Name:	AR3762.spt
Test Operator:	JL

Instrumented Rod Data

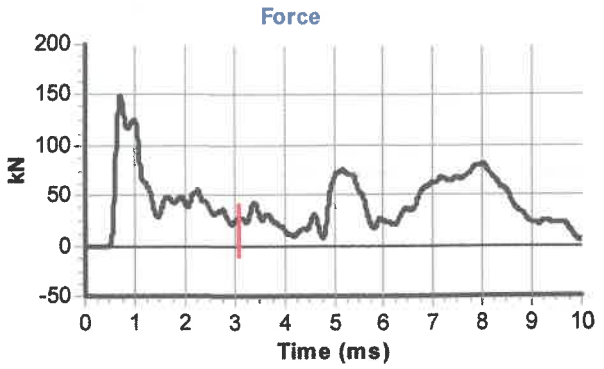
Diameter d_r (mm):	54
Wall Thickness t_r (mm):	6.0
Assumed Modulus E_a (GPa):	200
Accelerometer No.1:	7080
Accelerometer No.2:	11609

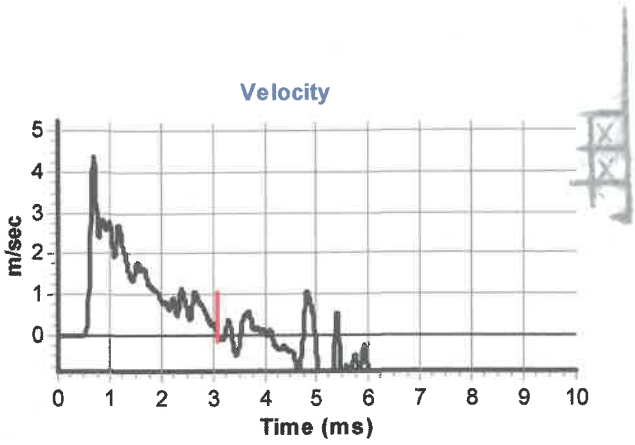
SPT Hammer Information

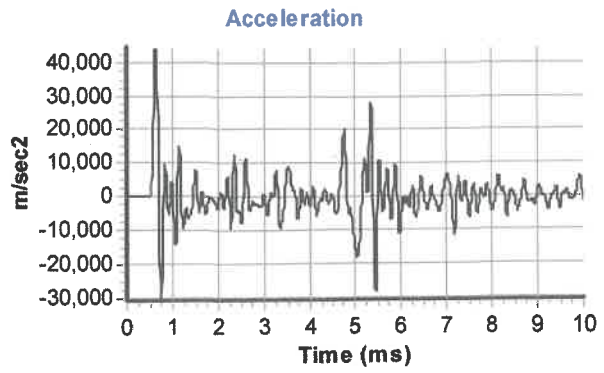
Hammer Mass m (kg):	63.5
Falling Height h (mm):	760
SPT String Length L (m):	10.0

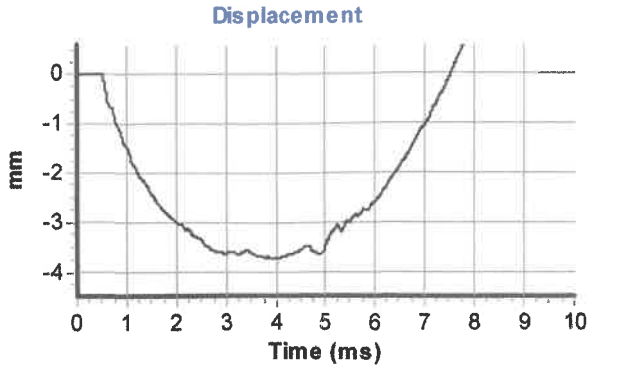
Comments / Location

SOCOTEC - 77110









Calculations

Area of Rod A (mm2):	905
Theoretical Energy E_{theor} (J):	473
Measured Energy E_{meas} (J):	310

Energy Ratio E_r (%): **65**

Signed: J.LOCK

Title: FITTER

The recommended calibration interval is 12 months

Borehole Log

SOCOTEC

Checked	Depth	Dates	Method	Equipment	Rig Crew	Logger	Logged	Hole Depth	Hole Dia. (mm)	Casing Depth	Casing Dia. (mm)	Depth Related Remarks Depth	Remarks
CP	0.00 - 1.20	02 Feb 22 - 02 Feb 22	Hand dug inspection pit	Hand tools	DD/CG	WT	02 Feb 22	2.15	200	2.00	200		
	1.20 - 2.15	03 Feb 22 - 03 Feb 22	Cable percussion drilling	Dando 3000	BB/BR	KD	03 Feb 22	9.65	146	9.65	146		
Approved	2.15 - 9.65	09 Feb 22 - 09 Feb 22	Rotary drilling	R67 Comacchio 305	DD/CG	CD	17 Feb 22						
CP													

Ground Level	59.87 mOD
Coordinates	E 525338.76
National Grid	N 140669.18
System	

Date Casing	Time Water	Samples Depth	Type & No.	Records	Field Tests Depth	Type	Records	Samp / Test Casing	Water	Coring Depth (Diameter)	TCR % SCR % RQD %	Water added Flush details		Depth (Thickness)	Level	Legend	Strata Description Main	Detail	Chisel.	Water Entry	Backfill
														(0.30)			(TOPSOIL) Grass over soft brown slightly gravelly silty CLAY with frequent rootlets. Gravel is subangular to subrounded fine of flint.				Flush cover
02 Feb 22	1330	0.00 - 0.30	B 1											0.30	+59.57						0.20
0.00	Dry	0.10	D 2											(0.30)			Firm light brown mottled light bluish grey slightly sandy silty CLAY with frequent nodules (up to 20x15x10mm) of reddish orange ironstone and occasional rootlets. Sand is coarse. (WEALD CLAY FORMATION)				
		0.30 - 0.60	B 3											0.60	+59.27						
		0.40	D 4											(0.60)			Stiff light brown mottled light bluish grey silty CLAY with occasional nodules (20x5x5mm) of reddish orange ironstone and rare rootlets. (WEALD CLAY FORMATION)				
		0.60 - 1.20	B 5											1.20	+58.67						
		0.70	D 6											(0.80)			Stiff orangish brown CLAY with occasional possible lithorelicts (up to 2x2mm) of very stiff clay. (WEALD CLAY FORMATION)				
02 Feb 22	1500				1.00	HV	p 92kPa, r 43kPa							2.00	+57.87						
0.00	Dry	1.20	D 7		1.20 - 1.55	SPT S	50 (10,13/15,19,16 for 50mm) ID AR3762 Er 65%	1.20	0.90					(0.15)	+57.72		Extremely weak orangish brown MUDSTONE. (WEALD CLAY FORMATION)	2.15-2.30 Recovered as soft to firm light brown and light grey mottled orangish brown clay.			
03 Feb 22	0800													2.15			Stiff to very stiff brownish grey mottled light brownish grey and reddish brown CLAY. (WEALD CLAY FORMATION)				2.50
0.00	0.95	1.80	D 8																		
03 Feb 22	0930	2.00	D 9		2.00 - 2.15	SPT S	100 (25,0 for 0mm for 60mm/62,38 for 10mm) ID AR3762 Er 65%	2.00	Dry												
2.00	Dry									2.15 - 3.65	100 NA NA	Water flush: 2.15 - 3.65	100% rec	(1.50)							
09 Feb 22	0727													3.65	+56.22		Very stiff, locally stiff, grey CLAY. (WEALD CLAY FORMATION)				
2.00	1.90									3.65 - 5.15	100 NA NA	Water flush: 3.65 - 5.15	100% rec	(1.60)				4.77-4.82 60 degrees planar smooth clean fissure. 4.81-4.87 60 degrees planar smooth clean fissure. 5.15-5.20 AZCL			
														5.25	+54.62		Extremely to very weak thickly laminated to very thinly bedded grey to light grey MUDSTONE. (WEALD CLAY FORMATION)				
										5.15 - 6.65	97 93 93	Water flush: 5.15 - 6.65	100% rec	(1.55)							6.00 SP
														6.80	+53.07		Very weak to weak thickly laminated to thinly bedded light grey to grey MUDSTONE. (WEALD CLAY FORMATION)	6.50-6.55 Very stiff light grey clay. 6.65-6.80 Stiff to very stiff light grey clay.			
										6.65 - 8.15	100 78 78	Water flush: 6.65 - 8.15	100% rec	(2.85)				7.90-8.08 Stiff to very stiff light grey and grey clay. 8.15-8.25 Very stiff dark grey clay. 8.55-8.59 85 degrees planar smooth clean fracture.			
										8.15 - 9.65	100 93 93	Water flush: 8.15 - 9.65	100% rec								
09 Feb 22	1620													9.65	+50.22		END OF EXPLORATORY HOLE				9.65
9.65	Dry																				

General Remarks

Hard Boring / Chiselling

Depths	Duration (mins)	Tool

Groundwater Entries

No.	Depth	Remarks	Sealed

Notes

For explanation of symbols and abbreviations see Key to Exploratory Hole Records. All depths and reduced levels in metres. Stratum thickness given in brackets in depth column.

Project	Gatwick Northern Runway Project (NRP)
Project No.	D2001-22
Carried out for	VINCI Construction T/A Taylor Woodrow

Status

FINAL

Scale 1:50

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AGS

Borehole

BH1 MF

Borehole Log

SOCOTEC

Checked	Depth	Dates	Method	Equipment	Rig Crew	Logger	Logged	Hole Depth	Hole Dia. (mm)	Casing Depth	Casing Dia. (mm)	Depth Related Remarks Depth	Remarks
CP	0.00 - 1.20	02 Feb 22 - 03 Feb 22	Rotary drilling	R67 Comacchio 305	DD/CG	KD	02 Feb 22	9.50	200				
	1.20 - 2.40	03 Feb 22 - 03 Feb 22	Cable percussion drilling	Dando 3000	BB/BR	KD	02 Feb 22						
Approved	2.00 - 9.50	10 Feb 22 - 10 Feb 22	Rotary drilling	R67 Comacchio 305	DD/CG	CD	17 Feb 22						
CP													

Ground Level	59.41 mOD
Coordinates	E 525456.82
National Grid	N 140723.02
System	

Date Casing	Time Water	Samples Depth	Type & No.	Records	Field Tests Depth	Type	Records	Samp / Test Casing	Water	Coring Depth (Diameter)	TCR % SCR % RQD %	Water added Flush details		Depth (Thickness)	Level	Legend	Strata Description Main	Detail	Chisel.	Water Entry	Backfill
02 Feb 22	1000	0.05 - 0.10	B 1											(0.25)			(TOPSOIL)				Flush cover
0.00	Dry	0.10	D 2											0.25	+59.16		Soft light brown slightly sandy CLAY with frequent rootlets. Sand is fine.				0.20
		0.30 - 0.40	B 3														Stiff becoming very stiff light grey mottled orange slightly sandy CLAY. Sand is fine. (WEALD CLAY FORMATION)				
		0.70	D 4											(0.95)							
03 Feb 22	1200				1.00	HV	p >188kPa, r N/A														
2.00	Dry	1.20	D 5		1.20 - 1.55	SPT S	50 (8,11/15,19,16 for 50mm) ID AR3762 Er 65%	0.00	Dry					1.20	+58.21		Very stiff orangish brown mottled grey CLAY. (WEALD CLAY FORMATION)				
02 Feb 22	1600													(0.80)							
0.00	Dry	1.80	D 6																		
		2.00	D 7		2.00 - 2.21	SPT S	100 (23,2 for 5mm/49,51 for 50mm) refusal ID AR3762 Er 65%	2.00	Dry					2.00	+57.41		Stiff to very stiff light brown mottled orangish brown becoming brownish grey mottled dark orangish brown CLAY. (WEALD CLAY FORMATION)	2.00-2.15 Recovered as soft to firm clay. 2.25-2.55 Frequent lenses (up to 100x100x5mm) of firm light grey clay.			
03 Feb 22	1700																	2.67-2.69 Firm light grey clay. 2.76-2.77 Firm light grey clay. 2.86-2.88 20 degrees thin laminae of light grey clay. 2.88-3.08 Pocket (20x20x20mm) of firm light grey clay. 3.50-3.55 AZCL			2.50
0.00	Dry																				
10 Feb 22	0730									2.00 - 3.50 (101mm)	100 NA NA	Water flush: 2.00 - 3.50	100% rec	(1.30)							
2.00	Dry																				
														3.30	+56.11		Very stiff brownish grey mottled light brown becoming dark grey mottled light brownish grey CLAY. (WEALD CLAY FORMATION)				
														(0.58)							
														3.88	+55.53		Extremely to very weak thickly laminated to very thinly bedded grey to dark grey MUDSTONE. (WEALD CLAY FORMATION)	3.90 Thin laminae of grey clay.			
										3.50 - 5.00 (101mm)	97 65 65	Water flush: 3.50 - 5.00	100% rec					4.45-4.60 Stiff to very stiff light grey clay.			
																		5.00-5.10 Stiff to very stiff light grey clay.			
										5.00 - 6.50 (101mm)	100 73 73	Water flush: 5.00 - 6.50	100% rec	(3.42)				5.85-6.15 Very stiff light grey to grey clay.			6.00 SP
																		6.30-6.38 90 degrees planar smooth with infill of light brown silt.			
																		6.82-6.86 Very stiff light grey clay.			
										6.50 - 8.00 (101mm)	100 97 97	Water flush: 6.50 - 8.00	100% rec	7.30	+52.11			7.27-7.35 90 degrees planar smooth clean fracture.			
																	Very weak to weak thickly laminated to very thinly bedded grey locally light grey MUDSTONE. (WEALD CLAY FORMATION)				
														(2.20)							
										8.00 - 9.50 (101mm)	100 100 100	Water flush: 8.00 - 9.50	100% rec								
10 Feb 22	1730													9.50	+49.91		END OF EXPLORATORY HOLE				9.50
0.00	Dry																				

General Remarks

Hard Boring / Chiselling

Depths	Duration (mins)	Tool

Groundwater Entries

No.	Depth	Remarks	Sealed

Notes

For explanation of symbols and abbreviations see Key to Exploratory Hole Records. All depths and reduced levels in metres. Stratum thickness given in brackets in depth column.

Project	Gatwick Northern Runway Project (NRP)
Project No.	D2001-22
Carried out for	VINCI Construction T/A Taylor Woodrow

Status

FINAL

Scale 1:50

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AGS

Borehole

BH2 MF

Borehole Log

SOCOTEC

Checked	Depth	Dates	Method	Equipment	Rig Crew	Logger	Logged	Hole Depth	Hole Dia. (mm)	Casing Depth	Casing Dia. (mm)	Depth Related Remarks Depth	Remarks		
CP	0.00 - 1.20	02 Feb 22 - 02 Feb 22	Hand dug inspection pit.	Hand tools	BB/BR	KD	02 Feb 22	2.00	200	2.00	200			Ground Level	59.25 mOD
	1.20 - 2.00	02 Feb 22 - 02 Feb 22	Cable percussion drilling.	Dando 3000	BB/BR	KD	02 Feb 22							Coordinates	E 525400.25
Approved	2.00 - 9.75	04 Feb 22 - 08 Feb 22	Rotary core drilling.	R67 Comacchio 305	DD/CG	CD	15 Feb 22	9.75	146	9.75	146			National Grid	N 140573.03
CP														System	

Date Casing	Time Water	Samples Depth	Type & No.	Records	Field Tests Depth	Type	Records	Samp / Test Casing	Water	Coring Depth (Diameter)	TCR % SCR % RQD %	Water added Flush details		Depth (Thickness)	Level	Legend	Strata Description Main	Detail	Chisel.	Water Entry	Backfill
																					Flush cover
02 Feb 22	0800	0.05 - 0.10	B 1														(TOPSOIL)				0.20
0.00	Dry	0.10	D 2											(0.40)			Soft light brown slightly sandy CLAY with frequent rootlets. Sand is fine.				
		0.45 - 0.55	B 3											0.40	+58.85		Firm light greyish brown slightly sandy CLAY with frequent pockets (1x1x1mm) of orangish red fine sand. Sand is fine. (WEALD CLAY FORMATION)				
		0.60	D 4											(0.60)							
		1.00 - 1.10	B 5		1.00	HV	p >188kPa, r N/A							1.00	+58.25		Very stiff light greyish brown slightly sandy CLAY with frequent pockets (1x1x1mm) of orangish red fine sand. Sand is fine. (WEALD CLAY FORMATION)				
		1.20	D 6		1.20 - 1.63	SPT S	50 (7,11/13,15,18,4 for 50mm) ID AR3762 Er 65%	1.20	Dry												
		1.20 - 1.65	D 7											(1.00)							
		1.80	D 8																		
		2.00 - 2.45	D 9		2.00 - 2.35	SPT S	100 (21,4 for 5mm/23,27,31,19 for 40mm) ID AR3762 Er 65%	2.00	Dry					2.00	+57.25		Extremely to very weak light grey MUDSTONE. (WEALD CLAY FORMATION)	2.10-2.30 Drilling disturbed due to SPT. Recovered as soft to firm light yellowish brown mottled light grey clay.			
04 Feb 22	0730										82										
2.00	Dry									2.00 - 2.55 (101mm)	NA NA	Water flush: 2.00 - 2.55	100% rec	(0.55)							2.50
04 Feb 22	1800																				
2.00	0.70										0			2.55	+56.70		NO RECOVERY				
07 Feb 22	0415									2.55 - 3.25 (101mm)	NA NA	Water flush: 2.55 - 3.25	100% rec	(0.70)							
2.00	0.70													3.25	+56.00		Extremely to very weak thinly to thickly laminated light grey MUDSTONE. (WEALD CLAY FORMATION)	3.25-3.43 Very stiff light grey mottled light orangish brown clay with frequent reddish brown staining. 3.43 5 degrees planar smooth fissure stained light brownish grey. 3.43-3.55 Very stiff grey clay. 3.85-3.90 Very stiff light grey clay. 4.25-4.55 Very stiff light grey to grey clay. 4.75-4.82 Very stiff light grey clay. 4.87 0 degrees planar smooth clean fracture. 4.87-4.90 85 degree planar smooth clean fracture. 4.90 0 degree planar smooth clean fracture. 5.07 0 degree planar smooth clean fracture. 5.50 Becoming locally weak.			
											100										
07 Feb 22	1700									3.25 - 4.75 (101mm)	67 67	Water flush: 3.25 - 4.75	100% rec								
2.00	0.40																				
08 Feb 22	0730										100										
2.00	0.40									4.75 - 5.25 (101mm)	86 70	Water flush: 4.75 - 5.25	100% rec								
											100										
										5.25 - 6.75 (101mm)	100 100	Water flush: 5.25 - 6.75	100% rec								6.00 SP
														(6.50)							
											100										
										6.75 - 8.25 (101mm)	73 73	Water flush: 6.75 - 8.25	100% rec				7.40-7.55 Very stiff grey to light grey clay. 7.65-7.90 Very stiff grey to light grey clay.				
											100										
										8.25 - 9.75 (101mm)	83 83	Water flush: 8.25 - 9.75	100% rec				9.00-9.10 Very stiff light grey clay. 9.20-9.35 Very stiff light grey clay.				
08 Feb 22	1700																				
2.00	Dry													9.75	+49.50		END OF EXPLORATORY HOLE				9.75

General Remarks

Hard Boring / Chiselling

Depths	Duration (mins)	Tool

Groundwater Entries

No.	Depth	Remarks	Sealed

Notes

For explanation of symbols and abbreviations see Key to Exploratory Hole Records. All depths and reduced levels in metres. Stratum thickness given in brackets in depth column.

Project	Gatwick Northern Runway Project (NRP)
Project No.	D2001-22
Carried out for	VINCI Construction T/A Taylor Woodrow

Status

FINAL

Scale 1:50

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AGS

Borehole

BH3 MF

APPENDIX C
INSTRUMENTATION AND MONITORING

Monitoring Installations Summary

Instrument Reference	Instrument Type (See Notes)	Installation Date, dd/mm/yyyy	Pipe Diameter, mm	Instrument Base, mbgl	Response Zone Range, mbgl	Pipe Top Details	Headworks	Remarks
BH1 MF (1)	SP	09/02/2022	50	6.00	2.50 to 6.00	Gas tap	Flush cover	Remote Data Logger installed at 5.70m. Top of transducer cable at GL. Serial number 1330257.
BH2 MF (1)	SP	10/02/2022	50	6.00	2.50 to 6.00	Gas tap	Flush cover	Remote Data Logger installed at 5.70m. Top of transducer cable at GL. Serial number 1330259.
BH3 MF (1)	SP	08/02/2022	50	6.00	2.50 to 6.00	Gas tap	Flush cover	Remote Data Logger installed at 5.70m. Top of transducer cable at GL. Serial number 1330263.

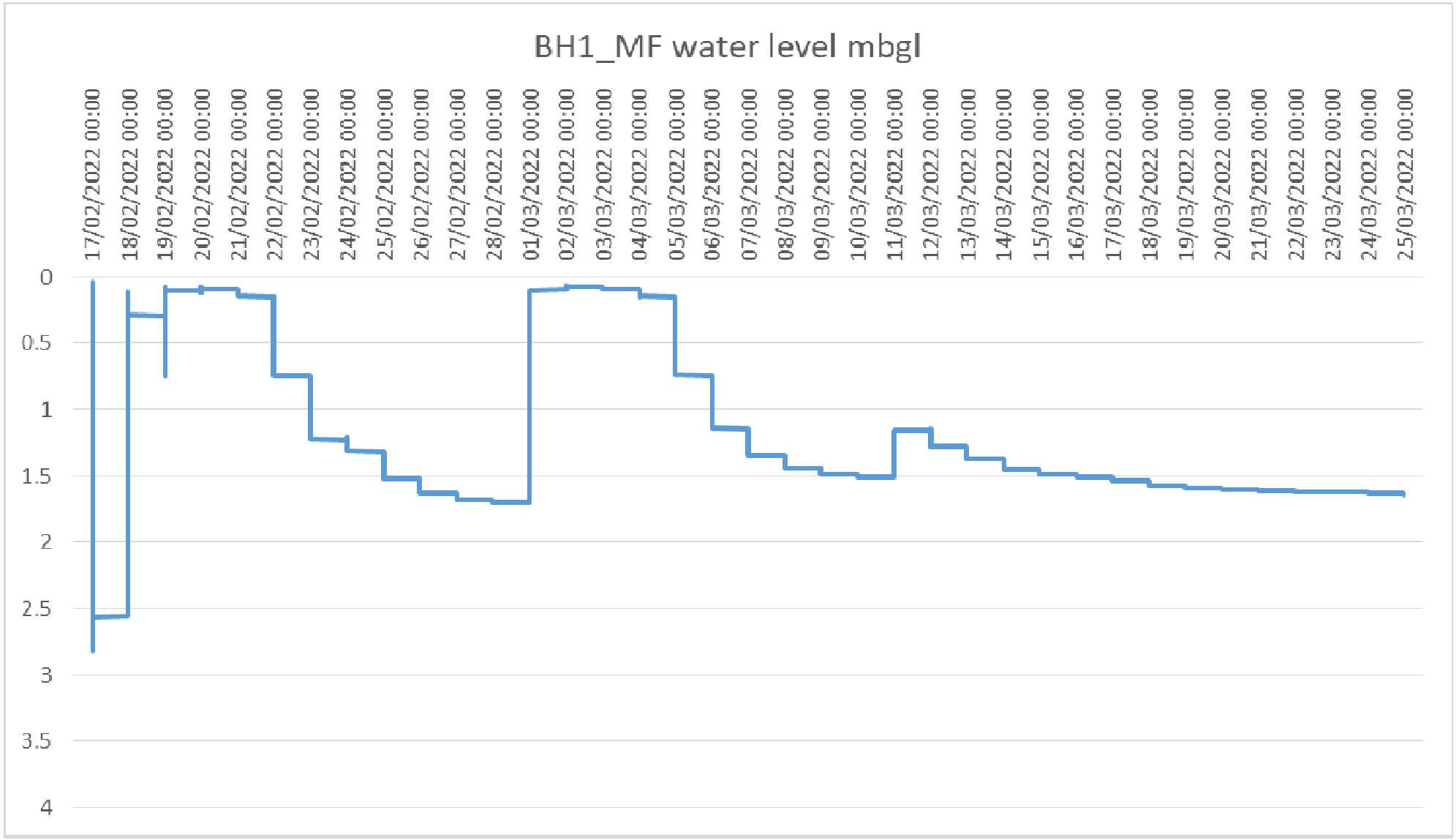
Notes: Type: SP - Standpipe, SPIE - Standpipe Piezometer, HPIE - Hydraulic Piezometer, PPIE - Pneumatic Piezometer, EPIE - Vibrating Wire Piezometer, PWEL - Pumping Well

Groundwater Monitoring

Instrument Reference	Instrument Type	Instrument Base, mbgl	Date Time dd/mm/yyyy hh:mm:ss	Groundwater depth, mbgl	Comments
BH1 MF (1)	SP	6.00	17/02/2022 16:10:00	1.44	Taken prior to well development
BH1 MF (1)	SP	6.00	24/03/2022 11:45:00	1.60	
BH2 MF (1)	SP	6.00	17/02/2022 14:12:00	2.83	taken prior to well development
BH2 MF (1)	SP	6.00	24/03/2022 11:55:00	3.40	
BH3 MF (1)	SP	6.00	17/02/2022 16:50:00	2.38	Taken prior to well development
BH3 MF (1)	SP	6.00	24/03/2022 12:05:00	3.10	

Notes: Type: SP - Standpipe, SPIE - Standpipe Piezometer, HPIE - Hydraulic Piezometer, PPIE - Pneumatic Piezometer, EPIE - Vibrating Wire Piezometer, PWEL - Pumping Well

Telemetry Data



Notes:

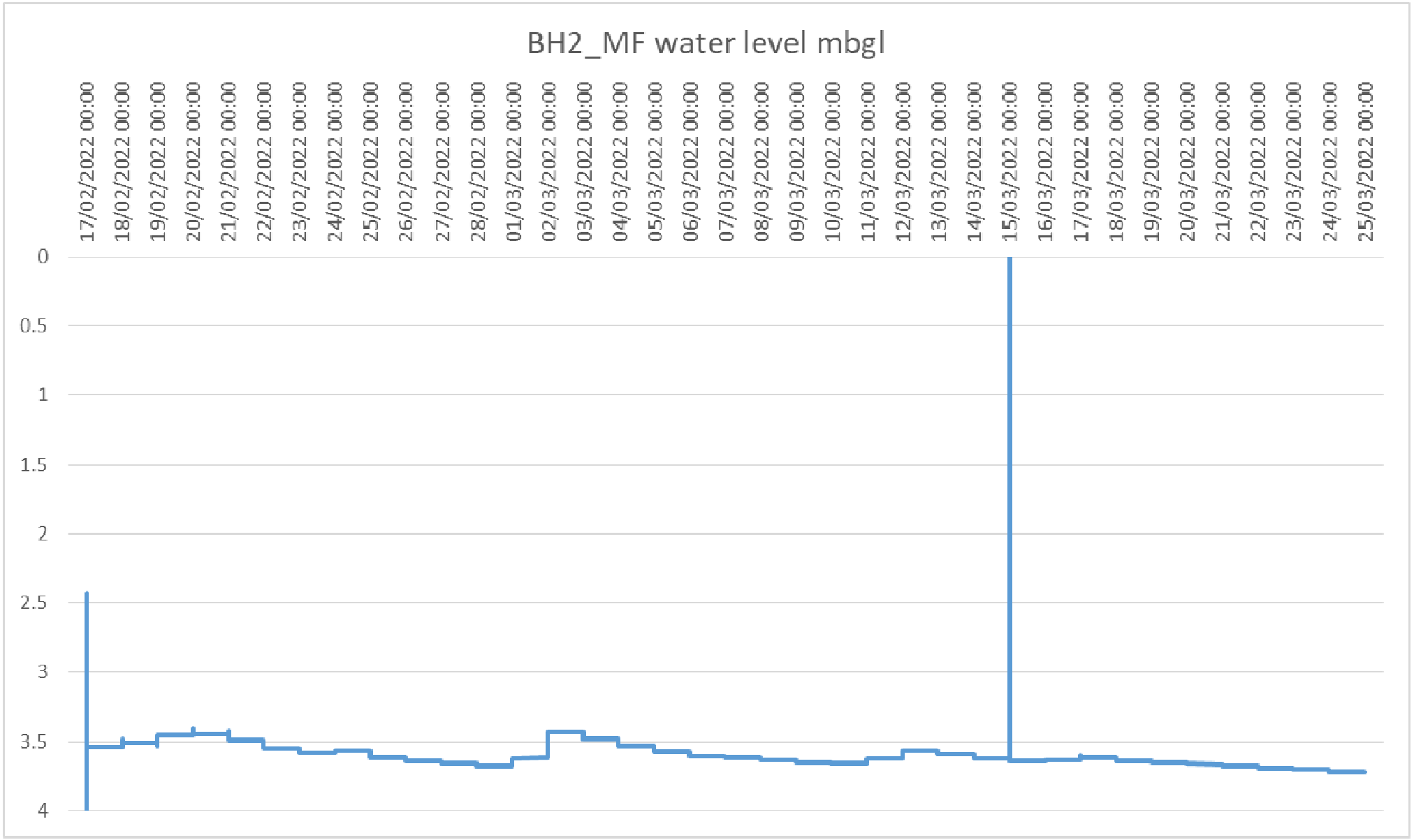
Project	Gatwick Northern Runway Project (NRP)
Project No.	D2001-22
Carried out for	VINCI Construction T/A Taylor Woodrow

Figure

C3

Sheet 1 of 1

Telemetry Data



Notes:

Project	Gatwick Northern Runway Project (NRP)
Project No.	D2001-22
Carried out for	VINCI Construction T/A Taylor Woodrow

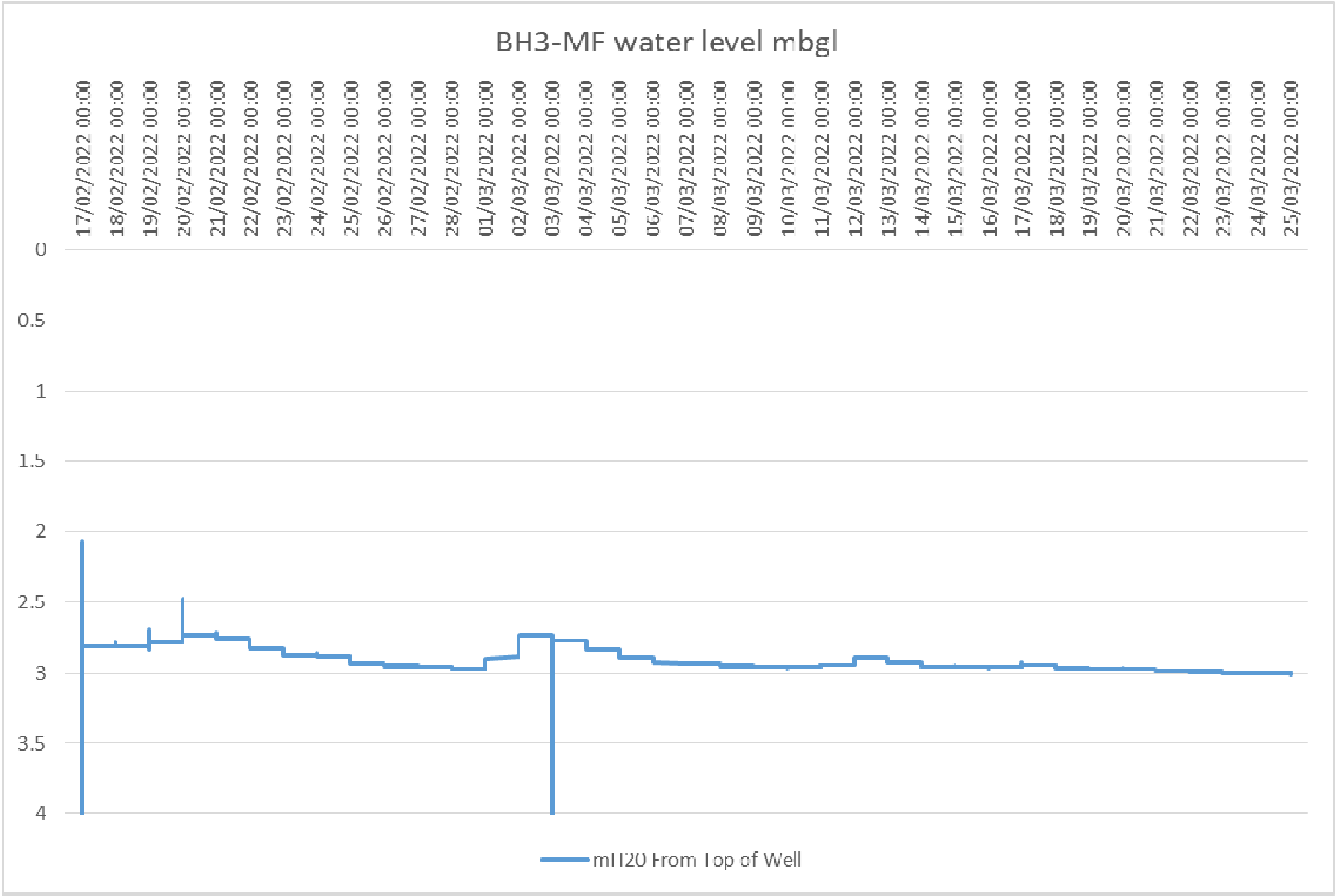
Figure

C4

Sheet 1 of 1

Telemetry Data

SOCOTEC



Notes:

Project	Gatwick Northern Runway Project (NRP)
Project No.	D2001-22
Carried out for	VINCI Construction T/A Taylor Woodrow

Figure

C5

Sheet 1 of 1

N

W E

S

Notes:
Site Plan created using Professional incorporating Bing Maps included under licence with Bentley Ltd.

Scale:
1:2000

Surveyed By:

Surveyed Date:

Key:

- Cable Percussion
- Cable Percussion & Rotary Core
- Dynamic Cone Penetrometer
- Inspection Pit
- Trial Pit
- Dynamic Windowless Sampling
- Dynamic Sampling & Rotary Core

SITE PLAN

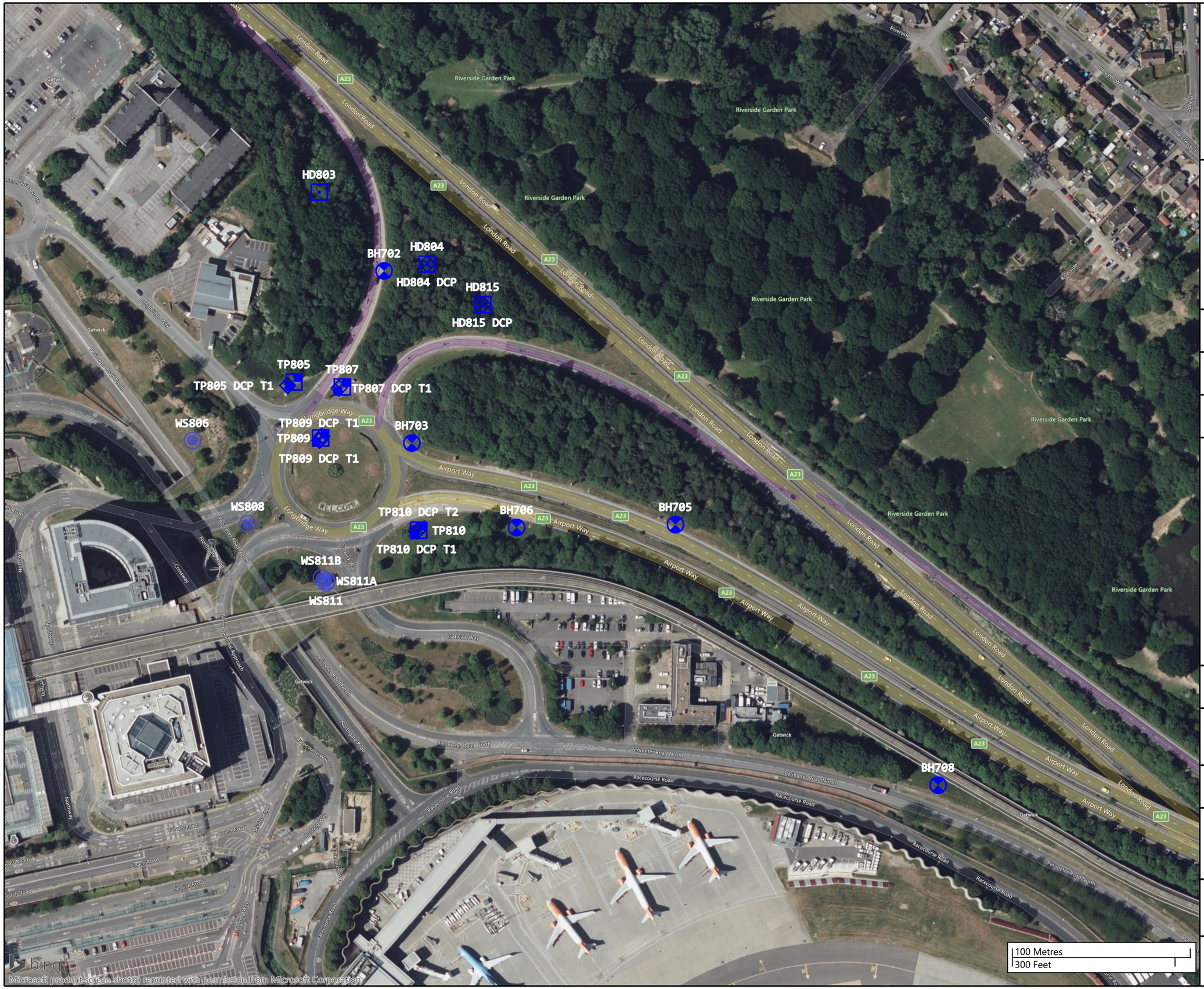
SOCOTEC

Project ID:
D2001-22

Project Title:
Gatwick Northern Runway Project (NRP)

Client:
VINCI Construction T/A Taylor Woodrow

Figure:
A2



N

W E

S

Notes:
Site Plan created using Professional incorporating Bing Maps included under licence with Bentley Ltd.

Scale:
1:2000

Surveyed By:

Surveyed Date:

Key:

- Cable Percussion
- Cable Percussion & Rotary Core
- Dynamic Cone Penetrometer
- Inspection Pit
- Trial Pit
- Dynamic Windowless Sampling
- Dynamic Sampling & Rotary Core

SITE PLAN

SOCOTEC

Project ID:
D2001-22

Project Title:
Gatwick Northern Runway Project (NRP)

Client:
VINCI Construction T/A Taylor Woodrow

Figure:
A2

N

W E

S

Notes:
Site Plan created using Professional incorporating Bing Maps included under licence with Bentley Ltd.

