

PHOTO D-2: This map shows a greater area, compared to other areas within Manchester City centre the bomb damage could be considered Low.



THE TIMES

Unexploded 1,000-kilogram WWII bomb is detonated in England

Authorities evacuate thousands of people in Exeter near Nazi 'Hermann' bomb; massive explosion heard kilometers away



British police evacuated thousands of people in a city in southwest England on Saturday before they detonated an unexploded World War II bomb that had been found during recent construction work.

Some 2,600 properties, including the residences of 1,400 university students, were evacuated, leaving an area of around 400 meters clear for the controlled explosion of the 1,000-kilogram (2,200 pounds) bomb, the Daily Mail reported.

The evacuation in the city of Exeter began Friday shortly after the bomb was found, with the detonation taking place on Saturday at 6:10 p.m.

A number of properties were damaged in the 100-meter radius, residents of which were not yet permitted to return. Those who lived outside that range were allowed to go back to their homes.

Residents in the area reported the explosion was heard some 10 kilometres away.



The bomb, discovered on a building site near the University of Exeter, is believed to be a Nazi SC1000 bomb, more commonly known as the “Hermann.”



March 2, 2021

Coastguard shares photos of 500lb bomb found on Formby Beach

It took eleven hours to dispose of the device after the shock discovery on Thursday



The coastguard spent eleven hours on Formby Beach after a bomb was found earlier this week.

Photos show the size of the 500lb military device which was discovered by a member of the public on Thursday evening.

Police were called to the area at around 5.30pm and a cordon was put in place on Victoria Road while the scene was made safe.

Footage captured by the Southport Independent Lifeboat showed how the military 500lb device was disposed of.

The detonation carried out in the waters around the Sefton coastline on Friday morning, caused waves to shoot up into the air as residents in the area heard a loud bang.

Southport Independent Lifeboat said they were requested by HM Coastguard to help with the detonation effort.



Unexploded World War 2 bomb found on a Soho building site

LONDON | LONDON | SOHO | ⌚ Monday 3 February 2020, 3:33pm

Bomb disposal teams have removed an unexploded Second World War bomb from a busy area of central London.

Officers were called to a building site near Dean Street in Soho at 1.42pm after reports of the suspected explosive device.

Videos posted on Twitter showed people leaving buildings and gathering as police set up a cordon.

Witnesses described "lots of commotion" as the area surrounding the site was shut off.

A Royal Engineers bomb disposal unit was called in and removed the half-tonne device.

Shortly after 8.30pm, the Metropolitan Police's Soho team said the cordons in Oxford Street, Charing Cross Road, Shaftesbury Avenue, Lexington Street and Poland Street had been lifted.

A Ministry of Defence spokeswoman said: "An Army explosive ordnance disposal team has been called out to Soho to support the Metropolitan Police after discovery of a 500kg Second World War device.

"The Army EOD team have confirmed the bomb was safe to remove overnight to a location where it will be detonated," the spokesperson continued.

"Military personnel are regularly required to assist with the disposal of historic ordnance such as this, ensuring every situation is dealt with as quickly as possible for the safety of the general public."



Bomb disposal teams called to Luton after 'cannonball' found on a building site

ANGLIA | BOMB | CANNONBALL | POLICE

🕒 Friday 13 March 2020, 12:00pm



Bomb disposal teams and police cordoned off an area in Luton today (Friday 13) after what is thought to have been a cannonball was found on a building site. Hitchin Road was closed between Stopsley Way and Stockingstone Road.

Police were called at around 10.30am after someone reported seeing something suspicious on a nearby construction site.

Bedfordshire police say the explosive ordnance disposal team were called as a precaution. The roads have since reopened.

<https://www.itv.com/news/anglia/2020-03-13/bomb-disposal-teams-called-to-luton-after->

cannonball-found-on-a-building-site

EXPLOSIVE ORDNANCE SAFETY AND INFORMATION

UNEXPLODED ORDNANCE

Since the end of WWII, there have been a limited number of recorded incidents in the UK where bombs have detonated during engineering works, though a significant number of bombs have been discovered.

The threat to any proposed investigation or development on the site may arise from the effects of a partial or full detonation of a bomb or ordnance item. The major effects usually being shock, blast, heat and shrapnel damage. It should be noted that the detonation of a 50kg buried bomb could damage brick/concrete structures up to 16m away and unprotected personnel on the surface up to 70m away from the blast. Larger ordnance is obviously more destructive. Table 1 denotes recommended safe distance for UXO.

Table 1: Safety Distances for Personnel

UXO (Kg)	Safety Distances (m)			
	Surface UXO		Buried UXO	
	Protected	Unprotected	Protected	Unprotected
2	20	200	10	20
10	50	400	20	50
50	70	900	40	70
250	185	1100	120	185
500	200	1250	140	200
1000	275	1375	185	275
3000	450	1750	300	450
5000	575	1850	400	575

Explosives rarely become inert or lose effectiveness with age. Over time, fuzing mechanisms can become more sensitive and therefore more prone to detonation.

This applies equally to items that have been submersed in water or embedded in silt, clay, peat or similar materials.

Once initiated, the effects of the detonation of the explosive ordnance such as shells or bombs are usually extremely fast, often catastrophic and invariably traumatic to the personnel involved.

The degradation of a shell or bomb may also offer a source of explosive contamination into the underlying soils. Although this contamination may still present an explosion hazard, it is not generally recognised that explosives offer a significant toxicological risk at concentrations well below that at which a detonation risk exists.

TYPES OF ORDNANCE

German Air Delivered Ordnance. Technical information on the nature and characteristics of the ordnance used by the German Air Force during both world wars has been available for a number of years. Assessment that began during the 1930's has continued to the present day. Experts have conducted research in many countries as part of national research programmes and as individual research projects. Consequently, a well-informed assessment of the threat posed by unexploded ordnance, and the hazards that they represent, can be made with a high degree of confidence.

Terminology. It should be noted that two terms used in bomb records can lead to some confusion as to their meaning and therefore significance. The term Unexploded Bomb (UXB) refers to a bomb that has fallen, failed to function and has been subsequently dealt with and removed from the site. The term Abandoned Bomb (A/UXB) refers to a UXB that could not be found or recovered, or the decision was taken not to pursue the matter further. Consequently, the unexploded bomb remains where it came to rest when it was dropped or fell to the present day. It should also be noted the word ‘bomb’ can be used to describe an airdropped bomb or a shell as in some cases no differentiation was made, and the term was interchangeable.

Abandoned Bombs. The records of known abandoned unexploded bomb locations in the London area were released in response to a written Parliamentary Question from Simon Hughes. (Hansard: Volume; 282. Dated 15th October 1996). The information was provided by the Ministry of Defence (MOD) and supplied under an indemnity.

Explosive Ordnance Failure Rates. Over the course of both World Wars a considerable quantity of ordnance dropped on UK targets failed to function as designed and subsequently penetrated the ground without exploding. Information gathered during the war by the MOD and its research partners provide typical failure rates for different types of ordnance. Figures significant to this study are:

- 10% of all German airdropped bombs failed to function as intended.
- 30% of all anti-aircraft and other types of shells failed to function as intended.

Deductions & Considerations. The following points were considered as part of the assessment and have been given due consideration:

Records were found that indicated that the general area was subjected to heavy bombing.

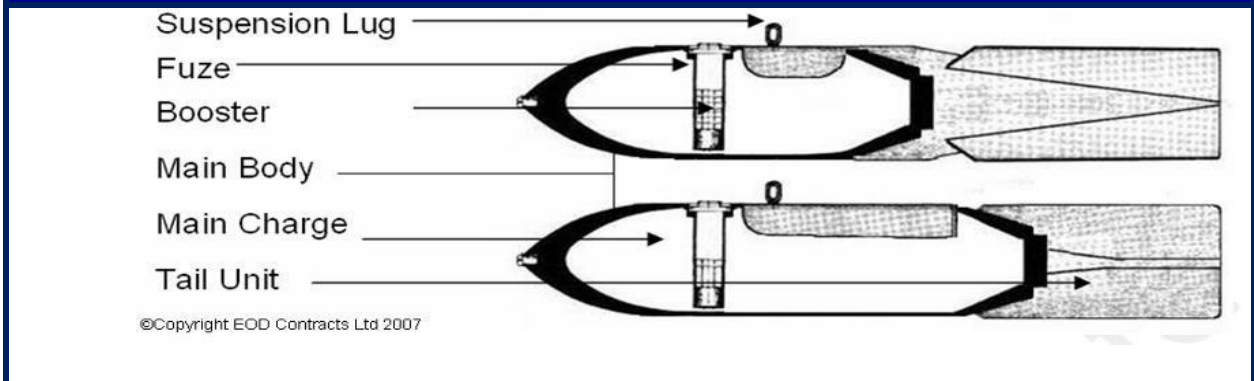
Bombs, which struck previously, hit or burned-out targets and did not function; consequently, their impact was unseen and therefore no report was ever made.

In all likelihood, the local anti-aircraft battery would have fired a far higher number of shells than the bombers dropped HE bombs. Contamination by anti aircraft shells cannot be ruled out.

Generic German Bomb Types. The majority of German bombs dropped were 50kg in weight, accounting for approximately 16% of the total bombs dropped. The range of common bombs increased in weight to a maximum of 1700kg. Regardless of size, German bombs were fitted with one or more Electrical Condenser Resistance (ECR) fuzes many of which included a mechanical component. The fuzes were mounted transversely in the bomb body with the booster directly below, and in contact with, the fuze. The booster; sometimes referred to as the Gaine, is composed of a sensitive explosive material (Picric Acid). Picric Acid is known to deteriorate over time becoming increasingly unstable. The internal layout of two common German bombs and a German fuze is shown in Figures 6.1 & 6.2.

FIGURE 1: Generic German Bomb Design.

Graphic Cross Section through the most common German bombs (50kg)



NOTE: the diagram shows that there can be a significant difference in the quantity of High Explosive contained within bombs of similar size and shape; the Grade 1 bomb on the bottom having 30% more HE than the Grade 2 shown at the top. This serves to demonstrate the importance of an accurate identification of any item of UXO.

FIGURE 2: Generic German Bomb Fuze Design.

Graphic Cross Section through a typical German fuze (ECR)

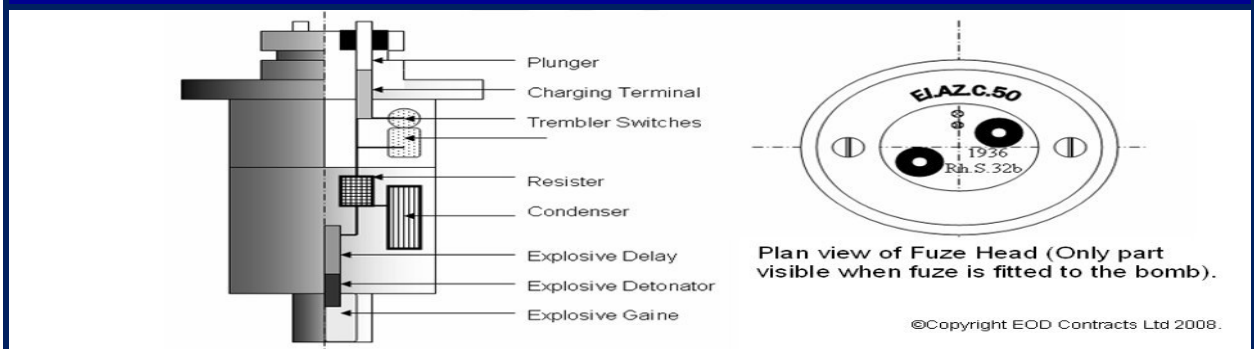


FIGURE 3: Range of HE bombs dropped on the United Kingdom.



NOTE: The smaller sub-munitions (Bomblets) seen to the right, ranged in size between 1 and 3kg, were dropped in large numbers and were intended as incendiary bombs, anti-personnel bombs or as bombs filling both roles. The smaller bomblets were dropped in larger container bombs designed to hold between 360 and 620 of the bomblets. The containers were designed to burst open at a predetermined height above ground level, dispersing the bomblets over a wide area. Air raid damage was far greater by using both incendiary, and HE bombs on a single raid. The fires

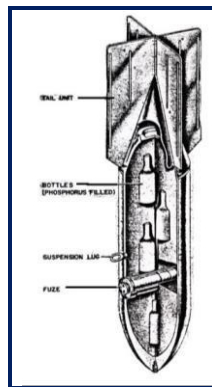
started by the incendiaries being rapidly spread by the blast waves from the HE bomb. This scenario was shown to devastating effect on the 14th February 1945 in the German city of Dresden. Where fires started and spread by the bombing increased to a point where the oxygen was being sucked into the flames at such a high speed that the fire became a "Fire Storm". At the time the city's population had increased due to a high number of refugees fleeing the Russian advance to the east, the exact civilian death toll from fire and suffocation will never be known but is considered to be somewhere between 25,000 and 100,000.

High Explosive (HE) Bomb. Some of the most common type of ordnance to be dropped on the United Kingdom, HE bombs are often the type encountered as UXBs. Relatively thick cased, they are still recovered in remarkably good condition. Ranging in size from 50 to 1700 kg, their typical release height (1,500m) allowed them to penetrate deep into the ground as a result of design or flaw. Towards the end of the bombing campaign, as steel became scarce the German Engineers produced a range of bombs that used steel reinforced concrete as the bomb body. Figure 6.3 shows the range of steel HE bombs dropped on the UK.

Incendiary Bomb. The larger incendiary bombs, containing bottles of white phosphorus and an incendiary mixture contained within a thin steel case were designed to burst on contact with the ground. A fixed dispenser on the aircraft delivered the smaller type of bomb or 'Bomblet' to the target area in container bombs or both types of container would open dispersing the smaller Incendiary bombs. Relatively small and light they were unlikely to penetrate the ground to any significant depth. However, once concealed in bomb damage rubble or below water they were easily missed and are still unearthed today from in-fill and drained land. Later versions of the incendiary bomb contained an additional explosive charge used as a short delay "Booby Trap" device that contained a significant amount of high explosive. The Booby Trap component was designed to kill or injure fire fighters and hinder the damage control. See Figure 4.

FIGURE 4: Incendiary Bombs.

Common German Incendiary Bombs



Left, 1kg incendiary bomblet, and right a 50kg incendiary bomb containing bottles of white phosphorus.

NOTE: Incendiary bomblets were made of a flammable alloy similar in appearance to aluminium, which resists corrosion well. The tail unit was made of thin tin-plate steel and is more prone to have rusted away. Some Incendiary models were fitted with a High Explosive (HE) steel nose. With the tail and explosive nose attached the bomb was 480mm long.

Blast Bomb / Parachute Mine. The parachute mine was extensively used on land and at sea and was fitted with specialist fuzes designed to trigger the weapon at a predetermined altitude, water depth or to switch on other magnetic influence mechanisms to trigger the weapon when a ship approached (Magnetic or Acoustic influence). While early versions were based on the standard 1000kg SD Bomb case others were specially designed and manufactured with an aluminium body, making them extremely difficult to detect using magnetometers. The thin cased versions would normally disintegrate on impact on land and are normally considered to pose little threat to work on land based projects, but the risk

increases significantly on projects over water or in marshland. Thicker cased versions however will survive impact and pose a significant risk regardless of the local ground conditions. (See Figure 5)

FIGURE 5: Common Airdropped Mines.

Parachute & Ground Mines



NOTE: all mine fuzes were designed to arm after deployment from the ship, submarine or aircraft, some fuze designs incorporated anti-removal booby traps. Unexploded mines found today are the result of a failure within the arming mechanism or procedure whereby the mine never fully armed. Sudden shock or jarring of a weapon in this state has the potential to complete the arming sequence and could result in the mine detonating with lethal consequences.

Non-Steel Cased Bombs. Used primarily in the construction of training or practice bombs, some high explosive variants were introduced towards the end of the war. With resources running scarce, German Engineers produced a small number of blast bombs with a concrete body. The design utilised a steel framework onto which concrete was cast. The explosive filling was also contained within a thin steel container within the bomb body. Very few “concrete” bombs were dropped on the UK. In common with standard steel cased weapons, this type of bomb can be detected using standard magnetometer detection techniques (albeit, providing a smaller ferromagnetic signature than its all steel counterparts). This type of bomb represents a very small percentage of the total number of bombs dropped worldwide and are not considered a significant threat, particularly when viewed from an overall bomb threat in the UK.

Anti-Personnel Bomb. Generally, these were small weapons of 1-3 kilograms in weight and are often referred to as ‘Bomblets’ and possessing similar ground penetration ability as the Incendiary Bomblets. They were often located during the post-raid searches. This type of bomb has been recovered within the bomb rubble being cleared or used as in-fill on construction projects and poses the same potential to function as the Incendiary bomb with a greater potential to cause localised casualties.

Specialist Bomb. These types of bombs were designed to meet a specific mission requirement. Typically, this would be a design modification or special fusing to enable the bomb to destroy hardened/armoured targets or deep buried and sub-marine targets. Like the more common HE bombs; they differ in that they rarely contain large amounts of high explosive. Therefore, the consequence of a detonation is reduced but remains a significant risk, particularly when the detonation occurs on or near the surface.