Scale:
1:2000

Surveyed By:

Surveyed Date:

Key:

- Cable Percussion
- Cable Percussion & Rotary Core
- Dynamic Cone Penetrometer
- Inspection Pit
- Trial Pit
- Dynamic Windowless Sampling
- Dynamic Sampling & Rotary Core

SITE PLAN

SOCOTEC

Project ID:
D2001-22

Project Title:
Gatwick Northern Runway Project (NRP)

Client:
VINCI Construction T/A Taylor Woodrow

Figure:
A2

Key to Exploratory Hole Records

SOCOTEC

SAMPLES

Undisturbed

U	Driven tube sample	nominally 100 mm diameter and 100% recovery unless otherwise stated
UT	Driven thin wall tube sample	
TW	Pushed thin wall tube sample	
P	Pushed piston sample	
CBR	CBR mould sample	
BLK	Block sample	
C	Core sample (from rotary core) taken for laboratory testing.	

Disturbed

D	Small sample (including samples recovered from SPT)
B	Bulk sample
LB	Large Bulk sample (comprising more than one container as required)

Other

W	Water sample	
G	Gas sample	
ES	Soil sample	Environmental chemistry samples (in more than one container where appropriate)
EW	Water sample	

Comments to samples

Sequential sample reference numbers are assigned to every sample taken during hole construction.

NR - No Recovery. Used where tube sampling has been attempted but no sample obtained (for whatever reason).

Samples not shown on exploratory hole logs:

- subsamples / specimens taken for on-site testing, eg point load testing
- samples taken from borehole installations (ie water or gas) after hole construction

DYNAMIC SAMPLING

Dynamic sampling includes 'window' and 'windowless' sampling methods, with and without a sample liner respectively

DYS	Dynamic sampling range showing tube / liner recovery (rec.) and diameter. Material retained as separate samples.
L	Retained complete liner sample (with sample reference number)

IN SITU/FIELD TESTS

SPT S or SPT C	Standard Penetration Test, open shoe (S) or solid cone (C). The Standard Penetration Test is defined in BS EN ISO 22476-3:2005+A1:2011. The open shoe configuration is used without a sample liner unless shown otherwise. Samples recovered by SPT open shoe are shown as type D. The incremental blow counts are given in the Field Records column; each increment is 75 mm unless stated otherwise and any penetration under self-weight in mm (SW) is noted. Where the full 300 mm test drive is achieved the total number of blows for the test drive is presented as N = ** in the Test column. Where the test drive blows reach the limiting value (usually 50) the total blow count beyond the seating drive is given (without the N = prefix). See Note 7 also.
IV	*in situ*/field vane shear strength, peak (p) and remoulded (r), kPa
HV	Hand vane shear strength, peak (p) and remoulded (r), kPa
PP	Pocket penetrometer test, converted to shear strength, kPa
KFH, KRH, KPI	Permeability tests : KFH = falling head, KRH = rising head, KPI = packer inflow (water pressure test). Results presented on separate report sheets.
PID	VOC concentration using hand-held photo-ionisation detector, ppm

DRILLING RECORDS

Classification of discontinuity state - as defined in BS 5930:2015+A1:2020

TCR	Total Core Recovery, %
SCR	Solid Core Recovery, %
RQD	Rock Quality Designation, %
If	Fracture spacing, mm - presented as minimum, mode (or 'typical' value) and maximum spacing.
FI	Fracture Index - presented as number of fractures per metre. (Used as alternative to Fracture Spacing)
NI	Non-intact - used to indicate where the core is fragmented (ie non-Solid Core).
NA	Not-applicable - used where a measurement is inappropriate (eg for non-rock materials, zones of no recovery)
NIDD	Non-intact Drilling Induced – used to indicate where rock believed to be non-fractured in the ground has been recovered as Non-intact due to the drilling process. (Used only where specified)
NDP	No Discontinuities Present – used to indicate where core is non-fractured. (Used only where specified as alternative representation to showing a single If value for the depth range of non-fractured core.)
CRF	Core Recovered in the Following run (length in m) – used to indicate length adjustment to TCR (and SCR, RQD and If accordingly) where slipped/dropped core from a core run has been recovered in the subsequent run.
AZCL	Assessed Zone of Core Loss – used to indicate estimated depth range corresponding to core loss (for TCR<100 %). Assumed to be at the start of the core run where no judgement is possible. Not shown for core loss less than 5 %.

Flush returns – presented as estimated percentage in the Records column, with colour where relevant.

Notes:
See report text for full references of standards.
Updated January 2021 v1.2

Key

Key to Exploratory Hole Records

GROUNDWATER

▼ Groundwater entry

▽ Depth to groundwater after observation period

INSTALLATIONS Any installations are shown on the Exploratory Hole Record in the rightmost Backfill column with appropriate graphic.

Standpipe/ piezometer

SP	Standpipe
SPIE	Standpipe piezometer
PPIE	Pneumatic piezometer
EPIE	Electronic piezometer

Plain Pipe 

Slotted Pipe 

Piezometer Tip 

Inclinometer or Slip Indicator

ICE	Biaxial inclinometer
ICM	Inclinometer tubing for use with probe
SLIP	Slip indicator

Settlement Points

ESET	Electronic settlement cell/gauge
ETM	Magnetic extensometer settlement point

Pressure Cells

EPCE	Electronic embedment pressure cell
PPCE	Electronic push-in pressure cell

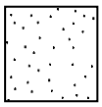
INSTALLATION / BACKFILL LEGENDS A legend describing the installation is shown in the rightmost column. Legend symbols used to describe the backfill materials are indicated below.

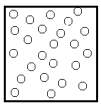
Macadam 

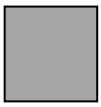
Concrete 

Grout 

Bentonite 

Sand 

Gravel 

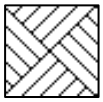
Arisings 

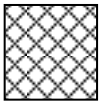
STRATUM LEGENDS The legend symbols used for graphical representation of soils, rocks and other materials on the borehole logs are shown below. For soils with significant proportions of secondary soil types, a combination of two or more symbols is used.

Note that the Made Ground / Fill stratum legend does not differentiate between engineered and non-engineered anthropogenic materials.

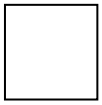
Macadam 

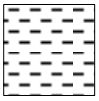
Concrete 

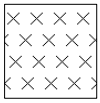
Topsoil 

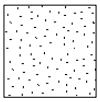
Made Ground / Fill 

Peat 

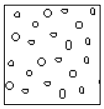
Void or No Information 

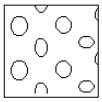
Clay 

Silt 

Sand 

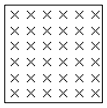
Gravel 

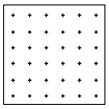
Cobbles 

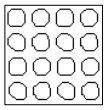
Boulders 

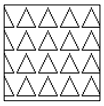
Coal 

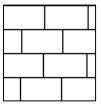
Mudstone 

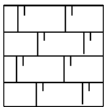
Siltstone 

Sandstone 

Conglomerate 

Breccia 

Limestone 

Chalk 

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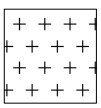
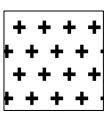
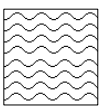
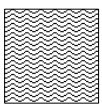
Igneous (Med) 

Igneous (Coarse) 

Metamorphic (Fine) 

Metamorphic (Med) 

Metamorphic (Coarse) 

Tuff 

Notes:
See report text for full references of standards.
Updated January 2021 v1.2

Key

Borehole Log

SOCOTEC

Checked	Depth	Dates	Method	Equipment	Rig Crew	Logger	Logged	Hole Depth	Hole Dia. (mm)	Casing Depth	Casing Dia. (mm)	Depth Related Remarks Depth	Remarks
CP	0.00 - 1.20	27 Apr 22 - 27 Apr 22	Hand dug inspection pit	Hand tools	SR/KF	VJ	27 Apr 22						
	1.20 - 3.90	27 Apr 22 - 28 Apr 22	Dynamic windowless sampling	R72 Comacchio 405 HT	SR/KF	CD	18 May 22						
Approved	3.90 - 20.00	03 May 22 - 03 May 22	Rotary core drilling	R72 Comacchio 405 HT	DP/AB	CD	18 May 22	20.00	146	2.80	153		
CP													

Ground Level	59.44 mOD
Coordinates	E 529072.20
National Grid	N 141593.70
System	

Date Casing	Time Water	Samples Depth	Type & No.	Records	Field Tests Depth	Type	Records	Samp / Test Casing	Water	Coring Depth (Diameter)	TCR % SCR % RQD %	If (mm)	Water added Flush details		Depth (Thickness)	Level	Legend	Strata Description Main	Detail	Chisel.	Water Entry	Backfill
															(0.50)			(TOPSOIL) Soft dark brown slightly sandy slightly gravelly CLAY with frequent roots (up to 3mm diameter) and decaying plant matter. Sand is fine to medium. Gravel is angular to subrounded fine to coarse of flint.				Raised cover
27 Apr 22 0.00	0730 Dry	0.10 - 0.30 0.20 0.30	B 1 D 2 ES 3		0.30	HV	p 69kPa, r 12kPa								0.50	+58.94						0.50
		0.50 0.60	D 4 ES 5		0.60	PID	0.0 ppmv (Test 2)								(0.40)			(MADE GROUND) Light brown slightly gravelly clayey SAND with occasional root (3mm diameter) and decaying plant matter. Sand is fine to medium. Gravel is angular to subrounded fine to coarse of flint.				
		0.90 - 1.20	B 6												0.90	+58.54						
		1.20 1.20 1.20 - 2.20	D 8 ES 7 DYS	100% rec, dia 110mm	1.20 - 1.65 1.20	SPT S PID	N=14 (3,3/3,3,4,4) ID TH62 Er 66% 0.0 ppmv (Test 7)	0.00	Dry						(0.30) 1.20	+58.24		(MADE GROUND) Light orangish brown slightly gravelly silty SAND. Sand is fine to medium. Gravel is angular to subrounded fine to coarse of flint.				1.20
		2.00	D 15												(1.35)			Firm to stiff orangish brown mottled black silty CLAY with occasional pockets (up to 50x50x50mm) of soft light grey clay, occasional rootlets and rare roots (up to 10mm diameter). (WEALD CLAY FORMATION)				
		2.20 2.20 - 3.20	D 10 DYS	100% rec, dia 110mm	2.20 - 2.65	SPT S	N=19 (3,3/3,4,5,7) ID TH62 Er 66%	0.00	Dry						2.55	+56.89						
		2.85	D 16															Stiff, locally very stiff light brown mottled light grey CLAY with rare rootlets. (WEALD CLAY FORMATION)				
27 Apr 22 0.00	1800 Dry	3.20	D 12		3.20 - 3.65	SPT S	N=36 (4,7/9,9,10,8) ID TH62 Er 66%	0.00	Dry						(1.20)				3.05-3.50 Becomes orangish brown.			
28 Apr 22 0.00	0730 Dry	3.20 - 3.90	DYS	93% rec, dia 110mm																		
28 Apr 22 2.80	1800 0.00	3.75 3.90	D 17 D 14		3.90 - 4.24	SPT S	50 (15,10 for 40mm/17,15,18 for 70mm) ID TH62 Er 66%	0.00	Dry						3.75	+55.69		Very stiff grey mottled reddish brown CLAY with occasional partings of light grey silt (up to 60x2mm). (WEALD CLAY FORMATION)				
03 May 22 2.80	0800 2.50														(0.75)				3.85-3.90 AZCL 3.90-4.20 Becomes brownish red. 4.00-4.15 Moderately weak to medium strong light reddish brown fine to medium grained sandstone.			
										3.90 - 5.40 (101mm)	100 65 56		Air/mist flush: 3.90 - 5.40	99% rec	4.50	+54.94		Extremely weak grey MUDSTONE with extremely to very closely spaced thin laminae of light grey siltstone. Fractures are 0-15 degrees closely spaced (40/250/730) locally very closely spaced planar smooth to rough with occasional infill of dark grey clay (up to 1mm); 80-90 degrees planar rarely undulating smooth to rough clean, rarely with infill of dark bluish grey clay (up to 1mm). (WEALD CLAY FORMATION)	4.85-5.09 Moderately weak brownish grey mudstone.			5.00 SP
		5.00	D 18																5.60-5.88 Moderately weak.			
					5.40 - 5.71	SPT C	100 (6,19/15,55,30 for 10mm) ID TH67 Er 58%	2.80	3.00													
		5.95 - 6.12 6.12	C 19 D 20							5.40 - 6.90 (123mm)	100 71 53	40 210 730	Air/mist flush: 5.40 - 6.90	99% rec	(2.95)				6.36-6.38 Moderately weak. 6.48-6.51 Very stiff clay. 6.51-7.06 Moderately weak.			
																			7.06-7.12 Stiff to very stiff grey to light grey clay.			
															7.45	+51.99			7.34-7.37 Very stiff grey clay. 7.41-7.45 Very stiff grey clay.			
										6.90 - 8.40 (101mm)	97 84 81		Air/mist flush: 6.90 - 8.40	99% rec				Very weak to weak grey to light grey MUDSTONE with extremely to very closely spaced thin, locally thick laminae of light grey siltstone and dark grey mudstone. Fractures are 0-5 degrees medium spaced locally very closely spaced (50/300/710) planar smooth to rough with rare infill of dark grey clay to clean; 80-90 degrees planar to undulating rough, rarely smooth with light grey silt infill (up to 0.5mm) rarely clean. (WEALD CLAY FORMATION)	7.69-7.85 becomes moderately weak. 7.85 Very stiff grey clay. 8.02-8.07 Extremely weak. 8.22-8.26 Very stiff clay. 8.35-8.40 AZCL			
												50 190 710							8.51-8.55 Very stiff light grey and grey clay. 8.64-8.70 Moderately weak. 8.70-9.08 Extremely to very weak.			
		8.76 - 9.08	C 21												(2.68)				9.08-9.55 Moderately weak.			
										8.40 - 9.90 (101mm)	97 93 93		Air/mist flush: 8.40 - 9.90	99% rec					9.55-9.56 Very stiff grey clay. 9.56-9.64 Extremely weak becoming very weak. 9.64-9.72 Moderately weak.			

Hole continues on next sheet

General Remarks

Hard Boring / Chiselling

Depths	Duration (mins)	Tool

Groundwater Entries

No.	Depth	Remarks	Sealed

Notes

For explanation of symbols and abbreviations see Key to Exploratory Hole Records. All depths and reduced levels in metres. Stratum thickness given in brackets in depth column.

Project	Gatwick Northern Runway Project (NRP)
Project No.	D2001-22
Carried out for	VINCI Construction T/A Taylor Woodrow

Status

FINAL

Scale 1:50

Printed 22 Jul 2022 14:12:46

AGS

Borehole

BH102

Borehole Log

SOCOTEC

Checked	Depth	Dates	Method	Equipment	Rig Crew	Logger	Logged	Hole Depth	Hole Dia. (mm)	Casing Depth	Casing Dia. (mm)	Depth Related Remarks: Depth	Remarks
CP	0.00 - 1.20	27 Apr 22 - 27 Apr 22	Hand dug inspection pit	Hand tools	SR/KF	VJ	27 Apr 22	20.00	146	2.80	153		
	1.20 - 3.90	27 Apr 22 - 28 Apr 22	Dynamic windowless sampling	R72 Comacchio 405 HT	SR/KF	CD	18 May 22						
Approved	3.90 - 20.00	03 May 22 - 03 May 22	Rotary core drilling	R72 Comacchio 405 HT	DP/AB	CD	18 May 22						
CP													

Ground Level	59.44 mOD
Coordinates	E 529072.20
National Grid	N 141593.70
System	

Date / Time: Casing / Water	Samples: Depth	Type & No.	Records	Field Tests: Depth	Type	Records	Samp / Test: Casing / Water	Coring Depth (Diameter)	TCR % SCR % RQD %	If (mm)	Water added: Flush details		Depth (Thickness)	Level	Legend	Strata Description: Main	Detail	Chisel.	Water Entry	Backfill
													10.13	+49.31		Very weak to weak grey to light grey MUDSTONE with extremely to very closely spaced thin, locally thick laminae of light grey siltstone and dark grey mudstone. Fractures are 0-5 degrees medium spaced locally very closely spaced (50/300/710) planar smooth to rough with rare infill of dark grey clay to clean; 80-90 degrees planar to undulating rough, rarely smooth with light grey silt infill (up to 0.5mm) rarely clean. (WEALD CLAY FORMATION)	9.90-9.98 30 degree fracture planar smooth with light grey silt infill (up to 1mm) 9.98-10.03 Very stiff dark grey clay.			
	10.40	D 22						9.90 - 11.40 (101mm)	100 95 71	40 120 290	Air/mist flush: 9.90 - 11.40	99% rec	(0.87)							
													11.00	+48.44		Moderately weak to medium strong brownish grey to grey locally reddish brown MUDSTONE. Fractures are 0-10 degrees planar smooth clean with rare light grey silt infill (up to 0.5mm); 80-90 degrees planar to undulating smooth to rough with light grey silt infill (up to 0.5mm). (WEALD CLAY FORMATION)	11.26-11.34 Extremely weak. 11.40-11.48 Stiff to very stiff dark grey clay. 11.48-11.83 moderately weak.			
	11.95	D 23						11.40 - 12.90 (101mm)	100 87 73		Air/mist flush: 11.40 - 12.90	99% rec				Weak to moderately weak locally medium strong dark grey to grey MUDSTONE with occasional lenses (up to 90x90x5mm) of light grey siltstone and very closely to closely spaced thin laminae of light grey siltstone. Fractures are 0-10 degrees closely to medium spaced locally very closely spaced (20/190/540) planar smooth to rough clean with rare dark grey clay infill (up to 0.5mm); 40-60 degrees planar smooth rarely rough clean; 80-090 degrees widely spaced (16/630/1300) planar to undulating smooth to rough with dark grey clay and light grey silt infill (up to 1mm). (WEALD CLAY FORMATION)	11.83-11.84 Stiff dark gey clay. 11.85-11.93 70-80 degree fracture undulating smooth clean. 12.06-12.08 Stiff dark grey clay. 12.50-12.90 80 degree fracture undulating rough and striated polished. with dark grey clay and light grey silt infill (up to 1mm). 12.54-12.57 Extremely closely spaced thick laminae of light greyish brown silt and dark grey clay. 12.57-12.59 Stiff grey clay. 12.69-12.79 70 degree fracture undulating smooth clean. 12.83-12.92 40 degree fracture planar rough with dark grey clay infill (up to 2mm). 12.90-12.98 Stiff to very stiff dark grey clay. 13.21-13.51 Moderately weak medium strong dark brownish grey mudstone. 13.42-13.44 Dark brownish grey clay angular to subangular fine to coarse gravel of mudstone. 13.45-13.49 20 degree fracture planar smooth clean. 13.75-14.13 Medium strong dark to light brownish grey mudstone with frequent partings (up to 40x2mm) and occasional thin laminae of light grey siltstone. 14.46-14.53 Medium strong 14.87-14.91 30 degree fracture planar smooth clean. 15.10-15.24 DD recovered as angular fine to coarse gravel of mudstone. 15.24-15.27 Very stiff dark brownish grey clay. 15.34-15.37 Very stiff dark brownish grey clay. 15.60-15.63 Extremely closely spaced thin laminae of light grey siltstone and dark grey mudstone. 15.72-15.76 Very weak. 15.79-15.87 Very stiff dark grey clay. 15.87-15.90 Very weak 15.90-15.95 Extremely weak. 16.66-16.70 Very stiff dark brownish grey clay. 16.90-16.99 30 degree fracture undulating smooth clean. 17.04-17.12 30 degree fracture planar smooth clean. 18.05-18.13 Extremely weak. 18.13-18.22 Stiff to very stiff grey silty clay. 18.84-18.90 Very weak.			
										20 130 540			(4.40)							
	13.60	D 24						12.90 - 14.40 (101mm)	100 85 72		Air/mist flush: 12.90 - 14.40	99% rec								
													15.40	+44.04		Moderately weak to medium strong grey to dark grey locally brownish grey MUDSTONE with occasional partings (up to 60x2mm) and rare lenses (up to 50x50x5mm) of light grey siltstone. Fractures are 0-10 degrees medium spaced locally widely spaced (10/450/1270) planar smooth rarely rough clean with rare light grey silt infill (up to 0.5mm). (WEALD CLAY FORMATION)				
	14.70	D 25						14.40 - 15.90 (101mm)	100 91 83		Air/mist flush: 14.40 - 15.90	99% rec								
	15.95 - 16.29	C 26																		
	16.45	D 27						15.90 - 17.40 (101mm)	100 97 97		Air/mist flush: 15.90 - 17.40	99% rec								
	17.50	D 28								10 295 800			(5.00)							
								17.40 - 18.90 (101mm)	100 94 91		Air/mist flush: 17.40 - 18.90	99% rec								
	18.50 - 18.86	C 29																		
	19.04 - 19.36	C 30							90 73 69											
	19.51	D 31						18.90 - 20.40 (101mm)			Air/mist flush: 18.90 - 20.40	99% rec								

Hole continues on next sheet

General Remarks

Hard Boring / Chiselling

Depths	Duration (mins)	Tool

Groundwater Entries

No.	Depth	Remarks	Sealed

Notes

For explanation of symbols and abbreviations see Key to Exploratory Hole Records. All depths and reduced levels in metres. Stratum thickness given in brackets in depth column.

Project	Gatwick Northern Runway Project (NRP)
Project No.	D2001-22
Carried out for	VINCI Construction T/A Taylor Woodrow

Status

FINAL

Scale 1:50

Printed 22 Jul 2022 14:12:46

AGS

Borehole

BH102

Borehole Log

SOCOTEC

Checked	Depth	Dates	Method	Equipment	Rig Crew	Logger	Logged	Hole Depth	Hole Dia. (mm)	Casing Depth	Casing Dia. (mm)	Depth Related Remarks: Depth	Remarks
CP	0.00 - 1.20	27 Apr 22 - 27 Apr 22	Hand dug inspection pit	Hand tools	SR/KF	VJ	27 Apr 22						
	1.20 - 3.90	27 Apr 22 - 28 Apr 22	Dynamic windowless sampling	R72 Comacchio 405 HT	SR/KF	CD	18 May 22						
Approved	3.90 - 20.00	03 May 22 - 03 May 22	Rotary core drilling	R72 Comacchio 405 HT	DP/AB	CD	18 May 22	20.00	146	2.80	153		
CP													

Ground Level	59.44 mOD
Coordinates	E 529072.20
National Grid	N 141593.70
System	

Date / Casing	Time / Water	Samples: Depth	Type & No.	Records	Field Tests: Depth	Type	Records	Samp / Test: Casing	Water	Coring Depth (Diameter)	TCR % SCR % RQD %	If (mm)	Water added / Flush details	Depth (Thickness)	Level	Legend	Strata Description: Main	Detail	Chisel.	Water Entry	Backfill
03 May 22	1715													20.40	+39.04		Moderately weak to medium strong grey to dark grey locally brownish grey MUDSTONE with occasional partings (up to 60x2mm) and rare lenses (up to 50x50x5mm) of light grey siltstone. Fractures are 0-10 degrees medium spaced locally widely spaced (10/450/1270) planar smooth rarely rough clean with rare light grey silt infill (up to 0.5mm). (WEALD CLAY FORMATION)	18.86-18.90 20 degree fracture planar smooth with dark grey clay infill. 18.99-19.04 Very stiff grey clay. 19.49-19.51 Very stiff grey clay. 19.64-19.67 Firm to soft greyish brown silty clay. 19.67-19.92 Weak greyish brown silty mudstone with occasional lenses of light grey siltstone (up to 20x20x2mm). 19.85-19.92 25 degree fracture planar smooth clean. 19.95-20.05 Extremely to very weak dark grey mudstone. 20.05-20.18 Very stiff clay. 20.18-20.25 Weak becoming moderately strong. 20.25-20.40 AZCL			20.40
2.80	3.00																END OF EXPLORATORY HOLE				

General Remarks

Hard Boring / Chiselling

Depths	Duration (mins)	Tool

Groundwater Entries

No.	Depth	Remarks	Sealed

Notes

For explanation of symbols and abbreviations see Key to Exploratory Hole Records. All depths and reduced levels in metres. Stratum thickness given in brackets in depth column.

Project	Gatwick Northern Runway Project (NRP)
Project No.	D2001-22
Carried out for	VINCI Construction T/A Taylor Woodrow

Status

FINAL

Scale 1:50

Printed 22 Jul 2022 14:12:46

AGS

Borehole

BH102

Borehole Log

SOCOTEC

Checked	Depth	Dates	Method	Equipment	Rig Crew	Logger	Logged	Hole		Casing		Depth Related Remarks		Ground Level	63.86 mOD
CP	0.00 - 1.20	07 Mar 22 - 07 Mar 22	Hand dug inspection pit.	Hand tools	BB/BR	MB	07 Mar 22	Depth	Dia. (mm)	Depth	Dia. (mm)	Depth	Remarks	Coordinates	E 529155.43
	1.20 - 8.45	07 Mar 22 - 09 Mar 22	Cable percussion drilling.	Dando 3000	BB/BR	MB	08 Mar 22	2.00	250	2.00	250			National Grid	N 141631.50
Approved	8.45 - 25.25	09 Mar 22 - 11 Mar 22	Rotary drilling.	R67 Comacchio 305	DS/PS	NH	12 Apr 22	8.45	200	8.00	200			System	
CP								25.25	150	25.25	150				

Date / Time Casing / Water	Samples: Depth	Type & No.	Records	Field Tests: Depth	Type	Records	Samp / Test: Casing	Water	Coring Depth (Diameter)	TCR % SCR % RQD %	If (mm)	Water added / Flush details	Depth (Thickness)	Level	Legend	Strata Description: Main / Detail	Chisel.	Water Entry	Backfill
																(MADE GROUND) Grass over soft to firm brown slightly sandy gravelly CLAY with frequent rootlets and roots (up to 6mm diameter). Sand is medium to coarse. Gravel is subangular to subrounded fine to coarse of flint, clinker and sandstone.			Flush cover
07 Mar 22 2030 Dry	0.00 - 0.40 0.20 0.30	B 1 D 2 ES 3		0.30	PID	0.0 ppmv (Test 1)							(0.40) 0.40	+63.46					0.45
	0.50 - 1.60 0.50 - 0.80	AMAL 61 B 4	Combined samples. B4 and B8.													(MADE GROUND) Firm light yellow slightly sandy slightly gravelly CLAY with rare roots (up to 7mm diameter). Sand is fine to coarse. Gravel is subangular to rounded of brick, clinker and flint.			
	0.90 1.00	D 5 ES 6		1.00	PID	0.0 ppmv (Test 2)													1.00
	1.20	D 7		1.20 - 1.65	SPT S	N=22 (2,3/3,5,7,7) ID TH50 Er 65%	1.20	Dry					(1.60)						
	1.40 - 1.60	B 8																	
	1.60	D 9																	
08 Mar 22 0400 2.00 Dry																			
	2.00 - 2.45	UT 12	52 blows 100% rec	2.00	PID	0.0 ppmv (Test 3)							2.00	+61.86					
08 Mar 22 2030 2.00 Dry	2.00 - 2.20 2.00 2.20	B 10 ES 11 D 13		2.00	HV	p 9kPa, r 6kPa	2.00	Damp					(0.20) 2.20	+61.66		(MADE GROUND) Light yellow slightly gravelly clayey fine to coarse SAND. Gravel is subangular fine to coarse of flint, sandstone and clinker.			
	2.50 - 3.00	B 14		2.45	HV	p 15kPa, r 11kPa										(MADE GROUND) Firm light yellow slightly gravelly slightly sandy CLAY with low cobble content. Sand is fine to coarse. Gravel is subangular fine to coarse of flint and clinker. Cobbles are subangular (up to 100x90x80mm) of weak fine to medium grained sandstone.			
													(0.80)						
	3.00 3.00	D 16 ES 15		3.00 - 3.45 3.00	SPT S PID	N=17 (2,2/4,4,4,5) ID TH52 Er 65% 0.0 ppmv (Test 4)	3.00	Damp					3.00	+60.86		(Possible MADE GROUND) Firm yellowish brown slightly sandy slightly gravelly CLAY with occasional pockets (10x15x10mm) of fine to medium black sand. Sand is fine to medium. Gravel is subangular to subrounded fine to medium of flint.			
	3.50 - 5.00 3.50 - 4.00	AMAL 62 B 17	Combined samples. B17 and B19.																
	4.00 - 4.45	UT 18	19 blows 67% rec	4.00	HV	p 81kPa, r 44kPa	4.00	Damp											
				4.45	HV	p 74kPa, r 40kPa							(2.50)						
	4.50 - 5.00 4.50	B 19 ES 20		4.50	PID	0.2 ppmv (Test 5)													
	5.00	D 21		5.00 - 5.45	SPT S	N=19 (2,2/3,4,6,6) ID TH52 Er 65%	3.00	Dry											
	5.50 - 6.00 5.50	B 22 ES 23		5.50	PID	0.1 ppmv (Test 6)							5.50	+58.36		Firm dark brown slightly gravelly SILT with occasional pockets (up to 30x40x20mm) of black amorphous peat. Sand is fine to coarse. Gravel is angular to subangular fine to coarse of flint. (ALLUVIUM)			
	6.00 - 6.45	UT 24	42 blows 100% rec	6.00	HV	p 81kPa, r 27kPa	6.00	Dry					(1.00)						
	6.50 - 6.90 6.50	B 25 ES 26		6.45 6.50	HV PID	p 74kPa, r 20kPa 0.1 ppmv (Test 7)							6.50	+57.36		Very stiff yellowish brown mottled grey slightly sandy CLAY. Sand is fine. (WEALD CLAY FORMATION)			
	6.90 7.00 7.00 - 7.50 7.00	D 27 D 28 B 29 ES 30		7.00 - 7.45 7.00	SPT S PID	N=43 (7,9/10,10,11,12) ID TH52 Er 65% 0.0 ppmv (Test 8)	7.00	Dry											SP
	7.50 7.50 - 8.00	D 31 B 32											(1.95)						
	8.00 8.00	D 34 ES 33		8.00 - 8.45 8.00	SPT S PID	50 (5,9/11,11,13,15 for 70mm) ID TH52 Er 65% 0.0 ppmv (Test 9)	8.00	Dry											8.00
09 Mar 22 0300 8.00 Dry													8.45	+55.41					
09 Mar 22 2000 8.00 6.80	8.60	D 35											(0.68)			Stiff grey locally mottled orange slightly gravelly CLAY. Gravel is subangular, fine to medium of extremely weak grey mudstone. (WEALD CLAY FORMATION)			
	8.80 - 9.10	C 36							8.45 - 9.75	100 35 35	NA NA NA	Water flush: 8.45 - 9.75	9.13	+54.73		Very weak locally extremely weak grey silty MUDSTONE with rare thin laminae of very stiff grey clay. (WEALD CLAY FORMATION)			
	9.40	D 37																	
				9.75 - 10.04	SPT C	100 (10,15 for 55mm/36,49,15 for 10mm) ID TH72 Er 64%	9.75	2.80											

100% rec

9.10-9.60 Reddish brown.

9.45-9.60 Medium strong fine grained sandstone.
9.54-9.60 90 degree fracture planar rough tight with trace silt infill.

Hole continues on next sheet

General Remarks

Hard Boring / Chiselling

Depths	Duration (mins)	Tool

Groundwater Entries

No.	Depth	Remarks	Sealed

Notes

For explanation of symbols and abbreviations see Key to Exploratory Hole Records. All depths and reduced levels in metres. Stratum thickness given in brackets in depth column.

Project	Gatwick Northern Runway Project (NRP)
Project No.	D2001-22
Carried out for	VINCI Construction T/A Taylor Woodrow

Status

FINAL

Scale 1:50
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Borehole

BH103

Borehole Log

SOCOTEC

Checked	Depth	Dates	Method	Equipment	Rig Crew	Logger	Logged	Hole		Casing		Depth Related Remarks			
CP	0.00 - 1.20	07 Mar 22 - 07 Mar 22	Hand dug inspection pit.	Hand tools	BB/BR	MB	07 Mar 22	Depth	Dia. (mm)	Depth	Dia. (mm)	Depth	Remarks	Ground Level	63.86 mOD
	1.20 - 8.45	07 Mar 22 - 09 Mar 22	Cable percussion drilling.	Dando 3000	BB/BR	MB	08 Mar 22	2.00	250	2.00	250			Coordinates	E 529155.43
Approved	8.45 - 25.25	09 Mar 22 - 11 Mar 22	Rotary drilling.	R67 Comacchio 305	DS/PS	NH	12 Apr 22	8.45	200	8.00	200			National Grid	N 141631.50
CP								25.25	150	25.25	150			System	

Date / Casing	Time / Water	Samples: Depth	Type & No.	Records	Field Tests: Depth	Type	Records	Samp / Test: Casing	Water	Coring Depth (Diameter)	TCR % SCR % RQD %	If (mm)	Water added / Flush details	Depth (Thickness)	Level	Legend	Strata Description: Main	Detail	Chisel.	Water Entry	Backfill
														(2.20)			Very weak locally extremely weak grey silty MUDSTONE with rare thin laminae of very stiff grey clay. (WEALD CLAY FORMATION)				
		9.96 - 10.27	C 38							9.75 - 11.25	100 100 100	NDP NDP NDP									
		10.80	D 39															10.98-11.14 90 degree fracture planar smooth very tight clean.			
					11.25 - 11.45	SPT C	100 (17,8 for 5mm/53,47 for 45mm) ID TH72 Er 64%	11.25	1.90					11.33	+52.53		Very weak grey to dark grey locally indistinctly laminated MUDSTONE with rare locally occasional pockets (1x40x30mm) of light grey silt. Fractures are 0-10 degrees medium spaced (230/450/520) planar smooth very tight with trace silt infill. (WEALD CLAY FORMATION)	11.54-11.73 Recovered as very stiff grey clay.			
		12.02 - 12.28	C 40							11.25 - 12.75	100 87 87	230 430 620									
10 Mar 22 12.75	0413 2.36	12.60	D 41											(2.15)							
10 Mar 22 12.75	2000 2.36																				
		13.20	D 42																		
										12.75 - 14.25	100 100 100			13.48	+50.38		Very weak grey to dark grey indistinctly locally thinly laminated MUDSTONE with occasional pockets (1x40x40mm) of light grey silt. Fractures are 0-10 degrees medium spaced (180/530/800) planar smooth closed locally with trace silt fill. (WEALD CLAY FORMATION)				
		13.90	D 43									180 530 800									
														(2.11)							
		14.80	D 44							14.25 - 15.75	100 100 100										
		15.09 - 15.40	C 45											15.59	+48.27		Extremely weak locally very weak dark grey thinly laminated MUDSTONE. (WEALD CLAY FORMATION)	15.41-15.42 15 degree fracture planar smooth very tight with (<1mm) clay infill. 15.59-15.94 Moderately weak brownish grey mudstone. 15.75-15.94 90 degree fracture planar rough partly open clean. 16.30-16.32 20 degree fracture planar smooth very tight >1mm clay infill with rare polishing. 16.34-16.36 20 degree fracture planar smooth very tight >1mm clay infill with rare polishing. 16.34-16.37 90 degree fracture planar smooth closed clean with rare slight polishing.			
		15.97 - 16.22	C 46							15.75 - 17.25	100 100 97	40 710 810		(1.92)							
		16.95	D 47																		
		17.40	D 48										Water flush: 9.75 - 25.25	17.51	+46.35		Very weak dark grey MUDSTONE recovered as dark grey very clayey angular fine to coarse gravel of very weak mudstone. (WEALD CLAY FORMATION)				
		17.80	D 49									NA NA NA		(0.69)							
										17.25 - 18.75	100 54 54			18.20	+45.66		Very weak locally weak grey to dark grey thickly laminated MUDSTONE with occasional pockets (1x30x25mm) of light grey silt. Fractures are 5 degrees medium spaced (110/280/380 planar smooth very tight with trace silt infill. (WEALD CLAY FORMATION)				
		18.50	D 50									70 170 370		(0.68)							
														18.88	+44.98		Very weak locally weak dark grey MUDSTONE recovered as dark grey very clayey angular fine to coarse gravel of very weak and weak dark grey mudstone with rare thin laminae of firm dark clay. (WEALD CLAY FORMATION)				
														(1.05)							
		19.70	D 51							18.75 - 20.25	100 30 30	NA NA NA									
														19.93	+43.93		Weak dark grey indistinctly laminated MUDSTONE. Fractures are 5-20 degrees medium spaced (90/310/420). (WEALD CLAY FORMATION)	19.97-20.20 Weak to very weak.			

Hole continues on next sheet

General Remarks

Hard Boring / Chiselling

Depths	Duration (mins)	Tool

Groundwater Entries

No.	Depth	Remarks	Sealed

Notes

For explanation of symbols and abbreviations see Key to Exploratory Hole Records. All depths and reduced levels in metres. Stratum thickness given in brackets in depth column.

Project	Gatwick Northern Runway Project (NRP)
Project No.	D2001-22
Carried out for	VINCI Construction T/A Taylor Woodrow

Status

FINAL

Scale 1:50

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Borehole

BH103

Borehole Log

SOCOTEC

Checked	Depth	Dates	Method	Equipment	Rig Crew	Logger	Logged	Hole		Casing		Depth Related Remarks		Ground Level	63.86 mOD
CP	0.00 - 1.20	07 Mar 22 - 07 Mar 22	Hand dug inspection pit.	Hand tools	BB/BR	MB	07 Mar 22	Depth	Dia. (mm)	Depth	Dia. (mm)	Depth	Remarks	Coordinates	E 529155.43
	1.20 - 8.45	07 Mar 22 - 09 Mar 22	Cable percussion drilling.	Dando 3000	BB/BR	MB	08 Mar 22	2.00	250	2.00	250			National Grid	N 141631.50
Approved	8.45 - 25.25	09 Mar 22 - 11 Mar 22	Rotary drilling.	R67 Comacchio 305	DS/PS	NH	12 Apr 22	8.45	200	8.00	200			System	
CP								25.25	150	25.25	150				

Date / Time Casing / Water	Samples: Depth	Type & No.	Records	Field Tests: Depth	Type	Records	Samp / Test: Casing / Water	Coring Depth (Diameter)	TCR % SCR % RQD %	If (mm)	Water added / Flush details	Depth (Thickness)	Level	Legend	Strata Description: Main	Detail	Chisel.	Water Entry	Backfill
	20.00	D 52								90 310 420					Weak dark grey indistinctly laminated MUDSTONE. Fractures are 5-20 degrees medium spaced (90/310/420). (WEALD CLAY FORMATION)				
	20.40	D 53										(0.90)							
								20.25 - 21.75	100 88 60			20.83	+43.03		Weak dark grey locally moderately weak grey locally indistinctly laminated MUDSTONE with rare pockets (1x10x5mm) of grey to light grey silt. Fractures are 5 degree locally medium spaced (180/605/910) planar smooth very tight clean. (WEALD CLAY FORMATION)	20.83-20.99 90 degree fracture planar rough partly open with trace silt. Medium strong dark grey clayey limestone. 21.00-22.30 90 degree fracture planar smooth very tight clean. 21.23-21.41 Very stiff dark grey indistinctly laminated clay. 21.74-22.05 Moderately weak grey mudstone. 22.16-22.22 45 degree planar smooth very tight clean.			
	21.60	D 54																	
	21.90	D 55								180 605 910									
								21.75 - 23.25	100 100 100			(2.42)							
	22.57 - 22.87	C 56																	
	23.15	D 57																	
												23.25	+40.61		Moderately weak grey silty fractured MUDSTONE. Fractures are 5 degree medium to widely spaced locally closely spaced (80/320/640) planar smooth very tight locally with trace silt infill. (WEALD CLAY FORMATION)				
								23.25 - 24.75	100 100 95	180 380 650						24.03 Weak dark grey laminated mudstone. 24.05-24.20 Weak to very weak dark grey mudstone and very stiff clay.			
	24.20	D 58										(2.00)							
	24.85	D 59														24.82-24.98 90 degree fracture curved smooth very tight with trace silt infill.			
11 Mar 22 0420 25.25 3.11	24.99 - 25.24	C 60						24.75 - 25.25	100 100 100										
									100			25.25	+38.61		END OF EXPLORATORY HOLE			25.25	

General Remarks

Hard Boring / Chiselling

Depths	Duration (mins)	Tool

Groundwater Entries

No.	Depth	Remarks	Sealed

Notes

For explanation of symbols and abbreviations see Key to Exploratory Hole Records. All depths and reduced levels in metres. Stratum thickness given in brackets in depth column.

Project	Gatwick Northern Runway Project (NRP)
Project No.	D2001-22
Carried out for	VINCI Construction T/A Taylor Woodrow

Status FINAL

Scale 1:50

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Borehole **BH103**

Borehole Log

SOCOTEC

Checked	Depth	Dates	Method	Equipment	Rig Crew	Logger	Logged	Hole		Casing		Depth Related Remarks		Ground Level	63.86 mOD
CP	0.00 - 1.20 1.20 - 4.45 4.45 - 25.00	07 Mar 22 - 07 Mar 22 07 Mar 22 - 10 Mar 22 15 Mar 22 - 19 Mar 22	Hand dug inspection pit. Cable percussion drilling. Rotary drilling.	Hand tools Dando 3000 R67 Comacchio 305	 LM/JM DJ/JW	BA MB NH	07 Mar 22 10 Mar 22 08 Apr 22	Depth 4.45 25.00	Dia. (mm) 200 150	Depth 3.00 23.40	Dia. (mm) 200 150	Depth	Remarks	Coordinates	E 529221.77
Approved														National Grid	N 141646.84
CP														System	

Date / Casing	Time / Water	Samples: Depth	Type & No.	Records	Field Tests: Depth	Type	Records	Samp / Test: Casing	Water	Coring Depth (Diameter)	TCR % SCR % RQD %	If (mm)	Water added / Flush details	Depth (Thickness)	Level	Legend	Strata Description: Main	Detail	Chisel.	Water Entry	Backfill
07 Mar 22	2000 Dry	0.10	D 1											(1.20)			(MADE GROUND) Grass over soft to firm light brown slightly sandy slightly gravelly CLAY. Sand is fine to coarse. Gravel is angular to subangular fine to coarse of brick and flint.				Flush cover 0.50
		0.30	ES 2		0.30	PID	0.0 ppmv (Test 1)														
		0.50	D 3																		
08 Mar 22	0430 Dry	1.00 - 1.20	B 4		1.00	PID	0.0 ppmv (Test 2)							1.20	+62.66		(MADE GROUND) Firm yellowish brown mottled grey slightly sandy CLAY with occasional pockets (up to 10x2x5mm) of black silt and rare rootlets. Sand is fine to coarse.				
		1.00	ES 5																		
09 Mar 22	2000 Dry	1.20	D 6											(1.30)							
		1.20	D 7																		
		1.50 - 2.00	B 8																		
		1.90	D 9																		
		2.00 - 2.45	UT 11	91 blows 100% rec	2.00	PID	0.0 ppmv (Test 3)	2.00	Dry												
		2.00	ES 10																		
		2.50 - 2.90	B 12											2.50 (0.45)	+61.36		(MADE GROUND) Reddish brown gravelly clayey fine to coarse SAND. Gravel is subangular to subrounded fine to coarse of mudstone and flint.				
		2.95 - 3.00	AMAL 41	Combined samples. D13 and D15.	3.00 - 3.45	SPT S	N=44 (5,7/8,9,13,14) ID TH52 Er 65%	3.00	Dry					2.95	+60.91		(MADE GROUND) Stiff yellowish brown mottled grey slightly gravelly slightly sandy CLAY. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse of flint.				
		2.95	D 13		3.00	PID	0.0 ppmv (Test 4)														
10 Mar 22	0300	3.00	D 15																		
3.00	Dry	3.00	ES 14																		
15 Mar 22	1930													(1.50)							
3.00	Dry																				
		4.55 - 5.90	AMAL 42	Combined samples. D16, D17 and D18.						4.45 - 4.80	100 NA NA			4.45 (1.37)	+59.41		(MADE GROUND) Stiff brown to orangish brown mottled grey slightly sandy slightly gravelly CLAY with rare pockets (2x5x4mm) of fine orange sand. Sand is fine to medium. Gravel is subangular to subrounded, medium to coarse of brick, flint, weak light grey concrete and weak brown mudstone.	4.63-4.76 Very weak grey siltstone. 5.30-5.40 AZCL			
		4.55	D 16																		
		5.00	D 17		5.30 - 5.75	SPT C	N=24 (3,4/5,5,6,8) ID TH72 Er 64%	5.30	1.35	4.80 - 5.30	100 NA NA		Water flush: 4.45 - 6.80			100% rec					
		5.90	D 18							5.30 - 6.80	93 NA NA			5.82 (1.48)	+58.04		(MADE GROUND) Firm locally stiff brown to orangish brown slightly gravelly sandy CLAY with occasional plant debris (2x4x1mm), rare rootlets. Sand is fine to medium. Gravel is subangular, medium to coarse of flint, limestone, brick and clinker.	6.41-6.60 Becomes slightly sandy gravelly clay. 6.80-7.10 AZCL			
		6.80 - 7.25	SPT C	N=31 (3,5/6,8,8,9) ID TH72 Er 64%	6.80	2.50					NA NA NA										
		7.55 - 7.86	C 19							6.80 - 8.30	80 NA NA		Water flush: 6.80 - 8.30	7.30 (1.43)	+56.56		Stiff orange to brownish orange locally mottled grey slightly gravelly silty CLAY. Gravel is angular, fine of very weak orangish brown mudstone. (Possible WEALD CLAY FORMATION)	8.00-8.15 Becomes gravelly. Gravel is subrounded fine to medium of very weak brown mudstone.			8.50
		8.00	D 20																		
		8.40 - 8.71	C 21		8.30 - 8.75	SPT C	N=34 (5,5/6,7,9,12) ID TH72 Er 64%	8.30	3.65					8.73 (0.92)	+55.13		Stiff grey slightly gravelly CLAY with rare pockets (1x20x3mm) of light grey silty clay. Gravel is angular, fine to medium of extremely weak grey mudstone. (WEALD CLAY FORMATION)				
		8.98 - 9.28	C 22							8.30 - 9.80	100 7 7							9.34-9.65 Reddish brown and locally very stiff.			
		9.50	D 23											9.65	+54.21		Extremely weak grey indistinctly laminated MUDSTONE with occasional pockets (2x40x3mm) of light grey silt. Fractures are 0-10 degrees closely to medium spaced (10/134/410) planar closed, occasionally with a silt infill (up to 0.5mm). (WEALD CLAY FORMATION)				
		9.80 - 10.07	SPT C	100 (11,14 for 55mm/37,63 for 65mm) ID TH72 Er 64%	9.80	3.90															

Hole continues on next sheet

General Remarks

Hard Boring / Chiselling

Depths	Duration (mins)	Tool

Groundwater Entries

No.	Depth	Remarks	Sealed

Notes

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Project	Gatwick Northern Runway Project (NRP)
Project No.	D2001-22
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Status

FINAL

Scale 1:50

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Borehole

BH104

Borehole Log

SOCOTEC

Checked	Depth	Dates	Method	Equipment	Rig Crew	Logger	Logged	Hole		Casing		Depth Related Remarks			
CP	0.00 - 1.20	07 Mar 22 - 07 Mar 22	Hand dug inspection pit.	Hand tools		BA	07 Mar 22	Depth	Dia. (mm)	Depth	Dia. (mm)	Depth	Remarks	Ground Level	63.86 mOD
	1.20 - 4.45	07 Mar 22 - 10 Mar 22	Cable percussion drilling.	Dando 3000	LM/JM	MB	10 Mar 22	4.45	200	3.00	200			Coordinates	E 529221.77
Approved	4.45 - 25.00	15 Mar 22 - 19 Mar 22	Rotary drilling.	R67 Comacchio 305	DJ/JW	NH	08 Apr 22	25.00	150	23.40	150			National Grid	N 141646.84
CP														System	

Date / Casing	Time / Water	Samples: Depth	Type & No.	Records	Field Tests: Depth	Type	Records	Samp / Test: Casing	Water	Coring Depth (Diameter)	TCR % SCR % RQD %	If (mm)	Water added / Flush details		Depth (Thickness)	Level	Legend	Strata Description: Main	Detail	Chisel.	Water Entry	Backfill
										9.80 - 11.30	100 93 93							Extremely weak grey indistinctly laminated MUDSTONE with occasional pockets (2x40x3mm) of light grey silt. Fractures are 0-10 degrees closely to medium spaced (10/134/410) planar closed, occasionally with a silt infill (up to 0.5mm). (WEALD CLAY FORMATION)				
		10.50 - 10.80	C 24																			
		11.00	D 25																11.10-11.33 Unlaminated.			
					11.30 - 11.51	SPT C	100 (25 for 70mm/48,52 for 65mm) ID TH72 Er 64%	11.30	3.65				Water flush: 8.30 - 14.30	95% rec					11.45-11.88 Very stiff grey clay.			
															(4.24)							
		12.05	D 26							11.30 - 12.80	100 51 51	260 530 750							11.98-12.18 Very stiff grey clay.			
		12.45	D 27																			
		13.63 - 13.89	C 28							12.80 - 14.30	100 100 100											
	16 Mar 22 0339 14.30 3.25	14.10	D 29												13.89	+49.97		Very weak grey indistinctly laminated fractured MUDSTONE with rare pockets (2x25x3mm) of light grey silt. 2 possible fracture sets. Set 1 Widely spaced (1300/1800/1810) 45 degree fracture planar smooth partly open with traces clayey silt infill. Set 2 Close to medium spaced (150/350/500) 5 to 10 degree planar smooth very tight clean with rare slight polishing. (WEALD CLAY FORMATION)	13.89-13.98 45 degree fracture.			
	17 Mar 22 2000 14.30 3.25	14.46 - 14.73	C 30																14.35-14.36 10 degree fracture.			
		15.20	D 31							14.30 - 15.80	100 100 100		Water flush: 14.30 - 15.80	80% rec					14.80-15.57 Incipient vertical fracture.			SP
		15.70	D 32																15.57-15.70 90 degree fracture planar smooth very tight with trace silt infill. 15.57-16.20 Weak brownish grey mudstone.			15.50
		16.59 - 16.89	C 33							15.80 - 17.30	100 100 92	NI 375 850			(4.91)				16.50-16.58 Weak to extremely weak.			
		17.10	D 34																17.45-18.51 90 degree fracture planar smooth tight clean with rare slight polishing.			
		18.00	D 35							17.30 - 18.80	100 100 100		Water flush: 15.80 - 20.30	70% rec					18.23-18.32 Possible NI.			
															18.80	+45.06		Weak locally very weak grey locally dark grey locally thickly laminated fractured MUDSTONE with rare pockets (1x30x5mm) of light grey silt. Fractures possibly 2 sets. Set 1 5 to 10 degrees closely to medium, locally very closely spaced (30/10/140) planar smooth tight trace locally grey 1mm silt infill. Set 2 40 to 50 degrees widely locally medium spaced (230/400/830) planar smooth tight with trace clay infill. (WEALD CLAY FORMATION)				
		19.30	D 36							18.80 - 20.30	100 99 77								19.22-19.26 NI.			
																			19.53-19.61 70 degree fracture planar smooth very tight clean.			

Hole continues on next sheet

General Remarks

Hard Boring / Chiselling

Depths	Duration (mins)	Tool

Groundwater Entries

No.	Depth	Remarks	Sealed

Notes

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Project	Gatwick Northern Runway Project (NRP)
Project No.	D2001-22
Carried out for	VINCI Construction T/A Taylor Woodrow

Status FINAL

Scale 1:50

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Borehole BH104

Borehole Log

SOCOTEC

Checked	Depth	Dates	Method	Equipment	Rig Crew	Logger	Logged	Hole Depth	Hole Dia. (mm)	Casing Depth	Casing Dia. (mm)	Depth Related Remarks Depth	Remarks
CP	0.00 - 1.20	07 Mar 22 - 07 Mar 22	Hand dug inspection pit.	Hand tools		BA	07 Mar 22						
	1.20 - 4.45	07 Mar 22 - 10 Mar 22	Cable percussion drilling.	Dando 3000	LM/JM	MB	10 Mar 22	4.45	200	3.00	200		
Approved	4.45 - 25.00	15 Mar 22 - 19 Mar 22	Rotary drilling.	R67 Comacchio 305	DJ/JW	NH	08 Apr 22	25.00	150	23.40	150		
CP													

Ground Level	63.86 mOD
Coordinates	E 529221.77
National Grid	N 141646.84
System	

Date / Casing	Time / Water	Samples Depth	Type & No.	Records	Field Tests Depth	Type	Records	Samp / Test Casing	Water	Coring Depth (Diameter)	TCR % SCR % RQD %	If (mm)	Water added / Flush details		Depth (Thickness)	Level	Legend	Strata Description Main	Detail	Chisel.	Water Entry	Backfill
															(2.94)			Weak locally very weak grey locally dark grey locally thickly laminated fractured MUDSTONE with rare pockets (1x30x5mm) of light grey silt. Fractures possibly 2 sets. Set 1 5 to 10 degrees closely to medium, locally very closely spaced (30/10/140) planar smooth tight trace locally grey 1mm silt infill. Set 2 40 to 50 degrees widely locally medium spaced (230/400/830) planar smooth tight with trace clay infill. (WEALD CLAY FORMATION)	20.30-20.40 40 degree fracture. 20.48-20.58 90 degree fracture partly open planar smooth clean rare slight polishing. 20.80-20.89 Firm grey clay. 20.89-21.02 50 degree fracture planar smooth tight with <1mm clay infill. 21.07-21.08 30 degree fracture. 21.14-21.20 40 degree fracture. 21.25-21.74 Stiff grey clay.			
		21.20	D 37							20.30 - 21.80	100 60 51	NI 134 410										
															21.74	+42.12						
		21.85 - 22.16	C 38										Water flush: 20.30 - 23.40	80% rec				Weak grey locally brownish grey MUDSTONE. Fractures are 5 to 15 degrees medium spaced locally closely spaced (110/300/480) planar smooth very tight with trace silt infill. (WEALD CLAY FORMATION)	21.33-21.40 Possible 45 degree fracture planar smooth closed. 21.74-22.75 Moderately weak. 21.80-21.85 AZCL 22.16-22.66 90 degree fracture planar smooth tight occasional slight polishing.			
										21.80 - 23.40	97 97 97											
		22.95	D 39																			
18 Mar 22 23.40	0403 4.63											40 225 550										
18 Mar 22 23.40	2000 4.63														(3.26)				23.40-23.45 AZCL 23.77-23.81 Stiff clay.			
										23.40 - 25.00	97 94 94		Water flush: 23.40 - 25.00	70% rec					23.99-24.12 70 degree fracture planar smooth tight clean.			
		24.70	D 40																24.69-24.77 Locally weak to very stiff clay. 24.77-24.88 90 degree fracture planar smooth tight clean.			
19 Mar 22 25.00	0340 Dry														25.00	+38.86		END OF EXPLORATORY HOLE				25.00

General Remarks

Hard Boring / Chiselling

Depths	Duration (mins)	Tool

Groundwater Entries

No.	Depth	Remarks	Sealed

Notes

For explanation of symbols and abbreviations see Key to Exploratory Hole Records. All depths and reduced levels in metres. Stratum thickness given in brackets in depth column.

Project	Gatwick Northern Runway Project (NRP)
Project No.	D2001-22
Carried out for	VINCI Construction T/A Taylor Woodrow

Status

FINAL

Scale 1:50

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Borehole

BH104

Borehole Log

SOCOTEC

Checked	Depth	Dates	Method	Equipment	Rig Crew	Logger	Logged	Hole Depth	Hole Dia. (mm)	Casing Depth	Casing Dia. (mm)	Depth Related Remarks Depth	Depth Related Remarks Remarks
CP	0.00 - 1.20	01 Mar 22 - 02 Mar 22	Hand dug inspection pit.	Hand tools	BB/BR	KD	01 Mar 22						
	1.20 - 5.45	01 Mar 22 - 02 Mar 22	Cable percussion drilling.	Dando 3000	BB/BR	KD	01 Mar 22	6.45	200	6.00	200		
Approved	5.45 - 6.45	02 Mar 22 - 03 Mar 22	Cable percussion drilling.	Dando 2500	DS/BR	MB	02 Mar 22						
CP	6.45 - 25.20	03 Mar 22 - 08 Mar 22	Rotary drilling.	Comacchio 305	DS/BR	CD	12 Apr 22	25.20	150	22.20	150		

Ground Level	61.70 mOD
Coordinates	E 529096.04
National Grid	N 141628.75
System	

Date / Casing	Time / Water	Samples Depth	Type & No.	Records	Field Tests Depth	Type	Records	Samp / Test Casing	Water	Coring Depth (Diameter)	TCR % SCR % RQD %	If (mm)	Water added / Flush details	Depth (Thickness)	Level	Legend	Strata Description Main	Detail	Chisel.	Water Entry	Backfill
														(0.40)			(MADE GROUND) Firm brown slightly sandy gravelly CLAY. Sand is fine. Gravel is subangular to subrounded fine to medium of flint, red brick and chalk.				Flush cover
01 Mar 22 / 0.00	2000 / Dry	0.05 0.10 - 0.20	D 1 B 2											0.40 (0.15)	+61.30 +61.15		Very stiff greyish brown gravelly CLAY. Gravel is subangular to subrounded fine to coarse of very weak mudstone. (WEALD CLAY FORMATION)				0.50
		0.30	ES 3		0.30	PID	0.0 ppmv (Test 1)							0.55			Very stiff orangish brown slightly gravelly CLAY with frequent fragments of lignite. Gravel is subangular to subrounded fine to coarse of very weak mudstone. (WEALD CLAY FORMATION)				1.00
		0.45 0.60 - 0.70	D 4 B 5											(1.15)							
		0.80	D 6																		
		1.00	ES 7		1.00	PID	0.0 ppmv (Test 2)														
		1.20 1.20	D 8 D 9		1.20 - 1.65	SPT S	N=34 (3,4/7,7,9,11) ID TH52 Er 53%	1.20	Dry												
		1.70 1.70 - 2.00	D 10 B 11											1.70	+60.00		Stiff brown mottled grey and red slightly gravelly CLAY. Gravel is subangular to subrounded fine to medium of dark brown mudstone. (WEALD CLAY FORMATION)				
		2.00	D 12		2.00 - 2.45	SPT S	N=36 (3,4/6,9,9,12) ID TH52 Er 53%	2.00	Dry												
		2.70 - 4.00 2.70	AMAL 45 D 13	Combined samples. B14 and B17.																	
		2.70 - 3.00 3.00	B 14 D 15		3.00 - 3.45	SPT S	50 (4,8/8,11,15,16 for 70mm) ID TH52 Er 53%	2.00	Dry					(2.30)							
		3.70 3.70 - 4.00	D 16 B 17																		
		4.00	D 18		4.00 - 4.45	SPT S	N=36 (6,9/8,8,9,11) ID TH52 Er 53%	2.00	Dry					4.00	+57.70		Stiff orangish brown mottled grey slightly sandy CLAY. Sand is fine. (WEALD CLAY FORMATION)				
		4.70	D 19																		
02 Mar 22 / 2.00	0400 / Dry	5.00 - 5.45	UT 20	63 blows 100% rec	5.00	HV	p 80kPa, r 35kPa														
02 Mar 22 / 2.00	2000 / Dry				5.45	HV	p 75kPa, r 26kPa	2.00	Dry					(2.45)							
		6.00	D 21		6.00 - 6.45	SPT S	N=40 (3,7/9,9,10,12) ID AR3762 Er 65%	2.00	5.83												
03 Mar 22 / 6.00	0400 / 5.23																				
		6.55	D 22							6.45 - 6.70	100 NA NA	NA NA NA		6.45 (0.25)	+55.25		Firm light yellowish grey to light grey CLAY. (WEALD CLAY FORMATION)				
		7.00	D 23							6.70 - 8.20	100 63 63			6.70 (0.70)	+55.00		Stiff to very stiff reddish brown to brownish red slightly gravelly CLAY with closely spaced thin laminae of light grey clay. Gravel is subangular to subrounded fine to medium of reddish brown mudstone. (WEALD CLAY FORMATION)	7.16-7.31 Moderately weak reddish brown to brown light grey sandstone 7.20-7.26 90 degree fracture planar rough clean.			SP 7.50
		7.48 - 7.75 7.80	C 24 D 25											7.40	+54.30		Extremely to very weak, locally weak light grey MUDSTONE with extremely closely to very closely spaced thin laminae of white siltstone and frequent partings (up to 80x2mm) of white siltstone. Fractures are 0-10 degrees medium to widely (locally very closely to closely) spaced (50/420/1750) planar rough or smooth clean randomly orientated with occasional dark grey clay and light grey silt infill (up to 1mm). (WEALD CLAY FORMATION)	8.69-8.70 Stiff light grey clay. 8.76-9.19 Becomes very weak light grey mudstone. 8.81-8.93 85 degree fracture planar rough with light brown silt infill (up to 0.5mm). 8.83-9.14 Becomes weak.			
		9.20	D 26							8.20 - 9.70	100 99 95							9.87-10.17 90 degree fracture			
		9.32 - 9.65	C 27														Hole continues on next sheet				

General Remarks

Hard Boring / Chiselling

Depths	Duration (mins)	Tool

Groundwater Entries

No.	Depth	Remarks	Sealed

Notes

For explanation of symbols and abbreviations see Key to Exploratory Hole Records. All depths and reduced levels in metres. Stratum thickness given in brackets in depth column.

Project	Gatwick Northern Runway Project (NRP)
Project No.	D2001-22
Carried out for	VINCI Construction T/A Taylor Woodrow

Status

FINAL

Scale 1:50

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Borehole

BH106

Borehole Log

SOCOTEC

Checked	Depth	Dates	Method	Equipment	Rig Crew	Logger	Logged	Hole		Casing		Depth Related Remarks			
CP	0.00 - 1.20	01 Mar 22 - 02 Mar 22	Hand dug inspection pit.	Hand tools	BB/BR	KD	01 Mar 22	Depth	Dia. (mm)	Depth	Dia. (mm)	Depth	Remarks	Ground Level	61.70 mOD
	1.20 - 5.45	01 Mar 22 - 02 Mar 22	Cable percussion drilling.	Dando 3000	BB/BR	KD	01 Mar 22	6.45	200	6.00	200			Coordinates	E 529096.04
Approved	5.45 - 6.45	02 Mar 22 - 03 Mar 22	Cable percussion drilling.	Dando 2500	DS/BR	MB	02 Mar 22	25.20	150	22.20	150			National Grid	N 141628.75
CP	6.45 - 25.20	03 Mar 22 - 08 Mar 22	Rotary drilling.	Comacchio 305	DS/BR	CD	12 Apr 22							System	

Date / Time Casing / Water	Samples: Depth	Type & No.	Records	Field Tests: Depth	Type	Records	Samp / Test: Casing / Water	Coring Depth (Diameter)	TCR % SCR % RQD %	If (mm)	Water added / Flush details		Depth (Thickness)	Level	Legend	Strata Description: Main	Detail	Chisel.	Water Entry	Backfill
	10.20	D 28						9.70 - 11.20	100 93 61		Water flush: 6.45 - 14.70	100% rec	(5.90)			Extremely to very weak, locally weak light grey MUDSTONE with extremely closely to very closely spaced thin laminae of white siltstone and frequent partings (up to 80x2mm) of white siltstone. Fractures are 0-10 degrees medium to widely (locally very closely to closely) spaced (50/420/1750) planar rough or smooth clean randomly orientated with occasional dark grey clay and light grey silt infill (up to 1mm). (WEALD CLAY FORMATION)	planar rough with grey clay infill (up to 1mm) occasionally reddish brown specks. 10.39-10.50 Very stiff light grey clay. 10.78-10.86 90 degree fracture planar rough with light grey silt infill (up to 0.5mm).			
	11.30	D 29						11.20 - 11.70	100 100 100	50 300 1360							11.77-11.86 70 degree fracture planar smooth clean. 11.83-11.91 45 degree fracture planar rough with dark grey clay infill (up to 2mm).			
	11.40 - 11.70	C 30																		
	11.96 - 12.26	C 31						11.70 - 13.20	97 97 89											
	12.20	D 32											13.30	+48.40			13.15-13.20 AZCL 13.26-13.37 80 degree fracture planar smooth clean. 13.67-13.73 NI dark grey gravelly clay. Gravel is angular fine to coarse of mudstone. 13.84-14.10 Stiff to very stiff dark grey to grey clay. 14.10-14.50 Extremely weak. 14.45-14.65 65 degrees frequent partings (up to 60x2mm) of light grey silt. 14.70-14.76 Extremely weak. 14.87-14.89 Very stiff clay.			
	14.00	D 33						13.20 - 14.70	100 79 76							Very weak to weak, locally extremely weak grey to dark grey MUDSTONE. Fracture set 1; 0-10 degrees planar smooth clean or with occasional light to dark grey clay infill (up ro 1mm) and medium, locally closely spaced (40/390/1300). Fracture set 2; 80-90 degrees planar rough and smooth clean occasionally with greyish brown clay infill (up to 1mm). (WEALD CLAY FORMATION)				
	14.60	D 34								NI 390 1030			(3.20)							
	15.08 - 15.33	C 35						14.70 - 16.20	100 94 83								15.38-15.45 Stiff to very stiff light grey clay. 15.80-16.33 Extremely to very closely spaced thin and thick laminae of light grey siltstone.			
	15.55	D 36											16.50	+45.20						
	17.50	D 37						16.20 - 17.70	100 76 47							Very weak to weak, locally extremely weak to moderately weak dark grey fractured (locally NI) MUDSTONE. Fractures are 0-10 degrees very closely to closely spaced (20/150/600) planar smooth or rough clean with rare dark grey clay infill (up to 0.5mm); 40-50 degrees medium spaced (30/550/1880) planar rough with dark grey clay infill (up to 1mm); 70-80 degrees planar smooth with dark grey clay infill (up ro 1mm). (WEALD CLAY FORMATION)	16.52-16.63 Stiff to very stiff dark grey slightly gravelly clay. Gravel is angular fine to coarse of weak mudstone. 16.69-16.79 Possible NI recovered as dark brownish grey clayey angular to subangular fine to coarse gravel of weak to moderately weak mudstone. 16.79-16.87 Moderately weak. 16.87-16.97 Extremely weak. 16.97-17.01 NI very weak to weak dark brownish grey mudstone with randomly orientated fractures planar smooth or rough. 17.01-17.11 Extremely weak. 17.11-17.22 NI extremely weak dark grey mudstone with randomly orientated fractures planar or undulating smooth or rough. 17.86-17.90 20 degree fracture planar smooth with dark grey clay infill (up to 1mm). 18.05-18.24 NI very weak to			
	18.65	D 38								NI NI NI	Water flush: 14.70 - 20.70	90% rec	(2.75)							
	19.40 - 19.70	C 39						17.70 - 19.20	100 64 44											
	19.90	D 40											19.25	+42.45		Weak to moderately weak, locally very weak to extremely weak dark grey to grey fractured MUDSTONE. Fractures are 0-10 degrees closely to medium spaced (90/320/1160) planar smooth or rough clean with rare dark grey clay infill (up to 1mm); 40-50 degrees medium to widely spaced (490/850/3120) planar rough with dark grey clay or light grey silt infill (up to 1mm); 80-90 degrees planar smooth or rough clean. (WEALD CLAY FORMATION)				
								19.20 - 20.70	100 95 87											

Hole continues on next sheet

General Remarks

Hard Boring / Chiselling

Depths	Duration (mins)	Tool

Groundwater Entries

No.	Depth	Remarks	Sealed

Notes

For explanation of symbols and abbreviations see Key to Exploratory Hole Records. All depths and reduced levels in metres. Stratum thickness given in brackets in depth column.

Project	Gatwick Northern Runway Project (NRP)
Project No.	D2001-22
Carried out for	VINCI Construction T/A Taylor Woodrow

Status

FINAL

Scale 1:50

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Borehole

BH106

Borehole Log

SOCOTEC

Checked	Depth	Dates	Method	Equipment	Rig Crew	Logger	Logged	Hole Depth	Hole Dia. (mm)	Casing Depth	Casing Dia. (mm)	Depth Related Remarks Depth	Remarks		
CP	0.00 - 1.20	01 Mar 22 - 02 Mar 22	Hand dug inspection pit.	Hand tools	BB/BR	KD	01 Mar 22							Ground Level	61.70 mOD
	1.20 - 5.45	01 Mar 22 - 02 Mar 22	Cable percussion drilling.	Dando 3000	BB/BR	KD	01 Mar 22	6.45	200	6.00	200			Coordinates	E 529096.04
Approved	5.45 - 6.45	02 Mar 22 - 03 Mar 22	Cable percussion drilling.	Dando 2500	DS/BR	MB	02 Mar 22							National Grid	N 141628.75
CP	6.45 - 25.20	03 Mar 22 - 08 Mar 22	Rotary drilling.	Comacchio 305	DS/BR	CD	12 Apr 22	25.20	150	22.20	150			System	

Date / Time Casing / Water	Samples Depth	Type & No.	Records	Field Tests Depth	Type	Records	Samp / Test Casing / Water	Coring Depth (Diameter)	TCR % SCR % RQD %	If (mm)	Water added Flush details	Depth (Thickness)	Level	Legend	Strata Description Main	Detail	Chisel.	Water Entry	Backfill
															Weak to moderately weak, locally very weak to extremely weak dark grey to grey fractured MUDSTONE. Fractures are 0-10 degrees closely to medium spaced (90/320/1160) planar smooth or rough clean with rare dark grey clay infill (up to 1mm); 40-50 degrees medium to widely spaced (490/850/3120) planar rough with dark grey clay or light grey silt infill (up to 1mm); 80-90 degrees planar smooth or rough clean. (WEALD CLAY FORMATION)	weak grey to dark grey mudstone with randomly orientated fractures planar smooth rough. 18.34-18.65 Extremely weak to very weak. 18.43-18.65 NI extremely weak to very weak of brownish grey to dark grey mudstone with randomly orientated fractures planar smooth or rough. 18.78-18.86 Firm to stiff grey clay. 19.02-19.07 Stiff grey to light grey clay. 20.09-20.16 Very stiff dark grey slightly gravelly clay. Gravel is subangular to angular fine to coarse of mudstone. 20.30-20.36 30 degree fracture planar smooth with light grey silt infill (up to 0.5mm). 21.00-21.12 Stiff to very stiff dark grey clay. 21.12-21.31 very weak becoming extremely weak grey mudstone. 21.31-21.42 Stiff dark grey slightly gravelly clay. Gravel is angular to subangular fine to coarse of mudstone. 21.62-21.66 Firm light grey silty clay. 22.90-22.92 Firm dark brownish grey. 23.11-23.30 NI dark brownish grey clayey angular to subangular fine to coarse gravel of weak to moderately weak mudstone with randomly orientated fractures planar			
	21.20	D 41						20.70 - 22.20	100 82 72										
	22.50	D 42						22.20 - 23.70	100 76 71	NI 205 1160	Water flush: 20.70 - 25.20	80% rec	(5.95)						
	23.70 - 24.05	C 43																	
	24.25	D 44						23.70 - 25.20	97 94 88										
	24.42 - 24.77	C 45											25.20 +36.50		END OF EXPLORATORY HOLE	smooth with occasional dark grey clay infill (up to 1mm). 23.30-23.47 Stiff to very stiff grey clay. 25.00-25.04 Stiff dark grey clay. 25.15-25.20 AZCL			25.20

General Remarks

Hard Boring / Chiselling
Depths | Duration (mins) | Tool

Groundwater Entries
No. | Depth | Remarks | Sealed

Notes
For explanation of symbols and abbreviations see Key to Exploratory Hole Records. All depths and reduced levels in metres. Stratum thickness given in brackets in depth column.

Project Gatwick Northern Runway Project (NRP)
Project No. D2001-22
Carried out for VINCI Construction T/A Taylor Woodrow

Status FINAL

Scale 1:50
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Borehole BH106

Borehole Log

SOCOTEC

Checked	Depth	Dates	Method	Equipment	Rig Crew	Logger	Logged	Hole		Casing		Depth Related Remarks			
CP	0.00 - 1.20	15 Mar 22 - 15 Mar 22	Hand dug inspection pit.	Hand tools	BB/BR	WT	16 Mar 22	Depth	Dia. (mm)	Depth	Dia. (mm)	Depth	Remarks	Ground Level	58.27 mOD
	1.20 - 4.30	16 Mar 22 - 16 Mar 22	Cable percussion drilling.	Dando 3000	BB/BR	WT	16 Mar 22	4.30	200	4.50	153			Coordinates	E 529385.77
Approved	4.30 - 13.60	17 Mar 22 - 17 Mar 22	Rotary core drilling.	R70 Comacchio 205	LW/JM	CP	05 Apr 22	13.60	131					National Grid	N 141691.46
CP														System	

Date / Casing	Time / Water	Samples: Depth	Type & No.	Records	Field Tests: Depth	Type	Records	Samp / Test: Casing	Water	Coring Depth (Diameter)	TCR % SCR % RQD %	If (mm)	Water added / Flush details		Depth (Thickness)	Level	Legend	Strata Description: Main	Detail	Chisel.	Water Entry	Backfill
16 Mar 22	0800														(0.15)			(TOPSOIL)				Flush cover
0.00	Dry	0.30	ES 3		0.30	PID	0.1 ppmv (Test 1)								0.15	+58.12		Grass over soft dark brown slightly gravelly slightly sandy CLAY with frequent rootlets (up to 20x2x2mm). Sand is fine to coarse. Gravel is angular to subrounded fine to coarse of concrete and brick.				
															(0.85)			(MADE GROUND)				0.50
		1.00	ES 7		1.00	PID	0.0 ppmv (Test 2)								1.00	+57.27		Dark brown occasionally mottled light brown clayey slightly gravelly fine to coarse SAND. Gravel is angular to subrounded fine to coarse of concrete, brick and macadam.				1.00
		1.20	D 8		1.20 - 1.65	SPT S	N=19 (3,3/3,5,5,6) ID TH52 Er 53%	1.20	Damp						(0.20)			(MADE GROUND)				
		1.50 - 2.00	B 9												1.20	+57.07		Light brown slightly gravelly clayey fine to coarse SAND with rare fragments (up to 80x50x15mm) of timber. Gravel is subangular to subrounded fine to coarse of concrete.				
															(0.80)			Soft light grey occasionally mottled light brown slightly gravelly slightly sandy CLAY. Sand is fine to medium. Gravel is subangular to subrounded fine to medium of ironstone.				
		2.00 - 2.45	UT 11	67 blows 100% rec	2.00	PID	0.0 ppmv (Test 3)								2.00	+56.27		(WEALD CLAY FORMATION)				
		2.00	ES 10					2.00	Dry									Firm brown rarely mottled light grey silty CLAY. (WEALD CLAY FORMATION)				
		2.45	D 12												(1.00)							
		2.50 - 3.00	B 13																			
		3.00	D 15		3.00 - 3.45	SPT S	50 (4,7/9,13,15,13 for 70mm) ID TH52 Er 53%	3.00	Dry						3.00	+55.27		Very stiff grey silty CLAY. (WEALD CLAY FORMATION)				
		3.00	ES 14		3.00	PID	0.0 ppmv (Test 4)															
		3.50 - 4.00	B 16												(1.30)							
		4.00	D 18		4.00 - 4.31	SPT S	50 (5,10/18,27,5 for 10mm) ID TH52 Er 53%	4.00	Dry													
16 Mar 22	1630	4.00	ES 17		4.00	PID	0.0 ppmv (Test 5)								4.30	+53.97		Very stiff light grey silty CLAY with very closely spaced thick laminae of very stiff greyish brown silty clay. (WEALD CLAY FORMATION)	4.45-4.46 Slightly gravelly. Gravel is subrounded fine to medium of brown and dark brown ironstone. 4.91-5.06 Medium strong reddish brown fine grained limestone.			
4.00	Dry														(0.40)							
17 Mar 22	0715									4.30 - 4.60 (108mm)	100 0 0	NA NA NA	Water flush: 4.30 - 4.60	100% rec	4.70	+53.57		Very stiff fissured reddish brown CLAY. Fissures are 0-15 degrees and 80-90 degrees, extremely closely spaced planar smooth clean. (WEALD CLAY FORMATION)				
4.00	2.10														(0.40)							
		4.91 - 5.04	D 19									NA NA NA			5.10	+53.17		Extremely weak grey SILTSTONE with extremely closely spaced thin laminae (up to 1mm) of light grey siltstone. Fractures set 1: 0-20 degrees very closely to closely spaced (50/130/450) planar smooth clean locally with light grey silt veneer on surfaces. (WEALD CLAY FORMATION)	5.73-5.83 Fracture inclined 80 degrees planar smooth with (up to 0.5mm) light grey clay infill.			
		5.20 - 5.48	C 20							4.60 - 6.10 (108mm)	100 75 72		Water flush: 4.60 - 6.10	100% rec								
					6.10 - 6.31	SPT C	100 (25 for 60mm/42,58 for 70mm) refused ID AR1601 Er 64%	4.50	0.00										6.45-6.85 Becomes very weak.			
		6.54 - 6.64	D 21																			
										6.10 - 7.60 (108mm)	100 92 92	50 200 450	Water flush: 6.10 - 7.60	100% rec	(3.90)				7.22-7.34 Recovered non intact as very stiff grey gravelly CLAY. Gravel is angular fine to medium tabular of extremely to very weak grey siltstone with occasional yellowish brown discolouration on surfaces. 7.55-7.74 Fracture inclined 75 degrees planar rough with (up to 0.50mm) clay infill and brown discolouration. 7.82-7.98 Fracture inclined 80 degrees planar rough with (up to 0.50mm) grey clay infill. 8.00-8.10 Fracture inclined 45 degrees planar rough with grey clay veneer. 8.16-8.26 Fracture inclined 50 degrees planar rough with (up to 0.50mm) grey clay infill. 8.32-8.38 Fracture inclined 40 degrees planar rough with (up to 0.50mm) grey clay infill.			SP
		6.89 - 7.21	C 22																			
17 Mar 22	1730																					
4.50	0.00																					
18 Mar 22	0730																					
4.50	0.90																					
		8.00 - 8.10	D 23							7.60 - 9.10 (108mm)	100 100 91		Water flush: 7.60 - 9.10	100% rec								8.00
		8.64 - 8.92	C 24																			
																9.00	+49.27	Very weak grey SILTSTONE with extremely closely spaced thin laminae (up to 1mm) of light grey siltstone. Fracture set 1: Inclined 0-5 degrees medium to widely spaced (230/500/1020) planar smooth and rough with a light grey clay veneer on surfaces. Fracture set 2: Inclined 80-90 degrees widely spaced (130/630/1000) planar rough with light grey clay veneer on surfaces. (WEALD CLAY FORMATION)				
											100 100 100	130 300 1020										
		9.74 - 10.00	C 25							9.10 - 10.60 (108mm)			Water flush: 9.10 - 10.60	100% rec	(1.70)							

Hole continues on next sheet

General Remarks

Hard Boring / Chiselling

Depths	Duration (mins)	Tool

Groundwater Entries

No.	Depth	Remarks	Sealed

Notes

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Project	Gatwick Northern Runway Project (NRP)
Project No.	D2001-22
Carried out for	VINCI Construction T/A Taylor Woodrow

Status

FINAL

Scale 1:50

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Borehole

BH108

Borehole Log

SOCOTEC

Checked	Depth	Dates	Method	Equipment	Rig Crew	Logger	Logged	Hole Depth	Hole Dia. (mm)	Casing Depth	Casing Dia. (mm)	Depth Related Remarks Depth	Remarks		
CP	0.00 - 1.20	15 Mar 22 - 15 Mar 22	Hand dug inspection pit.	Hand tools	BB/BR	WT	16 Mar 22	4.30	200	4.50	153			Ground Level	58.27 mOD
	1.20 - 4.30	16 Mar 22 - 16 Mar 22	Cable percussion drilling.	Dando 3000	BB/BR	WT	16 Mar 22	13.60	131					Coordinates	E 529385.77
Approved	4.30 - 13.60	17 Mar 22 - 17 Mar 22	Rotary core drilling.	R70 Comacchio 205	LW/JM	CP	05 Apr 22							National Grid	N 141691.46
CP														System	

Date / Casing	Time / Water	Samples Depth	Type & No.	Records	Field Tests Depth	Type	Records	Samp / Test Casing	Water	Coring Depth (Diameter)	TCR % SCR % RQD %	If (mm)	Water added Flush details		Depth (Thickness)	Level	Legend	Strata Description Main	Detail	Chisel.	Water Entry	Backfill
		10.18 - 10.28	D 26															Very weak grey SILTSTONE with extremely closely spaced thin laminae (up to 1mm) of light grey siltstone. Fracture set 1: Inclined 0-5 degrees medium to widely spaced (230/500/1020) planar smooth and rough with a light grey clay veneer on surfaces. Fracture set 2: Inclined 80-90 degrees widely spaced (130/630/1000) planar rough with light grey clay veneer on surfaces. (WEALD CLAY FORMATION)				
															10.70 (2.30)	+47.57			10.60-10.70 Fracture inclined 85 degrees planar rough with a (up to 0.50mm) grey clay infill.			
		11.27 - 11.55	C 27							10.60 - 12.10 (108mm)	100 100 100	680 1300 1620	Water flush: 10.60 - 12.10	100% rec				Very weak grey MUDSTONE with closely spaced locally extremely closely spaced thin laminae (up to 1mm) of light grey siltstone. Fracture set 1: Inclined 85-90 degrees planar rough smooth clean closed locally with a grey clay veneer on surfaces. (WEALD CLAY FORMATION)	11.10-11.27 Becomes weak.			
		11.70 - 11.77	D 28																			
																			12.19-12.45 Fracture inclined 75 degrees planar smooth closed with a grey clay veneer on surface.			
										12.10 - 13.60 (108mm)	100 100 100	600 600 600	Water flush: 12.10 - 13.60	100% rec							
18 Mar 22 4.50	1700 0.90														13.00 (0.60) 13.60	+45.27 +44.67		Weak grey SILTSTONE with extremely closely spaced thin laminae (up to 1mm) of light grey siltstone. (WEALD CLAY FORMATION)	13.05-13.30 Fracture inclined 80 degrees undulating rough closed with grey silt veneer on surface.			
																		END OF EXPLORATORY HOLE				13.60

General Remarks

Hard Boring / Chiselling
Depths | Duration (mins) | Tool

Groundwater Entries
No. | Depth | Remarks | Sealed

Notes
For explanation of symbols and abbreviations see Key to Exploratory Hole Records. All depths and reduced levels in metres. Stratum thickness given in brackets in depth column.