Depth Bombs & Depth Charges. These types of weapons were designed to meet a specific mission requirement. Typically, the modifications would include the type of explosive filling and special fusing to enable the bomb to penetrate to a significant depth into the ground or water before detonating. Depth bombs intended for maritime attack and sub-marine targets would be fitted with one or more fuzes, one of which would be a hydrostatic fuze designed to detonate the bomb at a predetermined depth. The bomb would be fitted with an anti skip ring to reduce the deflection of the bomb as it entered the water.

Similar in many ways to Depth Bombs, Depth Charges were exclusively designed to detonate at a predetermined depth. This was achieved by fitting the Charge with a short time delay or hydrostatic fuze. Depth bombs: having a similar configuration to general purpose bombs had the potential to penetrate deeply into the seabed where an attack occurred in the relatively shallower water of a dock.

Unmanned Rocket Bombs & Missiles. The most famous in this category of weapons were the V1 (Fi103 flying bomb) commonly known as the Doodlebug and the Larger V2 (A4 missile). Both V1 & V2 with high explosive warheads containing 850kg & 1000kg (respectively) represent some of the largest weapons to land in the United Kingdom. Both types were built in a similar manner to an aircraft and would generally disintegrate on impact even if the warhead failed to detonate. The impact would spread debris over a wide area which was difficult to miss, and any resulting unexploded 'V' weapons were comprehensively dealt with at the time. For this reason, they are rarely encountered on land. However, where a 'V' weapon landed in water the opportunity for the event to have been missed and/or follow-up action abandoned was greater and they continue to pose a significant risk. Other, less well-known rocket bombs were also produced by the Luftwaffe to attack maritime targets. Some were equipped with TV/Radio guidance from the parent bomber. Two of the most common were the Fritz X which consisted of an adapted SD1400kg bomb and the Henschel Hs293 which was based on a smaller 500kg bomb. No record of one having been recovered on land as a UXB can be found but these large HE bombs are considered to pose a significant risk, particularly to maritime projects. No records were found to indicate this type of bomb was ever used on targets in the area.

Photoflash Bomb. This type of bomb was dropped by specialist "Pathfinder" aircraft and although this type of bomb can be included with the category of specialist bombs, it is worthy of specific comment due to the danger it may still pose. Photoflash bombs were designed to explode with a blinding flash, rather like a camera flashbulb. They were used to enable photographs to be taken of targets at night and served to identify ground targets for other aircraft to attack. The speed at which the highly energetic filling detonated, and energy it produced in doing so, was significant. Although these bombs were thin skinned and are prone to corrosion the functioning of one can be compared to a high explosive bomb detonation.

High Explosive Shells & Projectiles. As mentioned previously, one of the most common sources of UXO contamination encountered in the United Kingdom is High Explosive Shells and Projectiles. This is most found to be as the result of firing practice ranges, bombardment and anti-aircraft defence, the latter often positioned to defend Major cities and Strategic installations and ports from German Bombing. Anti Aircraft Shells and projectiles are generally smaller (Up to 4.7" inch diameter) than the airdropped bombs and consequently were more easily missed amongst the bomb rubble. However, coastal bombardment guns could fire a shell weighing 1000kg, (larger than most common airdropped bombs) and capable of significant ground penetration. The generic layout of a projectile can be found at Figure 6.6. It should be noted that the fatal incident on the German autobahn in 2006 was thought to be the result of a shell or projectile detonating, not an airdropped bomb as first reported.

The Fuzes used in Anti-Aircraft Ammunition were designed to ensure the projectile would detonate in contact with the target, or at a pre-set altitude, or in close proximity to the target. The fuzes employed different means to achieve this, including direct impact, or indirect impact, Barometric, Delay and Electro-magnetic influence. Some were fitted with more than one fuze, which served to reduce the chance of the projectile falling to earth and detonating. Artillery fuzes are activated during the firing process, using the projectile's acceleration or spin within the gun barrel to switch off the safety mechanisms. For this reason, fired projectiles are considered more dangerous than unfired ones.

FIGURE 6: Generic Shell Design

Generic High Explosive (HE) Shells (recent finds on site around the UK)



Other Types of Ordnance. The following additional sources of ordnance types have been considered, and inherent risks taken account of:

Flares and Pyrotechnics. Flares and pyrotechnics were used for a variety of reasons throughout the war and continue to be found today in the most unlikely places. However, due to the thin casings of these weapons a high level of corrosion is likely to have occurred since manufacture. Depending on the specific nature of the weapon, this effectively renders them inert except for any white phosphorous content or explosive gain.

Land Service Ammunition (LSA). While as the name implies this type of ammunition was designed for use on land, it was also issued to naval personnel for close protection of vessels and their crew and to provide a limited offensive capability even to relatively small craft. This type of ammunition includes some shells and projectiles such as those covered previously. Other natures of LSA range from Small Arms Ammunition (SAA), having little or no high explosive content to Grenades, Mortars and Rockets which may pose a risk of detonation due to their explosive content and the design of their fuzes (impact) which; if subjected to sufficient shock or friction may result in the weapon functioning. (See Figure 7)

FIGURE 7: Common Categories of Land Service Ammunition

Land Service Ammunition

Small Arms Ammunition



Grenades



Land Service Ammunition

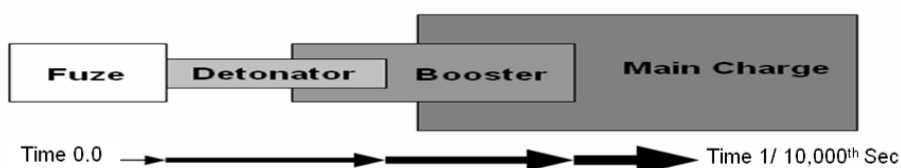
Mortar Bombs



Initiation of Unexploded Ordnance. Explosive Ordnance is highly unlikely to spontaneously explode. The energetic chemical compounds, (Explosives) used in weapon manufacture are chosen to be as stable as possible and they all require a significant application of additional energy to create the right conditions for detonation to occur. If stored correctly, most explosive materials are designed to remain stable for the duration of their expected lifespan (typically 20 years). During this time, the correct functioning of the weapon is achieved by means of the 'Initiation Train' (See Figure 8).

FIGURE 8: Explosive Ordnance Initiation Train.

Sequence of Initiation



Initiation Train. This is a means by which, once the safety features have been switched off or removed, a chain reaction occurs through the weapon. Starting within the fusing system as a small ignition or spark, causing a detonator to explode, which in turn causes the booster charge to detonate with a greater energy and ending in the full detonation of the main explosive filling. Each part of the process has in-built safety features to prevent an unintended detonation. A failure in any of the components within the Initiation Train can result in a UXO. In the case of a UXB, the chain reaction has broken down and the Initiation Train is brought to a halt, albeit, a temporary one. There are several ways that sufficient energy could be introduced to the otherwise stable UXB / UXO that may allow the Initiation Train to set off once more, overcoming the initial reason for failure. In addition to subjecting the weapon to excessive heat, such as a fire, the most common methods to bring about an explosive detonation in such items are:

Direct impact onto the main body of the bomb by mechanical excavation or pile driving: Such an occurrence can cause the bomb to detonate, should the point of impact be on the bomb fuze; less force would be required to bring about a full or partial explosive detonation.

Re-starting the clock timer in the bomb fuze. Only a small percentage of bombs were fitted with clockwork fuzes. It is likely that corrosion has taken place within the fuze that may prevent the clockwork mechanism from functioning. However, the restarting of the clock is by no means a scenario that can be completely ruled out. This is considered to be one of the two most credible mechanisms by which sufficient energy could be introduced to the bomb and result in a detonation.

Induction of a static charge or exposure to an external power source (Electrical Services), causing a current in an electrical fuze. The majority of German bombs employed an electrical component within the fuzes, it is likely that corrosion would have taken place within the fuze mechanism and that it would no longer contain or conduct sufficient electrical charge to initiate the bomb.

Friction initiating the sensitive fuze explosive. Some chemical constituents may have deteriorated, due to oxidation. Components designed with a high degree of stability at the time of manufacture may no longer be as safe. This is considered to be the most likely mechanism by which sufficient energy could be introduced to the bomb and result in a detonation.

Risk Assessment Tables

Table 1: Summary of Potential Contamination Sources

Source	Applicable	Not Applicable
Enemy Attack & Counter Measures		
Bombing WW1		☒
Manned Aircraft Bombing WW2		☒
Unmanned V1 & V2 Rocket Attack		☒
Shelling		☒
Anti-Shipping Mines & Depth Charges		☒
Anti-Aircraft Shells & Rockets		☒
Beach Mines & Coastal Defences.		☒
Airfield/Key Point Defensive Mines/Charges		☒
Abandoned Unexploded Bomb (A/UXB)		☒
Migration of UXO		
UXO Migration in Rubble & Infill		☒
UXO Migration by Tide & River Current		☒
UXO Migration by Marine Dredging		☒
Shipwrecks		☒
Dispersal by Explosion, Fire & Accident		☒
Aeroplane Crash		☒
Private Collections		☒
MOD Facilities		
Bombing Range		☒
Artillery, Mortar & Tank Range		☒
Grenade Range		☒
Small Arms Firing Range		☒
Weapon Research & Development Facilities		☒
Ammunition Burial Grounds		☒
Docks & Harbour Facilities		☒
Offshore Ammunition Dumping Grounds		☒
Ammunition Storage & Manufacture Sites		☒
Airfields & Air Stations		☒
Bombing Decoy Site		☒
Army Barracks & Camps		☒
MOD Training / Concentration Areas		☒
Home Guard & SOE Weapon Caches		☒

Table 2: Airdropped Weapon Strike Indicators (UK)

Item	Increasing Potential level ⇨			
Site Location	Rural	Small Town	Brown Field Large Towns	Cities
Site Description and Use	Greenfield or Agricultural Land	Near Strategic Target	Adjacent to Strategic Target	Strategic Target
Site History	No history of Attack	Near area of Attack	Immediate Area Attacked	Direct Attack
Strategic Target: Military Installation, Industrial or Munitions Manufacturer, Power Station, Gas or Water Works, Port, Dock, Railway Yard, Decoy Site.				

Table 3: Weapon Strike Records (UK)

Source	Availability			
Archive	None	Non-specific	Specific	Extensive
In-house	None	Non-specific	Specific	Extensive
Anecdotal	None	Non-specific	Specific	Confirmed

Table 4: Anti-Aircraft Weapon Strike Indicators (UK)

Item	Increasing Potential level ⇨			
Site Location	Rural	Town	City	Military Site
Fixed Battery Location	None	General Area	Nearby	Onsite
Mobile Battery	Rural	Town	City	Military Site
Military Site: Airfield, Port, Radar, Barracks, Depots, Arsenal or Similar.				

Table 5: Abandoned Bomb Records (UK)

Item	Increasing Potential level ⇨		
In-house	None	Yes	On-site
Other	None	Yes	On-site

Table 6: Bomb Strike Density Assessment

Bombs & Mines	No evidence of the `site area being targeted throughout his period.
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Table 7: Opportunity to have detected Bomb or Shell Strikes (UK)

Increasing Potential level	
No bombs recorded	
Good ARP cover	
Significant development	
No significant ground cover	
Bomb recorded within close proximity to Site boundary	
Moderate ARP cover	
Moderate development (across some areas of the site)	
Frequent public access	
Little ground cover	
Bombs recorded within Site boundary	
Poor ARP cover	
Minimal development limited to shallow excavations (within some areas of the site location)	
Infrequent public access	
Moderate ground cover	
Heavy bomb damage/total destruction	
No ARP cover	
Development limited to site clearance	
Controlled private access	
Heavy ground cover, vegetation, ploughing or body of water	

Table 8: Post Contamination Development Indicators (UK)

Nature of Post Contamination Development	Highlighted
	100% excavations of the entire site to below contamination depth.
	Significant development (across some areas of the site, post WW2)
	Moderate development (across some areas of the site)
	Minimal development (across some areas of the site)
	No development

Table 9: Construction Activities Encounter Indicators

Activities	Highlighted
	Borehole Drilling
	Dynamic Sampling
	Shallow Trial Pit (within made ground)
	Services Trenching (within made ground)
	Bored (CFA) Piling
	Sheet Piling
	Shallow Excavations over extended area (within made ground)
	Deep Excavations over a limited area
	High Density Piles
	Deep Excavations over extended area
	Bulk Excavations

Risk Category Key	Mitigation Requirement
Green	No/Minimum Mitigation measures required (see document recommendations)
Amber	Medium risk of encountering items of UXO (or items there off) within the site boundary, mitigation required for safe systems of work.
Red	High risk of finding items of UXO (or items there off) within the site boundary, mitigation required for safe systems of work.



APPENDIX 4 – Exploratory Hole Logs

GROUNDTECH
CONSULTING

Rotary Core Log

Project Name: ROCHDALE ROAD				Client: WATERMAN I&E				Date: 27/09/2022			
Location: MANCHESTER				Contractor:				Co-ords: E384736.51 N399122.49			
Project No. : GRO-22292				Crew Name:				Drilling Equipment:			
Borehole Number BH101		Hole Type CP+RC		Level 51.90m AoD		Logged By RR		Scale 1:25		Page Number Sheet 1 of 8	

Well	Water	Depth (m)	Type /FI	Coring			Diameter Recovery (SPT)	Depth (m)	Level (m)	Legend	Stratum Description	
				TCR	SCR	RQD						
		0.10 - 1.20	B				N=50 (25 for 10mm/ 50 for 40mm)	0.10	51.80		MADE GROUND: Concrete.	1
		0.20	ES								MADE GROUND: Dark brown very sandy silty gravel. Gravel is angular to subangular fine to coarse of mixed lithologies including brick.	
		0.50	ES									
		2.00	B									
		2.00	D								(13)	
		3.00	D				(21)	3.10	48.80		Firm brown slightly sandy gravelly CLAY. Sand is fine to medium. Gravel is angular to subangular fine to medium of mixed lithologies.	3
		3.10	D									
		4.00	B									
		4.00	U				(23)					4
		5.00	D									5

Hole Diameter		Casing Diameter		Chiselling				Inclination and Orientation				Drilling Flush					
Depth Base	Diameter	Depth Base	Diameter	Depth Top	Depth Base	Duration	Tool	Depth Top	Depth Base	Inclination	Orientation	Depth Top	Depth Base	Type	Colour	Min (%)	Max (%)

Remarks															
1. Concrete encountered to 0.1m bgl. 2. No groundwater encountered. 3. Bedrock encountered at 26.0m bgl. 4. Rotary follow on to 36.00m bgl. 5. 50mm standpipe installed to 3m bgl, 1m plain, 2m slotted. 6. 19mm standpipe installed to 36.00m bgl, 22m plain, 14m slotted.															



Rotary Core Log

Project Name: ROCHDALE ROAD			Client: WATERMAN I&E			Date: 27/09/2022		
Location: MANCHESTER			Contractor:			Co-ords: E384736.51 N399122.49		
Project No. : GRO-22292			Crew Name:			Drilling Equipment:		
Borehole Number BH101		Hole Type CP+RC		Level 51.90m AoD		Logged By RR		Page Number Sheet 3 of 8

Well	Water	Depth (m)	Type /FI	Coring			Diameter Recovery (SPT)	Depth (m)	Level (m)	Legend	Stratum Description	
				TCR	SCR	RQD						
		11.00 11.00	B D				(25)				Firm brown slightly sandy gravelly CLAY. Sand is fine to medium. Gravel is angular to subangular fine to medium of mixed lithologies.	11
		12.00	B									12
		12.50 - 12.95	U								<u>high strength at 12.50m bgl.</u>	
		13.00 13.00	B D									13
		14.00 14.00	B D				(39)				<u>Sand becoming medium to coarse from 14.0m bgl.</u>	14
		15.00	B									15

Hole Diameter		Casing Diameter		Chiselling				Inclination and Orientation				Drilling Flush					
Depth Base	Diameter	Depth Base	Diameter	Depth Top	Depth Base	Duration	Tool	Depth Top	Depth Base	Inclination	Orientation	Depth Top	Depth Base	Type	Colour	Min (%)	Max (%)

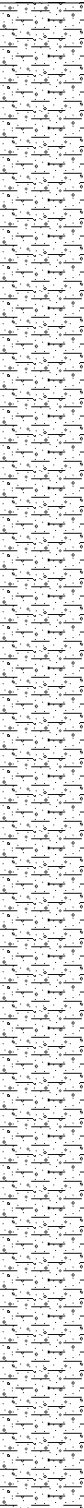
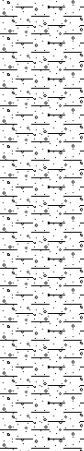
Remarks

1. Concrete encountered to 0.1m bgl. 2. No groundwater encountered. 3. Bedrock encountered at 26.0m bgl. 4. Rotary follow on to 36.00m bgl. 5. 50mm standpipe installed to 3m bgl, 1m plain, 2m slotted. 6. 19mm standpipe installed to 36.00m bgl, 22m plain, 14m slotted.