Project Gatwick Northern Runway Project (NRP)
Project No. D2001-22
Carried out for VINCI Construction T/A Taylor Woodrow

Status FINAL

Scale 1:50
Printed 22 Jul 2022 14:12:49

AGS

Borehole BH108

Borehole Log

SOCOTEC

Checked	Depth	Dates	Method	Equipment	Rig Crew	Logger	Logged	Hole		Casing		Depth Related Remarks			
CP	0.00 - 1.20	21 Mar 22 - 21 Mar 22	Hand dug inspection pit.	Hand tools	JT/DH	KD	21 Mar 22	Depth	Dia. (mm)	Depth	Dia. (mm)	Depth	Remarks	Ground Level	56.53 mOD
	1.20 - 4.50	21 Mar 22 - 22 Mar 22	Cable percusion drilling.	Dando 175	JT/DH	KD	22 Mar 22	4.50	200	4.10	200			Coordinates	E 527906.73
Approved	4.50 - 25.00	22 Mar 22 - 26 Mar 22	Rotary core drilling.	R70 Comacchio 205	LR/PB	CD	08 Apr 22	25.00	150	25.00	150			National Grid	N 142034.53
CP														System	

Date / Casing	Time / Water	Samples: Depth	Type & No.	Records	Field Tests: Depth	Type	Records	Samp / Test: Casing	Water	Coring Depth (Diameter)	TCR % SCR % RQD %	If (mm)	Water added / Flush details	Depth (Thickness)	Level	Legend	Strata Description: Main	Detail	Chisel.	Water Entry	Backfill
		0.05 - 0.10	B 1											(0.20)			(MADE GROUND)				Flush cover
21 Mar 22	1930	0.10	D 2		0.20	PID	0.1 ppmv (Test 1)							0.20	+56.33		Grass over soft light brown slightly sandy slightly gravelly CLAY with frequent rootlets. Sand is fine. Gravel is subangular to subrounded fine to medium of flint chalk and red brick fragments.				
0.00	Dry	0.20	ES 3		0.30	HV	p 182 to >188kPa, r 70kPa							(0.35)							
		0.25 - 0.35	B 4		0.50	PID								0.55	+55.98		(MADE GROUND)				0.50
		0.40	D 5				0.1 ppmv (Test 2)										Brown slightly sandy clayey GRAVEL of subangular to subrounded fine to coarse white chalk.				
		0.50	ES 6																		
		0.60 - 0.80	B 7																		
		0.80	D 8		1.00	PID	0.0 ppmv (Test 3)							(0.85)			(MADE GROUND)				1.00
		1.00 - 1.10	B 10														Light grey gravelly SILT. Gravel is subangular to subrounded fine to coarse of chalk and glint.				
		1.00	ES 9		1.20 - 1.65	SPT S	N=13 (4,4/4,3,3,3)	1.20	Dry												
		1.10	D 11		1.20	PID	ID BHDS06 Er 61%														
		1.20	D 13				0.0 ppmv (Test 4)							1.40	+55.13						
		1.20 - 1.65	B 14														Stiff brown mottled grey slightly gravelly sandy CLAY. Sand is fine to medium. Gravel is subangular to subrounded fine to coarse of chalk and flint. (WEALD CLAY FORMATION)				
		1.20	ES 12																		
		1.70 - 2.45	AMAL 46	Combined samples. B16 and B19.																	
		1.70	D 15		2.00 - 2.45	SPT S	N=18 (5,8/5,5,4,4)	2.00	Dry					(1.20)							
		1.70 - 2.00	B 16		2.00	PID	ID BHDS06 Er 61%														
		2.00	D 18				0.0 ppmv (Test 5)														
		2.00 - 2.45	B 19																		
		2.00	ES 17																		
		2.60	D 20											2.60	+53.93						
		2.60 - 3.00	B 21														Stiff very soft grey orangish brown slightly gravelly CLAY. Gravel is subangular to subrounded fine to coarse of weak mudstone. (WEALD CLAY FORMATION)				
		3.00	D 22		3.00 - 3.45	SPT S	N=36 (2,3/5,14,8,9)	3.00	Dry												
		3.00 - 3.45	B 23				ID BHDS06 Er 61%														
		3.50	ES 24		3.50	PID	0.0 ppmv (Test 6)							(1.90)							
		4.00	D 25		4.00 - 4.33	SPT S	100 (6,16/23,47,30 for 25mm)	4.45	Dry												
		4.00 - 4.45	B 26				ID BHDS06 Er 61%														
22 Mar 22	0230																				
4.10	Dry	4.50	D 27		4.50 - 4.89	SPT S	100 (6,19/27,32,32,9 for 15mm)	4.10	Dry					4.50	+52.03						
22 Mar 22	2000						ID BHDS06 Er 61%										Firm to stiff light grey mottled orangish brown silty CLAY. (WEALD CLAY FORMATION)				
4.10	2.00									4.50 - 5.20 (101mm)	71 NA NA	NA NA NA		(0.70)							
					5.20 - 5.36	SPT C	100 (25,0 for 0mm for 10mm/35,59,6 for 2mm)	4.50	Dry									5.00-5.20 AZCL.			
		5.80	D 25a				ID TH06 Er 67%							5.20	+51.33						
										5.20 - 6.70 (101mm)	100 83 77						Extremely weak light grey MUDSTONE with very closely to closely spaced thin laminae of white siltstone and occasional partings (up to 50x30mm) of white siltstone. Fracture set 1; 0-15 degrees closely to medium spaced (10/390/1410) planar rough to smooth with occasional grey to dark grey clay infill (up to 1mm). Fracture set 2; 80-90 degrees planar smooth and rough clean occasionally with light grey clay infill (up to 1mm). (WEALD CLAY FORMATION)	5.56-6.22 Brownish grey becoming brownish red. 5.77-6.03 Stiff to very stiff slightly gravelly silty clay. Gravel is angular, fine to coarse of mudstone. 6.03-6.22 Extremely weak sandy mudstone. Sand is fine to medium. 6.50-6.54 Becomes brownish grey. 6.65-6.70 Weak reddish brown sandstone. 6.85-7.07 NI. Grey clayey angular to subangular fine to coarse gravel of mudstone. 7.07-7.14 60 deg fracture planar rough with dark brown clay infill (<1mm). 7.07-7.18 Weak brownish grey mudstone with 70 deg fracture planar rough with light grey silt infill (<1mm). 7.14-7.25 70 deg fracture planar smooth with light brown silt infill (<1mm). 8.67-8.70 15 deg fracture planar rough with light grey clay infill. 8.93-9.29 Very weak light grey mudstone.			
		6.22 - 6.62	C 26a										Water flush: 4.50 - 8.20								
					6.70 - 6.93	SPT C	100 (25,0 for 0mm/37,63,0,0 for 0mm)	4.50	Dry												SP
							ID TH06 Er 67%														
		7.55	D 27a							6.70 - 8.20 (101mm)	100 85 73										
		7.65 - 8.00	C 28																		8.00
23 Mar 22	0600																				
4.50	1.50																				
23 Mar 22	2000																				
4.50	2.00	8.25 - 8.60	C 29																		
		8.70	D 30							8.20 - 9.70	100 100 97										
													Water flush: 8.20 - 11.20								

Hole continues on next sheet

General Remarks

Hard Boring / Chiselling

Depths	Duration (mins)	Tool

Groundwater Entries

No.	Depth	Remarks	Sealed

Notes

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Project	Gatwick Northern Runway Project (NRP)
Project No.	D2001-22
Carried out for	VINCI Construction T/A Taylor Woodrow

Status

FINAL

Scale 1:50

Printed 22 Jul 2022 14:12:50

AGS

Borehole

BH702

Borehole Log

SOCOTEC

Checked	Depth	Dates	Method	Equipment	Rig Crew	Logger	Logged	Hole		Casing		Depth Related Remarks			
CP	0.00 - 1.20	21 Mar 22 - 21 Mar 22	Hand dug inspection pit.	Hand tools	JT/DH	KD	21 Mar 22	Depth	Dia. (mm)	Depth	Dia. (mm)	Depth	Remarks	Ground Level	56.53 mOD
	1.20 - 4.50	21 Mar 22 - 22 Mar 22	Cable percusion drilling.	Dando 175	JT/DH	KD	22 Mar 22	4.50	200	4.10	200			Coordinates	E 527906.73
Approved	4.50 - 25.00	22 Mar 22 - 26 Mar 22	Rotary core drilling.	R70 Comacchio 205	LR/PB	CD	08 Apr 22	25.00	150	25.00	150			National Grid	N 142034.53
CP														System	

Date Casing	Time Water	Samples Depth	Type & No.	Records	Field Tests Depth	Type	Records	Samp / Test Casing	Water	Coring Depth (Diameter)	TCR % SCR % RQD %	If (mm)	Water added Flush details		Depth (Thickness)	Level	Legend	Strata Description Main	Detail	Chisel.	Water Entry	Backfill
															(10.05)			Extremely weak light grey MUDSTONE with very closely to closely spaced thin laminae of white siltstone and occasional partings (up to 50x30mm) of white siltstone. Fracture set 1; 0-15 degrees closely to medium spaced (10/390/1410) planar rough to smooth with occasional grey to dark grey clay infill (up to 1mm). Fracture set 2; 80-90 degrees planar smooth and rough clean occasionally with light grey clay infill (up to 1mm). (WEALD CLAY FORMATION)	10.45-10.85 Very weak.			
		10.55	D 31							9.70 - 11.20	100 91 81											
		11.70	D 32																11.45-11.51 Silty mudstone.			
		12.02 - 12.32	C 33							11.20 - 12.70	100 100 91	NI 230 1030	Water flush: 11.20 - 12.70	85% rec					11.82-11.87 Very stiff gravelly clay. Gravel is angular to subangular fine to coarse of mudstone. 12.32-12.38 Very stiff gravelly clay. Gravel is angular fine to coarse of flint. 12.50-12.88 Weak dark grey mudstone. 12.88-13.16 NI. Dark grey clayey angular to subangular fine to coarse gravel of mudstone and thinly laminated mudstone. 13.16-13.50 Firm to stiff dark grey gravelly clay. Gravel is subangular fine to coarse of mudstone. 13.73-13.76 Firm grey silty clay. 13.76-13.81 70 deg fracture planar smooth with grey clay infill. 13.95-14.08 Very weak grey mudstone. 14.25-14.30 45 deg fracture planar rough with grey clay infill (<1mm). 14.78-14.92 Angular medium to coarse gravel of mudstone. 15.22-15.25 Stiff grey clay.			
		13.60	D 34							12.70 - 14.20	100 70 53											
		14.65	D 35							14.20 - 15.70	70 68 58				15.25	+41.28		ASSUMED ZONE OF CORE LOSS.				
												NA NA NA			(0.45)							
24 Mar 22 4.50	0600 2.00														15.70	+40.83		Very weak to weak grey to dark grey MUDSTONE with very closely spaced thin laminae of white to light grey siltstone and frequent partings (up to 2mm) of white siltstone. Fracture set 1; 0-10 degrees closely to medium spaced (30/250/1130) planar smooth and rough clean with occasional light grey to grey silt infill (up to 1mm). Fracture set 2; 60-75 degrees medium spaced (200/390/2160) planar locally undulating clean and silt infill (up to 1mm). (WEALD CLAY FORMATION)				
24 Mar 22 4.50	0800 3.50																					
		16.45	D 36							15.70 - 17.20	100 83 38								16.11-16.18 Grey clayey subangular fine to coarse gravel of mudstone. 16.31-16.37 Grey clayey subangular fine to coarse gravel of mudstone. 16.37-16.44 40 deg fracture planar partly polished and clean. 16.56-16.63 Angular to subangular fine to coarse gravel of mudstone. 16.89-16.94 Stiff grey clay.			
		17.47	D 37																			
		18.17 - 18.45	C 38							17.20 - 18.70	97 85 68	NI 130 540			(4.50)				18.54-18.60 45 deg fracture planar rough with dark grey clay infill (up to 1mm). 18.57-18.65 45 deg fracture planar rough with light grey silt infill (up to 1mm). 18.65-18.70 AZCL.			
		19.00 - 19.25	C 39										Water flush: 12.70 - 25.00	80% rec					19.48-19.85 Firm to stiff very gravelly clay. Gravel is angular to subangular, fine to coarse of mudstone. 19.85-20.02 Extremely weak.			
		19.30	D 40							18.70 - 20.20	93 69 59							Hole continues on next sheet				

General Remarks

Hard Boring / Chiselling

Depths	Duration (mins)	Tool

Groundwater Entries

No.	Depth	Remarks	Sealed

Notes

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Project No.	D2001-22
Carried out for	VINCI Construction T/A Taylor Woodrow

Status

FINAL

Scale 1:50

Printed 22 Jul 2022 14:12:50

AGS

Borehole

BH702

Borehole Log

SOCOTEC

Checked	Depth	Dates	Method	Equipment	Rig Crew	Logger	Logged	Hole Depth	Hole Dia. (mm)	Casing Depth	Casing Dia. (mm)	Depth Related Remarks Depth	Remarks		
CP	0.00 - 1.20	21 Mar 22 - 21 Mar 22	Hand dug inspection pit.	Hand tools	JT/DH	KD	21 Mar 22	4.50	200	4.10	200			Ground Level	56.53 mOD
	1.20 - 4.50	21 Mar 22 - 22 Mar 22	Cable percusion drilling.	Dando 175	JT/DH	KD	22 Mar 22	25.00	150	25.00	150			Coordinates	E 527906.73
Approved	4.50 - 25.00	22 Mar 22 - 26 Mar 22	Rotary core drilling.	R70 Comacchio 205	LR/PB	CD	08 Apr 22							National Grid	N 142034.53
CP														System	

Date / Casing	Time / Water	Samples Depth	Type & No.	Records	Field Tests Depth	Type	Records	Samp / Test Casing	Water	Coring Depth (Diameter)	TCR % SCR % RQD %	If (mm)	Water added / Flush details	Depth (Thickness)	Level	Legend	Strata Description Main	Detail	Chisel.	Water Entry	Backfill
														20.20 (Thickness)	+36.33		Very weak to weak grey to dark grey MUDSTONE with very closely spaced thin laminae of white to light grey siltstone and frequent partings (up to 2mm) of white siltstone. Fracture set 1; 0-10 degrees closely to medium spaced (30/250/1130) planar smooth and rough clean with occasional light grey to grey silt infill (up to 1mm). Fracture set 2; 60-75 degrees medium spaced (200/390/2160) planar locally undulating clean and silt infill (up to 1mm). (WEALD CLAY FORMATION)	20.10-20.20 AZCL. 20.20-20.31 85 deg fracture planar smooth and clean.			
		20.55	D 41							20.20 - 21.70	100 94 67						Weak to moderately weak dark grey to grey fractured MUDSTONE. Fracture set 1; 0-10 degrees closely spaced (20/180/530) planar smooth and rough clean with rare dark grey clay and light grey silt infill (up to 1mm). Fracture set 2; 80-90 degrees planar smooth and rough clean with locally dark grey silt infill (up to 1mm). (WEALD CLAY FORMATION)	20.92-21.03 Firm grey clay. 21.03-21.27 Extremely weak.			
25 Mar 22 4.50	0600 2.50																				
25 Mar 22 4.50	2000 2.50																	21.76-21.80 20 deg fracture planar rough with possible grey clay infill (<1mm). 21.92-21.96 20 deg fracture planar rough with grey clay infill (<1mm). 21.97-22.01 20 deg fracture planar rough and clean. 22.05-22.13 Stiff to very stiff dark brownish grey clay. 22.29-22.35 Stiff to very stiff dark grey to grey clay. 22.51-22.56 20 deg fracture planar rough and clean. 22.61-22.69 50 deg fracture planar rough with light grey silt infill (<0.5mm). 22.71-22.76 20 deg fracture planar smooth and clean. 23.34-23.39 Very stiff grey clay. 23.47-23.61 60 deg fracture planar rough and clean. 23.63-23.70 45 deg fracture planar rough and clean.			
		22.40	D 42							21.70 - 23.20	100 84 53	NI 120 325		(4.80)							
		23.40	D 43							23.20 - 24.70	100 71 59										
26 Mar 22 25.00	0600 Dry									24.70 - 25.00	100 NA NA			25.00	+31.53		END OF EXPLORATORY HOLE	23.70-24.01 Firm to stiff slightly gravelly clay. Gravel is subangular, fine to coarse of mudstone. 24.08-24.15 Dark grey clayey angular to subangular fine to coarse gravel of mudstone. 24.19-24.35 60 deg fracture planar smooth with light grey silt infill (<0.5mm).		25.00	

General Remarks

Hard Boring / Chiselling

Depths	Duration (mins)	Tool

Groundwater Entries

No.	Depth	Remarks	Sealed

Notes

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Borehole BH702

Borehole Log

SOCOTEC

Checked	Depth	Dates	Method	Equipment	Rig Crew	Logger	Logged	Hole		Casing		Depth Related Remarks		Ground Level	56.54 mOD
CP	0.00 - 1.20 3.30 - 25.00	17 Mar 22 - 18 Mar 22 21 Mar 22 - 24 Mar 22	Hand dug inspection pit. Rotary core drilling.	Dando 3000 R67 Comacchio 305	BB/BR DS/DP	MB CD	18 Mar 22 04 Apr 22	Depth 1.20 25.00	Dia. (mm) 200 150	Depth 1.20 17.20	Dia. (mm) 200 150	Depth	Remarks	Coordinates	E 527924.77
Approved														National Grid	N 141938.00
CP														System	

Date / Casing	Time / Water	Samples: Depth	Type & No.	Records	Field Tests: Depth	Type	Records	Samp / Test: Casing	Water	Coring Depth (Diameter)	TCR % SCR % RQD %	If (mm)	Water added / Flush details	Depth (Thickness)	Level	Legend	Strata Description: Main	Detail	Chisel.	Water Entry	Backfill
17 Mar 22	2000	0.00 - 0.30	B 1											(0.55)			(TOPSOIL) Grass over soft brown slightly sandy slightly gravelly CLAY with occasional rootlets. Sand is fine to coarse. Gravel is subangular fine to coarse of flint, brick and chalk.				Flush Cover
0.00	Dry	0.30 0.30	ES 2 D 3											0.55	+55.99						0.40
		0.80 - 1.20	B 4														(Possible MADE GROUND) Firm to stiff yellowish brown mottled grey slightly sandy slightly gravelly CLAY with occasional pockets (up to 5x10x5mm) of black silt. Sand is medium to coarse. Gravel is subangular to subrounded of flint.				
18 Mar 22	0400	1.00	ES 5																		1.00
0.00	Damp	1.20 - 1.65	D 7		1.20 - 1.65	SPT S	N=22 (2,4/4,4,6,8) ID TH52 Er 53%		Dry												
18 Mar 22	2100	1.20	D 6																		
0.00	Damp	1.50 - 1.80	B 8											(1.90)							
		1.90	D 9																		
		2.00 - 2.45	UT 11	100% rec																	
		2.00	ES 10																		
		2.50	D 12											2.45	+54.09		Extremely weak brown mottled reddish brown MUDSTONE. Fractures are extremely closely spaced, randomly orientated planar rough closed with heavy orangish brown and reddish brown staining on surfaces. (WEALD CLAY FORMATION)				
		2.50 - 3.00	B 13											(0.85)							
		3.00 - 3.37	D 15		3.00 - 3.34	SPT S	50 (7,11/15,19,16 for 40mm) ID TH52 Er 53%	3.00	Dry												
19 Mar 22	0010	3.00	ES 14											3.30	+53.24						
3.00	Dry									3.30 - 3.70 (101mm)	100 NA NA			(0.40)			Firm grey mottled orangish brown reddish brown CLAY. (WEALD CLAY FORMATION)	3.30-3.45 Stiff to firm light orangish brown mottled light grey clay.			
21 Mar 22	0146													3.70	+52.84		Extremely weak light grey MUDSTONE. Fracture set 1; 0-15 degrees medium to widely spaced planar rough closed occasionally with grey clay infill (up to 1mm). Fracture set 2; 90 degrees planar rough closed clean rarely stained brown. (WEALD CLAY FORMATION)				
0.00	1.02																				
		4.30	D 16							3.70 - 5.20 (101mm)	100 100 100	20 200 550						4.80 Becoming grey. 4.80-5.00 Mottled dark greyish brown. 5.37-5.79 Becoming brownish red.			SP
		4.45 - 4.80	C 17																		
22 Mar 22	0330													(2.55)							5.00
5.20	1.90				5.20 - 5.43	SPT C	100 (18,7 for 15mm/31,69 for 65mm) ID th72 Er 64%	5.20	1.25												
22 Mar 22	2000	5.30	D 18																		
5.20	1.90																				
		5.83 - 6.08	C 19							5.20 - 6.70 (101mm)	100 91 67	NI 160 300									
					6.70 - 6.86	SPT C	100 (25 for 70mm/72,28 for 15mm) ID th72 Er 64%	6.70	2.05					6.25	+50.29		Weak to moderately weak reddish brown to dark reddish brown MUDSTONE. Fractures are 0 degrees very closely to closely spaced (40/200/380) planar smooth or rough with reddish brown clay infill (up to 1mm). (WEALD CLAY FORMATION)				
														(0.75)							
														7.00	+49.54		Weak to moderately weak grey to dark grey fractured MUDSTONE. Fractures are 0-10 degrees closely spaced (10/160/380) planar smooth rough clean with light grey clay infill (up to 3mm). (WEALD CLAY FORMATION)				
		7.40 - 7.67	C 20							6.70 - 8.20 (101mm)	100 100 70							6.31-6.38 40 degree fracture planar smooth with reddish brown clay infill (less than 3mm). 6.33-6.40 40 degree fracture planar rough with reddish brown clay infill (up to 3mm). 6.43-6.51 Recovered as firm reddish brown very gravelly CLAY. Gravel is angular to sub angular fine to coarse of mudstone. 6.68-6.72 90 degree planar rough clean. 6.68-6.84 Medium strong reddish brown sandstone. 7.17-7.21 90 degree fracture planar smooth clean. 8.55-8.63 Extremely close to very closely spaced thin laminae of light grey siltstone.			
		7.70	D 21																		
												10 1601 380									
		8.80	D 22								100										
		8.90 - 9.18	C 23							8.20 - 9.70 (101mm)	100 82										
														9.40	+47.14		Very weak to weak grey to dark grey fractured MUDSTONE with extremely closed spaced thin to thick laminae of light grey siltstone. Fractures are 0 degrees closely spaced (30/190/620) planar smooth or rough clean.				

Hole continues on next sheet

General Remarks

Hard Boring / Chiselling

Depths	Duration (mins)	Tool

Groundwater Entries

No.	Depth	Remarks	Sealed

Notes

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Project	Gatwick Northern Runway Project (NRP)
Project No.	D2001-22
Carried out for	VINCI Construction T/A Taylor Woodrow

Status

FINAL

Scale 1:50

Printed 22 Jul 2022 14:12:51

AGS

Borehole

BH703

Borehole Log

SOCOTEC

Checked	Depth	Dates	Method	Equipment	Rig Crew	Logger	Logged	Hole		Casing		Depth Related Remarks		Ground Level	56.54 mOD
CP	0.00 - 1.20 3.30 - 25.00	17 Mar 22 - 18 Mar 22 21 Mar 22 - 24 Mar 22	Hand dug inspection pit. Rotary core drilling.	Dando 3000 R67 Comacchio 305	BB/BR DS/DP	MB CD	18 Mar 22 04 Apr 22	Depth 1.20 25.00	Dia. (mm) 200 150	Depth 1.20 17.20	Dia. (mm) 200 150	Depth	Remarks	Coordinates	E 527924.77
Approved														National Grid	N 141938.00
CP														System	

Date / Time Casing / Water	Samples: Depth / Type & No. / Records	Field Tests: Depth / Type / Records	Samp / Test: Casing / Water	Coring Depth (Diameter)	TCR % SCR % RQD %	If (mm)	Water added / Flush details	Depth (Thickness)	Level	Legend	Strata Description: Main	Strata Description: Detail	Chisel.	Water Entry	Backfill
	10.20 D 24			9.70 - 11.20 (101mm)	100 100 94						Very weak to weak grey to dark grey fractured MUDSTONE with extremely closed spaced thin to thick laminae of light grey siltstone. Fractures are 0 degrees closely spaced (30/190/620) planar smooth or rough clean.	10.23-10.40 90 degree fracture planar rough with dark grey clay infill (up to 1mm).			
						30 190 620		(3.15)				11.14-11.20 45 degree fracture planar rough clean.			
	11.48 - 11.75 C 25 11.80 D 26			11.20 - 12.70 (101mm)	100 100 98							12.31-12.37 30 degree fracture planar rough clean.			
								12.55	+43.99		Moderately weak brownish grey MUDSTONE. (WEALD CLAY FORMATION)	12.58-12.70 70 degree fracture planar smooth clean.			
						NI 80 170		(0.60)				12.59-12.69 0 degree fracture planar smooth clean.			
	13.40 D 27			12.70 - 14.20 (101mm)	100 69 58			13.15	+43.39		Extremely weak to weak dark grey MUDSTONE. (WEALD CLAY FORMATION)	12.80-12.91 50 degree fracture planar striated clean. 12.95 0 degree planar smooth fracture. 13.00-13.05 Recovered very stiff gravelly clay. Gravel is angular fine to coarse of Mudstone. NI clayey angular fine to coarse gravel of Mudstone.			
						NI 150 240		(0.85)				13.28-13.36 NI of grey clayey angular to sub angular fine to coarse gravel of mudstone.			
							Water flush: 3.30 - 25.00	14.00	+42.54		Very weak to weak grey to dark grey MUDSTONE with extremely closed spaced to very closed spaced thin laminae of white siltstone. Fractures are 0-10 degrees closely spaced (20/180/750) planar rough smooth with rare dark grey clay infill (less than 1mm). (WEALD CLAY FORMATION)	13.60-13.85 Stiff to very stiff grey slightly gravelly silty clay. Gravel is subangular fine to coarse of mudstone. 14.40-14.63 Extremely weak light grey mudstone.			
	14.85 D 28			14.20 - 15.70 (101mm)	100 100 91		95% rec					15.53-15.68 Extremely weak light grey mudstone. 15.70-16.03 Recovered as soft to firm dark grey gravelly clay. Gravel is angular fine to coarse of mudstone.			
	16.10 D 29			15.70 - 17.20 (101mm)	100 100 83	20 180 750		(4.40)				16.22-16.29 Soft dark grey gravelly CLAY. Gravel is angular fine to coarse of mudstone. 16.29-16.46 60-90 degree fracture undulating smooth and rough clean. 16.77-16.93 90 degree fracture planar rough clean.			
23 Mar 22 0331 17.20 1.60												17.41-17.50 90 degree fracture planar smooth with light grey silt infill (less than 0.5mm). 17.45-17.51 80 degree planar rough clean. 17.51-17.61 70 degree fracture planar smooth with dark grey clay infill (less than 1mm).			
23 Mar 22 2000 17.20 1.60												17.97-18.02 30 degree fracture planar smooth clean.			
	17.80 D 30			17.20 - 18.75 (101mm)	100 97 52			18.40	+38.14		Weak to moderately weak light grey to grey MUDSTONE with occasional partings (up to 50x3mm) and lenses (up to 70x70x2mm) of light grey siltstone. Fractures are 0-10 degrees closely to medium spaced (10/250/1230) planar smooth with rare dark grey clay infill (less than 0.5mm). (WEALD CLAY FORMATION)	18.03-18.11 Stiff grey slightly gravelly silty CLAY. gravel is sub angular fine to coarse of mudstone. 18.25-18.33 Stiff grey slightly gravelly silty CLAY. gravel is sub angular fine to coarse of mudstone. 19.66-19.96 Stiff grey slightly gravelly silty CLAY. gravel is sub angular fine to coarse of mudstone.			
	19.05 - 19.35 C 31 19.55 D 32			18.75 - 20.30 (101mm)	100 100 69										

Hole continues on next sheet

General Remarks

Hard Boring / Chiselling

Depths	Duration (mins)	Tool

Groundwater Entries

No.	Depth	Remarks	Sealed

Notes

For explanation of symbols and abbreviations see Key to Exploratory Hole Records. All depths and reduced levels in metres. Stratum thickness given in brackets in depth column.

Project	Gatwick Northern Runway Project (NRP)
Project No.	D2001-22
Carried out for	VINCI Construction T/A Taylor Woodrow

Status

FINAL

Scale 1:50

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AGS

Borehole

BH703

Borehole Log

SOCOTEC

Checked	Depth	Dates	Method	Equipment	Rig Crew	Logger	Logged	Hole Depth	Hole Dia. (mm)	Casing Depth	Casing Dia. (mm)	Depth Related Remarks Depth	Remarks		
CP	0.00 - 1.20	17 Mar 22 - 18 Mar 22	Hand dug inspection pit.	Dando 3000	BB/BR	MB	18 Mar 22	1.20	200	1.20	200			Ground Level	56.54 mOD
Approved	3.30 - 25.00	21 Mar 22 - 24 Mar 22	Rotary core drilling.	R67 Comacchio 305	DS/DP	CD	04 Apr 22	25.00	150	17.20	150			Coordinates	E 527924.77
CP														National Grid	N 141938.00
														System	

Date / Casing	Time / Water	Samples Depth	Type & No.	Records	Field Tests Depth	Type	Records	Samp / Test Casing	Water	Coring Depth (Diameter)	TCR % SCR % RQD %	If (mm)	Water added / Flush details	Depth (Thickness)	Level	Legend	Strata Description Main	Detail	Chisel.	Water Entry	Backfill
		20.73 - 20.98	C 33														Weak to moderately weak light grey to grey MUDSTONE with occasional partings (up to 50x3mm) and lenses (up to 70x70x2mm) of light grey siltstone. Fractures are 0-10 degrees closely to medium spaced (10/250/1230) planar smooth with rare dark grey clay infill (less than 0.5mm). (WEALD CLAY FORMATION)	20.04-20.18 90 degree fracture planar smooth with dark grey clay infill (less than 1mm). 20.06-20.16 80 degree fracture planar smooth clean. 20.24-20.30 30 degree fracture planar striated clean. 20.30-20.36 30 degree fracture planar rough with dark grey clay infill (up to 1mm). 21.15-21.18 Stiff dark grey clay. 21.18-21.23 50 degree fracture planar rough with light grey silt infill (less than 0.5mm). 21.80-21.90 AZCL 21.94-22.01 90 degree fracture planar smooth clean. 22.01-22.05 20 degree fracture planar striated clean. 22.08-22.15 Recovered as firm dark brownish grey gravelly CLAY. Gravel is angular fine to coarse of mudstone. 22.15-22.25 Extremely weak dark brownish grey mudstone. 22.25-22.30 Very stiff dark brownish grey mudstone. 22.47-22.56 Stiff to very stiff grey clay. 23.19-23.40 NI. Dark grey slightly clayey angular fine to coarse gravel of mudstone. 23.40-23.50 AZCL 23.95-24.10 70 degree fracture planar rough with dark grey clay infill (less than 0.5mm). 24.10-24.33 Very stiff dark grey clay with very closely spaced thin laminae of light grey silt.			
		21.00	D 34							20.30 - 21.90 (101mm)	94 94 78										
		21.32 - 21.66	C 35											(6.60)							
		22.60	D 36							21.90 - 23.50 (101mm)	94 72 67	NI 190 970									
		24.40	D 37							23.50 - 25.00 (101mm)	100 85 75										
		24.55 - 24.90	C 38																		
24 Mar 22 25.00	0344 Dry													25.00	+31.54		END OF EXPLORATORY HOLE				25.00

General Remarks

Hard Boring / Chiselling
Depths | Duration (mins) | Tool

Groundwater Entries
No. | Depth | Remarks | Sealed

Notes
For explanation of symbols and abbreviations see Key to Exploratory Hole Records. All depths and reduced levels in metres. Stratum thickness given in brackets in depth column.