Rotary Core Log

Project Name: ROCHDALE ROAD				Client: WATERMAN I&E				Date: 27/09/2022									
Location: MANCHESTER				Contractor:				Co-ords: E384736.51 N399122.49									
Project No. : GRO-22292				Crew Name:				Drilling Equipment:									
Borehole Number BH101		Hole Type CP+RC		Level 51.90m AoD		Logged By RR		Scale 1:25		Page Number Sheet 4 of 8							
Well	Water	Depth (m)	Type /Fl	Coring			Diameter Recovery (SPT)	Depth (m)	Level (m)	Legend	Stratum Description						
				TCR	SCR	RQD											
		15.00 - 15.45	U				N=51 (9,10/5 1 for 285mm)				Firm brown slightly sandy gravelly CLAY. Sand is fine to medium. Gravel is angular to subangular fine to medium of mixed lithologies. <u>high strength at 15.00m bgl.</u>	16					
		15.50	D														
		16.00	B														
		17.00 17.00	B D														
		18.00	B														
		18.50 - 18.95	U														
		19.00	D							<u>medium strength at 18.50m bgl.</u>	19						
		20.00	B														
Hole Diameter		Casing Diameter		Chiselling				Inclination and Orientation				Drilling Flush					
Depth Base	Diameter	Depth Base	Diameter	Depth Top	Depth Base	Duration	Tool	Depth Top	Depth Base	Inclination	Orientation	Depth Top	Depth Base	Type	Colour	Min (%)	Max (%)
Remarks																	
1. Concrete encountered to 0.1m bgl. 2. No groundwater encountered. 3. Bedrock encountered at 26.0m bgl. 4. Rotary follow on to 36.00m bgl. 5. 50mm standpipe installed to 3m bgl, 1m plain, 2m slotted. 6. 19mm standpipe installed to 36.00m bgl, 22m plain, 14m slotted.																	

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Rotary Core Log

Project Name: ROCHDALE ROAD				Client: WATERMAN I&E				Date: 27/09/2022			
Location: MANCHESTER				Contractor:				Co-ords: E384736.51 N399122.49			
Project No. : GRO-22292				Crew Name:				Drilling Equipment:			
Borehole Number BH101		Hole Type CP+RC		Level 51.90m AoD		Logged By RR		Scale 1:25		Page Number Sheet 5 of 8	

Well	Water	Depth (m)	Type /FI	Coring			Diameter Recovery (SPT)	Depth (m)	Level (m)	Legend	Stratum Description	
				TCR	SCR	RQD						
		20.00	D				N=50 (8,8/50 for 200mm)				Firm brown slightly sandy gravelly CLAY. Sand is fine to medium. Gravel is angular to subangular fine to medium of mixed lithologies. <i>Pockets of sand from 20.0m bgl. Gravel is angular to subangular fine to coarse of mixed lithologies including sandstone.</i>	21
		21.50	B									
		21.50	D				N=50 (7,11/50 for 95mm)				becoming gravelly with occasional cobbles from 21.5m bgl.	22
		22.30	D					22.30	29.60		Red brown medium to coarse SAND.	23
		23.00	D									24
		24.50	D									25

Hole Diameter		Casing Diameter		Chiselling				Inclination and Orientation				Drilling Flush					
Depth Base	Diameter	Depth Base	Diameter	Depth Top	Depth Base	Duration	Tool	Depth Top	Depth Base	Inclination	Orientation	Depth Top	Depth Base	Type	Colour	Min (%)	Max (%)

Remarks

1. Concrete encountered to 0.1m bgl. 2. No groundwater encountered. 3. Bedrock encountered at 26.0m bgl. 4. Rotary follow on to 36.00m bgl. 5. 50mm standpipe installed to 3m bgl, 1m plain, 2m slotted. 6. 19mm standpipe installed to 36.00m bgl, 22m plain, 14m slotted.

Rotary Core Log

Project Name: ROCHDALE ROAD				Client: WATERMAN I&E				Date: 27/09/2022			
Location: MANCHESTER				Contractor:				Co-ords: E384736.51 N399122.49			
Project No. : GRO-22292				Crew Name:				Drilling Equipment:			
Borehole Number BH101		Hole Type CP+RC		Level 51.90m AoD		Logged By RR		Scale 1:25		Page Number Sheet 6 of 8	

Well	Water	Depth (m)	Type /FI	Coring			Diameter Recovery (SPT)	Depth (m)	Level (m)	Legend	Stratum Description	
				TCR	SCR	RQD						
											Red brown medium to coarse SAND.	
		25.80	26.10									
		26.00	25.90	D							Extremely weak red brown SANDSTONE, residually weathered recovered as sandy angular to subangular fine to coarse gravel. Sand is medium to coarse. NO RECOVERY.	26
		26.00 - 27.00	NR	14	14	0						
			NR									
		26.86	25.04	NI								
		27.00 - 28.00	NR								Weak red brown medium to coarse SANDSTONE, destructured with closely spaced subhorizontal smooth planar (5°) discontinuities. Between 26.91m and 26.95m bgl recovered as a single subangular cobble of red brown medium to coarse sandstone. Between 27.00m and 27.38m bgl no recovery. Between 27.61m and 27.67m bgl recovered as clayey angular to subangular medium to coarse gravel.	27
			2	62	56	42						
			NI									
			3									
		28.00	23.90	NR							NO RECOVERY.	28
		28.00 - 29.00	NR	48	32	12						
28.52	23.38	NI										
	4											
	NI											
29.00	22.90	NR								Weak red brown medium to coarse SANDSTONE, destructured with closely spaced subhorizontal smooth planar (5°) discontinuities. Between 28.52m and 28.64m bgl recovered as angular to subangular medium to coarse cobbles. Between 28.90m and 28.92m bgl recovered as firm clay. Between 28.92m and 28.95m bgl recovered as angular to subangular fine to coarse cobbles. NO RECOVERY.	29	
29.00 - 30.00	NR	42	42	15								
29.56	22.34	4										
30.00	21.90											

Hole Diameter		Casing Diameter		Chiselling				Inclination and Orientation				Drilling Flush					
Depth Base	Diameter	Depth Base	Diameter	Depth Top	Depth Base	Duration	Tool	Depth Top	Depth Base	Inclination	Orientation	Depth Top	Depth Base	Type	Colour	Min (%)	Max (%)

Remarks															
1. Concrete encountered to 0.1m bgl. 2. No groundwater encountered. 3. Bedrock encountered at 26.0m bgl. 4. Rotary follow on to 36.00m bgl. 5. 50mm standpipe installed to 3m bgl, 1m plain, 2m slotted. 6. 19mm standpipe installed to 36.00m bgl, 22m plain, 14m slotted.															



Rotary Core Log

Project Name: ROCHDALE ROAD			Client: WATERMAN I&E			Date: 27/09/2022		
Location: MANCHESTER			Contractor:			Co-ords: E384736.51 N399122.49		
Project No. : GRO-22292			Crew Name:			Drilling Equipment:		
Borehole Number BH101		Hole Type CP+RC		Level 51.90m AoD		Logged By RR		Page Number Sheet 7 of 8

Well	Water	Depth (m)	Type /FI	Coring			Diameter Recovery (SPT)	Depth (m)	Level (m)	Legend	Stratum Description	
				TCR	SCR	RQD						
		30.00 - 31.00	NR	7	0	0		30.93	20.97		NO RECOVERY.	
			1									
		31.00 - 32.00	NR								Weak red brown medium to coarse SANDSTONE, destructured with closely spaced subhorizontal smooth planar (5°) discontinuities.	31
			3	66	57	41					Between 31.00m and 31.34m bgl no recovery.	
			NI								Between 31.34m and 31.65m bgl discontinuities are open.	
			2								Between 31.65m and 31.75m bgl recovered as angular to subangular fine to coarse cobbles.	
		32.00 - 33.00	NR								Between 32.00m and 32.12m bgl no recovery.	32
			7	88	75	56					Between 32.12m and 32.36m bgl discontinuities are infilled with medium to coarse sand.	
			NI									
			1								Between 32.75m and 32.79m bgl recovered as clayey sandy angular to subangular fine to medium gravel. Sand is medium to coarse.	
			NI								Between 32.91m and 33.00m bgl recovered as clayey sandy angular to subangular fine to medium gravel. Sand is medium to coarse.	33
		33.00 - 34.50	NR								Between 33.00m and 33.10m bgl no recovery.	
			6								Between 33.10m and 33.15m bgl recovered as a singular subangular medium to coarse cobble.	
			NI								At 33.29m discontinuities are infilled with gravel.	
			10	93	87	34					Between 33.62m and 33.66m bgl recovered as angular to subangular medium to coarse gravel.	34
			NR								Between 34.50m and 34.68m bgl no recovery.	
			NI								Between 34.68m and 34.78m bgl recovered as angular to subangular fine to coarse gravel and cobbles.	35

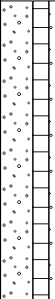
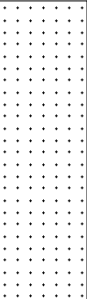
Hole Diameter		Casing Diameter		Chiselling				Inclination and Orientation				Drilling Flush					
Depth Base	Diameter	Depth Base	Diameter	Depth Top	Depth Base	Duration	Tool	Depth Top	Depth Base	Inclination	Orientation	Depth Top	Depth Base	Type	Colour	Min (%)	Max (%)

Remarks

1. Concrete encountered to 0.1m bgl. 2. No groundwater encountered. 3. Bedrock encountered at 26.0m bgl. 4. Rotary follow on to 36.00m bgl. 5. 50mm standpipe installed to 3m bgl, 1m plain, 2m slotted. 6. 19mm standpipe installed to 36.00m bgl, 22m plain, 14m slotted.


Rotary Core Log

Project Name: ROCHDALE ROAD			Client: WATERMAN I&E			Date: 27/09/2022		
Location: MANCHESTER			Contractor:			Co-ords: E384736.51 N399122.49		
Project No. : GRO-22292			Crew Name:			Drilling Equipment:		
Borehole Number BH101		Hole Type CP+RC		Level 51.90m AoD		Logged By RR		Page Number Sheet 8 of 8

Well	Water	Depth (m)	Type /FI	Coring			Diameter Recovery (SPT)	Depth (m)	Level (m)	Legend	Stratum Description	
				TCR	SCR	RQD						
		34.50 - 36.00	9	88	81	67		36.00	15.90		Weak red brown medium to coarse SANDSTONE, destructured with closely spaced subhorizontal smooth planar (5°) discontinuities.	
											End of Borehole at 36.000m	36
												37
												38
												39
												40

Hole Diameter		Casing Diameter		Chiselling				Inclination and Orientation				Drilling Flush					
Depth Base	Diameter	Depth Base	Diameter	Depth Top	Depth Base	Duration	Tool	Depth Top	Depth Base	Inclination	Orientation	Depth Top	Depth Base	Type	Colour	Min (%)	Max (%)

Remarks 1. Concrete encountered to 0.1m bgl. 2. No groundwater encountered. 3. Bedrock encountered at 26.0m bgl. 4. Rotary follow on to 36.00m bgl. 5. 50mm standpipe installed to 3m bgl, 1m plain, 2m slotted. 6. 19mm standpipe installed to 36.00m bgl, 22m plain, 14m slotted.																	
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Rotary Core Log

Project Name: ROCHDALE ROAD				Client: WATERMAN I&E				Date: 03/10/2022									
Location: MANCHESTER				Contractor:				Co-ords: E384727.39 N399159.34									
Project No. : GRO-22292				Crew Name:				Drilling Equipment:									
Borehole Number BH102		Hole Type CP+RC		Level 51.30m AoD		Logged By RR		Scale 1:25		Page Number Sheet 1 of 8							
Well	Water	Depth (m)	Type /FI	Coring			Diameter Recovery (SPT)	Depth (m)	Level (m)	Legend	Stratum Description						
		0.00 - 0.50	B					0.20	51.10		MADE GROUND: Concrete.	1					
		0.50 0.50 - 1.00	B ES								MADE GROUND: Dark brown black very sandy silty medium to coarse angular to subangular gravel of mixed lithologies including ash, brick, and concrete. Sand is medium to coarse.						
		1.00	ES														
		1.20	B				N=50 (25 for 0mm/5 0 for 0mm)	1.50	49.80								
		1.80	ES								MADE GROUND: Brown very sandy slightly clayey silty gravel. Gravel is angular to subangular fine to medium of mixed lithologies including brick.	2					
		2.00	B				N=45 (10,11/4 5 for 125mm)										
		2.80	ES														
		3.00	B				(30)										
		3.80	ES									3					
		4.00	B				(18)										
4.80	ES																
		5.00	B									5					
Hole Diameter		Casing Diameter		Chiselling				Inclination and Orientation				Drilling Flush					
Depth Base	Diameter	Depth Base	Diameter	Depth Top	Depth Base	Duration	Tool	Depth Top	Depth Base	Inclination	Orientation	Depth Top	Depth Base	Type	Colour	Min (%)	Max (%)
Remarks																	
1. Concrete encountered to 0.2m bgl. 2. Chiselling from 1.2m to 1.7m for 1.25 hours and from 21.0m to 21.5m for 1.0 hour. 3. Perched groundwater encountered at 5.8m bgl rising to 5.3m bgl after 20 minutes. 4. Strong hydrocarbon odour present from 5.8m bgl where groundwater encountered. 5. Bedrock encountered at 24.5m bgl. 6. Rotary follow on to 35.5m bgl. 7. 50mm standpipe installed to 8m bgl, 6m plain. 2m slotted. 8. 19mm standpipe installed to 35.5m bgl. 32m plain. 3.5m slotted.																	

Rotary Core Log

Project Name: ROCHDALE ROAD			Client: WATERMAN I&E			Date: 03/10/2022		
Location: MANCHESTER			Contractor:			Co-ords: E384727.39 N399159.34		
Project No. : GRO-22292			Crew Name:			Drilling Equipment:		
Borehole Number BH102		Hole Type CP+RC		Level 51.30m AoD		Logged By RR		Page Number Sheet 2 of 8

Well	Water	Depth (m)	Type /FI	Coring			Depth (m)	Level (m)	Legend	Stratum Description	
				TCR	SCR	RQD					
										MADE GROUND: Brown very sandy slightly clayey silty gravel. Gravel is angular to subangular fine to medium of mixed lithologies including brick.	
		5.80	ES								
		6.00	B				(42)			Strong hydrocarbon odour present from 5.8m bgl.	6
		7.00	D					6.70	44.60	MADE GROUND: Firm dark brown sandy gravelly clay. Sand is fine to coarse. Gravel is angular to subangular fine to coarse of mixed lithologies including brick.	7
		7.20	ES								
		7.50	B				(9)			becoming sandy slightly silty gravel with occasional cobbles at 7.50m bgl.	
		8.50	D					7.80	43.50	Firm grey brown sandy gravelly CLAY. Sand is fine to medium. Gravel is angular to subrounded fine to coarse of mixed lithologies.	8
		8.80	ES								
		9.00 - 9.45	U							high strength at 9.00m bgl.	9
		10.00	D								10

Hole Diameter		Casing Diameter		Chiselling				Inclination and Orientation				Drilling Flush					
Depth Base	Diameter	Depth Base	Diameter	Depth Top	Depth Base	Duration	Tool	Depth Top	Depth Base	Inclination	Orientation	Depth Top	Depth Base	Type	Colour	Min (%)	Max (%)

Remarks

1. Concrete encountered to 0.2m bgl. 2. Chiselling from 1.2m to 1.7m for 1.25 hours and from 21.0m to 21.5m for 1.0 hour. 3. Perched groundwater encountered at 5.8m bgl rising to 5.3m bgl after 20 minutes. 4. Strong hydrocarbon odour present from 5.8m bgl where groundwater encountered. 5. Bedrock encountered at 24.5m bgl. 6. Rotary follow on to 35.5m bgl. 7. 50mm standpipe installed to 8m bgl, 6m plain, 2m slotted. 8. 19mm standpipe installed to 35.5m bgl, 32m plain, 3.5m slotted.

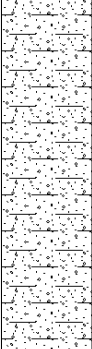
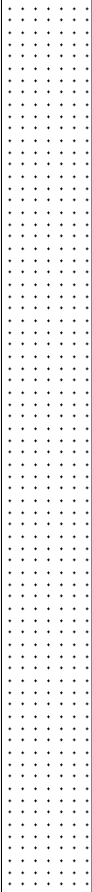






Rotary Core Log

Project Name: ROCHDALE ROAD			Client: WATERMAN I&E			Date: 03/10/2022		
Location: MANCHESTER			Contractor:			Co-ords: E384727.39 N399159.34		
Project No. : GRO-22292			Crew Name:			Drilling Equipment:		
Borehole Number BH102		Hole Type CP+RC		Level 51.30m AoD		Logged By RR		Page Number Sheet 5 of 8

Well	Water	Depth (m)	Type /FI	Coring			Depth (m)	Level (m)	Legend	Stratum Description	
				TCR	SCR	RQD					
		20.50	D				20.20	31.10		Firm grey brown sandy gravelly CLAY. Sand is fine to medium. Gravel is angular to subrounded fine to coarse of mixed lithologies.	
		21.00 - 21.45	B				21.50	29.80		Very dense orange brown clayey gravelly medium to coarse SAND. Gravel is angular to subangular fine to coarse of mixed lithologies including sandstone.	21
										Extremely weak red brown SANDSTONE, residually weathered. Recovered as gravelly medium to coarse sand. Gravel is angular to subangular fine to coarse of sandstone.	22
											23
											24
							24.50	26.80		NO RECOVERY.	25

Hole Diameter		Casing Diameter		Chiselling				Inclination and Orientation				Drilling Flush					
Depth Base	Diameter	Depth Base	Diameter	Depth Top	Depth Base	Duration	Tool	Depth Top	Depth Base	Inclination	Orientation	Depth Top	Depth Base	Type	Colour	Min (%)	Max (%)

Remarks 1. Concrete encountered to 0.2m bgl. 2. Chiselling from 1.2m to 1.7m for 1.25 hours and from 21.0m to 21.5m for 1.0 hour. 3. Perched groundwater encountered at 5.8m bgl rising to 5.3m bgl after 20 minutes. 4. Strong hydrocarbon odour present from 5.8m bgl where groundwater encountered. 5. Bedrock encountered at 24.5m bgl. 6. Rotary follow on to 35.5m bgl. 7. 50mm standpipe installed to 8m bgl, 6m plain, 2m slotted. 8. 19mm standpipe installed to 35.5m bgl, 32m plain, 3.5m slotted.																	
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GROUNDTECH
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Rotary Core Log

Project Name: ROCHDALE ROAD			Client: WATERMAN I&E			Date: 03/10/2022		
Location: MANCHESTER			Contractor:			Co-ords: E384727.39 N399159.34		
Project No. : GRO-22292			Crew Name:			Drilling Equipment:		
Borehole Number BH102		Hole Type CP+RC		Level 51.30m AoD		Logged By RR		Page Number Sheet 6 of 8

Well	Water	Depth (m)	Type /FI	Coring			Diameter Recovery (SPT)	Depth (m)	Level (m)	Legend	Stratum Description	
				TCR	SCR	RQD						
		24.50 - 25.50		0	0	0					NO RECOVERY.	
		25.50 - 26.50	NR	8	8	0						26
			1					26.42 26.50	24.88 24.80		Weak red brown medium to coarse SANDSTONE, destructured with closely spaced subhorizontal smooth planar (5°) discontinuities. NO RECOVERY.	
		26.50 - 27.50	NR	42	42	36		27.08	24.22		Weak red brown medium to coarse SANDSTONE, destructured with closely spaced subhorizontal smooth planar (5°) discontinuities. Between 27.08m and 27.50m bgl yellow orange bands present.	27
			4					27.50	23.80		NO RECOVERY.	
		27.50 - 28.50	NR	50	50	50		28.00	23.30		Weak red brown medium to coarse SANDSTONE, destructured with closely spaced subhorizontal smooth planar (5°) discontinuities. At 28.10m bgl discontinuities are open.	28
			4									
		28.50 - 29.50	5	100	76	52					Between 28.76m and 28.86m bgl yellow orange bands present.	29
			NI								At 29.10m bgl horizontal fracture present.	
			1								Between 29.19m and 29.31m bgl recovered as sandy angular to subangular medium to coarse gravel. Sand is medium to coarse.	
			NI					29.50	21.80		Between 29.39m and 29.50m bgl recovered as medium to coarse sand and cobbles.	
			NR								NO RECOVERY.	
								29.92	21.38			30

Hole Diameter		Casing Diameter		Chiselling				Inclination and Orientation				Drilling Flush					
Depth Base	Diameter	Depth Base	Diameter	Depth Top	Depth Base	Duration	Tool	Depth Top	Depth Base	Inclination	Orientation	Depth Top	Depth Base	Type	Colour	Min (%)	Max (%)

Remarks

1. Concrete encountered to 0.2m bgl. 2. Chiselling from 1.2m to 1.7m for 1.25 hours and from 21.0m to 21.5m for 1.0 hour. 3. Perched groundwater encountered at 5.8m bgl rising to 5.3m bgl after 20 minutes. 4. Strong hydrocarbon odour present from 5.8m bgl where groundwater encountered. 5. Bedrock encountered at 24.5m bgl. 6. Rotary follow on to 35.5m bgl. 7. 50mm standpipe installed to 8m bgl, 6m plain, 2m slotted. 8. 19mm standpipe installed to 35.5m bgl, 32m plain, 3.5m slotted.





Rotary Core Log

Project Name: ROCHDALE ROAD				Client: WATERMAN I&E				Date: 03/10/2022										
Location: MANCHESTER				Contractor:				Co-ords: E384727.39 N399159.34										
Project No. : GRO-22292				Crew Name:				Drilling Equipment:										
Borehole Number BH102		Hole Type CP+RC		Level 51.30m AoD		Logged By RR		Scale 1:25		Page Number Sheet 7 of 8								
Well	Water	Depth (m)	Type /FI	Coring			Diameter Recovery (SPT)	Depth (m)	Level (m)	Legend	Stratum Description							
				TCR	SCR	RQD												
		29.50 - 31.00	12	72	62	7		32.50	18.80		Weak red brown medium to coarse SANDSTONE, destructured with closely spaced subhorizontal smooth planar (5°) discontinuities. At 30.12m bgl pink quartzite gravel present in rock. Between 30.56m and 30.60m bgl recovered as angular to subangular medium to coarse gravel.	31						
			NI															
			5															
		31.00 - 32.50	NI														Between 30.93m and 31.00m bgl recovered as a single cobble. Between 31.00m and 31.33m bgl no recovery.	32
			NR															
			3															
			NI															
			9														Between 31.47m and 31.50m bgl recovered as a single subangular cobble. From 31.50m bgl gravels are present.	
		32.50 - 34.00	NI														Between 32.00m and 32.30m bgl pockets of clay present.	33
			1														Between 32.30m and 32.40m bgl recovered as clayey sandy angular to subangular medium to coarse gravel. Sand is medium to coarse.	
			NR														NO RECOVERY.	
			NI															
5											Weak red brown medium to coarse SANDSTONE, destructured with closely spaced subhorizontal smooth planar (5°) discontinuities. Between 33.08m and 33.16m bgl recovered as a single subangular cobble. Between 33.51m and 33.56m bgl recovered as angular to subangular medium to coarse gravel.							
34.00 - 35.50	NI										Between 33.89m and 33.92m bgl recovered as angular to subangular medium to coarse gravel.	34						
	1										NO RECOVERY.							
	NR																	

Rotary Core Log

Project Name: ROCHDALE ROAD			Client: WATERMAN I&E			Date: 03/10/2022		
Location: MANCHESTER			Contractor:			Co-ords: E384727.39 N399159.34		
Project No. : GRO-22292			Crew Name:			Drilling Equipment:		
Borehole Number BH102		Hole Type CP+RC		Level 51.30m AoD		Logged By RR		Page Number Sheet 8 of 8

Well	Water	Depth (m)	Type /FI	Coring			Diameter Recovery (SPT)	Depth (m)	Level (m)	Legend	Stratum Description	
				TCR	SCR	RQD						
			11					35.50	15.80		Weak red brown medium to coarse SANDSTONE, destructured with closely spaced subhorizontal smooth planar (5°) discontinuities. <i>Between 34.70m and 34.78m bgl recovered as angular to subangular medium to coarse gravel.</i> <i>At 35.28m bgl discontinuities are open and infilled with gravel.</i> End of Borehole at 35.500m	36
												37
												38
												39
												40

Hole Diameter		Casing Diameter		Chiselling				Inclination and Orientation				Drilling Flush					
Depth Base	Diameter	Depth Base	Diameter	Depth Top	Depth Base	Duration	Tool	Depth Top	Depth Base	Inclination	Orientation	Depth Top	Depth Base	Type	Colour	Min (%)	Max (%)

Remarks 1. Concrete encountered to 0.2m bgl. 2. Chiselling from 1.2m to 1.7m for 1.25 hours and from 21.0m to 21.5m for 1.0 hour. 3. Perched groundwater encountered at 5.8m bgl rising to 5.3m bgl after 20 minutes. 4. Strong hydrocarbon odour present from 5.8m bgl where groundwater encountered. 5. Bedrock encountered at 24.5m bgl. 6. Rotary follow on to 35.5m bgl. 7. 50mm standpipe installed to 8m bgl, 6m plain, 2m slotted. 8. 19mm standpipe installed to 35.5m bgl, 32m plain, 3.5m slotted.																	
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Borehole Log

Borehole No.

BH103

Sheet 1 of 1

Project Name: ROCHDALE ROAD

Project No.
GRO-22292

Co-ords: 384724.31 - 399146.17

Hole Type
CP

Location: MANCHESTER

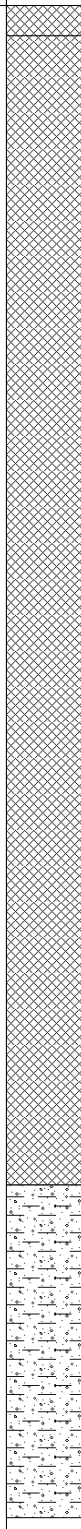
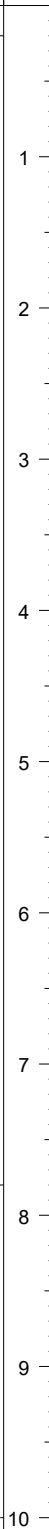
Level: 51.48

Scale
1:50

Client: WATERMAN I&E

Dates: 29/09/2022 -

Logged By
RR

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		0.20	ES	PID=0	0.20	51.28		MADE GROUND: Concrete.	
		0.40	ES	PID=0				MADE GROUND: Dark brown slightly clayey gravelly medium to coarse sand. Gravel is angular to subangular fine to coarse of mixed lithologies including brick.	
		1.00	ES	PID=0					
		1.20		N=3 (1,1/0,1,1,1)					
		1.20 - 1.65	D						
		2.00	ES	N=4 (1,1/1,1,1,1)					
		2.00		PID=0					
		2.00 - 2.45	D						
		3.00	ES	N=5 (1,0/1,2,1,1)					
		3.00		PID=1					
		3.00 - 3.45	D						
		4.00	ES	N=10 (4,1/1,2,4,3)					
		4.00		PID=1					
		4.00 - 4.45	D						
		5.00	ES	N=17 (4,5/5,4,4,4)					
		5.00		PID=3					
		5.00 - 5.45	D						
		6.50	ES	N=50 (25 for 75mm/50 for 40mm)				Strong hydrocarbon odour present from 6.5m bgl.	
		6.50		PID=180					
		6.50 - 6.95	D						
		7.80	D	PID=6	7.80	43.68		Firm brown sandy gravelly CLAY. Sand is fine to medium. Gravel is angular to subangular fine to medium of mixed lithologies.	
		8.00	ES	N=6 (1,2/0,1,2,3)					
		8.00		PID=3					
		9.50	ES	N=9 (1,2/2,2,3,2)					
		9.50		PID=7					
		9.50 - 9.95	D		10.00	41.48		End of borehole at 10.00 m	

Remarks

1. Concrete encountered to 0.2m bgl. 2. Chiselling from 5.8m to 6.0m bgl for 1 hour. 3. Perched groundwater encountered at 6.5m bgl. 4. Strong hydrocarbon odour present from 6.5m bgl where groundwater encountered. 5. Borehole terminated at 10.0m bgl. 6. Standpipe installed to 10m bgl, 6m plain, 4m slotted.





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Borehole Log

Borehole No.

BH104

Sheet 1 of 1

Project Name: ROCHDALE ROAD

Project No.
GRO-22292

Co-ords: 384723.48 - 399130.37

Hole Type
CP

Location: MANCHESTER

Level: 51.41

Scale
1:50

Client: WATERMAN I&E

Dates: 29/09/2022 -

Logged By
RR

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		0.20	ES	PID=12	0.20	51.21		MADE GROUND: Concrete.	
		0.40	ES	PID=12				MADE GROUND: Dark brown slightly clayey gravelly medium to coarse sand. Gravel is angular to subangular fine to coarse of mixed lithologies including brick.	
		1.00	ES	PID=41					
		1.20	B	N=17 (4,3/4,4,4,5)					
		1.20							
		2.00	ES	N=14 (3,3/2,3,4,5)					
		2.00		PID=1					
		2.00 - 2.45	B						
		3.00	ES	N=16 (2,3/3,4,5,4)					
		3.00		PID=4					
		3.00 - 3.45	B						
		4.00	ES	N=14 (2,3/3,4,3,4)					
		4.00		PID=22					
		4.00 - 4.45	B						
		5.00	ES	N=15 (5,3/3,4,3,5)					
		5.00		PID=0					
		5.00 - 5.45	B						
					6.00	45.41		Strong hydrocarbon odour present from 5.8m bgl. End of borehole at 6.00 m	

Remarks

1. Concrete encountered to 0.2m bgl. 2. Perched groundwater encountered at 5.8m bgl. 3. Strong hydrocarbon odour present from 5.8m bgl where groundwater encountered. 4. Borehole terminated at 6.0m bgl due to encountering an obstruction. 5. Standpipe installed to 6.0m bgl, 4m plain, 2m slotted.





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Borehole Log

Borehole No.

BH105

Sheet 1 of 3

Project Name: ROCHDALE ROAD

Project No.
GRO-22292

Co-ords: 384686.65 - 399129.03

Hole Type
CP

Location: MANCHESTER

Level: 45.78

Scale
1:50

Client: WATERMAN I&E

Dates: 06/10/2022 -

Logged By
RR

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		0.20			0.20	45.58		MADE GROUND: Concrete.	
		1.00	B					MADE GROUND: Black sandy silty gravel with occasional cobbles. Gravel is angular to subangular medium to coarse of mixed lithologies including ash, brick, and clinker.	1
		1.00	D						
		1.00	ES						
		1.20		PID=0					
		1.20	D						
		1.20		N=3 (2,1/0,0,1,2)					
		2.00	B						2
		2.00	ES						
		2.00		N=37 (3,5/10,10,9,8)					
		2.00		PID=0					
		2.00 - 2.45	D						
		3.00	B						3
		3.00	ES						
		3.00		N=33 (2,2/6,7,9,11)					
		3.00		PID=2					
		3.00 - 3.45	D						
		4.00	B						4
		4.00	ES						
		4.00		N=5 (2,2/1,0,1,3)					
		4.00		PID=1					
		4.00 - 4.45	D						
		5.00		N=50 (25 for 75mm/50 for 2mm)	5.00	40.78		NO RECOVERY. <i>Strong hydrocarbon odour present from 5.0m bgl.</i>	5
		6.50		N=29 (6,8/7,7,7,8)					6
		7.00	B						
		7.00	D					Firm to stiff brown slightly gravelly sandy CLAY. Sand is medium to coarse. Gravel is angular to subangular fine to subrounded of mixed lithologies.	7
		7.00	ES						
		7.00		PID=10					
		7.50		N=20 (3,4/4,5,5,6)					
		7.50		PID=5					
		7.50 - 7.95	D						
		8.00	D						8
				PID=22					
		9.00	B					<i>high strength at 9.00m bgl.</i>	9
		9.00	D						
		9.00		PID=4					
		9.00 - 9.45	U						
		9.50	ES						
		10.00	B						10

Continued on next sheet

Remarks

1. Concrete encountered to 0.2m bgl. 2. Strong hydrocarbon odour present from 5.0m bgl. 3. No recovery from 5.0m to 6.8m bgl. 4. Borehole terminated at 24.0m bgl due to encountering bedrock. 5. No groundwater encountered. 6. Standpipe installed to 7m bgl, 4.5m plain, 2.5m slotted.





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Borehole Log

Borehole No.

BH105

Sheet 2 of 3

Project Name: ROCHDALE ROAD

Project No.
GRO-22292

Co-ords: 384686.65 - 399129.03

Hole Type
CP

Location: MANCHESTER

Level: 45.78

Scale
1:50

Client: WATERMAN I&E

Dates: 06/10/2022 -

Logged By
RR

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		10.00 10.00	D ES	PID=2 N=26 (4,5/6,6,7,7)					
		10.50 10.50 - 10.95	D						
		11.00 11.00	B D	PID=0					11
		12.00 12.00	B D	PID=0					12
		13.00 13.00	B D	PID=1					13
		13.50 13.50 - 13.95	D	N=27 (5,5/6,7,7,7)					
		14.00 14.00	B D	PID=1					14
		15.00 15.00	B D	PID=1				high strength and very sandy from 15.0m bgl.	15
		15.00 - 15.45	U						
		16.00 16.00	B D	PID=4					16
		16.50 16.50 - 16.95	D	N=19 (3,3/4,4,5,6)					17
		18.00 18.00	D	N=50 (2,4/12,12,13,13) PID=0					18
		18.00 - 18.45	B						
		19.50 19.50	D	N=50 (3,16/50 for 95mm) PID=0	19.20	26.58		Very dense orange brown very clayey gravelly medium to coarse SAND. Gravel is angular to subangular fine to medium of sandstone.	19
									20

Continued on next sheet

Remarks

1. Concrete encountered to 0.2m bgl. 2. Strong hydrocarbon odour present from 5.0m bgl. 3. No recovery from 5.0m to 6.8m bgl. 4. Borehole terminated at 24.0m bgl due to encountering bedrock. 5. No groundwater encountered. 6. Standpipe installed to 7m bgl, 4.5m plain, 2.5m slotted.