Project Gatwick Northern Runway Project (NRP)
Project No. D2001-22
Carried out for VINCI Construction T/A Taylor Woodrow

Status FINAL

Scale 1:50
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AGS

Borehole BH703

Borehole Log

SOCOTEC

Checked	Depth	Dates	Method	Equipment	Rig Crew	Logger	Logged	Hole		Casing		Depth Related Remarks			
CP	0.00 - 1.20 1.20 - 4.50 4.50 - 25.00	22 Mar 22 - 22 Mar 22 22 Mar 22 - 22 Mar 22 24 Mar 22 -	Hand dug inspection pit. Cable percussion drilling. Rotary core drilling.	Hand tools Dando 175 R67 Comacchio 305	JT/DH JT/DH DS/PS	MB MB	22 Mar 22 22 Mar 22	Depth 4.50 25.00	Dia. (mm) 200 150	Depth 4.00 25.00	Dia. (mm) 200 150	Depth	Remarks		
Approved CP															

Ground Level	58.97 mOD
Coordinates	E 528074.96
National Grid	N 141895.79
System	

Date / Casing	Time / Water	Samples: Depth	Type & No.	Records	Field Tests: Depth	Type	Records	Samp / Test: Casing	Water	Coring Depth (Diameter)	TCR % SCR % RQD %	If (mm)	Water added / Flush details	Depth (Thickness)	Level	Legend	Strata Description: Main	Detail	Chisel.	Water Entry	Backfill
22 Mar 22	0800 Dry	0.00 - 0.30	B 1											(0.50)			(MADE GROUND) Grass over brown gravelly clayey fine to coarse SAND with occasional rootlets and fragments of plastic and coal. Gravel is angular to subangular fine to coarse of flint, chalk, brick and concrete.				Flush cover
		0.30	D 3		0.30	PID	0.1 ppmv (Test 1)							0.50	+58.47		(MADE GROUND) Soft to firm yellowish brown slightly gravelly slightly sandy CLAY with low cobble content and rare roots (up to 4mm). Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse of flint, brick and macadam. Cobbles are angular (up to 70x70x70mm) of brick.				0.50
		0.30	ES 2											(1.00)							
		0.50 - 0.70	B 4																		
		1.00 - 1.20	B 7		1.00	PID	0.1 ppmv (Test 2)														
		1.00	ES 5		1.20 - 1.65	SPT S	N=4 (1,1/1,1,1,1) ID BHDS06 Er 61%	1.65	1.10												
		1.10	D 6																		
		1.50 - 1.95	D 8											1.50	+57.47		Firm orangish brown mottled grey CLAY with occasional pockets (up to 4x3x2mm) of red fine sand. (WEALD CLAY FORMATION)				
		1.50 - 1.95	B 9																		
		2.00	ES 10		2.00	PID	0.0 ppmv (Test 3)														
		2.50 - 2.95	D 11		2.50 - 2.95	SPT S	N=5 (1,1/1,1,1,2) ID BHDS06 Er 61%	2.50	Dry												
		2.50 - 2.95	B 12											(2.45)							
		3.00	ES 13		3.00	PID	0.0 ppmv (Test 4)														
		3.50 - 3.95	UT 14	100 blows 44% rec				3.50	Dry												
		3.95	D 15		4.00	PID	0.0 ppmv (Test 5)							3.95	+55.02		Extremely weak brownish yellow mottled grey MUDSTONE. Fractures are extremely closely spaced randomly orientated planar rough closed with heavy dark brown and orangish brown staining on surfaces. (WEALD CLAY FORMATION)				
		4.00 - 4.20	B 17											(0.55)							
		4.00	ES 16		4.20 - 4.55	SPT S	100 (6,19/33,33,34 for 50mm) ID BHDS06 Er 61%	4.00	Dry												
22 Mar 22 4.00	1700 Dry	4.20 - 4.65	D 18											4.50	+54.47		Very stiff fissured light grey mottled orangish brown CLAY. Fissures are 0 degrees very closely spaced planar rough with reddish brown staining. (WEALD CLAY FORMATION)	4.50-4.63 Locally recovered as firm.			
24 Mar 22 4.00	2000 1.60	4.70	D 19							4.50 - 5.20	100 NA NA			(1.15)				5.20-5.40 Becoming grey.			
		5.30	D 20										Water flush: 0.00 - 11.20								
		5.87 - 6.19	C 21							5.20 - 6.70	100 70 70	10 420 680		5.65	+53.32		Extremely weak grey to light grey MUDSTONE. Fractures are 0-5 degrees medium spaced (10/420/680) planar smooth rough clean rarely stained reddish brown. (WEALD CLAY FORMATION)				
		6.70 - 7.00	SPT C	100 (11,14 for 55mm/31,52,17 for 15mm) ID TH72 Er 64%	6.70	2.05															
		7.10	D 22											(3.05)				7.26-7.61 Becomes reddish brown. 7.43-7.53 Moderately weak reddish brown mudstone. 7.43-7.61 85 degree fracture planar smooth with reddish brown clay infill (up to 0.5mm). 7.58-7.61 Moderately weak reddish brown mudstone. 8.10-8.20 NI reddish brown fine to coarse gravel of mudstone with randomly orientated fractures planar smooth clean. 8.20-8.27 Strong light reddish brown sandstone. 8.27-8.33 Reddish brown. 8.33-8.42 Moderately weak dark greyish brown mudstone. 8.93-9.01 45 degree fracture planar rough clean.			8.50
		8.20 - 8.40	SPT C	100 (25 for 65mm/42,58 for 60mm) ID TH72 Er 64%	8.20	3.65				6.70 - 8.20	100 94 44										
		8.85	D 23											8.70	+50.27		Very weak to weak grey MUDSTONE. Fractures are 0-10 degrees very closely to closely spaced (20/180/600) planar rough smooth clean rarely infilled with light grey clay (up to 1mm). (WEALD CLAY FORMATION)	9.91-10.51 NI. Firm dark grey			
		9.32 - 9.62	C 24							8.20 - 9.70	100 100 89										

Hole continues on next sheet

General Remarks

Hard Boring / Chiselling

Depths	Duration (mins)	Tool

Groundwater Entries

No.	Depth	Remarks	Sealed

Notes

For explanation of symbols and abbreviations see Key to Exploratory Hole Records. All depths and reduced levels in metres. Stratum thickness given in brackets in depth column.

Project	Gatwick Northern Runway Project (NRP)
Project No.	D2001-22
Carried out for	VINCI Construction T/A Taylor Woodrow

Status

FINAL

Scale 1:50

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AGS

Borehole

BH705

Borehole Log

SOCOTEC

Checked	Depth	Dates	Method	Equipment	Rig Crew	Logger	Logged	Hole		Casing		Depth Related Remarks		Ground Level	58.97 mOD
CP	0.00 - 1.20	22 Mar 22 - 22 Mar 22	Hand dug inspection pit.	Hand tools	JT/DH	MB	22 Mar 22	Depth	Dia. (mm)	Depth	Dia. (mm)	Depth	Remarks	Coordinates	E 528074.96
	1.20 - 4.50	22 Mar 22 - 22 Mar 22	Cable percusion drilling.	Dando 175	JT/DH	MB	22 Mar 22	4.50	200	4.00	200			National Grid	N 141895.79
Approved	4.50 - 25.00	24 Mar 22 -	Rotary core drilling.	R67 Comacchio 305	DS/PS			25.00	150	25.00	150			System	
CP															

Date / Time Casing / Water	Samples: Depth / Type & No. / Records	Field Tests: Depth / Type / Records	Samp / Test: Casing / Water	Coring Depth (Diameter)	TCR % SCR % RQD %	If (mm)	Water added: Flush details		Depth (Thickness)	Level	Legend	Strata Description: Main / Detail	Chisel.	Water Entry	Backfill
				9.70 - 11.20	100 60 39							Very weak to weak grey MUDSTONE. Fractures are 0-10 degrees very closely to closely spaced (20/180/600) planar rough smooth clean rarely infilled with light grey clay (up to 1mm). (WEALD CLAY FORMATION)	gravelly clay. Gravel is angular to subangular fine to coarse of mudstone. 10.53-10.76 Extremely closely spaced thin laminae of white siltstone.			
	10.75 D 25								(6.15)						
				11.20 - 12.70	100 100 79	NI 140 570	Water flush: 11.20 - 12.70	35% rec							
	12.25 D 26														
	12.89 - 13.20 C 27 13.20 D 28														
				12.70 - 14.20	100 100 77		Water flush: 12.70 - 14.20	30% rec					13.46-13.53 30 degree fracture planar rough clean. 13.77-13.84 Extremely closely spaced thin laminae of white siltstone.			
	14.50 D 29												14.38-14.66 Moderately weak dark brownish grey mudstone.		
				14.20 - 15.70	100 100 71				14.85	+44.12		Very weak becoming weak dark grey MUDSTONE. Fractures are 0-10 degrees closely to medium spaced (50/200/720) planar smooth rough clean closed. (WEALD CLAY FORMATION)				SP
	15.30 D 30														
25 Mar 22 0330 15.70 2.65															15.50
25 Mar 22 2000 15.70 2.65													15.53-15.70 60 degree fracture planar rough closed clean. 15.70-15.80 60 degree fracture planar smooth clean closed. 15.95-16.11 NI. Very stiff gravelly clay. Gravel is angular coarse of mudstone. 16.40 Becoming weak.			
	16.40 D 31			15.70 - 17.20	100 89 75	NI 150 720			(3.35)						
	17.30 D 32												17.30-18.20 Very thinly to thinly interbedded medium strong dark brownish grey mudstone and extremely weak dark grey mudstone. 17.53-17.68 75 degree fracture planar smooth clean closed. 18.08-18.13 Very weak to weak dark grey mudstone. 18.13-18.20 90 degree fracture planar smooth clean closed. 18.42-18.48 30 degree fracture planar smooth clean closed. 18.56-18.61 90 degree fracture planar rough clean closed. 18.61-18.66 30 degree planar smooth clean closed. 18.70-18.88 75 degree fracture planar striated clean closed. 18.92-19.09 NI. Dark grey clayey angular fine to coarse gravel of mudstone. 19.10-19.13 15 degree fracture planar smooth clean closed.			
	18.20 D 33			17.20 - 18.70	100 100 83				18.20	+40.77		Extremely weak thinly laminated to very thinly bedded MUDSTONE. Fractures are 0-10 degrees very closely to closely spaced (10/80/290) planar smooth clean closed. (WEALD CLAY FORMATION)			
				18.70 - 20.20	100 70 55	NI 70 270	Water flush: 14.20 - 23.40	10% rec	(1.70)						
									19.90	+39.07		Weak to moderately weak light grey to grey MUDSTONE. Fractures are 0-10 degrees closely spaced (50/190/560) planar smooth clean closed. (WEALD CLAY FORMATION)			

Hole continues on next sheet

General Remarks

Hard Boring / Chiselling

Depths	Duration (mins)	Tool

Groundwater Entries

No.	Depth	Remarks	Sealed

Notes

For explanation of symbols and abbreviations see Key to Exploratory Hole Records. All depths and reduced levels in metres. Stratum thickness given in brackets in depth column.

Project	Gatwick Northern Runway Project (NRP)
Project No.	D2001-22
Carried out for	VINCI Construction T/A Taylor Woodrow

Status

FINAL

Scale 1:50

Printed 22 Jul 2022 14:12:51

AGS

Borehole

BH705

Borehole Log

SOCOTEC

Checked	Depth	Dates	Method	Equipment	Rig Crew	Logger	Logged	Hole		Casing		Depth Related Remarks		Ground Level	58.97 mOD
CP	0.00 - 1.20 1.20 - 4.50 4.50 - 25.00	22 Mar 22 - 22 Mar 22 22 Mar 22 - 22 Mar 22 24 Mar 22 -	Hand dug inspection pit. Cable percussion drilling. Rotary core drilling.	Hand tools Dando 175 R67 Comacchio 305	JT/DH JT/DH DS/PS	MB MB	22 Mar 22 22 Mar 22	Depth 4.50 25.00	Dia. (mm) 200 150	Depth 4.00 25.00	Dia. (mm) 200 150	Depth	Remarks	Coordinates	E 528074.96
Approved														National Grid	N 141895.79
CP														System	

Date / Time Casing / Water	Samples: Depth / Type & No. / Records	Field Tests: Depth / Type / Records	Samp / Test: Casing / Water	Coring Depth (Diameter)	TCR % SCR % RQD %	If (mm)	Water added / Flush details	Depth (Thickness)	Level	Legend	Strata Description: Main	Detail	Chisel.	Water Entry	Backfill
	20.20 - 20.49 C 34			20.20 - 21.80	97 77 62						Weak to moderately weak light grey to grey MUDSTONE. Fractures are 0-10 degrees closely spaced (50/190/560) planar smooth clean closed. (WEALD CLAY FORMATION)	19.28-19.37 NI. Dark grey clayey angular to subangular fine to coarse gravel of mudstone. 19.37-19.45 NI. Firm dark grey gravelly clay. Gravel is angular to subangular fine to coarse of mudstone. 19.65-19.71 Firm light grey clay. 19.75-19.82 Firm light grey clay. 21.02-21.08 30 degree fracture planar smooth clean closed. 21.20-21.29 NI. Grey clayey angular to subangular fine to coarse gravel of mudstone. 21.37-21.41 90 degree fracture planar smooth clean closed. 21.37-21.43 85 degree fracture planar rough clean closed. 21.43-21.70 NI. Dark grey very clayey angular to subangular fine to coarse gravel of mudstone. 21.46-21.56 90 degree fracture planar smooth clean closed. 21.70-21.80 AZCL 22.37-22.60 90 degree fracture undulating rough with light grey silt infill (up to 0.5mm). 22.60-22.75 90 degree fracture planar rough clean. 23.35-23.40 AZCL 23.40-23.48 70 degree planar smooth infill with dark grey clay. 23.71-23.73 Firm dark greyish brown clay. 23.84-24.23 NI. Soft to stiff gravelly clay. Gravel is angular to subangular fine to coarse of mudstone.			
	21.10 D 35														
	21.90 D 36			21.80 - 23.40	97 97 89	NI 140 420		(5.10)							
	23.75 D 37														
	24.23 - 24.55 C 38			23.40 - 25.00	91 64 43		Water flush: 23.40 - 25.00	0% rec							
26 Mar 22 0500 15.00 3.90								25.00	+33.97		END OF EXPLORATORY HOLE	24.78-24.80 NI. Grey angular to subangular gravel of mudstone. 24.80-24.84 20 degree fracture planar smooth clean closed. 24.80-24.85 30 degree fracture planar smooth with of light grey silt infill (up to 0.5mm). 24.85-25.00 AZCL			25.00

General Remarks

Hard Boring / Chiselling
Depths | Duration (mins) | Tool

Groundwater Entries
No. | Depth | Remarks | Sealed

Notes
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Project Gatwick Northern Runway Project (NRP)
Project No. D2001-22
Carried out for VINCI Construction T/A Taylor Woodrow

Status FINAL

Scale 1:50
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AGS

Borehole BH705

Borehole Log

SOCOTEC

Checked	Depth	Dates	Method	Equipment	Rig Crew	Logger	Logged
CP	0.00 - 1.20	09 Mar 22 - 10 Mar 22	Hand dug inspection pit	Hand tools	LW/JM	MB	10 Mar 22
	1.20 - 2.55	10 Mar 22 - 11 Mar 22	Cable percussion drilling	Dando 3000	BB/BR	MB	10 Mar 22
Approved CP	2.55 - 25.40	15 Mar 22 - 16 Mar 22	Rotary core drilling	R70 Comacchio 205	LW/JM	CD/LI	22 Mar 22

Hole Depth	Hole Dia. (mm)	Casing Depth	Casing Dia. (mm)
2.55	200	1.20	300
4.50	150	4.50	153
25.40	146	25.40	146

Depth Related Remarks

Depth	Remarks

Ground Level	57.09 mOD
Coordinates	E 527985.27
National Grid	N 141891.91
System	

Progress

Date	Time	Casing	Water
09 Mar 22	0815	0.00	Dry
10 Mar 22	0430	0.00	1.10
10 Mar 22	2000	0.00	0.80
11 Mar 22	0400	3.00	8.10
14 Mar 22	2000	0.00	7.20

Samples

Depth	Type & No.	Records
0.00 - 0.20	B 1	
0.20	D 2	
0.30	ES 3	
0.50 - 0.90	B 4	
1.00	ES 5	
1.10 - 1.20	B 7	
1.20 - 1.65	D 9	
1.20	D 6	
1.20	EW 8	
1.50 - 2.00	B 11	
2.00 - 2.45	UT 12	88 blows 100% rec
2.00	ES 11	
2.50	D 13	
3.20	D 14	
3.60	D 15	
4.40	D 16	
4.62 - 4.90	C 17	
5.10	D 18	
6.25	D 19	
7.00	D 20	
8.82 - 9.12	C 21	
9.30	D 22	

Field Tests

Depth	Type	Records	Samp / Test Casing	Samp / Test Water
1.20 - 1.65	SPT S	N=26 (3,3/5,6,6,9) ID TH52 Er 53%	1.20	0.80
			2.00	Dry
3.60 - 4.05	SPT S	N=49 (7,10/9,7,12,21) ID AR1601 Er 64%	2.50	Dry
5.10 - 5.24	SPT S	100 (25 for 40mm/62,38 for 20mm) ID AR1601 Er 64%	2.50	Dry

Coring

Coring Depth (Diameter)	TCR % / SCR % / RQD %	If (mm)	Water added / Flush details	
2.55 - 3.60	100 / NA / NA		Mist flush: 2.55 - 3.60	100% rec
3.60 - 5.10	100 / 100 / 87	10 / 130 / 580	Mist flush: 3.60 - 5.10	100% rec
5.10 - 6.60	100 / 100 / 64		Mist flush: 5.10 - 6.60	100% rec
6.60 - 8.10	100 / 100 / 88	500 / 500 / 500	Mist flush: 6.60 - 8.10	100% rec
8.10 - 9.60	97 / 97 / 40		Mist flush: 8.10 - 9.60	100% rec

Strata

Depth (Thickness)	Level	Strata Description – Main	Detail
(0.90) 0.90	+56.19	(MADE GROUND) Grass over soft to firm brown slightly gravelly slightly sandy CLAY. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse of flint, macadam and sandstone.	
(0.30) 1.20	+55.89	Firm yellowish brown slightly gravelly slightly sandy CLAY. Sand is fine to coarse. Gravel is subrounded fine to coarse of flint. (Possible MADE GROUND)	
(1.25) 2.45	+54.64	Stiff to very stiff light yellow mottled grey slightly gravelly slightly sandy CLAY. Sand is fine to coarse. Gravel is subangular to subrounded medium to coarse of flint. (Possible MADE GROUND)	
(0.10) 2.55	+54.54	Very weak light yellow MUDSTONE. (WEALD CLAY FORMATION)	
(1.05) 3.60	+53.49	Stiff to very stiff fissured light grey mottled orangish brown CLAY. Fissures are 0 degrees very closely to closely spaced planar smooth or rough with brownish grey clay infill. (WEALD CLAY FORMATION)	2.81-3.02 85 degree fracture planar rough with light yellowish brown silt infill.
(3.00) 6.60	+50.49	Extremely weak grey to light grey MUDSTONE. Fractures are 0 degrees very closely to closely spaced (10/130/580) planar smooth or rough with grey to light grey clay infill. (WEALD CLAY FORMATION)	4.12-4.21 70 degree fracture planar rough with light grey clay infill. 4.24-4.34 80 degree fracture planar smooth and rough with light grey and stained brownish grey infill. 4.45-4.53 80 degree fracture undulating rough with light grey clay staining and brownish grey infill. 5.70-6.10 Mottled reddish brown. 5.76-5.87 80 degree fracture planar smooth stained brownish grey. 5.92-6.00 60 degree fracture planar rough and smooth clean. 5.97-6.05 60 degree fracture planar smooth clean
(0.50) 7.10	+49.99	Extremely to very weak reddish brown MUDSTONE. (WEALD CLAY FORMATION)	6.03-6.14 90 degree fracture planar smooth clean. 6.03-6.17 70 degree fracture undulating smooth with reddish brown clay infill. 6.87-7.01 Medium strong light reddish brown calcareous mudstone.
		Extremely to very weak light grey to grey MUDSTONE. Fractures are 0-10 degrees very closely to closely spaced locally extremely closely spaced (10/140/380) planar rough smooth clean or infilled with light grey clay (up to 3mm). (WEALD CLAY FORMATION)	7.04-7.06 Stiff light grey clay. 7.66-7.81 70 degree fracture planar rough open clean. 7.75-7.81 30 degree fracture planar rough open clean. 7.83-8.10 Moderately weak. 8.70 65 degree fracture planar rough with light grey clay infill (up to 3mm). 9.55-9.60 AZCL 9.60-9.73 90 degree fracture planar rough open clean. 9.85-9.92 15 degree fracture undulating rough with light grey clay infill (up to 0.5mm).

Hole continues on next sheet

Backfill

Depth	Backfill
	Flush cover
0.40	
0.80	
	SP
2.50	

General Remarks

Hard Boring / Chiselling Depths	Duration (mins)	Tool

Groundwater Entries No.	Depth	Remarks	Sealed

Notes

For explanation of symbols and abbreviations see Key to Exploratory Hole Records. All depths and reduced levels in metres. Stratum thickness given in brackets in depth column.

Project	Gatwick Northern Runway Project (NRP)
Project No.	D2001-22
Carried out for	VINCI Construction T/A Taylor Woodrow

Status FINAL

Scale 1:50

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AGS

Borehole

BH706

Borehole Log

SOCOTEC

Checked	Depth	Dates	Method	Equipment	Rig Crew	Logger	Logged	Hole		Casing		Depth Related Remarks		Ground Level	57.09 mOD
CP	0.00 - 1.20	09 Mar 22 - 10 Mar 22	Hand dug inspection pit	Hand tools	LW/JM	MB	10 Mar 22	Depth	Dia. (mm)	Depth	Dia. (mm)	Depth	Remarks	Coordinates	E 527985.27
	1.20 - 2.55	10 Mar 22 - 11 Mar 22	Cable percussion drilling	Dando 3000	BB/BR	MB	10 Mar 22	2.55	200	1.20	300			National Grid	N 141891.91
Approved	2.55 - 25.40	15 Mar 22 - 16 Mar 22	Rotary core drilling	R70 Comacchio 205	LW/JM	CD/LI	22 Mar 22	4.50	150	4.50	153			System	
CP								25.40	146	25.40	146				

Date / Time Casing / Water	Samples: Depth	Type & No.	Records	Field Tests: Depth	Type	Records	Samp / Test: Casing / Water	Coring Depth (Diameter)	TCR % SCR % RQD %	If (mm)	Water added: Flush details		Depth (Thickness)	Level	Legend	Strata Description: Main	Detail	Chisel.	Water Entry	Backfill
	9.92 - 10.22	C 23						9.60 - 10.90	100 100 58		Water flush: 9.60 - 10.90	20% rec	(6.15)			Extremely to very weak light grey to grey MUDSTONE. Fractures are 0-10 degrees very closely to closely spaced locally extremely closely spaced (10/140/380) planar rough smooth clean or infilled with light grey clay (up to 3mm). (WEALD CLAY FORMATION)	10.26-10.43 80 degree fracture planar smooth clean closed. 10.26-10.52 80 degree fracture planar smooth clean closed. 10.74-10.85 40 degree fracture planar rough clean closed. 10.85-11.12 90 degree fracture smooth open with rare light grey clay infill (up to 0.5mm).			
	10.60	D 24																		
	11.12	D 25						10.90 - 12.40	100 95 38	10 140 380	Mist flush: 10.90 - 12.40	100% rec					12.05-12.15 90 degree fracture planar rough with light grey clay infill (up to 0.mm).			
								12.40 - 13.90	100 90 56		Mist flush: 12.40 - 13.90	100% rec	13.25	+43.84		Weak to moderately weak locally very weak grey to dark grey MUDSTONE. Fractures are 0-10 degrees very closely to closely spaced locally extremely closely spaced (10/170/510) planar rough or smooth clean or infilled with light grey clay (up to 1mm). (WEALD CLAY FORMATION)	13.15-13.25 Dark brownish grey medium strong slightly micaceous calcareous mudstone.			
	13.50	D 26																		
	14.04	D 27						13.90 - 15.40	100 90 46		Mist flush: 13.90 - 15.40	100% rec					14.52-14.93 NI stiff gravelly clay. Gravel is angular to subangular fine to coarse of mudstone.			
								15.40 - 16.90	100 100 45	NI 130 370	Mist flush: 15.40 - 16.90	100% rec					15.50-15.70 80 degree fracture planar slightly striated smooth clean closed. 15.90-16.15 Becoming brownish grey.			
	16.70	D 28																		
	17.05	D 29						16.90 - 18.40	100 100 37		Mist flush: 16.90 - 18.40	100% rec	(9.15)							
	18.60 - 19.00	C 30															18.21-18.25 35 degree fracture planar rough with occasional light grey clay infill (up to 0.5mm).			
								18.40 - 19.90	100 100 38		Mist flush: 18.40 - 19.90	100% rec					19.15-19.46 40 degree fracture planar rough open closed. 19.50-19.53 50 degree fracture planar rough open with light grey clay infill (up to 0.mm).			
15 Mar 22 0430 4.50 5.10																				
15 Mar 22 2000 4.50 5.10																Hole continues on next sheet				

General Remarks

Hard Boring / Chiselling

Depths	Duration (mins)	Tool

Groundwater Entries

No.	Depth	Remarks	Sealed

Notes

For explanation of symbols and abbreviations see Key to Exploratory Hole Records. All depths and reduced levels in metres. Stratum thickness given in brackets in depth column.

Project	Gatwick Northern Runway Project (NRP)
Project No.	D2001-22
Carried out for	VINCI Construction T/A Taylor Woodrow

Status

FINAL

Scale 1:50

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Borehole

BH706

Borehole Log

SOCOTEC

Checked	Depth	Dates	Method	Equipment	Rig Crew	Logger	Logged
CP	0.00 - 1.20	09 Mar 22 - 10 Mar 22	Hand dug inspection pit	Hand tools	LW/JM	MB	10 Mar 22
	1.20 - 2.55	10 Mar 22 - 11 Mar 22	Cable percussion drilling	Dando 3000	BB/BR	MB	10 Mar 22
Approved	2.55 - 25.40	15 Mar 22 - 16 Mar 22	Rotary core drilling	R70 Comacchio 205	LW/JM	CD/LI	22 Mar 22
CP							

Hole		Casing	
Depth	Dia. (mm)	Depth	Dia. (mm)
2.55	200	1.20	300
4.50	150	4.50	153
25.40	146	25.40	146

Depth Related Remarks	
Depth	Remarks

Ground Level	57.09 mOD
Coordinates	E 527985.27
National Grid	N 141891.91
System	

Date / Casing	Time / Water	Samples: Depth	Type & No.	Records	Field Tests: Depth	Type	Records	Samp / Test: Casing	Water
		20.60	D 31						
		21.90	D 32						
		22.54 - 22.81	C 33						
		22.90 - 23.22	C 34						
		23.60	D 35						
16 Mar 22	0430								
22.00	3.50								

Coring Depth (Diameter)	TCR % SCR % RQD %	If (mm)	Water added: Flush details		Depth (Thickness)	Level	Legend
19.90 - 21.40	100 87 72		Mist flush: 19.90 - 21.40	100% rec			
21.40 - 22.90	100 100 94		Mist flush: 21.40 - 22.90	100% rec	22.40	+34.69	
22.90 - 24.40	100 100 89	NI 140 590	Mist flush: 22.90 - 24.40	100% rec	(3.00)		
24.40 - 25.40	100 72 72		Mist flush: 24.40 - 25.40	100% rec	25.40	+31.69	

Strata Description: Main	Detail	Chisel.	Water Entry	Backfill
Weak to moderately weak locally very weak grey to dark grey MUDSTONE. Fractures are 0-10 degrees very closely to closely spaced locally extremely closely spaced (10/170/510) planar rough or smooth clean or infilled with light grey clay (up to 1mm). (WEALD CLAY FORMATION)	20.13-20.60 60 degree fracture planar smooth clean. 20.20-20.39 Possible NI firm to stiff dark grey very gravelly clay. gravel is angular to subangular fine to coarse of mudstone. 20.39-20.53 80 degree fracture undulating smooth clean. 20.53-20.57 30 degree fracture planar rough with light grey clay infill (up to 0.5mm). 20.74-20.79 30 degree fracture planar smooth closed clean. 20.84-21.08 80 degree fracture undulating smooth with light brown silt infill. 21.16-21.27 50 degree fracture planar rough with dark grey clay infill (up to 0.5mm). 22.00-22.25 Moderately weak brownish grey mudstone.			
Medium strong locally strong grey fractures MUDSTONE. Fractures are 0-10 degrees are medium spaced (10/270/1060) locally extremely to closely spaced planar smooth clean. (WEALD CLAY FORMATION)	23.77-23.87 Possible 70 degree fracture planar smooth closed. 23.87 Possible 80 degree fracture planar smooth closed. 23.89-23.99 Possible 70 degree fracture planar smooth closed. 24.03-24.12 80 degree fracture planar rough clean. 24.13-24.33 70 degree fracture planar smooth clean. 24.36-24.40 40 degree fracture planar smooth clean. 24.48-24.55 30 degree fracture planar smooth with light grey clay infill (up to 0.5mm). 24.67-24.95 NI dark grey clayey angular fine to coarse gravel of mudstone. 24.95-25.06 50 degree fracture planar striated clean.			25.40
END OF EXPLORATORY HOLE				

General Remarks

Hard Boring / Chiselling

Depths	Duration (mins)	Tool

Groundwater Entries

No.	Depth	Remarks	Sealed

Notes

For explanation of symbols and abbreviations see Key to Exploratory Hole Records. All depths and reduced levels in metres. Stratum thickness given in brackets in depth column.

Project	Gatwick Northern Runway Project (NRP)
Project No.	D2001-22
Carried out for	VINCI Construction T/A Taylor Woodrow

Status

FINAL

Scale 1:50

Printed 22 Jul 2022 14:12:52

AGS

Borehole

BH706

Borehole Log

SOCOTEC

Checked	Depth	Dates	Method	Equipment	Rig Crew	Logger	Logged
CP	0.00 - 4.20	25 Feb 22 - 28 Feb 22	Cable percussion drilling	Dando 175	BB/BR	BP	25 Feb 22
	4.20 - 25.00	28 Feb 22 - 03 Mar 22	Rotary core drilling.	R70 Comacchio 205	LW/JM/DS/PS	CD	11 Mar 22
Approved							
CP							

Hole		Casing	
Depth	Dia. (mm)	Depth	Dia. (mm)
2.00	250	2.00	250
4.20	200	4.00	200
25.00	150	4.50	150

Depth Related Remarks	
Depth	Remarks

Ground Level	59.37 mOD
Coordinates	E 528226.99
National Grid	N 141752.78
System	

Date	Time	Casing	Water	Depth	Type & No.	Records
25 Feb 22	0800			0.10 - 0.30	B 1	
0.00	Dry			0.20	D 2	
				0.30	ES 3	
				0.40 - 0.80	B 4	
				0.80	D 5	
				0.90	ES 6	
				1.00 - 1.20	B 7	
				1.50	D 8	
				1.70	W 18A	
25 Feb 22	0800					
28 Feb 22	1500			1.90 - 2.00	B 9	
2.00	2.00			2.00 - 2.45	UT 10	63 blows 100% rec
2.00	Dry					
				2.50	D 11	
				2.60	ES 12	
				2.80 - 3.00	B 13	
				3.00	D 14	
				3.60	ES 15	
				3.80 - 4.00	B 16	
				3.90	D 17	
				3.90	D 18	
				4.90	D 18B	
28 Feb 22	1630					
4.50	0.10			6.40	D 19	
01 Mar 22	0800					
6.50	1.90					
				7.35 - 7.60	C 20	
				7.70	D 21	
				8.90	D 22	
				9.01 - 9.30	C 23	

Field Tests			Samp / Test	
Depth	Type	Records	Casing	Water
0.30	PID	0.0 ppmv (Test 1)		
0.90	PID	0.0 ppmv (Test 2)		
1.20 - 1.65	SPT S	N=22 (2,3,4,4,6,8) ID TH59 Er 65%	1.20	Dry
2.00	HV	p 121kPa, r 46kPa	2.00	Damp
2.45	HV	p 116kPa, r 44kPa		
2.60	PID	0.0 ppmv (Test 3)		
3.00 - 3.45	SPT S	N=50 (4,6/9,10,15,16) ID TH52 Er 53%	3.00	Damp
3.60	PID	0.0 ppmv (Test 4)		
3.90 - 4.20	SPT S	50 (7,12/21,29 for 75mm) refusal ID TH52 Er 53%	3.00	1.70
6.50 - 6.81	SPT C	100 (13,12 for 35mm/28,37,35 for 50mm) ID AR1601 Er 64%	6.50	0.10
8.00 - 8.17	SPT C	100 (25 for 75mm/73,27 for 15mm) ID AR1601 Er 64%	8.00	0.90

Coring Depth (Diameter)	TCR % SCR % RQD %	If (mm)
4.20 - 5.00	100	NA
	31	NA
	31	NA
5.00 - 6.50	100	20
	89	150
	78	320
6.50 - 8.00	100	10
	100	210
	98	1060
8.00 - 9.50	100	
	100	
	97	

Water added

Flush details

Depth (Thickness)	Level	Legend	Strata Description Main	Detail	Chisel.	Water Entry	Backfill
(0.30)			(TOPSOIL) Soft dark brown slightly gravelly CLAY with frequent rootlets. Gravel is angular to subrounded fine to medium of flint, chalk and concrete.				Flush cover
0.30	+59.07		(MADE GROUND) Firm brown gravelly CLAY. Gravel is angular to subangular fine to coarse of flint, chalk and brick.				0.50
(0.70)							
1.00	+58.37		(MADE GROUND) Firm light brown gravelly CLAY. Gravel is angular to subangular fine to coarse of flint and concrete.	1.50-1.90 Gravel is angular to subangular fine to coarse of flint. Concrete and red brick.		1	1.00
(0.90)							
1.90	+57.47		Stiff dark grey mottled greyish brown CLAY. (WEALD CLAY FORMATION)				
(0.90)							
2.80	+56.57		Very stiff dark grey silty CLAY with occasional fine gravel sized calcareous nodules and frequent fine to coarse sized lithorelicts of extremely weak mudstone. (WEALD CLAY FORMATION)				
(0.60)							
3.40	+55.97		Very stiff grey mottled brown and reddish brown CLAY with frequent fine to coarse lithorelicts of extremely weak mudstone. (WEALD CLAY FORMATION)			1	
(0.50)							
3.90	+55.47		Very stiff light grey mottled yellowish brown CLAY. (WEALD CLAY FORMATION)				
(0.20)	+55.27		Extremely weak light grey mottled light brown MUDSTONE. (WEALD CLAY FORMATION)				
4.10	+55.17		Very stiff yellowish brown mottled light grey CLAY. (WEALD CLAY FORMATION)				
(0.10)							
4.20			Weak to moderately weak grey to light grey mottled orangish brown fractured MUDSTONE. Fracture set 1: 0 degrees closely spaced (40/180/320) planar smooth with reddish brown staining. Fracture set 2: Randomly orientated closely spaced (20/100/250) undulating smooth with reddish brown and light reddish brown staining. (WEALD CLAY FORMATION)	4.75-4.80 Medium strong light grey stained dark reddish brown to black MUDSTONE.			SP
(0.55)							
4.75	+54.62						
(1.50)				5.60-5.90 Becomes light yellowish grey. 5.90-6.00 Becomes greyish brown. 6.10 Strong grey nodule (60x45x40mm) of calcareous siltstone. 6.50-6.80 DD (due to SPT). Recovered as very stiff clay. 6.68-7.33 Becomes reddish brown. 7.00-7.06 90 degrees planar closed clean fracture. 7.00-7.20 Becoming medium strong to strong mudstone. 7.20 0 degrees planar closed clean fracture. 7.77-8.00 Stiff grey gravelly clay with occasional fine to coarse gravel sized lithorelicts of extremely weak mudstone. 8.40-8.80 Becoming medium strong. 8.55-8.64 45 degree fracture planar rough open infilled with light brown clay (<3mm). 8.80-9.00 Extremely closely spaced thin laminae of light grey siltstone. 9.30-9.40 30 degrees planar rough open infilled with dark grey clay (<3mm) fracture. 9.40-9.66 Medium strong mudstone.				6.00
6.25	+53.12		Extremely weak to very weak light grey MUDSTONE. Fractures are 0-5 degrees widely, locally medium spaced (30/800/1330) planar smooth closed clean. (WEALD CLAY FORMATION)				
(4.75)							
			Hole continues on next sheet				

General Remarks

Hard Boring / Chiselling

Depths	Duration (mins)	Tool

Groundwater Entries

No.	Depth	Remarks	Sealed
1	3.40	Rose to 1.70 m after 20 minutes. Medium inflow	

Notes

For explanation of symbols and abbreviations see Key to Exploratory Hole Records. All depths and reduced levels in metres. Stratum thickness given in brackets in depth column.

Project	Gatwick Northern Runway Project (NRP)
Project No.	D2001-22
Carried out for	VINCI Construction T/A Taylor Woodrow

Status

FINAL

Scale 1:50

Printed 22 Jul 2022 14:12:53

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Borehole

BH708

Borehole Log

SOCOTEC

Checked	Depth	Dates	Method	Equipment	Rig Crew	Logger	Logged	Hole		Casing		Depth Related Remarks		Ground Level	59.37 mOD
CP	0.00 - 4.20	25 Feb 22 - 28 Feb 22	Cable percussion drilling	Dando 175	BB/BR	BP	25 Feb 22	Depth	Dia. (mm)	Depth	Dia. (mm)	Depth	Remarks	Coordinates	E 528226.99
	4.20 - 25.00	28 Feb 22 - 03 Mar 22	Rotary core drilling.	R70 Comacchio 205	LW/JM/DS/PS	CD	11 Mar 22	2.00	250	2.00	250			National Grid	N 141752.78
Approved								4.20	200	4.00	200				System
CP								25.00	150	4.50	150				

Date / Time Casing / Water	Samples: Depth	Type & No.	Records	Field Tests: Depth	Type	Records	Samp / Test: Casing	Water	Coring Depth (Diameter)	TCR % SCR % RQD %	If (mm)	Water added / Flush details	Depth (Thickness)	Level	Legend	Strata Description: Main	Detail	Chisel.	Water Entry	Backfill
									9.50 - 11.00	100 100 75						Extremely weak to very weak light grey MUDSTONE. Fractures are 0-5 degrees widely, locally medium spaced (30/800/1330) planar smooth closed clean. (WEALD CLAY FORMATION)	9.57-9.75 Extremely closely to very closely spaced 0 degrees planar smooth closed and open clean fractures. 9.69-9.80 70 degrees planar smooth closed clean fractures. 9.84-9.95 80 degrees planar smooth closed clean fractures.			
	10.40 - 10.70	C 24																		
	10.80	D 25											11.00	+48.37						
									11.00 - 12.50	100 100 33	10 100 240		(1.70)			Weak to moderate weak light grey to grey extremely closely to very closely spaced thinly laminated fractured MUDSTONE. Laminae of light grey siltstone. Fractures 0 degrees very close to closely spaced (locally extremely closely spaced) (10/120/260) planar smooth or rough closed or open clean. (WEALD CLAY FORMATION)	10.15-10.23 25 degrees undulating smooth open infilled with dark grey clay (<3mm) fracture. 10.17-20.28 Possible DD. Core recovered as clayey angular to sub angular fine to coarse gravel of mudstone. 10.78 0 degrees planar smooth open clean fracture. 11.00-11.06 80 degrees planar rough open clean fracture. 11.00-11.24 Medium strong.			
	12.00	D 26																		
													12.70	+46.67						
	13.50	D 27							12.50 - 14.00	100 90 77						Weak to moderately weak grey to dark grey fractured MUDSTONE. Fracture set 1: 0-10 degrees very closely to closely (locally extremely closely) spaced (10/120/330) planar smooth open or closed clean. Fracture set 2: 80-90 degrees planar smooth closed clean. (WEALD CLAY FORMATION)	11.35 1 number lens of light grey silt (70x70x10mm). 11.65-11.79 85 degrees planar smooth closed clean fracture. 12.18-12.28 60 degrees planar smooth closed clean fracture. 12.46-12.50 45 degrees planar rough closed clean fracture (possibly striated/polished). 12.50-12.70 DD recovered as very stiff clay. 12.71 2 possibly claystone nodules (60x60x15mm) 12.71-12.80 90 degrees planar rough open clean fracture 12.75 0 degrees planar smooth open clean fracture. 12.80 0 degrees planar smooth open clean fracture. 12.80-13.10 80 degrees planar smooth open clean fracture. 12.84-12.95 40 degrees planar smooth open infilled with dark grey clay (<3mm) fracture. 12.85-13.25 Strong greyish brown (possibly) limestone. 13.12-13.15 15 degrees planar smooth open clean fracture. 13.19-13.22 15 degrees planar smooth open clean fracture. 13.38-13.48 90 degrees planar smooth open clean fracture. 13.88-13.91 15 degrees planar smooth closed clean fracture. 14.29-14.41 90 degrees planar smooth open clean fracture. 16.01-16.05 30 degrees planar rough open clean fracture. 16.06-16.08 10 degrees planar smooth open infilled with dark grey clay (<3mm) fracture. 16.13-16.31 70 degrees planar undulating rough open infilled with light grey silt (<3mm) fracture. 16.67-16.74 90 degrees planar smooth open clean fracture. 16.72-16.74 20 degrees planar rough open clean fracture. 16.90-16.98 70 degrees planar rough open clean fracture. 18.08-18.15 NI, extremely closely spaced randomly orientated planar smooth open and closed fractures. 18.60-18.90 Becomes medium strong. 18.90-19.00 60 degrees planar rough open clean fracture.			
01 Mar 22 1733 14.00 0.95																				
02 Mar 22 0730 4.50 2.20																				
	14.69 - 15.00	C 29							14.00 - 15.50	100 100 58		Water flush: 4.20 - 25.00	100% rec							
	15.40	D 30																		
									15.50 - 17.00	100 100 90	NI 160 990									
	16.80	D 31																		
	17.21 - 17.46	C 32							17.00 - 18.50	100 93 69										
	18.40	D 33																		
													(12.30)							
	19.50	D 34							18.50 - 20.00	100 100 95										
	19.65 - 20.00	C 35																		

Hole continues on next sheet

General Remarks

Hard Boring / Chiselling

Depths	Duration (mins)	Tool

Groundwater Entries

No.	Depth	Remarks	Sealed

Notes

For explanation of symbols and abbreviations see Key to Exploratory Hole Records. All depths and reduced levels in metres. Stratum thickness given in brackets in depth column.

Project	Gatwick Northern Runway Project (NRP)
Project No.	D2001-22
Carried out for	VINCI Construction T/A Taylor Woodrow

Status

FINAL

Scale 1:50

Printed 22 Jul 2022 14:12:53

AGS

Borehole

BH708

Borehole Log

SOCOTEC

Checked	Depth	Dates	Method	Equipment	Rig Crew	Logger	Logged
CP	0.00 - 4.20	25 Feb 22 - 28 Feb 22	Cable percussion drilling	Dando 175	BB/BR	BP	25 Feb 22
Approved	4.20 - 25.00	28 Feb 22 - 03 Mar 22	Rotary core drilling.	R70 Comacchio 205	LW/JM/DS/PS	CD	11 Mar 22
CP							

Hole Depth	Hole Dia. (mm)	Casing Depth	Casing Dia. (mm)
2.00	250	2.00	250
4.20	200	4.00	200
25.00	150	4.50	150

Depth Related Remarks	
Depth	Remarks

Ground Level	59.37 mOD
Coordinates	E 528226.99
National Grid	N 141752.78
System	

Date / Casing	Time / Water	Samples Depth	Type & No.	Records	Field Tests Depth	Type	Records	Samp / Test Casing	Water	Coring Depth (Diameter)	TCR % SCR % RQD %	If (mm)	Water added / Flush details
		20.72 - 21.03	C 36							20.00 - 21.50	97 97 91		
		21.35	D 37										
		21.90	D 38										
		22.40	D 39							21.50 - 23.00	100 87 80		
02 Mar 22 4.50	1730 2.80	22.70 - 23.00	C 40										
03 Mar 22 4.50	0745 2.80												
		23.64 - 24.04	C 41							23.00 - 24.50	100 100 87		
		24.20	D 42										
03 Mar 22 4.50	1730 7.20	24.87	D 43							24.50 - 25.00	80 80 80		

Depth (Thickness)	Level	Legend	Strata Description Main	Detail	Chisel.	Water Entry	Backfill
			Weak to moderately weak grey to dark grey fractured MUDSTONE. Fracture set 1: 0-10 degrees very closely to closely (locally extremely closely) spaced (10/120/330) planar smooth open or closed clean. Fracture set 2: 80-90 degrees planar smooth closed clean. (WEALD CLAY FORMATION)	19.15-19.45 Becomes medium strong. 19.35-19.40 20 degrees planar smooth open clean fracture. 20.17-20.20 15 degrees planar rough open infilled with dark grey clay (<3mm) fracture. 20.69-20.72 30 degrees planar smooth open fracture (clean). 20.70-21.24 Becomes medium strong. 21.45-21.50 AZCL.			
				22.35-22.50 Possible DD / fracture zone. Core recovered as stiff to very stiff gravelly clay. Gravel is angular to sub angular fine to coarse of mudstone. 22.50-22.70 NI 22.70-22.75 60 degrees planar smooth open clean fracture. 23.06-23.15 2 no 30 degrees planar smooth and rough infilled with dark grey clay (<3mm) fractures. 23.21-23.32 50 degrees planar smooth infill (4mm) with firm dark gray clay. 23.46-23.63 60 degrees planar closed fracture. 24.01-24.04 15 degrees planar smooth stained light brown fracture. 24.29-24.40 60 degrees planar rough infilled with black clay (<3mm). 24.35-24.50 60 degrees planar rough infilled with black clay (<3mm) fracture. 24.90-25.00 AZCL			
25.00	+34.37		END OF EXPLORATORY HOLE				25.00

General Remarks

Hard Boring / Chiselling

Depths	Duration (mins)	Tool

Groundwater Entries

No.	Depth	Remarks	Sealed

Notes

For explanation of symbols and abbreviations see Key to Exploratory Hole Records. All depths and reduced levels in metres. Stratum thickness given in brackets in depth column.

Project	Gatwick Northern Runway Project (NRP)
Project No.	D2001-22
Carried out for	VINCI Construction T/A Taylor Woodrow

Status

FINAL

Scale 1:50

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AGS

Borehole

BH708

Borehole Log

SOCOTEC

Checked	Depth	Dates	Method	Equipment	Rig Crew	Logger	Logged	Hole		Casing		Depth Related Remarks		Ground Level	55.66 mOD
CP	0.00 - 0.55	28 Mar 22 - 29 Mar 22	Hand dug inspection pit.	Hand tools	JT/DH	BP	28 Mar 22	Depth	Dia. (mm)	Depth	Dia. (mm)	Depth	Remarks	Coordinates	E 527555.28
Approved														National Grid	N 142539.95
CP														System	

Date / Time Casing	Water	Samples Depth	Type & No.	Records	Field Tests Depth	Type	Records	Samp / Test Casing	Water	Coring Depth (Diameter)	TCR % SCR % RQD %	Water added / Flush details	Depth (Thickness)	Level	Legend	Strata Description Main	Detail	Chisel.	Water Entry	Backfill
28 Mar 22 2000		0.10	D 1		0.30	PID	0.0 ppmv (Test 1)						(0.55)			(MADE GROUND) Dark brown gravelly slightly clayey fine to coarse SAND with low cobble content. Gravel is angular to subangular fine to coarse of red brick, concrete and brown flint. Cobbles are angular (up to 150x150x150mm) of concrete and whole bricks.	0.55 8 inch cast iron service.			
0.00	Dry	0.30 - 0.50	B 3																	
29 Mar 22 0400		0.30	ES 2										0.55	+55.11		END OF EXPLORATORY HOLE			0.55	
0.00	Dry																			

General Remarks

Termination Reason: Terminated at 0.55m due to service obstruction.

Hard Boring / Chiselling

Depths	Duration (mins)	Tool

Groundwater Entries

No.	Depth	Remarks	Sealed

Notes

For explanation of symbols and abbreviations see Key to Exploratory Hole Records. All depths and reduced levels in metres. Stratum thickness given in brackets in depth column.

Project	Gatwick Northern Runway Project (NRP)
Project No.	D2001-22
Carried out for	VINCI Construction T/A Taylor Woodrow

Status

FINAL

Scale 1:50

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AGS

Borehole

BH2001

Sheet 1 of 1

Borehole Log

SOCOTEC

Checked	Depth	Dates	Method	Equipment	Rig Crew	Logger	Logged	Hole		Casing		Depth Related Remarks			
CP	0.00 - 1.20	29 Mar 22 - 29 Mar 22	Hand dug inspection pit.	Hand tools	JT/DH	BP	29 Mar 22	Depth	Dia. (mm)	Depth	Dia. (mm)	Depth	Remarks	Ground Level	56.82 mOD
	1.20 - 4.70	29 Mar 22 - 29 Mar 22	Cable percussion drilling.	Dando 175	JT/DH	BP	29 Mar 22	4.70	200	4.70	200			Coordinates	E 527458.35
Approved	4.70 - 20.10	30 Mar 22 - 01 Apr 22	Rotary core drilling.	R70 Comacchio 205	LW/DS	NH	01 Apr 22	20.10	150	5.00	150			National Grid	N 142505.81
CP														System	

Date / Casing	Time / Water	Samples: Depth	Type & No.	Records	Field Tests: Depth	Type	Records	Samp / Test: Casing	Water	Coring Depth (Diameter)	TCR % SCR % RQD %	If (mm)	Water added / Flush details	Depth (Thickness)	Level	Legend	Strata Description: Main	Detail	Chisel.	Water Entry	Backfill
																					Flush cover
29 Mar 22	0800	0.10	D 1											(0.20)			(TOPSOIL)				
	Dry	0.10 - 0.20	B 2											0.20	+56.62		Firm dark brown slightly gravelly slightly sandy CLAY with rare pockets (50x50x50mm) of firm light brown clay. Sand is fine to coarse. Gravel is subrounded fine of brown flint and rare chalk.				
		0.30 - 0.60	B 4											(0.75)			(MADE GROUND) Firm light brown mottled yellowish brown CLAY with frequent rootlets, decaying wood (2mm) and occasional pockets (20x10x10mm) of dark grey fibrous peat.				0.50
		0.30	ES 3											0.95	+55.88		(MADE GROUND) Soft light brown mottled grey sandy silty CLAY with frequent plant remains and rootlets. Sand is fine to coarse.				
		0.70	D 5											(0.65)							
		0.80	ES 6											1.60	+55.22		(MADE GROUND) Firm dark grey mottled brown silty CLAY with a strong organic odour and occasional pockets (50x6mm) of black amorphous peat.				1.50
		0.95 - 1.20	B 7											(0.40)							
		1.00	D 8											2.00	+54.82		(MADE GROUND) Firm orangish brown mottled light grey slightly gravelly CLAY with frequent pockets (up to 50x50mm) of firm dark grey organic clay. Gravel is angular to subrounded fine to coarse of siltstone.				
		1.10	ES 9		1.20 - 1.65	SPT S	N=6 (1,1/1,1,2,2) ID BHDS06 Er 61%		Dry					(0.65)							
		1.20	D 10											2.65	+54.18		(MADE GROUND) Brown and grey sandy slightly clayey GRAVEL. Sand is fine to coarse. Gravel is angular to subrounded fine to coarse of flint and clinker.				
		1.20 - 1.65	B 11											(0.05)	+54.12						
		1.50	ES 12											2.70	+53.82		(MADE GROUND) Soft brown mottled grey slightly sandy gravelly CLAY. Sand is fine to coarse. Gravel is angular to subrounded fine to coarse of flint and clinker.				
		2.00	D 13											(0.30)			Stiff brown mottled grey slightly gravelly CLAY. Gravel is fine to medium of brown flint. (Possible MADE GROUND)	3.60 Becoming very stiff. Gravel is angular fine of claystone.			
		2.00 - 2.20	B 14											3.00							
		2.20 - 2.65	UT 15	45 blows 100% rec				2.00						(1.70)							
		2.65 - 2.75	D 16											4.70	+52.12		Very stiff locally stiff grey slightly gravely silty CLAY with medium spaced thick laminae of extremely weak grey mudstone. Gravel is angular, medium to coarse of extremely weak grey mudstone. (WEALD CLAY FORMATION)	4.20 Light grey silt.			
		2.70	D 18															4.60 Becoming grey.		1	
		2.70 - 3.00	B 17																	1	
		3.00	D 19															5.40 Horizontal fissure planar smooth closed 1mm clay infill. 5.44 Horizontal fissure planar smooth closed 1mm clay infill.				
		3.00 - 3.20	B 20		3.20 - 3.65	SPT S	N=41 (1,2/8,11,11,11) ID BHDS06 Er 61%	2.20	Dry									6.08-6.48 Extremely weak grey mudstone.			
		3.20 - 3.65	D 21																		
		3.20 - 3.65	B 22																		
		4.20 - 4.65	D 23		4.20 - 4.54	SPT S	50 (3,7/14,23,13 for 35mm) ID BHDS06 Er 61%	2.20	Dry												
		4.20 - 4.65	B 24																		
29 Mar 22	1800	4.50	ES 25																		
2.20	4.20	4.65 - 5.00	D 26																		
30 Mar 22	2000									4.70 - 5.10	100 NA NA										
4.70	4.20	5.00	D 27																		
		5.82 - 6.08	C 28							5.10 - 6.60	100 30 30	NA NA NA	Water flush: 4.70 - 6.60	100% rec							
		6.40	D 29		6.60 - 6.77	SPT C	100 (25 for 60mm/47,53 for 30mm) ID AR1601 Er 64%	5.00	Dry												
		6.90	D 30																		
		7.12 - 7.45	C 31							6.60 - 8.10	100 67 63	20 380 1040	Water flush: 6.60 - 8.10	80% rec							
		7.80	D 32																		
		8.65	D 33																		
										8.10 - 9.60	100 100 95										
31 Mar 22	0400																				
5.00	1.30																				
31 Mar 22	2000												Water flush: 8.10 - 11.10	70% rec							
5.00	2.28																				
														9.78	+47.04		Very weak grey indistinctly laminated fractured MUDSTONE with rare pockets (1x60x5mm) of light grey silt. Fractures are 5 degrees closely spaced (60/150/170) medium spaced planar smooth close to very tight with <1mm clay infill. (WEALD CLAY FORMATION)				
																	Hole continues on next sheet				

Depth Related Remarks	
Depth	Remarks
4.30	Rose to 4.30 m after 20 minutes.

General Remarks

Hard Boring / Chiselling

Depths	Duration (mins)	Tool

Groundwater Entries

No.	Depth	Remarks	Sealed
1	4.50	Rose to 4.30 m after 20 minutes.	

Notes

For explanation of symbols and abbreviations see Key to Exploratory Hole Records. All depths and reduced levels in metres. Stratum thickness given in brackets in depth column.

Project	Gatwick Northern Runway Project (NRP)
Project No.	D2001-22
Carried out for	VINCI Construction T/A Taylor Woodrow

Status

FINAL

Scale 1:50

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AGS

Borehole

BH6001

Borehole Log

SOCOTEC

Checked	Depth	Dates	Method	Equipment	Rig Crew	Logger	Logged	Hole		Casing		Depth Related Remarks		Ground Level	56.82 mOD
CP	0.00 - 1.20	29 Mar 22 - 29 Mar 22	Hand dug inspection pit.	Hand tools	JT/DH	BP	29 Mar 22	Depth	Dia. (mm)	Depth	Dia. (mm)	Depth	Remarks	Coordinates	E 527458.35
	1.20 - 4.70	29 Mar 22 - 29 Mar 22	Cable percusion drilling.	Dando 175	JT/DH	BP	29 Mar 22	4.70	200	4.70	200				
	4.70 - 20.10	30 Mar 22 - 01 Apr 22	Rotary core drilling.	R70 Comacchio 205	LW/DS	NH	01 Apr 22	20.10	150	5.00	150			National Grid	N 142505.81
Approved														System	
CP															

Date / Time Casing / Water	Samples Depth	Type & No.	Records	Field Tests Depth	Type	Records	Samp / Test Casing / Water	Coring Depth (Diameter)	TCR % SCR % RQD %	If (mm)	Water added / Flush details		Depth (Thickness)	Level	Legend	Strata Description Main	Detail	Chisel.	Water Entry	Backfill
																Very weak grey indistinctly laminated fractured MUDSTONE with rare pockets (1x60x5mm) of light grey silt. Fractures are 5 degrees closely spaced (60/150/170) medium spaced planar smooth close to very tight with <1mm clay infill. (WEALD CLAY FORMATION)	9.78-10.12 90 degree fracture planar smooth partly open clean. 10.44-10.50 45 degree fracture.			
	10.30	D 34						9.60 - 11.10	100 100 90	120 223 580			(1.56)				10.76-10.79 30 degree fracture. 10.76-11.10 90 degree fracture planar rough partly open with <1mm silty clay infill. 10.86-11.10 Stiff grey clay.				
	11.50	D 35											11.34	+45.48						
	11.76 - 12.06	D 36						11.10 - 12.60	100 100 100		Water flush: 11.10 - 12.60	30% rec				Very weak grey laminated silty fractured MUDSTONE with occasional locally frequent lenses (1x5x50mm) of light grey silt. Fractures are 5-10 degrees widely to medium spaced (200/460/1040) planar smooth closed with trace clay. (WEALD CLAY FORMATION)				
																	12.15-12.25 50 degrees fracture planar smooth tight with trace silty clay. 12.48-12.58 90 degree fracture planar smooth tight <1mm clay infill.			
										30 490 1040										
	13.20	D 37											(3.43)							
	13.45 - 13.70	C 38						12.60 - 14.10	100 100 100											
	14.60	D 39																		
								14.10 - 15.60	100 95 92				14.77	+42.06						
	15.27 - 15.50	C 40														Weak grey to dark grey indistinctly laminated fractured MUDSTONE with rare lenses (1x3x30mm) light grey silt. Fractures are 10-20 degrees widely locally closely spaced (50/400/1020) planar smooth very tight with trace clay infill. (WEALD CLAY FORMATION)	14.94-15.01 45 degree fracture. 15.01-15.21 90 degree fracture curved smooth partly open heavy brown staining. 15.25-15.27 Thick laminae of stiff dark grey clay.			
	15.54	D 41								NI 361 910										
								15.60 - 17.10	100 100 97		Water flush: 12.60 - 20.10	0% rec	(2.52)				16.05-16.15 40 degrees fracture.			
	16.45	D 42																		
																	16.92-17.14 90 degree fracture planar rough partly open with <1mm clay infill.			
	17.30	D 43											17.29	+39.53						
								17.10 - 18.60	100 100 91							Very weak locally weak dark grey fractured MUDSTONE with rare pockets (1x2x10mm) of light grey silt. Fracture set 1; 30-45 degrees medium to widely spaced (290/350/580) planar smooth with rare slight polishing tight clean. Fracture set 2; 10-20 degree widely spaced locally closely to medium spaced (60/300/850) planar smooth tight with <1mm clay infill. (WEALD CLAY FORMATION)	17.73-17.92 90 degree fracture undulating smooth partly open clean.			
	18.13 - 18.42	C 44								NI 230 870										
													(2.81)				18.60-18.84 90 degree fracture planar smooth tight clean with rare polishing.			
	18.93 - 19.18	C 45																		
								18.60 - 20.10	100 97 93								19.46-19.92 90 degree planar smooth very tight clean with slight polishing.			
	19.70	D 46																		
01 Apr 22 5.00	0400 2.70															Hole continues on next sheet				

General Remarks

Hard Boring / Chiselling

Depths	Duration (mins)	Tool

Groundwater Entries

No.	Depth	Remarks	Sealed

Notes

For explanation of symbols and abbreviations see Key to Exploratory Hole Records. All depths and reduced levels in metres. Stratum thickness given in brackets in depth column.

Project	Gatwick Northern Runway Project (NRP)
Project No.	D2001-22
Carried out for	VINCI Construction T/A Taylor Woodrow

Status

FINAL

Scale 1:50

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AGS

Borehole

BH6001

Borehole Log

SOCOTEC

Checked	Depth	Dates	Method	Equipment	Rig Crew	Logger	Logged	Hole Depth	Hole Dia. (mm)	Casing Depth	Casing Dia. (mm)	Depth Related Remarks: Depth	Remarks		
CP	0.00 - 1.20	29 Mar 22 - 29 Mar 22	Hand dug inspection pit.	Hand tools	JT/DH	BP	29 Mar 22	4.70	200	4.70	200			Ground Level	56.82 mOD
	1.20 - 4.70	29 Mar 22 - 29 Mar 22	Cable percusion drilling.	Dando 175	JT/DH	BP	29 Mar 22	20.10	150	5.00	150			Coordinates	E 527458.35
Approved	4.70 - 20.10	30 Mar 22 - 01 Apr 22	Rotary core drilling.	R70 Comacchio 205	LW/DS	NH	01 Apr 22							National Grid	N 142505.81
CP														System	

Date / Time: Casing	Water	Samples: Depth	Type & No.	Records	Field Tests: Depth	Type	Records	Samp / Test: Casing	Water	Coring Depth (Diameter)	TCR % SCR % RQD %	If (mm)	Water added: Flush details	Depth (Thickness)	Level	Legend	Strata Description: Main	Detail	Chisel.	Water Entry	Backfill
														20.10	+36.72		Very weak locally weak dark grey fractured MUDSTONE with rare pockets (1x2x10mm) of light grey silt. Fracture set 1; 30-45 degrees medium to widely spaced (290/350/580) planar smooth with rare slight polishing tight clean. Fracture set 2; 10-20 degree widely spaced locally closely to medium spaced (60/300/850) planar smooth tight with <1mm clay infill. (WEALD CLAY FORMATION)				20.10
																	END OF EXPLORATORY HOLE				

20 21 22 23 24 25 26 27 28 29 30

General Remarks

Hard Boring / Chiselling
Depths | Duration (mins) | Tool

Groundwater Entries
No. | Depth | Remarks | Sealed

Notes
For explanation of symbols and abbreviations see Key to Exploratory Hole Records. All depths and reduced levels in metres. Stratum thickness given in brackets in depth column.

Project Gatwick Northern Runway Project (NRP)
Project No. D2001-22
Carried out for VINCI Construction T/A Taylor Woodrow

Status FINAL

Scale 1:50
Printed 22 Jul 2022 14:12:54

AGS

Borehole BH6001

Trial Pit Log

SOCOTEC

Checked	Depth	Dates	Method	Equipment	Rig Crew	Logger	Logged	Dimensions and Orientation	Depth Related Remarks		Ground Level	60.00 mOD
CP	0.00 - 0.50	27 Apr 22 - 27 Apr 22	Hand dug inspection pit	Hand tools		VJ	27 Apr 22	Width 0.30 m, Length 0.30 m (C, B, D, A)	Depth	Remarks	Coordinates	E 528874.00
Approved											National Grid	N 141599.00
CP											System	

Date	Time	Water	Samples Depth	Type & No.	Records	Field Tests Depth	Type	Records	Depth (Thickness)	Level	Legend	Strata Description Main	Detail	Water Entry	Backfill
27 Apr 22	0800	Dry	0.15 0.20	ES 1 D 2		0.15	PID	0.0 ppmv (Test 1)	(0.40)			(TOPSOIL) Dark brown slightly gravelly clayey SAND with frequent pockets (up to 45x30x15mm) of soft mottled pink and grey slightly sandy clay, occasional roots (up to 25mm diameter) and frequent rootlets. Sand is fine to medium. Gravel is angular to subrounded fine to coarse of flint.			
27 Apr 22	1800	Dry	0.40 - 0.50	B 4					0.40 (0.10) 0.50	+59.60 +59.50		(MADE GROUND) Soft mottled grey and pinkish brown slightly sandy slightly gravelly CLAY with rare rootlets. Sand is fine to medium. Gravel is angular to subrounded fine to coarse of flint. END OF EXPLORATORY HOLE			0.50
			0.50	D 3											

General Remarks

Termination Reason: Terminated at 0.50m due to concrete obstruction.

Stability

Shoring

Weather

Groundwater Entries

No.	Depth	Remarks	Sealed

Notes

For explanation of symbols and abbreviations see Key to Exploratory Hole Records. All depths and reduced levels in metres. Stratum thickness given in brackets in depth column.

Project	Gatwick Northern Runway Project (NRP)
Project No.	D2001-22
Carried out for	VINCI Construction T/A Taylor Woodrow

Status FINAL

Scale 1:25

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AGS

Trial Pit **HD101**

Trial Pit Log

SOCOTEC

Checked	Depth	Dates	Method	Equipment	Rig Crew	Logger	Logged	Dimensions and Orientation	Depth Related Remarks		Ground Level	60.00 mOD
CP	0.00 - 0.50	27 Apr 22 - 27 Apr 22	Hand dug inspection pit	Hand tools	Labourers	VJ	17 Apr 22	Width 0.30 m, Length 0.30 m	Depth	Remarks	Coordinates	E 528870.00
Approved											National Grid	N 141600.00
CP											System	

Date	Time / Water	Samples Depth	Type & No.	Records	Field Tests Depth	Type	Records	Depth (Thickness)	Level	Legend	Strata Description Main	Detail	Water Entry	Backfill
27 Apr 22	0800 Dry							(0.40)			(TOPSOIL) Dark brown slightly gravelly clayey fine to medium SAND with pockets (40x30x10mm) of soft mottled pink and grey slightly sandy clay ,frequent rootlets and occasional roots (20mm diameter). Gravel is angular to subrounded fine to coarse of flint.			
27 Apr 22	1800 Dry							0.40 (0.10) 0.50	+59.60 +59.50		(MADE GROUND) Soft mottled grey and pinkish brown slightly sandy slightly gravelly CLAY with rare rootlets. Sand is fine to medium. Gravel is angular to subrounded fine to coarse of flint. END OF EXPLORATORY HOLE			0.50

General Remarks

Termination Reason: Terminated at 0.50m due to concrete obstruction.

Stability

Shoring

Weather

Groundwater Entries

No.	Depth	Remarks	Sealed

Notes

For explanation of symbols and abbreviations see Key to Exploratory Hole Records. All depths and reduced levels in metres. Stratum thickness given in brackets in depth column.

Project	Gatwick Northern Runway Project (NRP)
Project No.	D2001-22
Carried out for	VINCI Construction T/A Taylor Woodrow

Status FINAL

Scale 1:25

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AGS

Trial Pit **HD101A**

Trial Pit Log

SOCOTEC

Checked	Depth	Dates	Method	Equipment	Rig Crew	Logger	Logged	Dimensions and Orientation	Depth Related Remarks		Ground Level	60.50 mOD
CP	0.00 - 0.30	27 Apr 22 - 27 Apr 22	Hand dug inspection pit	Hand tools	Labourers	VJ	27 Apr 22	Width 0.30 m Length 0.30 m C B D A	Depth	Remarks	Coordinates	E 528872.00
Approved											National Grid	N 141603.00
CP											System	

Date	Time / Water	Samples Depth	Type & No.	Records	Field Tests Depth	Type	Records	Depth (Thickness)	Level	Legend	Strata Description Main	Detail	Water Entry	Backfill
27 Apr 22	0800							(0.30)			Dark brown slightly gravelly clayey SAND with frequent pockets (40x20x10mm) of soft mottled pink and grey slightly sandy clay and frequent rootlets. Sand is fine to medium. Gravel is angular to subrounded fine to coarse of flint.			
27 Apr 22	Dry 1800							0.30	+60.20		END OF EXPLORATORY HOLE			0.30
	Dry													

General Remarks

Termination Reason: Terminated at 0.30m due to two large roots and a boulder.

Stability

Shoring

Weather

Groundwater Entries

No.	Depth	Remarks	Sealed

Notes

For explanation of symbols and abbreviations see Key to Exploratory Hole Records. All depths and reduced levels in metres. Stratum thickness given in brackets in depth column.

Project Gatwick Northern Runway Project (NRP)

Project No. D2001-22

Carried out for VINCI Construction T/A Taylor Woodrow

Status FINAL

Scale 1:25

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AGS

Trial Pit **HD101B**

Trial Pit Log

SOCOTEC

Checked	Depth	Dates	Method	Equipment	Rig Crew	Logger	Logged	Dimensions and Orientation	Depth Related Remarks		Ground Level	56.80 mOD
CP	0.00 - 0.50	23 Feb 22 - 23 Feb 22	Hand dug inspection pit.	Hand tools		KD	23 Feb 22	Width 0.30 m, Length 0.30 m	Depth 0.50	Remarks: Terminated at 0.50m on client instruction due to groundwater.	Coordinates	E 527869.00
Approved CP											National Grid	N 142078.00
											System	

Date	Time / Water	Samples: Depth	Type & No.	Records	Field Tests: Depth	Type	Records	Depth (Thickness)	Level	Legend	Strata Description: Main	Detail	Water Entry	Backfill
		0.05	D 1								(TOPSOIL) Soft dark brown slightly gravelly CLAY with frequent rootlets. Gravel is subrounded fine to medium of flint.			
23 Feb 22	0800 Dry	0.10 - 0.20	B 2					(0.25)						
		0.25	W 1		0.25	HV	p >188kPa, r N/A	0.25	+56.55		(MADE GROUND) Soft light brown brown slightly gravelly CLAY. Gravel is fine to medium of flint and red brick.		1	
23 Feb 22	1700 0.20	0.30	ES 3		0.30	PID	0.0 ppmv (Test 1)							
		0.40 - 0.50	B 4		0.30	HV	p >188kPa, r N/A	(0.25)						
					0.50	HV	p >188kPa, r N/A	0.50	+56.30		END OF EXPLORATORY HOLE		1	0.50

General Remarks

Stability

Shoring

Weather

Groundwater Entries

No.	Depth	Remarks	Sealed
1	0.50	Rose to 0.20 m after 20 minutes.	

Notes

For explanation of symbols and abbreviations see Key to Exploratory Hole Records. All depths and reduced levels in metres. Stratum thickness given in brackets in depth column.

Project Gatwick Northern Runway Project (NRP)

Project No. D2001-22

Carried out for VINCI Construction T/A Taylor Woodrow

Status FINAL

Scale 1:25

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AGS

Trial Pit **HD803**

Trial Pit Log

SOCOTEC

Checked	Depth	Dates	Method	Equipment	Rig Crew	Logger	Logged	Dimensions and Orientation	Depth Related Remarks		Ground Level	58.50 mOD
CP	0.00 - 0.48	22 Feb 22 -	Hand dug inspection pit.	Hand tools		KD	22 Feb 22	Width 0.30 m Length 0.30 m C / B / D / A	Depth	Remarks	Coordinates	E 527931.00
Approved											National Grid	N 142039.00
CP											System	

Date / Time / Water	Samples: Depth	Type & No.	Records	Field Tests: Depth	Type	Records	Depth (Thickness)	Level	Legend	Strata Description: Main	Detail	Water Entry	Backfill
22 Feb 22 0800 Dry	0.10	D 1								(MADE GROUND) Stiff dark brown slightly sandy slightly gravelly CLAY. Sand is fine. Gravel is subrounded to rounded fine to medium of red brick and mudstone.			
	0.10 - 0.20	B 2											
	0.30	ES 3		0.30 0.30	PID HV	0.0 ppmv (Test 1) p 108kPa, r 29kPa	(0.90)						
	0.95	D 4					0.90	+57.60		Stiff dark brown slightly sandy slightly gravelly CLAY. Sand is fine. Gravel is subangular to subrounded fine to coarse of white chalk and grey flint. (Possible MADE GROUND)			
22 Feb 22 1700 Dry	1.00 - 1.10	B 6		1.00	PID	0.0 ppmv (Test 2)	(0.30)						
	1.00	ES 5					1.20	+57.30		END OF EXPLORATORY HOLE			1.20

General Remarks

Stability
Shoring
Weather

Groundwater Entries

No.	Depth	Remarks	Sealed

Notes

For explanation of symbols and abbreviations see Key to Exploratory Hole Records. All depths and reduced levels in metres. Stratum thickness given in brackets in depth column.

Project	Gatwick Northern Runway Project (NRP)
Project No.	D2001-22
Carried out for	VINCI Construction T/A Taylor Woodrow

Status: FINAL

Scale 1:25
Printed 22 Jul 2022 14:14:58

AGS

Trial Pit: **HD804**

Trial Pit Log

SOCOTEC

Checked	Depth	Dates	Method	Equipment	Rig Crew	Logger	Logged	Dimensions and Orientation	Depth Related Remarks		Ground Level	59.50 mOD
CP	0.00 - 1.20	23 Feb 22 - 23 Feb 22	Hand dug inspection pit.	Hand tools		KD	23 Feb 22	Width 0.30 m Length 0.30 m C B D A	Depth	Remarks	Coordinates	E 527963.00
Approved											National Grid	N 142017.00
CP											System	

Date	Time / Water	Samples: Depth	Type & No.	Records	Field Tests: Depth	Type	Records	Depth (Thickness)	Level	Legend	Strata Description: Main	Detail	Water Entry	Backfill
23 Feb 22	0800 Dry	0.10	D 1								(MADE GROUND) Soft light brown slightly gravelly CLAY with frequent rootlets. Gravel is subangular to subrounded fine to medium of flint and red brick.			
		0.10 - 0.20	B 2											
		0.30	ES 3		0.30	PID	0.0 ppmv (Test 1)	(0.55)						
		0.50 - 0.60	B 4					0.55	+58.95		(MADE GROUND) Firm brown slightly gravelly CLAY. Gravel is subangular to subrounded fine to medium of flint and red brick fragments.			
23 Feb 22	1700 Dry	1.00	ES 5		1.00	PID	0.0 ppmv (Test 2)	(0.65)						
		1.20	D 6					1.20	+58.30		END OF EXPLORATORY HOLE			1.20

General Remarks

Stability
Shoring
Weather

Groundwater Entries

No.	Depth	Remarks	Sealed

Notes

For explanation of symbols and abbreviations see Key to Exploratory Hole Records. All depths and reduced levels in metres. Stratum thickness given in brackets in depth column.

Project	Gatwick Northern Runway Project (NRP)
Project No.	D2001-22
Carried out for	VINCI Construction T/A Taylor Woodrow

Status

FINAL

Scale 1:25
Printed 22 Jul 2022 14:14:58

AGS

Trial Pit

HD815

Trial Pit Log

SOCOTEC

Checked	Depth	Dates	Method	Equipment	Rig Crew	Logger	Logged	Dimensions and Orientation	Depth Related Remarks		Ground Level	57.18 mOD
CP	0.00 - 3.90	14 Mar 22 - 14 Mar 22	Machine excavated trial pit.	JCB 3CX	Labourers	KD	14 Mar 22	Width 3.80 m, Length 4.50 m, C/B/D/A, 270 (Deg)	Depth	Remarks	Coordinates	E 527857.23
Approved											National Grid	N 141970.77
CP											System	

Date	Time	Water	Depth	Type & No.	Records	Depth	Type	Records	Depth (Thickness)	Level	Legend	Strata Description Main	Strata Description Detail	Water Entry	Backfill
			0.05 - 0.10	LB 1											
14 Mar 22	0800	Dry	0.10	D 2					(0.25)			(MADE GROUND) Grass over firm light brown slightly sandy slightly gravelly CLAY with frequent rootlets. Sand is fine. Gravel is subangular to subrounded fine to medium of flint and chalk.			
			0.20	ES 3		0.20	PID	0.2 ppmv (Test 1)	0.25	+56.93					
			0.30 - 0.40	LB 4								(MADE GROUND) Firm light grey mottled orangish brown gravelly CLAY with low cobble content. Gravel is subangular to subrounded fine to coarse of flint, chalk and red brick fragments. Cobbles are subangular (300x200x150mm) of mudstone.			
			0.40	D 5											
			0.60	ES 6		0.60	PID	0.0 ppmv (Test 2)	(0.65)						
			0.70 - 0.80	LB 7											
									0.90	+56.28		(MADE GROUND) Firm grey mottled brownish orange slightly sandy gravelly CLAY with occasional wood fragments (150x150x90mm). Sand is fine. Gravel is subangular to subrounded fine to coarse of red brick, flint and mudstone.			
			1.00	D 8											
			1.20	ES 9		1.20	PID	0.0 ppmv (Test 3)							
									(1.10)						
			1.60 - 1.70	B 10											
			1.70	D 11									1.70-1.80 Medium cobble concrete. Cobbles are angular (360x230x100mm) of dark grey mudstone.	1	
			1.80	ES 12		1.80	PID	0.0 ppmv (Test 4)							
									2.00	+55.18		(MADE GROUND) Firm light bluish grey slightly sandy gravelly CLAY. Sand is fine. Gravel is subangular to subrounded fine to medium of chalk and red brick.			
			2.50 - 2.70	LB 13					(1.50)						
			3.50 - 3.80	LB 14					3.50	+53.68		(MADE GROUND) Firm dark greyish brown gravelly CLAY. Gravel is subangular to subrounded fine to coarse of yellow sandstone, chalk and red brick fragments.		
14 Mar 22	1700	Dry							(0.40)						
			3.90	ES 15		3.90	PID	0.0 ppmv (Test 5)	3.90	+53.28		END OF EXPLORATORY HOLE			3.90

General Remarks

Stability Stable
Shoring N/A
Weather Sunny

Groundwater Entries

No.	Depth	Remarks	Sealed
1	1.70		

Notes

For explanation of symbols and abbreviations see Key to Exploratory Hole Records. All depths and reduced levels in metres. Stratum thickness given in brackets in depth column.

Project Gatwick Northern Runway Project (NRP)
Project No. D2001-22
Carried out for VINCI Construction T/A Taylor Woodrow

Status FINAL

Scale 1:25
Printed 22 Jul 2022 14:17:03

AGS

Trial Pit **TP805**

Trial Pit Log

SOCOTEC

Checked	Depth	Dates	Method	Equipment	Rig Crew	Logger	Logged	Dimensions and Orientation	Depth Related Remarks		Ground Level	57.35 mOD
CP	0.00 - 3.80	16 Mar 22 - 16 Mar 22	Machine excavated trial pit.	JCB 3CX	Labourers	KD	16 Mar 22	Width 3.30 m, Length 4.50 m; C/B/D/A; 219 (Deg)	Depth	Remarks	Coordinates	E 527884.62
Approved											National Grid	N 141968.67
CP											System	

Date	Time	Water	Samples: Depth	Type & No.	Records	Field Tests: Depth	Type	Records	Depth (Thickness)	Level	Legend	Strata Description: Main	Detail	Water Entry	Backfill
									0.00						
16 Mar 22	0800	Dry	0.05 - 0.10	LB 1					(0.25)			(MADE GROUND) Brown slightly clayey slightly gravelly fine SAND with frequent rootlets. Gravel is subrounded to rounded fine to coarse of flint and chalk.			
			0.10	D 2					0.25	+57.10		(MADE GROUND) Firm light brown slightly sandy gravelly CLAY. Gravel is subangular to subrounded fine to coarse of red brick, chalk and flint. Rare fragments (up to 20x50x90mm) of steel reinforcement bars.			
			0.20	ES 3											
			0.30 - 0.40	LB 4											
						0.55	HV	p 138kPa, r 111kPa							
			0.60	D 5											
									(0.95)						
			0.80	ES 6											
									1.20	+56.15		(MADE GROUND) Light grey mottled orange clayey subangular to subrounded fine to coarse GRAVEL of white chalk with occasional fragments (up to 50x110x50mm of timber).			
			1.30 - 1.40	LB 7											
			1.40	D 8											
			1.50	W 1										1	
			1.50	ES 9					(0.50)						
									1.70	+55.65		(MADE GROUND) Stiff dark greyish brown slightly sandy slightly gravelly CLAY. Sand is fine to coarse. Gravel is angular to subrounded fine to coarse of brick and flint.			
			2.00 - 2.40	LB 10											
									(1.30)						
			2.50	D 11											
			2.60	ES 12											
									3.00	+54.35		(MADE GROUND) Firm dark bluish grey gravelly CLAY. Gravel is subangular to subrounded fine to medium of chalk and red brick and coal.			
			3.20 - 3.40	LB 13											
									(0.80)						
			3.50	D 14											
16 Mar 22	1700	Dry													
			3.80	ES 15					3.80	+53.55		END OF EXPLORATORY HOLE			3.80

General Remarks

Stability	Stable
Shoring	N/A
Weather	Sunny

Groundwater Entries

No.	Depth	Remarks	Sealed
1	1.50		

Notes

For explanation of symbols and abbreviations see Key to Exploratory Hole Records. All depths and reduced levels in metres. Stratum thickness given in brackets in depth column.