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Borehole Log

Borehole No.

BH105

Sheet 3 of 3

Project Name: ROCHDALE ROAD

Project No.
GRO-22292

Co-ords: 384686.65 - 399129.03

Hole Type
CP

Location: MANCHESTER

Level: 45.78

Scale
1:50

Client: WATERMAN I&E

Dates: 06/10/2022 -

Logged By
RR

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		19.50 - 19.95	B						
		19.50 - 19.95	D						
		21.00		N=50 (10,11/50 for 125mm) PID=0					21
		21.00 - 21.45	D						22
									23
					24.00	21.78		End of borehole at 24.00 m	24
									25
									26
									27
									28
									29
									30

Remarks

1. Concrete encountered to 0.2m bgl. 2. Strong hydrocarbon odour present from 5.0m bgl. 3. No recovery from 5.0m to 6.8m bgl. 4. Borehole terminated at 24.0m bgl due to encountering bedrock. 5. No groundwater encountered. 6. Standpipe installed to 7m bgl, 4.5m plain, 2.5m slotted.



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Rotary Core Log

Project Name: ROCHDALE ROAD			Client: WATERMAN I&E			Date: 08/10/2022		
Location: MANCHESTER			Contractor:			Co-ords: E384651.37 N399146.30		
Project No. : GRO-22292			Crew Name:			Drilling Equipment:		
Borehole Number BH106		Hole Type CP+RC		Level 45.78m AoD		Logged By RR		Page Number Sheet 1 of 6

Well	Water	Depth (m)	Type /FI	Coring			Depth (m)	Level (m)	Legend	Stratum Description	
				TCR	SCR	RQD					
		0.00 - 0.50	B							MADE GROUND: Dark brown clayey sandy angular to subangular medium to coarse gravel of mixed lithologies including brick and sandstone.	1
		0.50 0.50 - 1.00	B ES								
		1.00	ES								
		1.20 - 1.65	B				(25)				
		2.00 2.00 2.00	B D ES				(29)				
		3.00 3.00 3.00	B D ES				(26)	3.00	42.78	Firm to stiff brown sandy gravelly CLAY. Sand is fine to medium. Gravel is angular to subangular fine to medium of mixed lithologies.	3
		4.00	B								
		5.00	B				(20)				

Hole Diameter		Casing Diameter		Chiselling				Inclination and Orientation				Drilling Flush					
Depth Base	Diameter	Depth Base	Diameter	Depth Top	Depth Base	Duration	Tool	Depth Top	Depth Base	Inclination	Orientation	Depth Top	Depth Base	Type	Colour	Min (%)	Max (%)

Remarks

1. Location cleared by specialist utility clearance. 2. Hand dug inspection pit to 1.2m bgl. 3. Bedrock encountered at 19.5m bgl. 4. Rotary follow on to 29.5m bgl. 5. No groundwater encountered. 6. Standpipe installed to 4m bgl, 1m plain, 3m slotted.



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Rotary Core Log

Project Name: ROCHDALE ROAD				Client: WATERMAN I&E				Date: 08/10/2022			
Location: MANCHESTER				Contractor:				Co-ords: E384651.37 N399146.30			
Project No. : GRO-22292				Crew Name:				Drilling Equipment:			
Borehole Number BH106		Hole Type CP+RC		Level 45.78m AoD		Logged By RR		Scale 1:25		Page Number Sheet 2 of 6	

Well	Water	Depth (m)	Type /FI	Coring			Diameter Recovery (SPT)	Depth (m)	Level (m)	Legend	Stratum Description	
				TCR	SCR	RQD						
		5.00 - 5.45	D								Firm to stiff brown sandy gravelly CLAY. Sand is fine to medium. Gravel is angular to subangular fine to medium of mixed lithologies.	
		6.00 - 6.45	U									6
		6.50	D									7
		7.50 7.50 - 7.95	B D				(25)					8
		9.00 9.00 - 9.45	B D				(27)					9
												10

Hole Diameter		Casing Diameter		Chiselling				Inclination and Orientation				Drilling Flush					
Depth Base	Diameter	Depth Base	Diameter	Depth Top	Depth Base	Duration	Tool	Depth Top	Depth Base	Inclination	Orientation	Depth Top	Depth Base	Type	Colour	Min (%)	Max (%)

Remarks

1. Location cleared by specialist utility clearance. 2. Hand dug inspection pit to 1.2m bgl. 3. Bedrock encountered at 19.5m bgl. 4. Rotary follow on to 29.5m bgl. 5. No groundwater encountered. 6. Standpipe installed to 4m bgl, 1m plain, 3m slotted.

Rotary Core Log

Project Name: ROCHDALE ROAD			Client: WATERMAN I&E			Date: 08/10/2022		
Location: MANCHESTER			Contractor:			Co-ords: E384651.37 N399146.30		
Project No. : GRO-22292			Crew Name:			Drilling Equipment:		
Borehole Number BH106		Hole Type CP+RC		Level 45.78m AoD		Logged By RR		Page Number Sheet 3 of 6

Well	Water	Depth (m)	Type /FI	Coring			Diameter Recovery (SPT)	Depth (m)	Level (m)	Legend	Stratum Description	
				TCR	SCR	RQD						
		12.00 12.00 - 12.45	B D				(23)				Firm to stiff brown sandy gravelly CLAY. Sand is fine to medium. Gravel is angular to subangular fine to medium of mixed lithologies.	11
												12
		13.50 - 13.95	D				(32)					13
		15.00	B				(40)	15.00	30.78			14
												15

Hole Diameter		Casing Diameter		Chiselling				Inclination and Orientation				Drilling Flush					
Depth Base	Diameter	Depth Base	Diameter	Depth Top	Depth Base	Duration	Tool	Depth Top	Depth Base	Inclination	Orientation	Depth Top	Depth Base	Type	Colour	Min (%)	Max (%)

Remarks

1. Location cleared by specialist utility clearance. 2. Hand dug inspection pit to 1.2m bgl. 3. Bedrock encountered at 19.5m bgl. 4. Rotary follow on to 29.5m bgl. 5. No groundwater encountered. 6. Standpipe installed to 4m bgl, 1m plain, 3m slotted.



Rotary Core Log

Project Name: ROCHDALE ROAD			Client: WATERMAN I&E			Date: 08/10/2022		
Location: MANCHESTER			Contractor:			Co-ords: E384651.37 N399146.30		
Project No. : GRO-22292			Crew Name:			Drilling Equipment:		
Borehole Number BH106		Hole Type CP+RC		Level 45.78m AoD		Logged By RR		Page Number Sheet 4 of 6

Well	Water	Depth (m)	Type /FI	Coring			Diameter Recovery (SPT)	Depth (m)	Level (m)	Legend	Stratum Description	
				TCR	SCR	RQD						
		15.00 - 15.45	D								Firm to stiff brown slightly sandy CLAY. Sand is fine to medium.	16
		16.50 - 16.95	B D				(25)	17.00	28.78		Orange brown fine to coarse SAND.	17
		18.00	D					18.50	27.28		Extremely weak red brown SANDSTONE, residually weathered. Recovered as sandy angular to subangular medium to coarse gravel of sandstone.	18
		19.40	D				N=50 (25 for 50mm/ 50 for 50mm)	19.50	26.28		NO RECOVERY.	19
							N=50 (25 for 50mm/ 50 for 50mm)					20

Hole Diameter		Casing Diameter		Chiselling				Inclination and Orientation				Drilling Flush					
Depth Base	Diameter	Depth Base	Diameter	Depth Top	Depth Base	Duration	Tool	Depth Top	Depth Base	Inclination	Orientation	Depth Top	Depth Base	Type	Colour	Min (%)	Max (%)

Remarks

1. Location cleared by specialist utility clearance. 2. Hand dug inspection pit to 1.2m bgl. 3. Bedrock encountered at 19.5m bgl. 4. Rotary follow on to 29.5m bgl. 5. No groundwater encountered. 6. Standpipe installed to 4m bgl, 1m plain, 3m slotted.







Project Name: ROCHDALE ROAD						Client: WATERMAN I&E						Date: 08/10/2022																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																						
Location: MANCHESTER						Contractor:						Co-ords: E384651.37 N399146.30																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																						
Project No. : GRO-22292						Crew Name:						Drilling Equipment:																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																						
Borehole Number BH106			Hole Type CP+RC			Level 45.78m AoD			Logged By RR			Scale 1:25			Page Number Sheet 6 of 6																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																			
Well	Water	Depth (m)	Type /FI	Coring TCR SCR RQD			Diameter Recovery (SPH)	Depth (m)	Level (m)	Legend	Stratum Description																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																							
		25.00 - 26.50	NR	24	23	10		26.14	19.64		NO RECOVERY.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																							
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GROUNDTECH
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Borehole Log

Borehole No.

BH107

Sheet 1 of 2

Project Name: ROCHDALE ROAD

Project No.
GRO-22292

Co-ords: 384737.37 - 399196.90

Hole Type
CP

Location: MANCHESTER

Level: 46.28

Scale
1:50

Client: WATERMAN I&E

Dates: 08/10/2022 - 08/10/2022

Logged By
RR

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description						
		Depth (m)	Type	Results										
		0.00 - 0.50	B	PID=51 N=11 (6,10/4,3,2,2)	2.00	44.28		MADE GROUND: Dark brown clayey sandy angular to subangular medium to coarse gravel of mixed lithologies including brick and sandstone.	1					
		0.50 0.50 - 1.00	ES B											
		1.00	ES											
		1.20 1.40 1.60 - 2.00	ES ES B											
		2.00	ES	PID=33				Firm to stiff medium strength brown slightly gravelly very sandy CLAY. Sand is fine to medium. Gravel is angular to subangular fine to medium of mixed lithologies.	2					
		2.50 2.60	D D	N=8 (1,2/2,1,2,3) PID=14										
		3.00 3.00	ES											
		3.00 - 3.45	B											
		4.00	D											
		5.00 5.00	D	N=16 (3,3/4,3,4,5) PID=8										
		5.00 - 5.45	B											
		6.00 6.00	D ES	PID=3										
		7.50 7.50 7.50 7.50	B D ES	N=39 (4,5/7,10,10,12) PID=2					3					
		9.00 9.00 9.00 9.00	B D ES											

becoming very stiff from 7.50m bgl.

Continued on next sheet

Remarks

1. Location cleared by specialist utility clearance. 2. Hand dug inspection pit to 1.2m bgl. 3. Borehole terminated at 15.0m bgl due to SPT refusal. 4. No groundwater encountered. 5. Standpipe installed to 2m bgl, 1m plain, 1m slotted.





GROUNDTECH
CONSULTING

Borehole Log

Borehole No.

BH107

Sheet 2 of 2

Project Name: ROCHDALE ROAD

Project No.
GRO-22292

Co-ords: 384737.37 - 399196.90

Hole Type
CP

Location: MANCHESTER

Level: 46.28

Scale
1:50

Client: WATERMAN I&E

Dates: 08/10/2022 - 08/10/2022

Logged By
RR

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		10.40 10.50 10.50	D D D	PID=3 N=20 (4,4/4,5,5,6)	10.40	35.88		Firm to stiff friable brown very sandy gravelly CLAY with bands of sand. Sand is fine to medium. Gravel is angular to subangular fine to medium of mixed lithologies.	11
		10.50 - 10.95 11.00	B D	PID=0	11.00	35.28		Firm to stiff sandy gravelly CLAY. Sand is fine to medium. Gravel is angular to subangular fine to medium of mixed lithologies.	
		12.00	D	PID=5					
		12.00 - 12.50	B						
		13.50 13.50	D	PID=1 N=50 (10,12/50 for 210mm)					
		15.00		N=50 (25 for 20mm/50 for 10mm)	15.00	31.28		End of borehole at 15.00 m	15
									16
									17
									18
									19
									20

Remarks

1. Location cleared by specialist utility clearance. 2. Hand dug inspection pit to 1.2m bgl. 3. Borehole terminated at 15.0m bgl due to SPT refusal. 4. No groundwater encountered. 5. Standpipe installed to 2m bgl, 1m plain, 1m slotted.





GROUNDTECH
CONSULTING

Borehole Log

Borehole No.

WS101

Sheet 1 of 1

Project Name: ROCHDALE ROAD

Project No.
GRO-22292

Co-ords: 384738.30 - 399171.09

Hole Type
WS

Location: MANCHESTER

Level: 51.24

Scale
1:25

Client: WATERMAN I&E

Dates: 07/10/2022 -

Logged By
RR

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		0.20	ES	PID=0	0.09	51.16		MADE GROUND: Concrete.	
		1.00 1.00 1.00	D ES	N=0 (0,0/0,0,0,0) PID=0	0.90	50.34		MADE GROUND: Dark brown sandy angular to subangular medium to coarse gravel of mixed lithologies including sandstone and brick.	
		2.00 2.00 2.00	D ES	N=7 (1,0/0,1,1,5) PID=0				Soft to firm brown sandy gravelly CLAY. Sand is fine to medium. Gravel is angular to subangular medium to coarse of mixed lithologies including sandstone.	
		3.00 3.00	D	N=50 (1,0/50 for 175mm) PID=0	3.40	47.84		End of borehole at 3.40 m	

Remarks

1. Concrete encountered to 0.09m bgl. 2. Hole terminated at 3.4m bgl due to SPT refusal. 3. No groundwater encountered. 4. Standpipe installed to 3.4m bgl, 1m plain, 2.4m slotted.





GROUNDTECH
CONSULTING

Borehole Log

Borehole No.

WS102

Sheet 1 of 1

Project Name: ROCHDALE ROAD

Project No.
GRO-22292

Co-ords: 384734.68 - 399137.63

Hole Type
WS

Location: MANCHESTER

Level: 51.51

Scale
1:25

Client: WATERMAN I&E

Dates: 07/10/2022 -

Logged By
RR

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		0.07			0.07	51.44		MADE GROUND: Tarmac.	
					0.20	51.31		MADE GROUND: Concrete.	
		0.30	ES	PID=5				MADE GROUND: Black clayey sandy angular to subangular medium to coarse gravel of mixed lithologies including ash, brick, and concrete.	
		1.00	D						
		1.00	ES	PID=0					
		1.20		N=1 (1,0/0,0,1,0)					
		1.80			1.80	49.71		MADE GROUND: Black sandy very gravelly clay. Sand is fine to medium. Gravel is angular to subangular fine to coarse of mixed lithologies including brick.	
		2.00	D						
		2.00	ES	N=4 (1,1/0,0,1,3)					
		2.00		PID=0	2.20	49.31		MADE GROUND: Black clayey sandy angular to subangular medium to coarse gravel of mixed lithologies including ash, brick, and concrete.	
		3.00	D		3.00	48.51		End of borehole at 3.00 m	
		3.00	ES	N=50 (0,0/50 for 150mm)					
		3.00		PID=0					

Remarks

1. Tarmac and concrete encountered to 0.2m bgl. 2. Hole terminated at 3.0m bgl due to SPT refusal. 3. No groundwater encountered. 4. Standpipe installed to 3.0m bgl, 1m plain, 2m slotted.





GROUNDTECH
CONSULTING

Borehole Log

Borehole No.

WS103

Sheet 1 of 1

Project Name: ROCHDALE ROAD

Project No.
GRO-22292

Co-ords: 384708.74 - 399128.33

Hole Type
WS

Location: MANCHESTER

Level: 51.22

Scale
1:25

Client: WATERMAN I&E

Dates: 07/10/2022 -

Logged By
RR

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		0.20			0.20	51.02		MADE GROUND: Concrete.	
		0.30	ES	PID=1				MADE GROUND: Black gravelly medium to coarse sand. Gravel is angular to subangular medium to coarse of mixed lithologies including ash, brick, and concrete. Moderate cobble content of brick present.	
		1.00	D						
		1.00	ES	PID=0					
		1.20		N=27 (1,3/6,3,7,11)					
		2.00	D		2.00	49.22		End of borehole at 2.00 m	
		2.00	ES	PID=1					
		2.00		N=50 (1,0/50 for 150mm)					

Remarks

1. Concrete encountered to 0.2m bgl. 2. Hole terminated at 2.0m bgl due to SPT refusal. 3. No groundwater encountered. 4. Standpipe installed to 2.0m bgl, 1m plain, 1m slotted.





GROUNDTECH
CONSULTING

Borehole Log

Borehole No.

WS104

Sheet 1 of 1

Project Name: ROCHDALE ROAD

Project No.
GRO-22292

Co-ords: 384654.91 - 399122.92

Hole Type
WS

Location: MANCHESTER

Level: 51.48

Scale
1:25

Client: WATERMAN I&E

Dates: 07/10/2022 -

Logged By
RR

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		0.20	ES	PID=1	0.20	51.28		MADE GROUND: Concrete.	
								MADE GROUND: Dark brown sandy angular to subangular medium to coarse gravel of mixed lithologies including sandstone and brick.	
		0.80	ES	PID=4	0.80	50.68		End of borehole at 0.80 m	

Remarks

1. Concrete encountered to 0.2m bgl. 2. Hole terminated at 0.8m bgl on obstruction. 3. No groundwater encountered. 4. Hole backfilled with arisings.





GROUNDTECH
CONSULTING

Borehole Log

Borehole No.

WS104A

Sheet 1 of 1

Project Name: ROCHDALE ROAD

Project No.
GRO-22292

Co-ords: 384654.91 - 399122.92

Hole Type
WS

Location: MANCHESTER

Level: 51.48

Scale
1:25

Client: WATERMAN I&E

Dates: 07/10/2022 - 07/10/2022

Logged By
RR

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		0.20	ES	PID=1	0.20	51.28		MADE GROUND: Concrete.	
								MADE GROUND: Dark brown sandy angular to subangular medium to coarse gravel of mixed lithologies including sandstone and brick.	
		0.80	ES	PID=1	0.80	50.68		End of borehole at 0.80 m	
									1
									2
									3
									4
									5

Remarks

1. Concrete encountered to 0.2m bgl. 2. Hole terminated at 0.8m bgl due to obstruction. 3. Hole backfilled with arisings.





GROUNDTECH
CONSULTING

Borehole Log

Borehole No.

WS105

Sheet 1 of 1

Project Name: ROCHDALE ROAD

Project No.
GRO-22292

Co-ords: 384696.23 - 399107.05

Hole Type
WS

Location: MANCHESTER

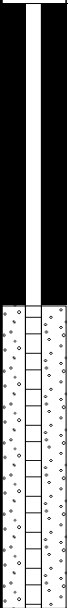
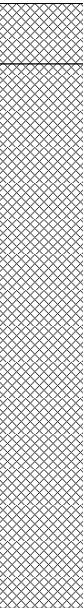
Level: 51.38

Scale
1:25

Client: WATERMAN I&E

Dates: 07/10/2022 -

Logged By
RR

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description			
		Depth (m)	Type	Results							
		0.30	ES	PID=1	0.20	51.18		MADE GROUND: Concrete.	1		
		1.00	D ES	PID=3 N=0 (1,1/0,0,0,0)						MADE GROUND: Black gravelly medium to coarse sand. Gravel is angular to subangular medium to coarse of mixed lithologies including ash, brick, and clinker.	
		1.00									
		1.20									
		2.00	D ES	PID=2 N=50 (3,21/50 for 150mm)	2.00	49.38		End of borehole at 2.00 m	2		
		2.00									
		2.00									

Remarks

1. Concrete encountered to 0.2m bgl. 2. Hole terminated at 2.0m bgl due to SPT refusal. 3. No groundwater encountered. 4. Standpipe installed to 2.0m bgl, 1m plain, 1m slotted.



Trial Pit Log

Trialpit No
TP101
Sheet 1 of 1

Project Name: ROCHDALE ROAD	Project No. GRO-22292	Co-ords: 384711.90 - 399116.18 Level: 51.38	Date 04/10/2022
Location: MANCHESTER		Dimensions (m): 1.9 Depth 2.00	Scale 1:25 Logged RR
Client: WATERMAN I&E			

Water Strike	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
	Depth	Type	Results					
	0.40	ES	PID=0	0.30	51.08		MADE GROUND: Reinforced concrete.	
	1.00 1.00 1.00	B D ES	PID=0				MADE GROUND: Dark grey black sandy clayey silty angular to subangular medium to coarse gravel of mixed lithologies including ash, brick and clinker. Low cobble content of brick present.	1
	2.00 2.00 2.00	B D ES	PID=0	2.00	49.38		Fragments of wood encountered from 0.9m bgl. End of pit at 2.00 m	2
								3
								4
								5

Remarks: 1. Concrete encountered to 0.3m bgl. 2. Pit sides unstable. 3. No groundwater encountered. 4. Soil percolation test carried out at 2.0m bgl. 5. Hole backfilled with arisings.

Stability: Unstable



Trial Pit Log

Trialpit No
TP102
Sheet 1 of 1

Project Name:	ROCHDALE ROAD	Project No.	GRO-22292	Co-ords:	384688.97 - 399108.60	Date	03/10/2022
Location:	MANCHESTER	Dimensions (m):	Depth 2.00	Level:	51.38	Scale	1:25
Client:	WATERMAN I&E					Logged	RR

Water Strike	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
	Depth	Type	Results					
	0.30	ES	PID=0	0.25	51.13		MADE GROUND: Reinforced concrete.	
							MADE GROUND: Black gravelly medium to coarse sand. Gravel is angular to subangular medium to coarse of mixed lithologies including ash, brick, clinker and concrete.	
	1.00 1.00 1.00	B D ES	PID=0	0.90	50.48		MADE GROUND: Brown slightly clayey gravelly medium to coarse sand. Gravel is angular to subangular medium to coarse of mixed lithologies including brick, clinker, concrete, and glass.	1
	2.00 2.00 2.00	B D ES	PID=0	1.80 2.00	49.58 49.38		MADE GROUND: Red brown clayey sandy angular to subangular medium to coarse gravel of mixed lithologies including brick, concrete, coal, and glass. Pockets of clay present. Moderate cobble content of conglomerate. End of pit at 2.00 m	2
								3
								4
								5

Remarks: 1. Concrete encountered to 0.25m bgl. 2. Pit sides unstable. 3. Plate load test carried out at 0.5m bgl. 4. Trial pit terminated at 2.0m bgl. 5. No groundwater encountered. 6. Hole backfilled with arisings.

Stability: Unstable



Trial Pit Log

Trialpit No
TP103
Sheet 1 of 1

Project Name: ROCHDALE ROAD

Project No.
GRO-22292

Co-ords: 384706.64 - 399108.18
Level: 51.37

Date
28/09/2022

Location: MANCHESTER

Dimensions (m):

Depth
1.60

Scale
1:25

Logged
RR

Client: WATERMAN I&E

Water Strike	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
	Depth	Type	Results				
	0.40	ES	PID=0	0.30	51.07		MADE GROUND: Reinforced concrete.
	1.00 1.00	B ES	PID=0				MADE GROUND: Dark brown black sandy angular to subangular fine to coarse gravel of mixed lithologies including ash and brick.
	1.60	ES	PID=3	1.60	49.77		End of pit at 1.60 m

Remarks: 1. Reinforced concrete encountered to 0.3m bgl. 2. Concrete foundation encountered at 0.1m bgl, stepping out 0.09m and 0.23m in thickness. 3. Second step out by 0.8m along the supporting beam, 1.0m in thickness. 4. No groundwater encountered. 5. Hole backfilled with arisings.

Stability: Unstable



Project Name: ROCHDALE ROAD

Project No.	GRO-22292
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Co-ords: 384660.85 - 399147.73

Level: 45.91

Date _____

13/10/2022

Location: MANCHESTER

Dimensions

(m):

Scale

1:25

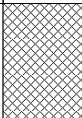
Client: WATERMAN I&E

Depth

0.40

Logged

RR

Water Strike	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
	Depth	Type	Results					
	0.20	ES	PID=4	0.40 0.40	45.51 45.51		MADE GROUND: Brown clayey gravelly medium to coarse sand. Gravel is angular to subangular fine to coarse of mixed lithologies including brick. Rootlets also present.	1
							MADE GROUND: Concrete foundation encountered. End of pit at 0.40 m	
								3
								4
								5

Remarks: 1. Location cleared by utility clearance specialist. 2. Pit sides stable. 3. Concrete foundation encountered at 0.4m bgl. 4. Trial pit terminated at 0.4m bgl due to cables. 5. No groundwater encountered. 6. Hole backfilled with arisings.

Stability: Stable



Trial Pit Log

Trialpit No
TP105
Sheet 1 of 1

Project Name: ROCHDALE ROAD	Project No. GRO-22292	Co-ords: 384672.57 - 399124.75 Level: 51.33	Date 27/09/2022
Location: MANCHESTER		Dimensions (m): Depth 2.00	Scale 1:25
Client: WATERMAN I&E			Logged RR

Water Strike	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
	Depth	Type	Results					
	0.20	ES	PID=0	0.07	51.26		MADE GROUND: Grey concrete. MADE GROUND: Dark brown gravelly medium to coarse sand. Gravel is angular to subangular medium to coarse of mixed lithologies including ash, brick, and concrete. Moderate to high cobble content of brick.	
	1.00	ES	PID=0					1
				2.00	49.33		End of pit at 2.00 m	2
								3
								4
								5

Remarks: 1. Concrete encountered to 0.07m bgl. 2. Concrete foundation of existing boundary wall encountered at 1.3m bgl, stepping out 0.6m, 0.1m in thickness. 3. No groundwater encountered. 4. Hole backfilled with arisings.

Stability: Unstable



Trial Pit Log

Trialpit No
TP106
Sheet 1 of 1

Project Name:	ROCHDALE ROAD	Project No.	GRO-22292	Co-ords:	384685.24 - 399099.55	Date	05/10/2022
Location:	MANCHESTER	Dimensions (m):	Depth 3.80	Level:	51.36	Scale	1:25
Client:	WATERMAN I&E					Logged	RR

Water Strike	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
	Depth	Type	Results					
	0.40	ES	PID=0	0.30	51.06		MADE GROUND: Concrete.	
	1.00 1.00 1.00	B D ES	PID=0	0.90	50.46		MADE GROUND: Dark brown sandy angular to subangular medium to coarse gravel of mixed lithologies including ash, brick, clinker, ceramic, plastic, and wood. Beams of wood also present.	1
	1.50	ES	PID=23	1.40	49.96		MADE GROUND: Black sandy angular to subangular medium to coarse gravel of mixed lithologies including ash, brick, and clinker. Moderate cobble content of brick and clinker.	
	2.00 2.00 2.00	B D ES	PID=0				MADE GROUND: Orange brown gravelly medium to coarse sand. Gravel is angular to subangular medium to coarse of mixed lithologies including brick and clinker. Moderate cobble content of concrete and brick present.	2
	3.00 3.00 3.00	B D ES	PID=0					3
	3.80 3.80 3.80	B D ES	PID=0	3.80	47.56		End of pit at 3.80 m	4
								5

Remarks: 1. Concrete encountered to 0.3m bgl. 2. Pit sides unstable. 3. Foundations not encountered. 4. No groundwater encountered. 5. Hole backfilled with arisings.

Stability: Unstable



Trial Pit Log

Trialpit No

TP107

Sheet 1 of 1

Project Name: ROCHDALE ROAD

Project No.
GRO-22292

Co-ords: 384734.77 - 399158.35
Level: 51.29

Date
28/09/2022

Location: MANCHESTER

Dimensions (m):

Depth
3.50

Scale
1:25

Logged
RR

Client: WATERMAN I&E

Water Strike	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
	Depth	Type	Results					
				0.20	51.09		MADE GROUND: Concrete.	
	0.30	ES	PID=0				MADE GROUND: Black slightly clayey gravelly medium to coarse sand. Gravel is angular to subrounded fine to coarse of mixed lithologies including ash, brick, and concrete. <i>Boulder of concrete encountered at 0.5m bgl.</i>	
	0.90	ES	PID=0	0.90	50.39		MADE GROUND: Orange dark brown clayey gravelly fine to coarse sand. Gravel is angular to subangular fine to coarse of mixed lithologies including brick. Moderate cobble content of brick present. <i>Pockets of clay present from 1.0m bgl.</i>	1
	1.00	B						
	1.00	D	PID=0					
	2.00	B						2
	2.00	D						
	2.00	ES	PID=0					
	3.00	B		3.00	48.29		Stiff high strength grey brown sandy CLAY. Sand is fine to coarse.	3
	3.00	D						
	3.00	ES	PID=0 HVP=150					
				3.50	47.79		End of pit at 3.50 m	4
								5

Remarks: 1. Concrete encountered to 0.2m bgl. 2. Foundation of existing boundary wall not encountered. 3. Trial pit terminated at 3.5m bgl due to collapse of Made Ground. 4. No groundwater encountered. 5. Hole backfilled with arisings.

Stability: Unstable



Trial Pit Log

Trialpit No
TP108
Sheet 1 of 1

Project Name:	ROCHDALE ROAD	Project No.	GRO-22292	Co-ords:	384679.65 - 399136.31	Date	27/09/2022
Location:	MANCHESTER	Dimensions (m):	Depth 4.20	Level:	51.28	Scale	1:25
Client:	WATERMAN I&E					Logged	RR

Water Strike	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
	Depth	Type	Results					
	0.10	ES	PID=0	0.07	51.21		MADE GROUND: Tarmac	
				0.25	51.03		MADE GROUND: Brown clayey sandy angular to subangular medium to coarse gravel of mixed lithologies including ash, brick, and concrete.	
	0.40	ES	PID=0				MADE GROUND: Dark brown black gravelly medium to coarse sand. Gravel is angular to subangular medium to coarse of mixed lithologies including ash and brick. Moderate cobble content of brick present.	
	0.60	ES	PID=0	0.60	50.68		MADE GROUND: Brown gravelly medium to coarse sand. Gravel is angular to subangular medium to coarse of mixed lithologies including ash and brick. Moderate cobble content of brick present.	1
	1.80	ES	PID=0	1.80	49.48		MADE GROUND: Soft brown slightly gravelly very sandy clay. Sand is fine to coarse. Gravel is angular to subangular fine to coarse of mixed lithologies including brick. Low to moderate cobble content of brick.	2
	2.00	B	PID=0					
	2.20	ES						
	3.00	B						3
	3.00	ES	PID=0					
	4.00	B						4
	4.00	ES	PID=0	4.20	47.08		End of pit at 4.20 m	5

Remarks: 1. Tarmac encountered to 0.07m bgl. 2. Pit sides unstable. 3. No groundwater encountered. 4. Hole backfilled with arisings.

Stability: Unstable



Trial Pit Log

Trialpit No
TP109
Sheet 1 of 1

Project Name:	ROCHDALE ROAD	Project No.	GRO-22292	Co-ords:	384705.51 - 399150.40	Date	29/09/2022
Location:	MANCHESTER	Dimensions (m):	Depth 2.00	Level:	51.41	Scale	1:25
Client:	WATERMAN I&E					Logged	RR

Water Strike	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
	Depth	Type	Results					
	0.07			0.07	51.34		MADE GROUND: Tarmac. MADE GROUND: Concrete.	
	0.40	ES	PID=0	0.35	51.06		MADE GROUND: Black sandy angular to subangular medium to coarse gravel of mixed lithologies including ash, brick, concrete, and tarmac.	
	0.60	ES	PID=0	0.50	50.91		MADE GROUND: Black gravelly medium to coarse sand. Gravel is angular to subangular medium to coarse of mixed lithologies including ash, brick, plastic, metal, and wood. High cobble content of brick.	
	1.00	B						1
	1.00	D						
	1.00	ES	PID=0				Steel beam encountered at 1.2m bgl.	
	1.70	ES	PID=0					
	2.00	B		2.00	49.41		End of pit at 2.00 m	2
	2.00	D						
	2.00	ES	PID=0					
								3
								4
								5

Remarks: 1. Concrete encountered to 0.35m bgl. 2. Pit sides unstable. 3. Brick arch encountered at 2.0m bgl. 4. No groundwater encountered. 5. Hole backfilled with arisings.

Stability: Unstable



Project Name:	ROCHDALE ROAD
---------------	---------------

Project No.	GRO-22292
-------------	-----------

Co-ords:	384718.07 - 399157.89
----------	-----------------------

Level: 51.20

Date _____

29/09/2022

Location: MANCHESTER

Dimensions
(m):

Depth
0.50

Scale
1:25

Logged
RR

Client: WATERMAN I&E

[illegible]

Remarks: 1. Concrete encountered to 0.3m bgl. 2. Brick arch encountered at 0.5m bgl. 3. No groundwater encountered. 4. Hole backfilled with arisings.

Stability: Unstable



Trial Pit Log

Trialpit No
TP111
Sheet 1 of 1

Project Name: ROCHDALE ROAD

Project No.
GRO-22292

Co-ords: 384705.86 - 399143.04
Level: 51.46

Date
29/09/2022

Location: MANCHESTER

Dimensions
(m):

Depth
1.40

Scale
1:25

Logged
RR

Client: WATERMAN I&E

Water Strike	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
	Depth	Type	Results					
							MADE GROUND: Concrete.	
	0.30	ES		0.25	51.21			
	0.40	ES	PID=0	0.40	51.06		MADE GROUND: Black clayey gravelly medium to coarse sand. Gravel is angular to subangular medium to coarse of mixed lithologies including ash and concrete.	
			PID=0				MADE GROUND: Orange brown gravelly fine to coarse sand. Gravel is angular to subangular fine to coarse of mixed lithologies including brick. Moderate cobble content of brick.	
	1.00	B		0.90	50.56		MADE GROUND: Orange brown sandy gravelly clay. Sand is medium to coarse. Gravel is angular to subangular medium to coarse of mixed lithologies including brick and sandstone.	1
	1.00	D						
	1.00	ES	PID=0					
	1.40	B		1.30	50.16		MADE GROUND: Brown clayey gravelly medium to coarse sand. Gravel is angular to subangular medium to coarse of mixed lithologies. Suspected asbestos tiles present.	
	1.40	D		1.40	50.06			
	1.40	ES	PID=0					
							End of pit at 1.40 m	
								2
								3
								4
								5

Remarks: 1. Concrete encountered to 0.25m bgl. 2. Pit sides unstable. 3. Suspected asbestos tiles encountered at 1.4m bgl. 4. No groundwater encountered. 5. Hole backfilled with arisings.