Project	Gatwick Northern Runway Project (NRP)
Project No.	D2001-22
Carried out for	VINCI Construction T/A Taylor Woodrow

Status FINAL

Scale 1:25
Printed 22 Jul 2022 14:17:04

AGS

Trial Pit **TP807**

Trial Pit Log

SOCOTEC

Checked	Depth	Dates	Method	Equipment	Rig Crew	Logger	Logged	Dimensions and Orientation	Depth Related Remarks		Ground Level	57.63 mOD
CP	0.00 - 4.45	23 Feb 22 - 23 Feb 22	Machine excavated trial pit.	3CX JCB		BP	23 Feb 22	Width 0.50 m, Length 2.20 m	Depth	Remarks	Coordinates	E 527873.11
Approved											National Grid	N 141939.61
CP											System	

Date	Time / Water	Samples: Depth	Type & No.	Records	Field Tests: Depth	Type	Records	Depth (Thickness)	Level	Legend	Strata Description: Main	Detail	Water Entry	Backfill
								0.00						
23 Feb 22	0800 Dry	0.10 - 0.20	B 1					(0.20)			(TOPSOIL) Dark brown slightly gravelly CLAY with frequent rootlets. Gravel is angular to rounded fine to coarse of brown flint.			
		0.25	ES 2		0.25	HV	p 64kPa, r 26kPa	0.20	+57.43					
		0.30	D 3					(0.25)			(MADE GROUND) Firm brown gravelly CLAY with medium cobble content. Gravel is angular to subangular fine to coarse of red brick. Cobbles are angular (up to 300x150x150mm) of red brick, concrete and flint.			
		0.50	ES 4					0.45	+57.18					
		0.60	D 5								(MADE GROUND) Firm brown slightly gravelly CLAY. Gravel is angular to subrounded fine to medium of flint, chalk, brick and concrete.	0.90 Metal rod spring (600x200x200mm).		
								(1.35)				1.10 Concrete boulder (400x300x300mm)		
		1.20	B 6											
		1.30	D 7		1.40	HV	p 104kPa, r 46kPa							
		1.60	ES 8											
		1.80 - 2.00	B 9					1.80	+55.83		(MADE GROUND) Stiff dark grey slightly gravelly CLAY. Gravel is angular to subangular fine to medium of flint and red brick.			
		2.10	D 10											
		2.30	ES 11		2.20	HV	p 136kPa, r 53kPa					2.20-2.90 Frequent organic material.		
								(1.10)						
								2.90	+54.73		Stiff dark grey mottled bluish grey CLAY with frequent fragments of organic material. (Possible MADE GROUND)		1 ▽	
		3.10 - 3.40	B 12											
		3.50	D 13		3.40	HV	p 155kPa, r 52kPa							
		3.60	ES 14											
								(1.55)				3.80-4.45 Becoming bluish grey with rare organic material.		
		4.00 - 4.20	B 15											
					4.10	HV	p 176kPa, r 65kPa							
23 Feb 22	1700 Dry	4.30	D 16											
		4.40	ES 17					4.45	+53.18		END OF EXPLORATORY HOLE			4.45

General Remarks

Stability	Unstable
Shoring	None
Weather	Dry

Groundwater Entries

No.	Depth	Remarks	Sealed
1	2.90	Slow seepage	

Notes

For explanation of symbols and abbreviations see Key to Exploratory Hole Records. All depths and reduced levels in metres. Stratum thickness given in brackets in depth column.

Project	Gatwick Northern Runway Project (NRP)
Project No.	D2001-22
Carried out for	VINCI Construction T/A Taylor Woodrow

Status: FINAL

Scale 1:25
Printed 22 Jul 2022 14:17:04

AGS

Trial Pit: **TP809**

Trial Pit Log

SOCOTEC

Checked	Depth	Dates	Method	Equipment	Rig Crew	Logger	Logged	Dimensions and Orientation	Depth Related Remarks		Ground Level	56.93 mOD
CP	0.00 - 3.80	15 Mar 22 - 15 Mar 22	Machine excavated trial pit.	JCB 3CX	Labourers	KD	15 Mar 22	Width 3.60 m, Length 4.50 m, 90 (Deg)	Depth	Remarks	Coordinates	E 527929.94
Approved											National Grid	N 141889.01
CP											System	

Date	Time	Water	Samples: Depth	Type & No.	Records	Field Tests: Depth	Type	Records	Depth (Thickness)	Level	Legend	Strata Description: Main	Detail	Water Entry	Backfill
									0.00						
15 Mar 22	0800	Dry	0.05	LB 1								(MADE GROUND) Grass over firm brown slightly sandy gravelly CLAY. Sand is fine. Gravel is subangular to subrounded fine to coarse of brick, chalk and flint.			
			0.10	D 2											
			0.20	ES 3		0.20	PID	0.0 ppmv	(0.40)						
						0.20	HV	p 113kPa, r 22kPa							
									0.40	+56.53		(MADE GROUND) Firm light brown slightly gravelly sandy CLAY. Sand is fine to coarse. Gravel is subangular to subrounded fine to medium of flint and concrete.			
			0.45 - 0.60	LB 4											
			0.70	D 5					(0.60)						
			0.80	ES 6		0.80	PID	0.0 ppmv							
									1.00	+55.93		(MADE GROUND) Firm light brown mottled grey and orange clayey GRAVEL. Gravel is subangular to subrounded fine to medium of macadam.			
			1.10 - 1.20	LB 7											
			1.20	W 1		1.20	PID	0.0 ppmv						1	
			1.20	ES 8					(0.60)						
			1.25	D 9											
			1.40 - 1.50	LB 10											
			1.55	D 11											
			1.60	ES 12		1.60	PID	0.0 ppmv	1.60	+55.33		(MADE GROUND) Brown sandy clayey subangular to subrounded fine to medium GRAVEL of macadam. Sand is fine to medium.			
									(0.50)						
									2.10	+54.83		Stiff brownish orange mottled bluish grey CLAY. (WEALD CLAY FORMATION)			
			2.20 - 2.40	LB 13											
			2.80	D 14											
			3.00	ES 15		3.00	PID	0.0 ppmv	(1.70)						
			3.20 - 3.40	LB 16											
15 Mar 22	1700	Dry	3.60 - 3.80	LB 17											
			3.80	ES 18		3.80	PID	0.0 ppmv	3.80	+53.13		END OF EXPLORATORY HOLE		2	3.80

General Remarks

Termination Reason: Terminated under client instruction.

Stability	Stable
Shoring	N/A
Weather	Sunny

Groundwater Entries

No.	Depth	Remarks	Sealed
1	1.20		
2	3.80		

Notes

For explanation of symbols and abbreviations see Key to Exploratory Hole Records. All depths and reduced levels in metres. Stratum thickness given in brackets in depth column.

Project	Gatwick Northern Runway Project (NRP)
Project No.	D2001-22
Carried out for	VINCI Construction T/A Taylor Woodrow

Status

FINAL

Scale 1:25

Printed 22 Jul 2022 14:17:05

AGS

Trial Pit

TP810

Borehole Log

SOCOTEC

Checked	Depth	Dates	Method	Equipment	Rig Crew	Logger	Logged
CP	0.00 - 1.20	27 Apr 22 - 27 Apr 22	Hand dug inspection pit	Hand tools		KD	27 Apr 22
	1.20 - 5.45	27 Apr 22 - 27 Apr 22	Dynamic windowless sampling			VJ	28 Apr 22
Approved							
CP							

Hole		Casing	
Depth	Dia. (mm)	Depth	Dia. (mm)
2.00	117		
3.00	101		
4.00	87		
4.50	77		
5.00	67		

Depth Related Remarks	
Depth	Remarks

Ground Level	58.90 mOD
Coordinates	E 528922.46
National Grid	N 141597.92
System	

Date / Casing	Time / Water
27 Apr 22 / 0.00	0800 / Dry
27 Apr 22 / 0.00	1800 / Dry
27 Apr 22 / 0.00	1800 / Dry

Samples: Depth	Type & No.	Records
0.10	D 1	
0.30	ES 3	
0.50	D 4	
0.60	ES 5	
0.70 - 0.80	B 6	
1.20 - 1.65	D 8	
1.20 - 2.00	B 10	
1.20	ES 7	
1.20 - 2.00	DYS	Diameter 117mm
1.50	D 9	
2.00 - 2.45	D 11	
2.00 - 3.00	B 13	
2.00 - 3.00	DYS	Diameter 101mm
2.50	D 12	
3.00 - 3.45	D 14	
3.00 - 4.00	B 16	
3.00 - 4.00	DYS	Diameter 87mm
3.50	D 15	
4.00 - 4.45	D 17	
4.00 - 5.00	B 19	
4.00 - 4.50	DYS	Diameter 77mm
4.50	D 18	
4.50 - 5.00	DYS	Diameter 67mm
5.00 - 5.45	D 20	

Field Tests: Depth	Type	Records
0.30	PID	0.0 ppmv (Test 1)
0.50	HV	p 135kPa, r 98kPa
0.60	PID	0.0 ppmv (Test 2)
1.20 - 1.65	SPT S	N=13 (2,1/3,3,3,4)
1.20	PID	ID DART386 Er 56%
		0.0 ppmv (Test 3)
2.00 - 2.45	SPT S	N=18 (2,3/4,4,4,6)
		ID DART386 Er 56%
3.00 - 3.45	SPT S	N=28 (17,14/8,7,6,7)
		ID DART386 Er 56%
4.00 - 4.38	SPT S	50 (9,11/14,21,15 for 75mm)
		ID DART386 Er 56%
5.00 - 5.45	SPT S	N=43 (6,5/6,8,11,18)
		ID DART386 Er 56%

Samp / Test: Casing	Water
0.00	Dry
0.00	Dry
0.00	Dry
0.00	Dry
0.00	Dry

Coring Depth (Diameter) | TCR % SCR % RQD %

Water added / Flush details

Depth (Thickness)	Level
(0.45)	
0.45	+58.45
(0.75)	
1.20	+57.70
(0.98)	
2.18	+56.72
(0.50)	
2.68	+56.22
(0.78)	
3.46	+55.44
(1.99)	
5.45	+53.45

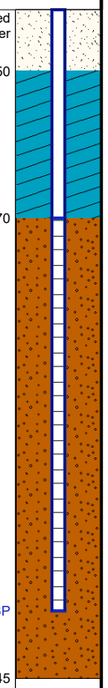
Legend

Strata Description

Main	Detail	Chisel.
(Possible MADE GROUND) Light brown gravelly fine to medium SAND with frequent rootlets. Gravel is subangular to subrounded fine to coarse of flint and sandstone.		
Light brown mottled orange slightly sandy CLAY. Sand is fine to medium. (WEALD CLAY FORMATION)		
Firm to stiff mottled light grey and orangish brown sandy CLAY with occasional pockets (up to 50x30mm) of firm to stiff black clay and rare rootlets. Sand is fine to medium. (WEALD CLAY FORMATION)	1.85 Pocket of black and brown sand. Sand is fine to coarse.	
Stiff light grey mottled light brown CLAY. (WEALD CLAY FORMATION)		
Very stiff pinkish brown speckled black CLAY. (WEALD CLAY FORMATION)		
Very stiff light grey CLAY. (WEALD CLAY FORMATION)		
END OF EXPLORATORY HOLE		

Water Entry

Backfill



General Remarks

Hard Boring / Chiselling

Depths	Duration (mins)	Tool

Groundwater Entries

No.	Depth	Remarks	Sealed

Notes

For explanation of symbols and abbreviations see Key to Exploratory Hole Records. All depths and reduced levels in metres. Stratum thickness given in brackets in depth column.

Project	Gatwick Northern Runway Project (NRP)
Project No.	D2001-22
Carried out for	VINCI Construction T/A Taylor Woodrow

Status

FINAL

Scale 1:50

Printed 22 Jul 2022 14:19:03

AGS

Borehole

WS101

Borehole Log

SOCOTEC

Checked	Depth	Dates	Method	Equipment	Rig Crew	Logger	Logged
CP	0.00 - 1.20	16 Mar 22 - 16 Mar 22	Hand dug inspection pit	Hand tools	DR	LI	16 Mar 22
	1.20 - 5.00	16 Mar 22 - 16 Mar 22	Dynamic window less sampling	C130 Dart rig	DR	LI	16 Mar 22
Approved							
CP							

Hole Depth	Hole Dia. (mm)	Casing Depth	Casing Dia. (mm)
2.00	87		
3.00	77		
4.00	67		
5.00	57		

Depth Related Remarks Depth	Remarks

Ground Level	59.42 mOD
Coordinates	E 527800.72
National Grid	N 141936.30
System	

Date / Casing	Time / Water	Samples Depth	Type & No.	Records	Field Tests Depth	Type	Records	Samp / Test Casing	Water	Coring Depth (Diameter)	TCR % SCR % RQD %	Water added / Flush details	Depth (Thickness)	Level	Legend	Strata Description Main	Detail	Chisel.	Water Entry	Backfill
16 Mar 22	0800	0.00 - 0.30	B 3													(MADE GROUND) Firm brown gravelly CLAY with frequent rootlets. Gravel is angular to subangular fine to coarse of brick, flint and chalk.				
0.00	Dry	0.30	D 2																	
		0.30	ES 1																	
		1.00	ES 4		1.00	PID	0.0 ppmv (Test 2)													
		1.20 - 3.00	B 4																	
		1.20 - 2.00	DYS	100% rec, dia 87mm																
		2.00 - 3.00	DYS	90% rec, dia 77mm									(4.50)				2.70 1no. Fragment of wood.			
		3.00 - 4.00	ES 5	90% rec, dia 67mm																
		3.00 - 4.00	DYS																	
		4.00 - 5.00	B 6																	
		4.00 - 5.00	DYS	80% rec, dia 57mm																
													4.50	+54.92		(MADE GROUND) Light grey gravelly SILT. Gravel is angular to subangular fine to coarse of extremely weak chalk.				
													(0.35)							
16 Mar 22	1700												4.85	+54.57		Firm brown mottled grey slightly sandy CLAY with occasional rootlets. Sand is fine to medium. (Possible MADE GROUND)			
0.00	Dry												(0.15)	+54.42						5.00
													5.00			END OF EXPLORATORY HOLE				

General Remarks

Hard Boring / Chiselling

Depths	Duration (mins)	Tool

Groundwater Entries

No.	Depth	Remarks	Sealed

Notes

For explanation of symbols and abbreviations see Key to Exploratory Hole Records. All depths and reduced levels in metres. Stratum thickness given in brackets in depth column.

Project	Gatwick Northern Runway Project (NRP)
Project No.	D2001-22
Carried out for	VINCI Construction T/A Taylor Woodrow

Status

FINAL

Scale 1:50

Printed 22 Jul 2022 14:19:04

AGS

Borehole

WS806

Borehole Log

SOCOTEC

Checked	Depth	Dates	Method	Equipment	Rig Crew	Logger	Logged
CP	0.00 - 1.20	16 Mar 22 - 16 Mar 22	Hand dug inspection pit	Hand tools	DR	LI	16 Mar 22
	1.20 - 5.00	16 Mar 22 - 16 Mar 22	Dynamic windowless sampling	C130 Dart rig	DR	LI	16 Mar 22
Approved							
CP							

Hole Depth	Hole Dia. (mm)
2.00	87
3.00	77
4.00	67
5.00	57

Casing Depth	Casing Dia. (mm)

Depth Related Remarks Depth	Remarks

Ground Level	58.52 mOD
Coordinates	E 527833.35
National Grid	N 141890.09
System	

Date	Time	Casing	Water	Sample Depth	Type & No.	Records	Field Test Depth	Type	Records	Samp / Test Casing	Samp / Test Water	Coring Depth (Diameter)	TCR % SCR % RQD %	Water added / Flush details	Depth (Thickness)	Level	Legend	Strata Description Main	Strata Description Detail	Chisel.	Water Entry	Backfill
16 Mar 22	0800	0.00	Dry	0.00 - 0.30	B 2																	
				0.30	D 3		0.30	PID	0.0 ppmv (Test 1)						(1.20)			(MADE GROUND) Greyish brown gravelly slightly clayey SAND. Gravel is fine to coarse of brick, flint and chalk.				0.30
				0.30	ES 1																	
				1.00	ES 4		1.00	PID	0.0 ppmv (Test 2)													
				1.20 - 1.95	B 6										1.20	+57.32		(MADE GROUND) Firm brown gravelly CLAY. Gravel is angular to subangular fine to coarse of brick and flint.				
				1.20 - 2.00	DYS	100% rec, dia 87mm									(0.75)							
				1.95 - 3.60	B 7										1.95	+56.57		(MADE GROUND) Light grey gravelly silt. Gravel is angular to subangular fine to coarse of extremely weak chalk.				
				2.00 - 3.00	DYS	90% rec, dia 77mm																
				3.00 - 4.00	DYS	90% rec, dia 67mm									(1.65)							
				3.60 - 4.65	B 8										3.60	+54.92		(MADE GROUND) Soft greyish brown becoming firm slightly gravelly CLAY. Gravel is angular to subangular fine to coarse of brick, flint and chalk.				
				4.00 - 5.00	DYS	80% rec, dia 57mm	4.00 - 4.45	SPT S	N=8 (2,1/2,2,2,2) ID SN105 Er 81%	0.00	Dry				(1.05)							
				4.65 - 5.00	D 9										4.65	+53.87		Firm brown mottled grey CLAY. (WEALD CLAY FORMATION)				
16 Mar 22	1700	0.00	Dry												(0.35)							
															5.00	+53.52		END OF EXPLORATORY HOLE				5.00

General Remarks

Hard Boring / Chiselling

Depths	Duration (mins)	Tool

Groundwater Entries

No.	Depth	Remarks	Sealed

Notes

For explanation of symbols and abbreviations see Key to Exploratory Hole Records. All depths and reduced levels in metres. Stratum thickness given in brackets in depth column.

Project	Gatwick Northern Runway Project (NRP)
Project No.	D2001-22
Carried out for	VINCI Construction T/A Taylor Woodrow

Status

FINAL

Scale 1:50

Printed 22 Jul 2022 14:19:05

AGS

Borehole

WS808

Sheet 1 of 1

Borehole Log

SOCOTEC

Checked	Depth	Dates	Method	Equipment	Rig Crew	Logger	Logged	Hole		Casing		Depth Related Remarks		Ground Level	58.00 mOD
CP	0.00 - 0.86	17 Mar 22 - 17 Mar 22	Hand dug inspection pit	Hand tools	DR/TC	LI	17 Mar 22	Depth	Dia. (mm)	Depth	Dia. (mm)	Depth	Remarks	Coordinates	E 527878.41
Approved														National Grid	N 141858.16
CP														System	

Date / Casing	Time / Water	Samples: Depth	Type & No.	Records	Field Tests: Depth	Type	Records	Samp / Test: Casing	Water	Coring: Depth (Diameter)	TCR % SCR % RQD %	Water added: Flush details	Depth (Thickness)	Level	Legend	Strata Description: Main	Detail	Chisel.	Water Entry	Backfill
17 Mar 22 0.00	0800 Dry	0.00 - 0.30 0.30 0.30	B 2 D 3 ES 1		0.30	PID	0.0 ppmv (Test 1)						(0.86)			(MADE GROUND) Soft becoming firm brown slightly silty gravelly CLAY with frequent rootlets. Gravel is angular to subangular fine to coarse of brick, chalk and flint.				
17 Mar 22 0.00	1700 Dry												0.86	+57.14		END OF EXPLORATORY HOLE				0.86

0 1 2 3 4 5 6 7 8 9 10

General Remarks

Termination Reason: Terminated at 0.86m due to concrete obstruction.

Hard Boring / Chiselling

Depths | Duration (mins) | Tool

Groundwater Entries

No. | Depth | Remarks | Sealed

Notes

For explanation of symbols and abbreviations see Key to Exploratory Hole Records. All depths and reduced levels in metres. Stratum thickness given in brackets in depth column.

Project Gatwick Northern Runway Project (NRP)
Project No. D2001-22
Carried out for VINCI Construction T/A Taylor Woodrow

Status FINAL

Scale 1:50
Printed 22 Jul 2022 14:19:05

AGS

Borehole **WS811**

Borehole Log

SOCOTEC

Checked	Depth	Dates	Method	Equipment	Rig Crew	Logger	Logged	Hole		Casing		Depth Related Remarks		Ground Level	57.93 mOD
CP	0.00 - 0.86	17 Mar 22 - 17 Mar 22	Hand dug inspection pit	Hand tools	DR/TC	LI	17 Mar 22	Depth	Dia. (mm)	Depth	Dia. (mm)	Depth	Remarks	Coordinates	E 527878.48
Approved														National Grid	N 141859.24
CP														System	

Date / Casing	Time / Water	Samples: Depth	Type & No.	Records	Field Tests: Depth	Type	Records	Samp / Test: Casing	Water	Coring: Depth (Diameter)	TCR % SCR % RQD %	Water added: Flush details	Depth (Thickness)	Level	Legend	Strata Description: Main	Detail	Chisel.	Water Entry	Backfill
17 Mar 22 0.00	0800 Dry	0.00 - 0.30 0.30 0.30	B 2 D 3 ES 1		0.30	PID	0.0 ppmv (Test 1)						(0.86)			(MADE GROUND) Soft becoming firm brown gravelly CLAY with frequent rootlets. Gravel is angular to subangular fine to coarse of brick, chalk and flint.				
17 Mar 22 0.00	1700 Dry												0.86	+57.07		END OF EXPLORATORY HOLE				0.86

General Remarks

Termination Reason: Terminated at 0.86m due to concrete obstruction.

Hard Boring / Chiselling

Depths | Duration (mins) | Tool

Groundwater Entries

No. | Depth | Remarks | Sealed

Notes

For explanation of symbols and abbreviations see Key to Exploratory Hole Records. All depths and reduced levels in metres. Stratum thickness given in brackets in depth column.

Project	Gatwick Northern Runway Project (NRP)
Project No.	D2001-22
Carried out for	VINCI Construction T/A Taylor Woodrow

Status

FINAL

Scale 1:50

Printed 22 Jul 2022 14:19:05

AGS

Borehole

WS811A

Borehole Log

SOCOTEC

Checked	Depth	Dates	Method	Equipment	Rig Crew	Logger	Logged	Hole		Casing		Depth Related Remarks		Ground Level	57.99 mOD
CP	0.00 - 0.91	17 Mar 22 - 17 Mar 22	Hand dug inspection pit	Hand tools	DR/TC	LI	17 Mar 22	Depth	Dia. (mm)	Depth	Dia. (mm)	Depth	Remarks	Coordinates	E 527875.60
Approved														National Grid	N 141860.67
CP														System	

Date / Casing	Time / Water	Samples: Depth	Type & No.	Records	Field Tests: Depth	Type	Records	Samp / Test: Casing	Water	Coring: Depth (Diameter)	TCR % SCR % RQD %	Water added: Flush details	Depth (Thickness)	Level	Legend	Strata Description: Main	Detail	Chisel.	Water Entry	Backfill
17 Mar 22 0.00	0800 Dry	0.00 - 0.30	B 2		0.30	PID	0.0 ppmv (Test 1)						(0.91)			(MADE GROUND) Soft becoming firm brown slightly silty gravelly CLAY. Gravel is angular to subangular fine to coarse of brick, chalk and flint.				
		0.30 0.30	D 3 ES 1																	
17 Mar 22 0.00	1700 Dry												0.91	+57.08		END OF EXPLORATORY HOLE				0.91

General Remarks

Termination Reason: Terminated at 0.91m due to concrete obstruction.

Hard Boring / Chiselling

Depths | Duration (mins) | Tool

Groundwater Entries

No. | Depth | Remarks | Sealed

Notes

For explanation of symbols and abbreviations see Key to Exploratory Hole Records. All depths and reduced levels in metres. Stratum thickness given in brackets in depth column.

Project	Gatwick Northern Runway Project (NRP)
Project No.	D2001-22
Carried out for	VINCI Construction T/A Taylor Woodrow

Status

FINAL

Scale 1:50

Printed 22 Jul 2022 14:19:06

AGS

Borehole

WS811B

Borehole Log

SOCOTEC

Checked	Depth	Dates	Method	Equipment	Rig Crew	Logger	Logged
CP	0.00 - 1.20	31 Mar 22 - 31 Mar 22	Hand dug inspection pit.	Hand tools	DR	VJ	31 Mar 22
	1.20 - 5.00	31 Mar 22 - 31 Mar 22	Dynamic window less sampling.	C130 Dart Rig	DR	BP	31 Mar 22
Approved							
CP							

Hole Depth	Hole Dia. (mm)	Casing Depth	Casing Dia. (mm)
2.00	113	2.00	102
3.00	101	3.00	86
4.00	84	4.00	76
5.00	76	5.00	66

Depth Related Remarks	
Depth	Remarks

Ground Level	56.00 mOD
Coordinates	E 527535.86
National Grid	N 142544.17
System	

Date / Casing	Time / Water	Samples Depth	Type & No.	Records	Field Tests Depth	Type	Records	Samp / Test Casing	Water	Coring Depth (Diameter)	TCR % SCR % RQD %	Water added / Flush details
31 Mar 22	0800	0.10 - 0.40	B 3									
0.00	Damp	0.20	D 1									
		0.30	ES 2		0.30	PID	0.0 ppmv (Test 1)					
		0.90 - 1.20	B 6									
		1.00	ES 4		1.00	PID	0.0 ppmv (Test 2)					
		1.20	D 5									
		1.20 - 2.00	B 8									
		1.20 - 2.00	DYS	100% rec, dia 87mm								
		1.50	D 7									
		2.00 - 3.00	B 10									
		2.00 - 3.00	DYS	90% rec, dia 77mm								
		2.50	D 9									
		3.00 - 4.00	B 12									
		3.00 - 4.00	DYS	100% rec, dia 67mm								
		3.50	D 11									
		4.00 - 5.00	D 13									
		4.00 - 5.00	B 14									
		4.00 - 5.00	DYS	100% rec, dia 57mm								
31 Mar 22	1700											
5.00	Dry											

Depth (Thickness)	Level	Legend	Strata Description Main	Detail	Chisel.	Water Entry	Backfill
(0.40)			(MADE GROUND) Grass over dark brown slightly gravelly fine to coarse SAND. Gravel is angular to subangular fine to coarse of brick, concrete, flint and macadam.				Flush cover 0.20
0.40	+55.60		(MADE GROUND) Brown slightly gravelly silty fine to coarse SAND with medium cobble content. Gravel is angular to subangular fine to coarse of brick, concrete, flint and macadam. Cobbles are angular (up to 100x100x30mm) of macadam.				
(0.80)							
1.20	+54.80		Firm brown slightly sandy CLAY with rare crystals (up to 1m)m of selenite. Sand is fine to medium. (WEALD CLAY FORMATION)				1.50
(1.00)							
2.20	+53.80		Firm brown mottled light brown slightly sandy CLAY with frequent rootlets and rare crystals (up to 1mm) of selenite. Sand is fine to medium. (WEALD CLAY FORMATION)				
(2.10)				3.40 Occasional pockets (up to 10x10x10mm) of dark brown silty clay.		1	
4.30	+51.70		Soft light brown CLAY with rare crystals (up to 1mm) of selenite. (WEALD CLAY FORMATION)				
(0.70)							
5.00	+51.00		END OF EXPLORATORY HOLE				SP 5.00

General Remarks

Hard Boring / Chiselling

Depths	Duration (mins)	Tool

Groundwater Entries

No.	Depth	Remarks	Sealed
1	4.00	Damp.	

Notes

For explanation of symbols and abbreviations see Key to Exploratory Hole Records. All depths and reduced levels in metres. Stratum thickness given in brackets in depth column.

Project	Gatwick Northern Runway Project (NRP)
Project No.	D2001-22
Carried out for	VINCI Construction T/A Taylor Woodrow

Status

FINAL

Scale 1:50

Printed 22 Jul 2022 14:19:06

AGS

Borehole

WS4003

Borehole Log

SOCOTEC

Checked	Depth	Dates	Method	Equipment	Rig Crew	Logger	Logged	Hole		Casing		Depth Related Remarks		Ground Level	56.44 mOD
CP	0.00 - 0.70	31 Mar 22 - 31 Mar 22	Hand dug inspection pit.	Hand tools	DR	VJ	31 Mar 22	Depth	Dia. (mm)	Depth	Dia. (mm)	Depth	Remarks	Coordinates	E 527493.82
Approved														National Grid	N 142518.83
CP														System	

Date / Casing	Time / Water	Samples: Depth	Type & No.	Records	Field Tests: Depth	Type	Records	Samp / Test: Casing	Water	Coring: Depth (Diameter)	TCR % SCR % RQD %	Water added: Flush details	Depth (Thickness)	Level	Legend	Strata Description: Main	Detail	Chisel.	Water Entry	Backfill
31 Mar 22	0800	0.10 - 0.40	B 3		0.30	PID	0.0 ppmv (Test 1)						(0.10)	+56.34		(MADE GROUND) MACADAM.				0.30
0.00	Dry	0.20	D 1										0.10			(MADE GROUND) Dark brown slightly gravelly SAND with low cobble content. Sand is fine to coarse. Gravel is angular to subangular fine to coarse of brick, concrete, flint and macadam. Cobbles are of macadam (up to 260x170x40mm).				
		0.30	ES 2										(0.30)	+56.04						
31 Mar 22	1700												0.40			(MADE GROUND) Brown slightly gravelly silty SAND. Sand is fine to coarse. Gravel is subangular fine to coarse of brick, concrete, flint and macadam.				0.70
0.00	Dry												(0.30)			END OF EXPLORATORY HOLE				
													0.70	+55.74						

General Remarks

Termination Reason: Terminated at 0.70m due to concrete obstruction.

Hard Boring / Chiselling

Depths	Duration (mins)	Tool

Groundwater Entries

No.	Depth	Remarks	Sealed

Notes

For explanation of symbols and abbreviations see Key to Exploratory Hole Records. All depths and reduced levels in metres. Stratum thickness given in brackets in depth column.

Project	Gatwick Northern Runway Project (NRP)
Project No.	D2001-22
Carried out for	VINCI Construction T/A Taylor Woodrow

Status

FINAL

Scale 1:50

Printed 22 Jul 2022 14:19:06

AGS

Borehole

WS6002

Borehole Log

SOCOTEC

Checked	Depth	Dates	Method	Equipment	Rig Crew	Logger	Logged	Hole		Casing		Depth Related Remarks		Ground Level	56.46 mOD
CP	0.00 - 0.70	31 Mar 22 - 31 Mar 22	Hand dug inspection pit.	Hand tools	DR	VJ	31 Mar 22	Depth	Dia. (mm)	Depth	Dia. (mm)	Depth	Remarks	Coordinates	E 527495.17
Approved												0.00 - 0.70	No samples taken.	National Grid	N 142518.64
CP														System	

Date / Casing	Time / Water	Samples: Depth	Type & No.	Records	Field Tests: Depth	Type	Records	Samp / Test: Casing	Water	Coring: Depth (Diameter)	TCR % SCR % RQD %	Water added: Flush details	Depth (Thickness)	Level	Legend	Strata Description: Main	Detail	Chisel.	Water Entry	Backfill
31 Mar 22	0800												(0.10)	+56.36		(MADE GROUND) MACADAM.				0.30
0.00	Dry												0.10							
													(0.30)	+56.06		(MADE GROUND) Dark brown slightly gravelly fine to coarse SAND. Gravel is angular to subangular fine to coarse of brick, concrete, flint and macadam.			
31 Mar 22	1700												0.40							
0.00	Dry												(0.30)			(MADE GROUND) Brown slightly gravelly silty fine to coarse SAND. Gravel is angular to subangular fine to coarse of brick, concrete, flint and macadam.			0.70
													0.70	+55.76		END OF EXPLORATORY HOLE				

General Remarks

Termination Reason: Terminated at 0.70m due to concrete obstruction.

Hard Boring / Chiselling

Depths | Duration (mins) | Tool

Groundwater Entries

No. | Depth | Remarks | Sealed

Notes

For explanation of symbols and abbreviations see Key to Exploratory Hole Records. All depths and reduced levels in metres. Stratum thickness given in brackets in depth column.

Project	Gatwick Northern Runway Project (NRP)
Project No.	D2001-22
Carried out for	VINCI Construction T/A Taylor Woodrow

Status

FINAL

Scale 1:50

Printed 22 Jul 2022 14:19:06

AGS

Borehole

WS6002A

Monitoring Installations Summary

Instrument Reference	Instrument Type (See Notes)	Installation Date, dd/mm/yyyy	Pipe Diameter, mm	Instrument Base, mbgl	Response Zone Range, mbgl	Pipe Top Details	Headworks	Remarks
BH102 (1)	SP	04/05/2022	50	5.00	1.20 to 5.00	Open	Raised cover	
BH103 (1)	SP	15/03/2022	50	7.50	1.00 to 8.00	Open	Flush cover	
BH104 (1)	SP	19/03/2022	50	15.00	8.50 to 15.50	Open	Flush cover	
BH106 (1)	SP	08/03/2022	50	7.00	1.00 to 7.50	Open	Flush cover	
BH108 (1)	SP	18/03/2022	50	7.50	1.00 to 8.00	Open	Flush cover	
BH6001 (1)	SP	01/04/2022	50	8.00	1.50 to 8.50	Open	Flush cover	
BH702 (1)	SP	26/03/2022	50	7.50	1.00 to 8.00	Open	Flush cover	
BH703 (1)	SP	24/03/2022	50	4.50	1.00 to 5.00	Open	Flush Cover	
BH705 (1)	SP	29/04/2022	50	15.00	8.50 to 15.50	Open	Flush cover	
BH706 (1)	SP	17/03/2022	50	2.00	0.80 to 2.50	Open	Flush cover	
BH708 (1)	SP	03/03/2022	50	5.50	1.00 to 6.00	Open	Flush cover	
WS101 (1)	SP	27/04/2022	50	4.90	1.70 to 5.45	Open	Raised cover	
WS4003 (1)	SP	31/03/2022	50	4.90	1.50 to 4.90	Open	Flush cover	

Notes: Type: SP - Standpipe, SPIE - Standpipe Piezometer, HPIE - Hydraulic Piezometer, PPIE - Pneumatic Piezometer, EPIE - Vibrating Wire Piezometer, PWEL - Pumping Well

AGS

Groundwater Monitoring

SOCOTEC

Instrument Reference	Instrument Type	Instrument Base, mbgl	Date Time dd/mm/yyyy hh:mm:ss	Result	Comments
BH102	SP	5.00	16/05/2022 16:42:00	2.40	
BH102	SP	5.00	23/05/2022 11:50:00	2.34	Pre Development
BH102	SP	5.00	23/05/2022 12:15:00	3.03	Post Development
BH102	SP	5.00	01/06/2022 10:30:00	2.38	
BH102	SP	5.00	08/06/2022 12:00:00	2.38	
BH102	SP	5.00	15/06/2022 14:01:00	2.49	
BH102	SP	5.00	22/06/2022 13:24:00	2.55	
BH102	SP	5.00	28/06/2022 10:14:00	2.61	
BH103	SP	7.50	19/04/2022 15:35:00	5.62	Pre development
BH103	SP	7.50	19/04/2022 16:25:00	Dry	Post development
BH103	SP	7.50	16/05/2022 13:45:00	6.82	
BH103	SP	7.50	23/05/2022 10:20:00	6.74	
BH103	SP	7.50	01/06/2022 09:50:00	6.83	
BH103	SP	7.50	08/06/2022 11:35:00	6.80	
BH103	SP	7.50	15/06/2022 13:05:00	6.86	
BH103	SP	7.50	22/06/2022 12:10:00	6.89	
BH103	SP	7.50	28/06/2022 09:35:00	6.94	
BH104	SP	15.00	19/04/2022 14:30:00	6.00	Pre development
BH104	SP	15.00	19/04/2022 15:00:00	7.68	Post development
BH104	SP	15.00	16/05/2022 13:05:00	7.21	
BH104	SP	15.00	23/05/2022 10:00:00	7.00	
BH104	SP	15.00	01/06/2022 09:30:00	6.98	
BH104	SP	15.00	08/06/2022 11:20:00	7.00	
BH104	SP	15.00	15/06/2022 12:49:00	7.04	
BH104	SP	15.00	22/06/2022 13:40:00	7.08	
BH104	SP	15.00	28/06/2022 09:24:00	7.12	
BH106	SP	7.00	11/03/2022 09:55:00	4.27	Pre development
BH106	SP	7.00	19/04/2022 15:20:00	4.57	Post development
BH106	SP	7.00	16/05/2022 14:05:00	4.70	
BH106	SP	7.00	23/05/2022 10:30:00	4.58	
BH106	SP	7.00	01/06/2022 10:00:00	4.64	
BH106	SP	7.00	08/06/2022 11:43:00	4.64	
BH106	SP	7.00	15/06/2022 13:24:00	4.74	
BH106	SP	7.00	22/06/2022 11:58:00	4.80	
BH106	SP	7.00	28/06/2022 09:45:00	4.85	
BH108	SP	7.50	19/04/2022 16:50:00	1.15	Pre development
BH108	SP	7.50	19/04/2022 17:35:00	3.38	Post development
BH108	SP	7.50	16/05/2022 14:55:00	1.28	
BH108	SP	7.50	23/05/2022 14:55:00	1.27	
BH108	SP	7.50	01/06/2022 13:10:00	1.27	
BH108	SP	7.50	08/06/2022 14:50:00	1.29	
BH108	SP	7.50	15/06/2022 11:42:00	1.37	
BH108	SP	7.50	22/06/2022 11:00:00	1.45	
BH108	SP	7.50	28/06/2022 12:11:00	1.52	
BH6001	SP	8.00	20/04/2022 13:55:00	3.90	Pre development
BH6001	SP	8.00	20/04/2022 14:10:00	3.96	Post development
BH6001	SP	8.00	16/05/2022 15:30:00	3.83	
BH6001	SP	8.00	23/05/2022 15:35:00	3.79	
BH6001	SP	8.00	01/06/2022 13:35:00	3.76	
BH6001	SP	8.00	08/06/2022 15:15:00	3.69	

Notes: Type: SP - Standpipe, SPIE - Standpipe Piezometer, HPIE - Hydraulic Piezometer, PPIE - Pneumatic Piezometer, EPIE - Vibrating Wire Piezometer, PWEL - Pumping Well

AGS

Project Gatwick Northern Runway Project (NRP)