Stability: Unstable



Trial Pit Log

Trialpit No
TP112
Sheet 1 of 1

Project Name:	ROCHDALE ROAD	Project No.	GRO-22292	Co-ords:	384719.85 - 399148.46	Date	04/10/2022
Location:	MANCHESTER	Dimensions (m):	1.8	Depth	2.60	Scale	1:25
Client:	WATERMAN I&E					Logged	RR

Water Strike	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
	Depth	Type	Results					
	0.40	ES	PID=0	0.30	51.19		MADE GROUND: Concrete.	
	1.00 1.00 1.00	B D ES	PID=0	1.00	50.49		MADE GROUND: Black clayey gravelly medium to coarse sand. Gravel is angular to subangular medium to coarse of mixed lithologies including ash, brick, concrete, and wood.	1
	2.00 2.00 2.00	B D ES	PID=0	1.50	49.99		MADE GROUND: Dark brown black very sandy slightly clayey silty angular to subangular medium to coarse gravel of mixed lithologies including ash, brick, and wood.	2
	2.60 2.60 2.60	B D ES	PID=0	2.50 2.60	48.99 48.89		MADE GROUND: Brown grey gravelly medium to coarse sand. Gravel is angular to subangular medium to coarse of mixed lithologies.	
							MADE GROUND: Black sandy angular to subangular medium to coarse gravel of mixed lithologies including clinker.	3
							End of pit at 2.60 m	4
								5

Remarks: 1. Concrete encountered to 0.3m bgl. 2. Pit sides unstable. 3. CBR test carried out at 0.5m bgl. 4. Soil percolation test carried out at 2.0m bgl. 5. Trial pit terminated at 2.6m bgl due to collapse. 6. No groundwater encountered. 7. Hole backfilled with arisings.

Stability: Unstable



Trial Pit Log

Trialpit No
TP113
Sheet 1 of 1

Project Name:	ROCHDALE ROAD	Project No.	GRO-22292	Co-ords:	384695.63 - 399142.91	Date	03/10/2022
Location:	MANCHESTER	Dimensions (m):	Depth 2.10	Level:	51.29	Scale	1:25
Client:	WATERMAN I&E					Logged	RR

Water Strike	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
	Depth	Type	Results					
	0.10	ES	PID=0	0.07	51.22		MADE GROUND: Tarmac.	
							MADE GROUND: Brown grey clayey gravelly medium to coarse sand. Gravel is angular to subangular medium to coarse of mixed lithologies including tarmac, clinker, and slag.	
	0.45	ES	PID=0	0.40	50.89		MADE GROUND: Grey clayey sandy angular to subangular medium to coarse gravel of mixed lithologies including brick and limestone. Moderate cobble content of limestone present.	
	0.70	ES	PID=1	0.70	50.59		MADE GROUND: Blue green clayey sandy angular to subangular medium to coarse gravel of mixed lithologies including wood, steel, and brick. Asbestos tiles encountered at 2.1m Strong hydrocarbon odour present.	
	1.00	B						
	1.00	D						
	1.00	ES	PID=0					
	2.00	B						
	2.00	D						
	2.00	ES	PID=1	2.10	49.19		End of pit at 2.10 m	

Remarks: 1. Tarmac encountered to 0.07m bgl. 2. Pit sides unstable. 3. CBR test carried out at 0.5m bgl. 4. Strong hydrocarbon odour from 0.7m bgl. 5. Hole terminated at 2.1m bgl due to encountering suspected asbestos tiles. 6. No groundwater encountered. 7. Hole backfilled with arisings.

Stability: Unstable



Trial Pit Log

Trialpit No
TP114
Sheet 1 of 1

Project Name: ROCHDALE ROAD	Project No. GRO-22292	Co-ords: 384684.24 - 399118.47 Level: 51.21	Date 04/10/2022
Location: MANCHESTER		Dimensions (m): 1.9 Depth 3.00	Scale 1:25 Logged RR
Client: WATERMAN I&E			

Water Strike	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
	Depth	Type	Results					
	0.10	ES	PID=0	0.10	51.11		MADE GROUND: Concrete.	
				0.30	50.91		MADE GROUND: Grey sandy angular to subangular medium to coarse gravel of mixed lithologies including brick, concrete, and shale. Sand is medium to coarse.	
	0.45	ES	PID=0				MADE GROUND: Soft to firm brown sandy gravelly clay. Sand is medium to coarse. Gravel is angular to subrounded medium to coarse of mixed lithologies including ash and brick.	
	1.00 1.00 1.00	B D ES	PID=0					1
	2.00 2.00 2.00	B D ES	PID=0					2
	3.00 3.00 3.00	B D ES	PID=0	3.00	48.21		Boulders of concrete present at 2.5m bgl.	3
							End of pit at 3.00 m	4
								5

Remarks: 1. Concrete encountered to 0.10m bgl. 2. Pit sides unstable. 3. Plate load test carried out at 0.5m bgl. 4. Soil percolation test carried out at 2.0m bgl. 5. No groundwater encountered. 6. Hole backfilled with arisings.

Stability: Unstable



Trial Pit Log

Trialpit No
TP115
Sheet 1 of 1

Project Name:	ROCHDALE ROAD	Project No.	GRO-22292	Co-ords:	384707.00 - 399122.37	Date	03/10/2022
Location:	MANCHESTER	Dimensions (m):	Depth 3.00			Scale 1:25	Logged RR
Client:	WATERMAN I&E						

Water Strike	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
	Depth	Type	Results					
	0.30	ES	PID=0	0.20	51.09		MADE GROUND: Reinforced concrete.	
	1.00	B					MADE GROUND: Black sandy angular to subangular medium to coarse gravel of mixed lithologies including ash, brick, concrete, plastic, and wood.	
	1.00	D					Steel beam encountered at 0.6m bgl.	
	1.00	ES	PID=0				Pockets of clay at 1.2m bgl.	
	1.20	ES	PID=0					
	2.00	B						
	2.00	D						
	2.00	ES	PID=1					
	3.00	B		3.00	48.29		End of pit at 3.00 m	
	3.00	D						
	3.00	ES	PID=0					

Remarks: 1. Concrete encountered to 0.2m bgl. 2. Pit sides unstable. 3. Plate load test carried out at 0.5m bgl. 4. Trial pit terminated at 3.0m bgl due to collapse. 5. No groundwater encountered. 6. Hole backfilled with arisings.

Stability: Unstable



Trial Pit Log

Trialpit No
TP116
Sheet 1 of 1

Project Name:	ROCHDALE ROAD	Project No.	GRO-22292	Co-ords:	384717.70 - 399137.83	Date	03/10/2022
Location:	MANCHESTER	Dimensions (m):	Depth 3.00	Level:	51.46	Scale	1:25
Client:	WATERMAN I&E					Logged	RR

Water Strike	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
	Depth	Type	Results					
	0.30	ES	PID=0	0.20	51.26		MADE GROUND: Reinforced concrete.	
	0.85	ES	PID=0	0.80	50.66		MADE GROUND: Black gravelly medium to coarse sand. Gravel is angular to subangular medium to coarse of mixed lithologies including brick, limestone, ash, and clinker. High cobble content of brick present.	
	1.00	B		0.90	50.56		MADE GROUND: Brown sandy gravelly clay. Sand is fine to coarse. Gravel is angular to subangular fine to coarse of mixed lithologies including brick.	1
	1.00	D					MADE GROUND: Black sandy angular to subangular medium to coarse gravel of mixed lithologies including brick and clinker.	
	1.00	ES	PID=18					
	2.00	B						2
	2.00	D						
	2.00	ES	PID=7					
	3.00	B		3.00	48.46		End of pit at 3.00 m	3
	3.00	D						
	3.00	ES	PID=3					4
								5

Remarks: 1. Concrete encountered to 0.2m bgl. 2. Pit sides unstable. 3. Plate load test carried out at 0.5m bgl. 4. Trial pit terminated at 3.0m bgl due to collapse. 5. No groundwater encountered. 6. Hole backfilled with arisings.

Stability: Unstable



Trial Pit Log

Trialpit No
TP117
Sheet 1 of 1

Project Name: ROCHDALE ROAD	Project No. GRO-22292	Co-ords: 384690.11 - 399134.38 Level: 51.35	Date 03/10/2022
Location: MANCHESTER		Dimensions (m): Depth 2.00	Scale 1:25
Client: WATERMAN I&E			Logged RR

Water Strike	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
	Depth	Type	Results					
				0.25	51.10		MADE GROUND: Concrete.	
	1.00 1.00 1.00	B D ES	PID=0				MADE GROUND: Black gravelly slightly clayey medium to coarse sand. Gravel is angular to subrounded medium to coarse of mixed lithologies including brick, ash and clinker	1
	2.00 2.00 2.00	B D ES	PID=0	2.00	49.35		End of pit at 2.00 m	2
								3
								4
								5

Remarks: 1. Concrete encountered to 0.25m bgl. 2. Pit sides unstable. 3. Trial pit terminated at 2.0m bgl due to collapse. 4. Hole backfilled with arisings.

Stability: Unstable



Trial Pit Log

Trialpit No
TP118
Sheet 1 of 1

Project Name: ROCHDALE ROAD	Project No. GRO-22292	Co-ords: 384669.98 - 399128.04 Level: 51.39	Date 27/09/2022
Location: MANCHESTER		Dimensions (m): Depth 1.00	Scale 1:25
Client: WATERMAN I&E			Logged RR

Water Strike	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
	Depth	Type	Results					
	0.20	ES	PID=0	0.15	51.24		MADE GROUND: Grey concrete.	
	0.40	ES	PID=0	0.30	51.09		MADE GROUND: Dark brown clayey sandy angular to subangular medium to coarse gravel of mixed lithologies including ash and brick. Sand is medium to coarse.	
	0.80	ES	PID=0	0.70	50.69		MADE GROUND: Dark brown clayey gravelly medium to coarse sand. Gravel is angular to subangular medium to coarse of mixed lithologies including ash and brick. High cobble content of brick present.	
	1.00	ES	PID=0	1.00	50.39		MADE GROUND: Grey clayey gravelly medium to coarse sand. Gravel is angular to subangular medium to coarse of mixed lithologies including brick. High cobble content of brick present.	1
							End of pit at 1.00 m	2
								3
								4
								5

Remarks: 1. Concrete encountered to 0.15m bgl. 2. Trial pit terminated at 1.0m bgl due to unstable ground. 3. Void and historic brick wall encountered. 4. No groundwater encountered. 5. Hole backfilled with arisings.

Stability: Unstable



Trial Pit Log

Trialpit No
TP119
Sheet 1 of 1

Project Name: ROCHDALE ROAD	Project No. GRO-22292	Co-ords: 384701.09 - 399124.29 Level: 50.95	Date 29/09/2022
Location: MANCHESTER		Dimensions (m): Depth 3.00	Scale 1:25
Client: WATERMAN I&E			Logged RR

Water Strike	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
	Depth	Type	Results					
	0.15	ES	PID=0	0.10	50.85		MADE GROUND: Concrete.	
	1.00 1.00 1.00	B D ES	PID=0				MADE GROUND: Black gravelly medium to coarse sand. Gravel is angular to subangular medium to coarse of mixed lithologies including ash and brick. High cobble content of brick.	1
	2.00 2.00 2.00	B D ES	PID=0					2
	3.00 3.00 3.00	B D ES	PID=0	3.00	47.95		End of pit at 3.00 m	3
								4
								5

Remarks: 1. Concrete encountered to 0.1m bgl. 2. Pit sides unstable. 3. Trial pit terminated at 3.0m bgl due to collapse. 4. No groundwater encountered. 5. Hole backfilled with arisings.

Stability: Unstable



Trial Pit Log

Trialpit No
TP120
Sheet 1 of 1

Project Name:	ROCHDALE ROAD	Project No.	GRO-22292	Co-ords:	384679.95 - 399140.74	Date	13/10/2022
Location:	MANCHESTER	Dimensions (m):	Depth 2.80	Level:	51.28	Scale	1:25
Client:	WATERMAN I&E					Logged	RR

Water Strike	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
	Depth	Type	Results					
	0.20	ES	PID=5	0.07	51.21		MADE GROUND: Tarmac. MADE GROUND: Black grey clayey sandy angular to subangular medium to coarse gravel of mixed lithologies including ash, brick, and tarmac. Moderate cobble content of brick present.	
	1.00 1.00 1.00	B D ES	PID=5	0.75	50.53		MADE GROUND: Soft to firm brown very sandy gravelly clay. Sand is medium to coarse. Gravel is angular to subangular medium to coarse of mixed lithologies including brick, glass, and wood.	1
	2.00 2.00 2.00	B D ES	PID=11	2.00	49.28		MADE GROUND: Dark brown clayey gravelly medium to coarse sand. Gravel is angular to subangular medium to coarse of mixed lithologies including ash, brick, clinker, concrete, and wood. Moderate cobble content of brick. <i>Boulder encountered at 1.6m bgl.</i> <i>Boulder encountered at 2.1m bgl.</i>	2
	2.80 2.80 2.80	B D ES	PID=7	2.80	48.48		End of pit at 2.80 m	3
								4
								5

Remarks: 1. Tarmac encountered to 0.07m bgl. 2. Pit sides unstable. 3. Trial pit terminated at 2.8m bgl due to collapse. 4. No groundwater encountered. 5. Hole backfilled with arisings.

Stability: Unstable



Trial Pit Log

Trialpit No

TP121

Sheet 1 of 1

Project Name: ROCHDALE ROAD

Project No.
GRO-22292

Co-ords: 384691.25 - 399146.79
Level: 51.31

Date
13/10/2022

Location: MANCHESTER

Dimensions (m):

Depth
1.60

Scale
1:25

Logged
RR

Client: WATERMAN I&E

Water Strike	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
	Depth	Type	Results				
	0.20	ES	PID=22	0.07	51.24		MADE GROUND: Tarmac.
	1.00 1.00 1.00	B D ES	PID=8				MADE GROUND: Black blue green clayey sandy angular to subangular medium to coarse gravel of mixed lithologies including brick and concrete. High cobble content of brick and concrete.
	1.60	ES	PID=9	1.60	49.70		End of pit at 1.60 m

Remarks: 1. Tarmac encountered to 0.07m bgl. 2. Pit sides unstable. 3. Trial pit terminated at 1.6m bgl due to encountering concrete. 4. No groundwater encountered. 5. Hole backfilled with arisings.

Stability: Unstable



Trial Pit Log

Trialpit No
TP122
Sheet 1 of 1

Project Name: ROCHDALE ROAD

Project No.
GRO-22292

Co-ords: 384700.89 - 399152.62
Level: 51.27

Date
13/10/2022

Location: MANCHESTER

Dimensions
(m):

Depth
0.60

Scale
1:25

Logged
RR

Client: WATERMAN I&E

Water Strike	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
	Depth	Type	Results				
	0.07			0.07	51.20		MADE GROUND: Tarmac. MADE GROUND: Reinforced concrete.
	0.50			0.50	50.77		
	0.60			0.60	50.67		MADE GROUND: Black gravelly medium to coarse sand. Gravel is angular to subangular medium to coarse of mixed lithologies including ash, brick, and concrete. End of pit at 0.60 m
	0.55	ES	PID=4				

1

2

3

4

5

Remarks: 1. Tarmac encountered to 0.07m bgl. 2. Reinforced concrete encountered to 0.5m bgl. 3. Trial pit terminated at 0.6m bgl due to encountering steel beams. 4. No groundwater encountered. 5. Hole backfilled with arisings.

Stability: Unstable



Trial Pit Log

Trialpit No
HDP102
Sheet 1 of 1

Project Name: ROCHDALE ROAD	Project No. GRO-22292	Co-ords: 384753.30 - 399193.79 Level: 51.14	Date 29/09/2022
Location: MANCHESTER		Dimensions (m): Depth 1.00	Scale 1:25
Client: WATERMAN I&E			Logged RR

Water Strike	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
	Depth	Type	Results				
	0.10	ES	PID=0				MADE GROUND: Concrete.
	0.30	ES	PID=0	0.30	50.84		MADE GROUND: Orange brown clayey gravelly medium to coarse sand. Gravel is angular to subrounded fine to coarse of mixed lithologies including sandstone and coal.
				0.50	50.64		MADE GROUND: Dark brown black gravelly medium to coarse sand. Gravel is angular to subrounded of mixed lithologies including coal and sandstone.
	0.60	ES	PID=0	0.70	50.44		MADE GROUND: Orange brown clayey gravelly medium to coarse sand. Gravel is angular to subrounded fine to coarse of mixed lithologies including sandstone and coal.
				1.00	50.14		End of pit at 1.00 m

Remarks: 1. Concrete encountered to 0.30m bgl. 2. Hand dug pit to 1.0m bgl. 3. No groundwater encountered. 4. Hole backfilled with arisings.