Project No. D2001-22

Carried out for VINCI Construction T/A Taylor Woodrow

Groundwater Monitoring

SOCOTEC

Instrument Reference	Instrument Type	Instrument Base, mbgl	Date Time dd/mm/yyyy hh:mm:ss	Result	Comments
BH6001	SP	8.00	15/06/2022 11:09:00	3.69	
BH6001	SP	8.00	22/06/2022 11:34:00	3.66	
BH6001	SP	8.00	28/06/2022 11:36:00	3.67	
BH702	SP	7.50	19/04/2022 10:00:00	3.32	Pre development
BH702	SP	7.50	19/04/2022 13:15:00	3.84	Post development
BH702	SP	7.50	16/05/2022 10:10:00	3.47	
BH702	SP	7.50	23/05/2022 13:25:00	3.40	
BH702	SP	7.50	01/06/2022 12:40:00	3.42	
BH702	SP	7.50	08/06/2022 14:20:00	3.40	
BH702	SP	7.50	15/06/2022 09:34:00	3.40	
BH702	SP	7.50	22/06/2022 09:33:00	3.37	
BH702	SP	7.50	28/06/2022 11:21:00	3.37	
BH703	SP	4.50	19/04/2022 10:10:00	1.65	Pre development
BH703	SP	4.50	19/04/2022 11:40:00	3.50	Post development
BH703	SP	4.50	16/05/2022 11:20:00	1.68	
BH703	SP	4.50	23/05/2022 13:55:00	1.53	
BH703	SP	4.50	01/06/2022 11:46:00	1.55	
BH703	SP	4.50	08/06/2022 14:10:00	1.52	
BH703	SP	4.50	15/06/2022 10:05:00	1.65	
BH703	SP	4.50	22/06/2022 10:14:00	1.65	
BH703	SP	4.50	28/06/2022 11:11:00	1.74	
BH705	SP	15.00	19/04/2022 10:30:00	4.88	Pre development
BH705	SP	15.00	19/04/2022 11:00:00	4.93	Post development
BH705	SP	15.00	16/05/2022 10:40:00	4.84	
BH705	SP	15.00	23/05/2022 13:40:00	4.85	
BH705	SP	15.00	01/06/2022 11:30:00	4.78	
BH705	SP	15.00	08/06/2022 13:45:00	4.81	
BH705	SP	15.00	15/06/2022 09:50:00	4.85	
BH705	SP	15.00	22/06/2022 09:46:00	4.80	
BH705	SP	15.00	28/06/2022 10:52:00	4.81	
BH706	SP	2.00	19/04/2022 12:10:00	1.10	Pre development
BH706	SP	2.00	19/04/2022 12:25:00	Dry	Post development
BH706	SP	2.00	16/05/2022 11:40:00	1.20	
BH706	SP	2.00	23/05/2022 14:05:00	1.05	
BH706	SP	2.00	01/06/2022 11:20:00	1.06	
BH706	SP	2.00	08/06/2022 14:00:00	1.06	
BH706	SP	2.00	15/06/2022 10:19:00	1.22	
BH706	SP	2.00	22/06/2022 10:02:00	1.23	
BH706	SP	2.00	28/06/2022 11:02:00	1.30	
BH708	SP	5.50	20/04/2022 11:10:00	3.90	Pre development
BH708	SP	5.50	20/04/2022 11:30:00	Dry	Post development
BH708	SP	5.50	16/05/2022 09:25:00	3.95	
BH708	SP	5.50	23/05/2022 14:30:00	3.87	
BH708	SP	5.50	01/06/2022 10:52:00	4.93	
BH708	SP	5.50	08/06/2022 13:20:00	3.90	
BH708	SP	5.50	15/06/2022 10:39:00	4.01	
BH708	SP	5.50	22/06/2022 10:30:00	4.04	
BH708	SP	5.50	28/06/2022 10:35:00	4.13	
WS101	SP	4.90	16/05/2022 17:05:00	2.81	Pre Development
WS101	SP	4.90	23/05/2022 11:20:00	2.77	Pre Development

Notes: Type: SP - Standpipe, SPIE - Standpipe Piezometer, HPIE - Hydraulic Piezometer, PPIE - Pneumatic Piezometer, EPIE - Vibrating Wire Piezometer, PWEL - Pumping Well

AGS

Project Gatwick Northern Runway Project (NRP)

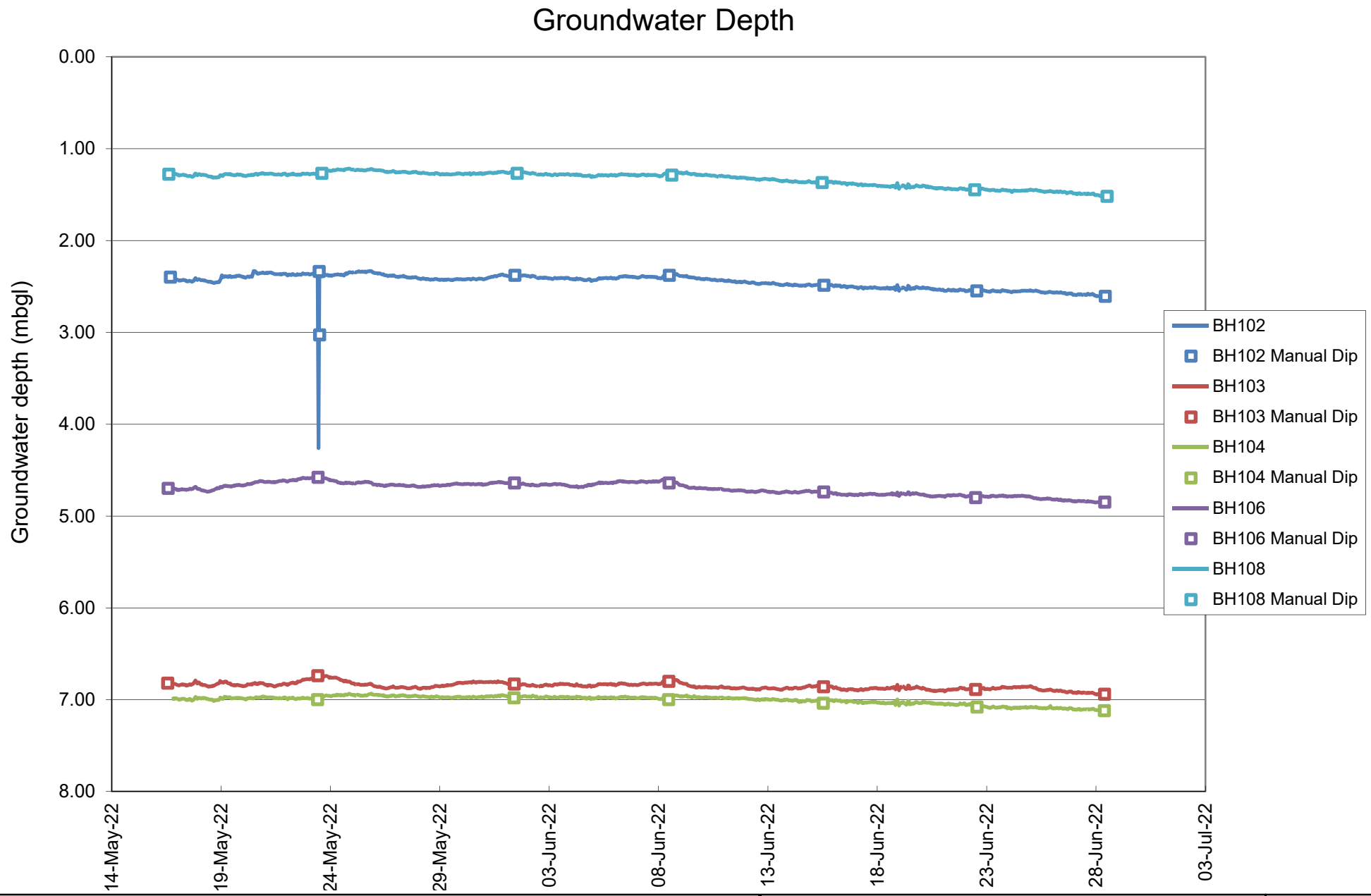
Project No. D2001-22

Carried out for VINCI Construction T/A Taylor Woodrow

Groundwater Monitoring

Instrument Reference	Instrument Type	Instrument Base, mbgl	Date Time dd/mm/yyyy hh:mm:ss	Result	Comments
WS101	SP	4.90	23/05/2022 11:45:00	4.96	Post Development
WS101	SP	4.90	01/06/2022 10:17:00	2.78	
WS101	SP	4.90	08/06/2022 12:15:00	2.78	
WS101	SP	4.90	15/06/2022 13:45:00	2.82	
WS101	SP	4.90	22/06/2022 13:08:00	2.85	
WS101	SP	4.90	28/06/2022 10:00:00	2.85	
WS4003	SP	4.90	20/04/2022 13:05:00	2.54	Pre development
WS4003	SP	4.90	20/04/2022 13:30:00	Dry	Post development
WS4003	SP	4.90	16/05/2022 16:00:00	2.73	
WS4003	SP	4.90	23/05/2022 15:20:00	2.37	
WS4003	SP	4.90	01/06/2022 13:45:00	2.38	
WS4003	SP	4.90	08/06/2022 15:30:00	2.35	
WS4003	SP	4.90	15/06/2022 11:16:00	3.55	
WS4003	SP	4.90	22/06/2022 11:23:00	2.63	
WS4003	SP	4.90	28/06/2022 11:47:00	2.71	

Groundwater Monitoring Results

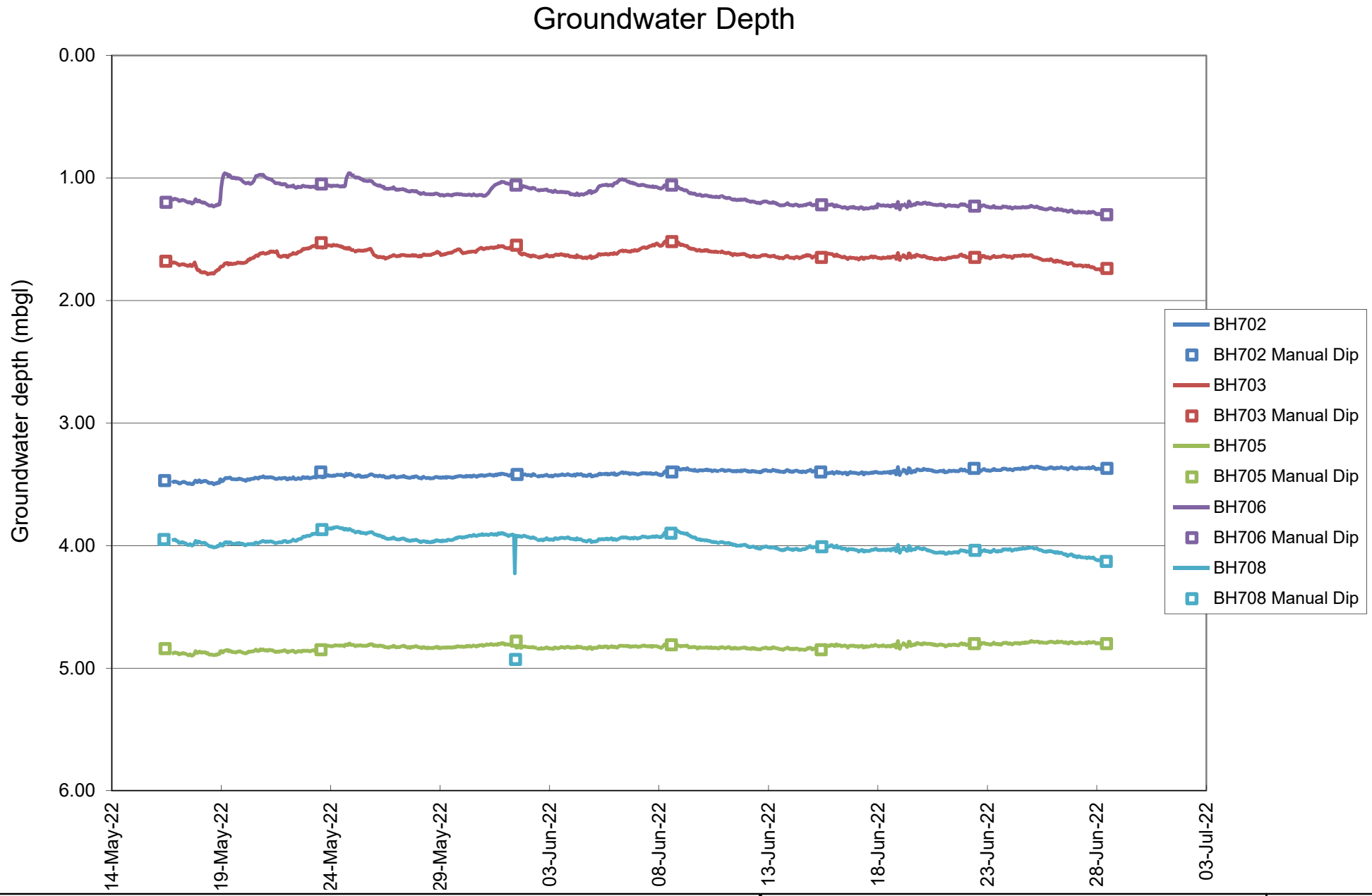


Notes:

Project	Gatwick Northern Runway Project, Highways
Project No.	D2001-22/2
Carried out for	VINCI Construction UK Limited trading as Taylor Woodrow

Figure
D3
Sheet 1 of 1

Groundwater Monitoring Results



Notes:

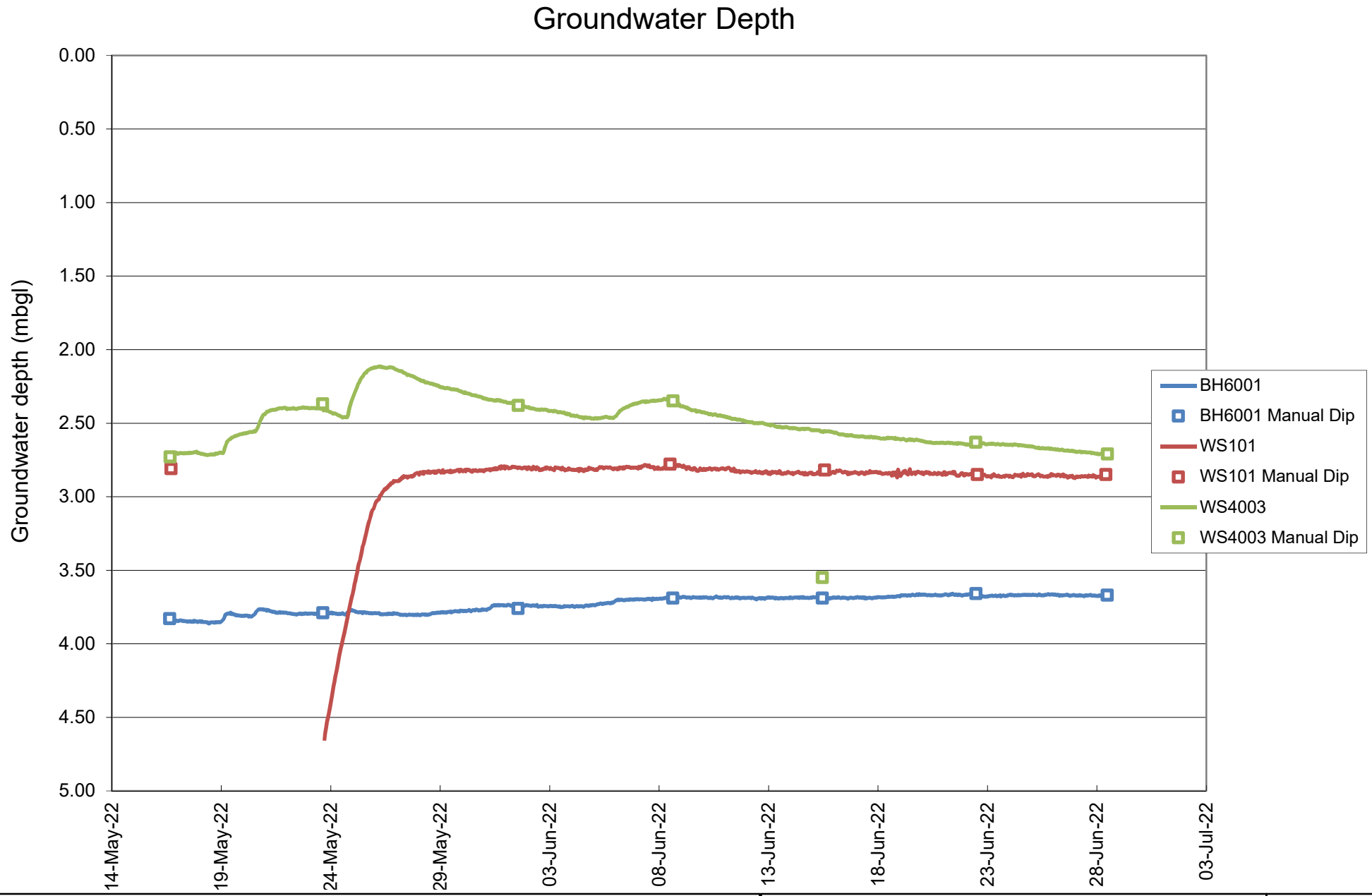
Project	Gatwick Northern Runway Project, Highways
Project No.	D2001-22/2
Carried out for	VINCI Construction UK Limited trading as Taylor Woodrow

Figure

D4

Sheet 1 of 1

Groundwater Monitoring Results



Notes:

Project	Gatwick Northern Runway Project, Highways
Project No.	D2001-22/2
Carried out for	VINCI Construction UK Limited trading as Taylor Woodrow

Figure

D5

Sheet 1 of 1

Annex 5

Screening Criteria

Table A4.1: Groundwater Screening Criteria

Contaminant	AA-EQS (micrograms per litre)	UK Drinking Water Standards (micrograms per litre)	WHO Health (micrograms per litre)	WHO ATO (micrograms per litre)
Aluminium	-	200	-	-
Ammonia (NH3 as N)	15	-	-	-
Ammonium (as NH4+)	-	500	-	-
Anthracene	0.1	-	-	-
Antimony	-	5	-	-
Arsenic	50	-	-	-
Barium	-	1000	-	-
Benzene	10	-	-	-
Benzo(a)pyrene	0.00017	-	-	-
Benzo(b)flouranthene	0.00017	-	-	-
Benzo(k)fluoranthene	0.00017	-	-	-
Benzo(g,h,i)perylene)	0.00017	-	-	-
Benzyl butyl phthalate	7.5	-	-	-
Biphenyl	25	-	-	-
Boron	2,000	-	-	-
Cadmium and its compounds - dissolved (< 40 mg/l calcium carbonate)	<=0.08	-	-	-
Cadmium and its compounds - dissolved (40 - <50 mg/l calcium carbonate)	0.08	-	-	-
Cadmium and its compounds - dissolved (50 - <100 mg/l calcium carbonate)	0.09	-	-	-
Cadmium and its compounds - dissolved (100 - <200 mg/l calcium carbonate)	0.15	-	-	-
Cadmium and its compounds - dissolved (>200 mg/l calcium carbonate)	0.25	-	-	-
Calcium	-	250,000	-	-
Carbon tetrachloride	12	-	-	-
Chloride	250,000	-	-	-
Chlorine (total residual oxidant)	2	-	-	-
Chloroform	12	-	-	-
4-chloro-3-methylphenol	40	-	-	-
Chloronitro toluenes	10	-	-	-
2-chlorophenol	50	-	-	-
3-chlorophenol-4-chlorophenol total (or individual monochlorophenols)	50	-	-	-
Chromium III (dissolved)	4.7	-	-	-
Chromium VI (dissolved)	3.4	-	-	-
Copper (dissolved)	1 (bioavailable)	-	-	-
Cyanide	1	-	-	-
Dibutyl phthalate	8	-	-	-
3,4-dichloroaniline	0.2	-	-	-
Dichlorobenzene - total dichlorobenzene isomers	20	-	-	-

Contaminant	AA-EQS (micrograms per litre)	UK Drinking Water Standards (micrograms per litre)	WHO Health (micrograms per litre)	WHO ATO (micrograms per litre)
Dichloro-methane	20	-	-	-
1,2-dichloroethane	10	-	-	-
1,1-dichloroethene	-	-	30	-
1,2-dichloroethene	-	-	50	-
1,2-dibromo-3-chloropropane	-	0.1	-	-
1,2-dichlorobenzene	-	-	-	1 to 10
1,2-dichloropropane	-	0.1	-	-
1,3-dichloropropene	-	0.1	-	-
1,4-dichlorobenzene	-	-	-	0.3 to 30
2,4-dichlorophenol	4.2	-	-	-
Diethyl phthalate	200	-	-	-
Dimethyl phthalate	800	-	-	-
Dioctyl phthalate	20	-	-	-
Di(2-ethylhexyl)-phthalate (DEHP)	1.3	-	-	-
Ethylbenzene	-	-	-	2 to 200
Fluoranthene	0.0063	-	-	-
Fluoride - dissolved (<50 mg of Calcium carbonate per litre of water (mg/l))	1,000	-	-	-
Fluoride - dissolved (>50 mg/l of calcium carbonate)	5,000	-	-	-
Hexachloro-benzene	0.03	-	-	-
Hexachloro-butadiene	0.10	-	-	-
Hexachloro-cyclohexane	0.02	-	-	-
Hydrocarbons (dissolved/emulsions)	-	10	-	-
Hydrogen Sulphide	0.25	-	-	-
Indeno(1,2,3-cd)pyrene	0.00017	-	-	-
Iron - dissolved	1,000	-	-	-
Lead and its compounds (dissolved)	1.2 (bioavailable)	-	-	-
Magnesium	-	50,000	-	-
Manganese - dissolved	123 (bioavailable)	-	-	-
Mercury and its compounds (dissolved)	1	-	-	-
Methylbenzene	50	-	-	-
Naphthalene	2	-	-	-
Nickel and its compounds (dissolved)	4 (bioavailable)	-	-	-
Nitrate (as NO3)	-	50,000	-	-
Nitrite (as NO2)	-	100	-	-
pH (6 - 9)	-	-	-	-
Pentachloro-benzene	0.007	-	-	-
Pentachloro-phenol	0.4	-	-	-

Contaminant	AA-EQS (micrograms per litre)	UK Drinking Water Standards (micrograms per litre)	WHO Health (micrograms per litre)	WHO ATO (micrograms per litre)
Phenol	7.7	-	-	-
Phosphorous	-	2200	-	-
Potassium	-	12,000	-	-
Selenium	-	10	-	-
Sodium	170,000	-	-	-
Sulphate	400,000	-	-	-
Sulphide	0.25	-	-	-
Styrene	50	-	-	-
Tetrachloroethane	140	-	-	-
Tetrachloroethene (PCE)	10	-	-	-
Tetrachloro-ethylene	10	-	-	-
Tetrachloromethane (PCM)	12	-	-	-
Toluene	74	-	-	-
Tributyl phosphate	50	-	-	-
Trichloro-benzenes	0.4	-	-	-
Trichloroethene	10	-	-	-
Trichloro-ethylene	10	-	-	-
Trichloro-methane (chloroform)	2.5	-	-	-
1,1,1-trichloroethane	100	-	-	-
1,1,2-trichloroethane	400	-	-	-
2,4,6-trichlorophenol	-	-	200	-
Vanadium (0-200 mg/l of calcium carbonate)	20	-	-	-
Vanadium (>200 mg/l calcium carbonate)	60	-	-	-
Vinyl Chloride	-	0.5	-	-
Xylene	30	-	-	-
Zinc - dissolved plus ambient background concentration	10.9 (bioavailable)	-	-	-

Table A4.2: Soils

Metals		
Arsenic	640	S4UL[(a)]
Beryllium	12	S4UL[(a)]
Boron	240000	S4UL[(a)]
Cadmium	190	S4UL[(a)]
Chromium III	8600	S4UL[(a)]
Chromium VI	33	S4UL[(a)]
Copper	68000	S4UL[(a)]
Lead	2300	pC4SL
Elemental Mercury	58[vap (25.8)]	S4UL[(a)]
Inorganic Mercury	1100	S4UL[(a)]
Methylmercury	320	S4UL[(a)]
Nickel	980	S4UL[(a)]
Selenium	12000	S4UL[(a)]
Vanadium	9000	S4UL[(a)]
Zinc	730000	S4UL[(a)]
Petroleum Hydrocarbons		
	1% SOM	
Aliphatic EC 5-6	3200 (304)[sol]	S4UL[(a)]
Aliphatic EC >6-8	7800 (144)[sol]	S4UL[(a)]
Aliphatic EC >8-10	2000 (78)[sol]	S4UL[(a)]
Aliphatic EC >10-12	9700 (48)[sol]	S4UL[(a)]
Aliphatic EC >12-C16	59000 (24)[sol]	S4UL[(a)]
Aliphatic EC >16-35	1600000	S4UL[(a)]
Aliphatic EC >35-44	1600000	S4UL[(a)]
Aromatic EC5-7 (benzene)	26000 (1220)[sol]	S4UL[(a)]
Aromatic EC >7-8 (toluene)	56000(869)[vap]	S4UL[(a)]
Aromatic EC >8-10	3500 (613)[vap]	S4UL[(a)]
Aromatic EC >10-12	16000 (364)[sol]	S4UL[(a)]
Aromatic EC >12-16	36000 (169)[sol]	S4UL[(a)]
Aromatic EC >16-21	28000	S4UL[(a)]
Aromatic EC >21-35	28000	S4UL[(a)]
Aromatic EC >35-44	28000	S4UL[(a)]
Aliphatic + Aromatic EC >44-70	28000	S4UL[(a)]
TPH Ali/Aro	-	

BTEX		
Benzene	27	S4UL[(a)]
Toluene	56000 (869)[vap]	S4UL[(a)]
Ethylbenzene	5700 (518)[vap]	S4UL[(a)]
o-xylene	6600 (478)[sol]	S4UL[(a)]
m-xylene	6200 (625)[vap]	S4UL[(a)]
p-xylene	5900 (576)[sol]	S4UL[(a)]
MTBE	-	
PAHs		
Acenaphthene	84000 (57.0)[sol]	S4UL[(a)]
Acenaphthylene	83000 (86.1)[sol]	S4UL[(a)]
Anthracene	520000	S4UL[(a)]
Benzo(a)anthracene	170	S4UL[(a)]
Benzo(a)pyrene	35	S4UL[(a)]
Benzo(b)fluoranthene	44	S4UL[(a)]
Benzo(g,h,i)perylene	3900	S4UL[(a)]
Benzo(k)fluoranthene	1200	S4UL[(a)]
Chrysene	350	S4UL[(a)]
Dibenzo(a,h)anthracene	3.5	S4UL[(a)]
Fluoranthene	23000	S4UL[(a)]
Fluorene	63000 (30.9)[sol]	S4UL[(a)]
Indeno(1,2,3-c,d)pyrene	500	S4UL[(a)]
Naphthalene	190 (76.4)[sol]	S4UL[(a)]
Phenanthrene	22000	S4UL[(a)]
Pyrene	54000	S4UL[(a)]
PAH	-	
Phenols		
Phenol	440 (26000)[dir]	S4UL[(a)]
Chlorophenols	3500	S4UL[(a)]
Pentachlorophenol	400	S4UL[(a)]
Chloroalkanes & alkenes		
Chloroethene (vinyl chloride)	0.059	S4UL[(a)]
Dichloroethane	0.67	S4UL[(a)]
Chlorinated Hydrocarbons		
Tetrachloroethanes	270	S4UL[(a)]
Tetrachloroethene	19	S4UL[(a)]
Tetrachloromethane (Carbon Tetrachloride)	2.9	S4UL[(a)]
Trichloroethane	660	S4UL[(a)]
Trichloroethene	1.2	S4UL[(a)]
Trichloromethane (Chloroform)	99	S4UL[(a)]
Explosives		
Trinitrotoluene	1000	S4UL[(a)]
RDX	210000	S4UL[(a)]
HMX	110000	S4UL[(a)]
Pesticides		
Aldrin	170	S4UL[(a)]
Dieldrin	170	S4UL[(a)]
Atrazine	9300	S4UL[(a)]
Dichlorvos	140	S4UL[(a)]
Endosulfan	5600 (0.003)[vap]	S4UL[(a)]
Hexachlorocyclohexane	170	S4UL[(a)]
Beta-Hexachlorocyclohexane	65	S4UL[(a)]
Chlorobenzenes		
Chlorobenzene	56	S4UL[(a)]
2- Dichlorobenzene	2000 (571)[sol]	S4UL[(a)]
4- Dichlorobenzene	4400 (224)[vap]	S4UL[(a)]
1,2,3-Trichlorobenzene	102	S4UL[(a)]
1,2,4-Trichlorobenzene	220	S4UL[(a)]
1,3,5-Trichlorobenzene	23	S4UL[(a)]
1,2,3,4-Tetrachlorobenzene	1700 (122)[vap]	S4UL[(a)]
1,2,3,5-Tetrachlorobenzene	49 (39.4)[vap]	S4UL[(a)]
1,2,4.5 Tetrachlorobenzene	42 (19.7)[sol]	S4UL[(a)]
Pentachlorobenzene	640 (43.0)[sol]	S4UL[(a)]
Hexachlorobenzene	110 (0.20)[vap]	S4UL[(a)]
Others		
Carbon Disulphide	11	S4UL[(a)]
Hexachlorobutadiene	31	S4UL[(a)]
1,2 - Dichloroethane	0.67	S4UL[(a)]
1,1,1 - Trichloroethane	660	S4UL[(a)]
1,1,1,2 - Tetrachloroethane	110	S4UL[(a)]
Chlorobenzene	56	S4UL[(a)]
1,2 - Dichlorobenzene	2000 (571)sol	S4UL[(a)]
1,3 - Dichlorobenzene	30	S4UL[(a)]

1,4 - Dichlorobenzene	4400 (224)vap	S4UL[(a)]
2,4,6 Trinitrotoluene (TNT)	1000	S4UL[(a)]

Notes

Soil chemical concentrations should initially be screened against the screening criteria value outside of brackets.

[vap] Vapour Saturation Limit. Concentration at which soil gas within pore space reaches staruarion limit. Increases in soil concentration above this criteria will not lead to increased soil gas concentrations with pore spaces. This value should not be used within the assessment it is an informative.

[sol] Solubility Saturation Limit. Concentration at which soil water becomes saturated with contaminant. Where this concentration is exceeded, free product may be present with pore spaces. If soils are below the water table exposure to free product upon the water table should be considered qualitatively where it may be present at the ground surface.

[dir] Screening criteria based on a threshold protective of direct skin contact with phenol. Values in brackets are based on health effects following long term exposure provided for illustration only.

pC4SLs have been used for lead in absence of S4ULs. Value selected is based on LLTC 2: Intake leading to blood lead concentration of 3.5 µg dL-1

When assessing total xyxlene oncentrations these should be compared to the lower of the lowest of the three isomers for the particular land use.

The screening values for the metals are based on a sandy loam with a SOM of 6%

S4ULs assume no free phase contamination is present.

References

[(a)] The LQM/CIEH S4ULs for human Health risk Assessment, 2015

[(b)] CL:AIRE SP1010 Development of Category 4 Screening Levels for Assessment of Land Affected by Contamination (Rev. 2), September 2014

Annex 6

Part 2A (The Contaminated Land Regime)

A6.1 Contaminated Land Definition

A6.1.1 Under Section 57 of the Environmental Act 1995, Part 2A was inserted into the Environmental Protection Act 1990 to include provisions for the management of contaminated land.

A6.1.2 Subsequent regulations were first implemented in England in April 2000, Scotland in July 2000 and Wales in July 20011, providing a definition of 'contaminated land' and setting out the nature of liabilities that can be incurred by owners of contaminated land and groundwater.

A6.1.3 According to the Act, contaminated land is defined as 'any land which appears to the local authority in whose area the land is situated to be in such a condition, by reason of substances in, on or under the land that:

a. *significant harm* is being caused or there is a *significant possibility* of such harm being caused; or

b. *significant pollution* of controlled waters[2] is being caused or there is a significant possibility of such pollution being caused[3]'

A6.1.4 The guidance on determining whether a particular possibility is significant is based on the principles of risk assessment and in particular on considerations of the magnitude or consequences of the different types of significant harm caused. The term 'possibility of significant harm being caused' should be taken, as referring to a measure of the probability, or frequency, of the occurrence of circumstances that could lead to significant harm being caused.

A6.1.5 The following situations are defined where harm is to be regarded as significant:

i. Chronic or acute toxic effect, serious injury or death to humans

ii. Irreversible or other adverse harm to the ecological system

iii. Substantial damage to, or failure of, buildings

iv. Disease, other physical damage or death of livestock or crops

v. The pollution of controlled waters[4].

A6.1.6 With regard to radioactivity, contaminated land is defined as 'any land which appears to be in such a condition, by reason of substances in, on or under the land that harm is being caused, or there is a significant possibility of such harm being caused5'.

The Risk Assessment Methodology

A6.1.7 Risk assessment is the process of collating known information on a hazard or set of hazards in order to estimate actual or potential risks to receptors. The receptor may be humans, a water resource, a sensitive local ecosystem or future construction materials. Receptors can be connected with the hazard via one or several exposure pathways (eg the pathway of direct contact). Risks are generally managed by isolating or removing the hazard, isolating the receptor, or by intercepting the exposure pathway. Without the three essential components of a source (hazard), pathway and receptor, there can be no risk. Thus, the mere presence of a hazard at a site does not mean that there will necessarily be attendant risks.

The Risk Assessment

A6.1.8 By considering where a viable pathway exists which connects a source with a receptor, this assessment will identify where pollutant linkages may exist. A pollutant linkage is the term used by the DEFRA in their standard procedure on risk assessment. If there is no pollutant linkage, then there is no risk. Therefore, only where a viable pollutant linkage is established does this assessment go on to consider the level of risk. Risk should be based on a consideration of both:

- The likelihood of an event (probability) - takes into account both the presence of the hazard and receptor and the integrity of the pathway.
- The severity of the potential consequence - takes into account both the potential severity of the hazard and the sensitivity of the receptor.

For further information please see the Contaminated Land section on the DEFRA website (www.defra.gov.uk).

[1] In England by The Contaminated Land (England) Regulations 2000, updated by The Contaminated Land (England) (Amendment) Regulations 2012; in Scotland by The Contaminated Land (Scotland) Regulations 2000, updated by the Contaminated Land (Scotland) Regulations 2005; and in Wales by The Contaminated Land (Wales) Regulations 2001, updated by the Contaminated Land (Wales) Regulations 2006.

[2] In Scotland the term "controlled water" has been updated to "water environment" under the Contaminated Land (Scotland) Regulations 2005 in line with the Water Environment and Water Services (Scotland) Act 2003.

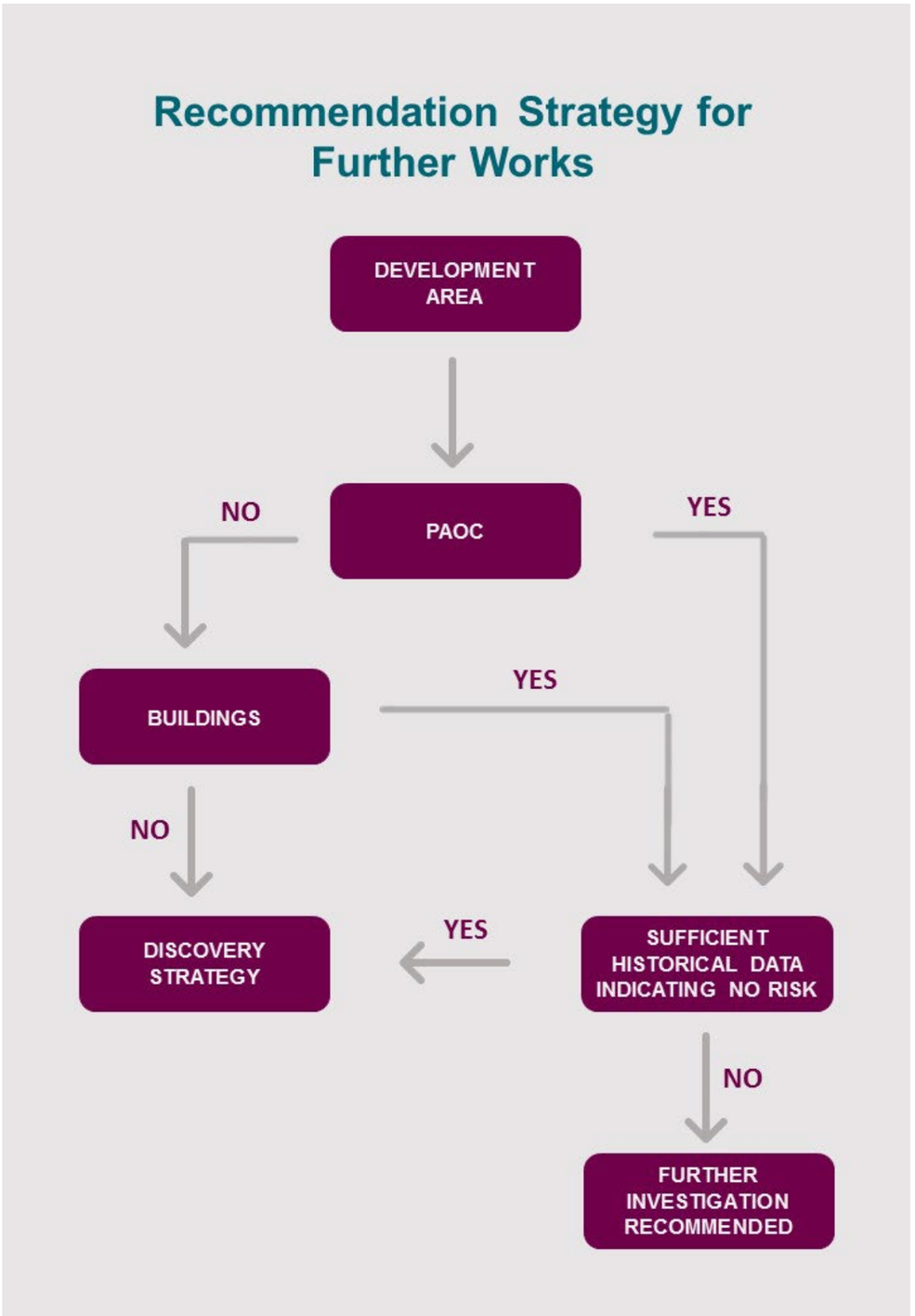
[3] The definition was amended in 2012 by implementation of the Water Act 2003.

[4] Groundwater in this context does not include waters within underground strata but above the saturated zone.

[5] The Radioactive Contaminated Land (Modification of Enactments) (England) Regulations 2006 and Contaminated Land (Wales) Regulations 2006.

Annex 7

Strategy for Further Works


Recommendation Strategy for Further Works
DEVELOPMENT AREA
PAOC
NO
YES
BUILDINGS
YES
NO
DISCOVERY STRATEGY
YES
SUFFICIENT HISTORICAL DATA INDICATING NO RISK
NO
FURTHER INVESTIGATION RECOMMENDED