Stability:



Trial Pit Log

Trialpit No
HDP103
Sheet 1 of 1

Project Name: ROCHDALE ROAD	Project No. GRO-22292	Co-ords: 384733.12 - 399175.42 Level: 51.14	Date 29/09/2022
Location: MANCHESTER		Dimensions (m): Depth 0.80	Scale 1:25
Client: WATERMAN I&E			Logged RR

Water Strike	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
	Depth	Type	Results				
	0.40	ES	PID=0	0.20	50.94		MADE GROUND: Concrete.
				0.80	50.34		MADE GROUND: Dark brown gravelly medium to coarse sand. Gravel is angular to subrounded medium to coarse of mixed lithologies including brick, concrete, and sandstone.
							End of pit at 0.80 m

Remarks: 1. Concrete encountered to 0.2m bgl. 2. Hand dug pit to 0.8m bgl. 3. No groundwater encountered. 4. Hole backfilled with arisings.

Stability:



Project Name:	ROCHDALE ROAD
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Project No.	GRO-22292
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Co-ords:	384723.60 - 399171.26
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Level: 51.14

Date _____

29/09/2022

Location: MANCHESTER

Dimensions
(m):

Depth
0.60

Scale
1:25

Logged
RR

Client: WATERMAN I&E

[illegible]

Remarks:	1. Concrete encountered to 0.3m bgl. 2. Hand dug pit to 0.6m bgl due to cobbles. 3. No groundwater encountered. 4. Hole backfilled with arisings.
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Stability:



Project Name:	ROCHDALE ROAD
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Project No.	GRO-22292
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Co-ords: 384737.15 - 399178.33

Level: 51.13

Date _____

29/09/2022

Location: MANCHESTER

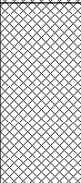
Dimensions
(m):

Depth
0.80

Scale
1:25

Logged
RR

Client: WATERMAN I&E

Water Strike	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
	Depth	Type	Results					
	0.10	ES	PID=0	0.20	50.93		MADE GROUND: Concrete.	
							MADE GROUND: Dark brown gravelly medium to coarse sand. Gravel is angular to subrounded medium to coarse of mixed lithologies including brick, concrete, and sandstone.	
					End of pit at 0.80 m			

Remarks:	1. Concrete encountered to 0.2m bgl. 2. Hand dug pit to 0.8m bgl. 3. No groundwater encountered. 4. Hole backfilled with arisings.
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Stability:



Trial Pit Log

Trialpit No
HDP106
Sheet 1 of 1

Project Name: ROCHDALE ROAD	Project No. GRO-22292	Co-ords: 384655.82 - 399178.33 Level: 51.13	Date 14/10/2022
Location: MANCHESTER		Dimensions (m): Depth 0.85	Scale 1:25
Client: WATERMAN I&E			Logged RR

Water Strike	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
	Depth	Type	Results					
	0.30	ES	PID=0				MADE GROUND: Brown clayey gravelly medium to coarse sand. Gravel is angular to subangular fine to coarse including brick. Low cobble content of brick. Rootlets also present.	
				0.85	50.28		End of pit at 0.85 m	1
								2
								3
								4
								5

Remarks: 1. Location cleared with handheld CAT scanner. 2. Foundation encountered at 0.4m bgl, 0.27m in length, 0.08m in thickness. 3. No groundwater encountered. 4. Hole backfilled with arisings.

Stability:



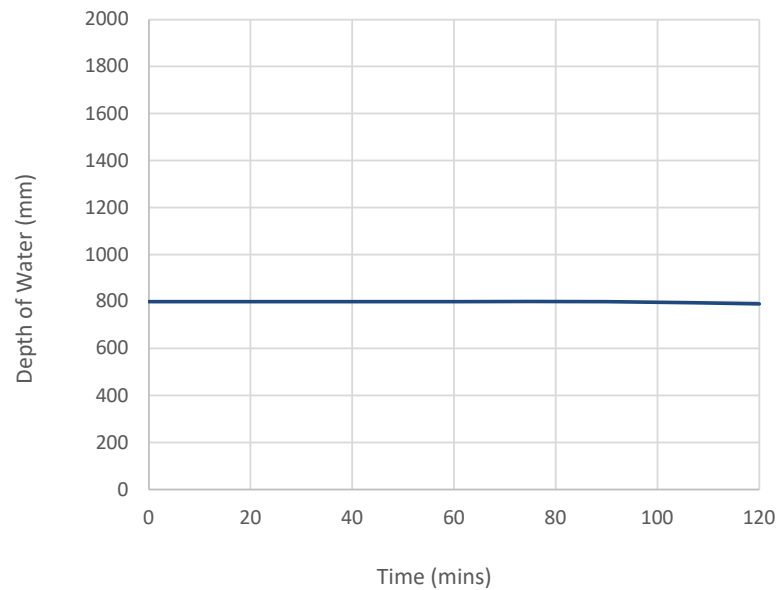


APPENDIX 5 – Soil Infiltration Test Results

SOIL PERCOLATION TEST

POSITION: TP114
TEST 1

Depth vs Time



Volume of Pit (m ³)	2.88
Void Ratio of Infill	1
Volume of Infill (m ³)	N/A
Volume of Water in Pit (m ³)	1.152

Compliance Check:

Water Level at 75% effective depth (mm)	600
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Water Level at 25% effective depth (mm)	200
---	-----

Test not BRE 365 compliant with BRE 365 - insufficient time to drain past 25% effective depth

Soil Infiltration Rate Calculation

Water Level 1	800
Water Level 2	790
Time to Drain from Level 1 to Level 2 (mins)	120
Volume of water discharged (m ³)	0.0144

Discharge Area (m ²)	5.6
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Soil Infiltration Rate (m/min)	2.143E-05
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Soil Infiltration Rate (m/sec)	3.57E-07
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SOIL PERCOLATION TEST

Sheet 1 of 2

Date of Test: 04/10/2022

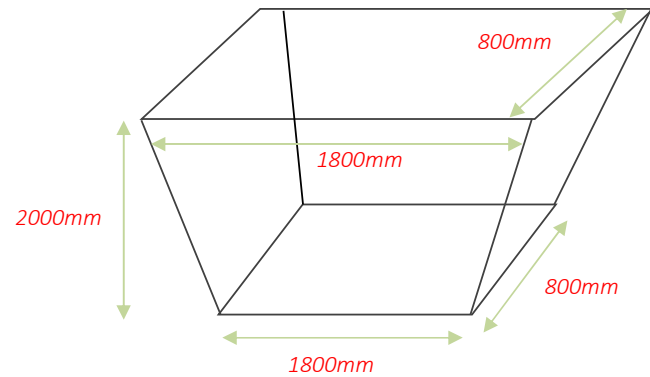
POSITION: TP114
TEST 2

Weather: Sunny, clear

Engineer: R Rowlinson

Checked: R Wyatt

Trial Pit Measurements



Test Data

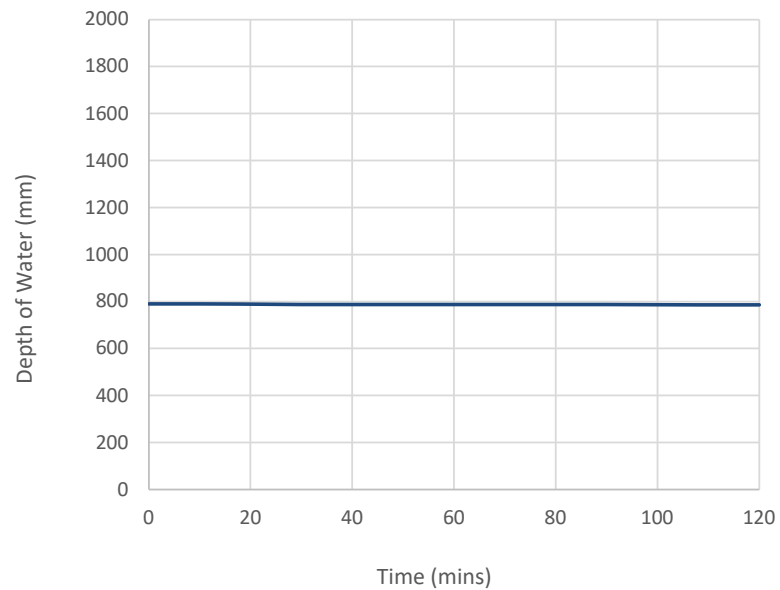
Time Elapsed (mins)	Depth to Water Level (mm)
0	1210
5	1210
10	1210
30	1212
60	1212
90	1213
120	1214

Pit Depth (mm):	2000
Pit Details:	Open with no stone filling
Groundwater Level:	NGW

SOIL PERCOLATION TEST

POSITION: TP114
TEST 2

Depth vs Time



Volume of Pit (m ³)	2.88
Void Ratio of Infill	1
Volume of Infill (m ³)	N/A
Volume of Water in Pit (m ³)	1.1376

Compliance Check:

Water Level at 75% effective depth (mm)	592.5
Water Level at 25% effective depth (mm)	197.5

Test not BRE 365 compliant with BRE 365 - insufficient time to drain past 25% effective depth

Soil Infiltration Rate Calculation

Water Level 1	790
Water Level 2	786
Time to Drain from Level 1 to Level 2 (mins)	120
Volume of water discharged (m ³)	0.00576

Discharge Area (m ²)	5.548
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Soil Infiltration Rate (m/min)	8.652E-06
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Soil Infiltration Rate (m/sec)	1.44E-07
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SOIL PERCOLATION TEST

Sheet 1 of 2

Date of Test: 04/10/2022

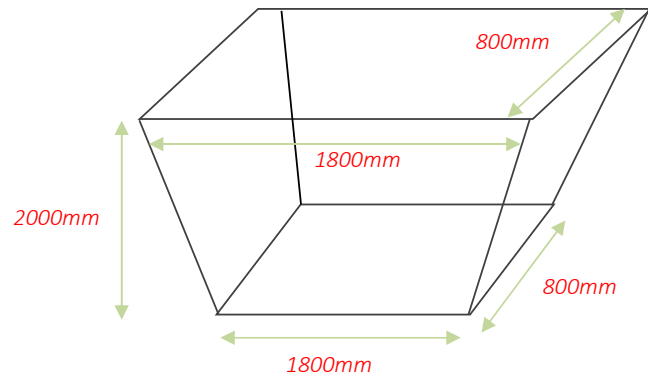
POSITION: TP114
TEST 3

Weather: Sunny, clear

Engineer: R Rowlinson

Checked: R Wyatt

Trial Pit Measurements



Test Data

Time Elapsed (mins)	Depth to Water Level (mm)
0	1214
5	1214
10	1215
30	1220
60	1222
90	1223
120	1223

Pit Depth (mm): 2000

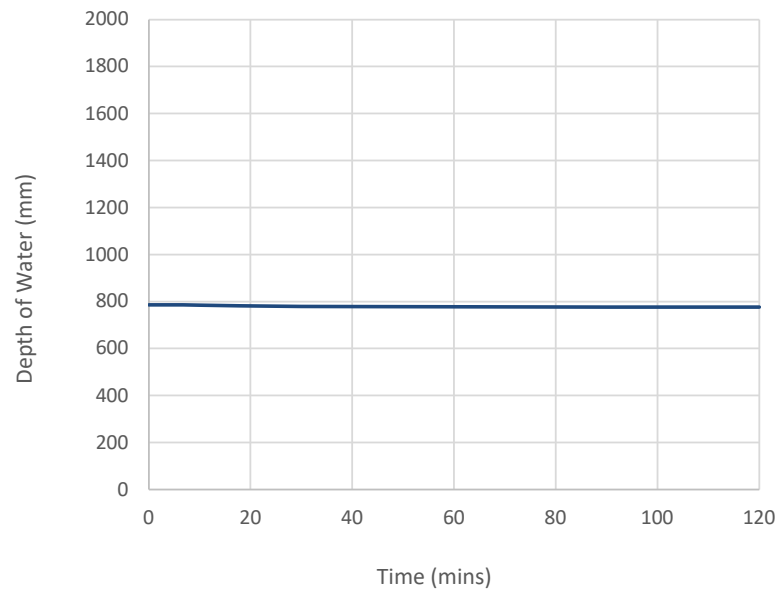
Pit Details: Open with no stone filling

Groundwater Level: NGW

SOIL PERCOLATION TEST

POSITION: TP114
TEST 3

Depth vs Time



Volume of Pit (m ³)	2.88
Void Ratio of Infill	1
Volume of Infill (m ³)	N/A
Volume of Water in Pit (m ³)	1.13184

Compliance Check:

Water Level at 75% effective depth (mm)	589.5
Water Level at 25% effective depth (mm)	196.5

Test not BRE 365 compliant with BRE 365 - insufficient time to drain past 25% effective depth

Soil Infiltration Rate Calculation

Water Level 1	786
Water Level 2	777
Time to Drain from Level 1 to Level 2 (mins)	120
Volume of water discharged (m ³)	0.01296

Discharge Area (m ²)	5.5272
----------------------------------	--------

Soil Infiltration Rate (m/min)	1.954E-05
--------------------------------	-----------

Soil Infiltration Rate (m/sec)	3.26E-07
--------------------------------	----------

SOIL PERCOLATION TEST

Sheet 1 of 2

Date of Test: 04/10/2022

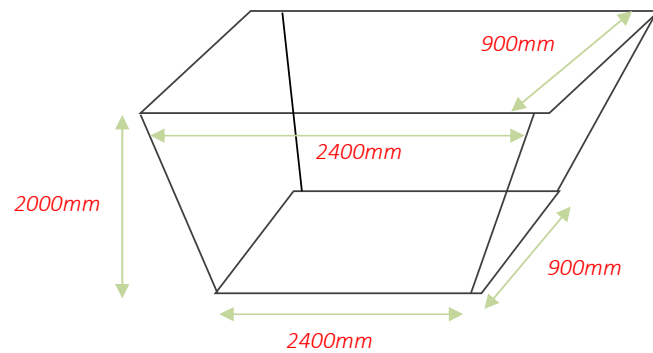
POSITION: TP112
TEST 1

Weather: Sunny, clear

Engineer: R Rowlinson

Checked: R Wyatt

Trial Pit Measurements



Test Data

Time Elapsed (mins)

0
4.5

Depth to Water Level (mm)

2000
2000

Pit Depth (mm): 2000

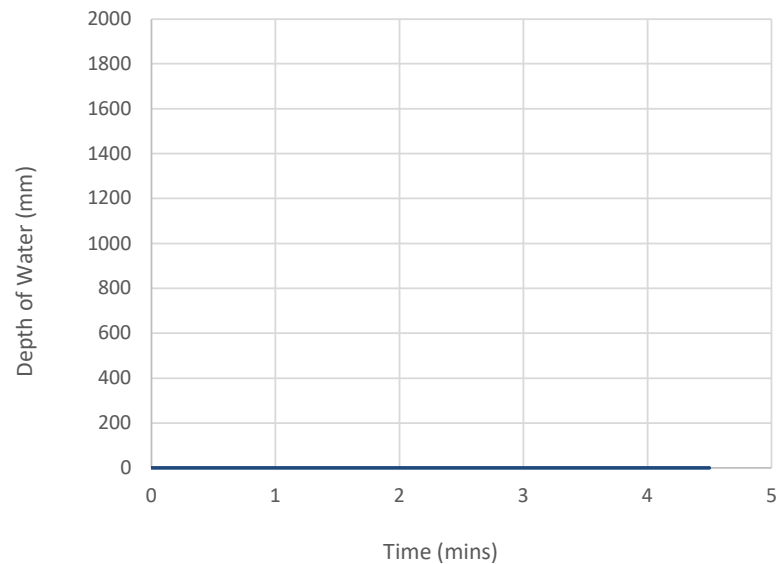
Pit Details: Open with no stone filling

Groundwater Level: NGW

SOIL PERCOLATION TEST

POSITION: TP112
TEST 1

Depth vs Time



Volume of Pit (m ³)	4.32
Void Ratio of Infill	1
Volume of Infill (m ³)	N/A
Volume of Water in Pit (m ³)	0

Compliance Check:

Water Level at 75% effective depth (mm)	0
Water Level at 25% effective depth (mm)	0

Test not BRE 365 compliant with BRE 365 - insufficient time to drain past 25% effective depth

Soil Infiltration Rate Calculation

Water Level 1	0
Water Level 2	0
Time to Drain from Level 1 to Level 2 (mins)	4.5
Volume of water discharged (m ³)	500

Discharge Area (m ²)	2.16
----------------------------------	------

Soil Infiltration Rate (m/min)	51.440329
--------------------------------	-----------

Soil Infiltration Rate (m/sec)	8.57E-01
--------------------------------	----------

Sheet 1 of 2

Date of Test: 04/10/2022

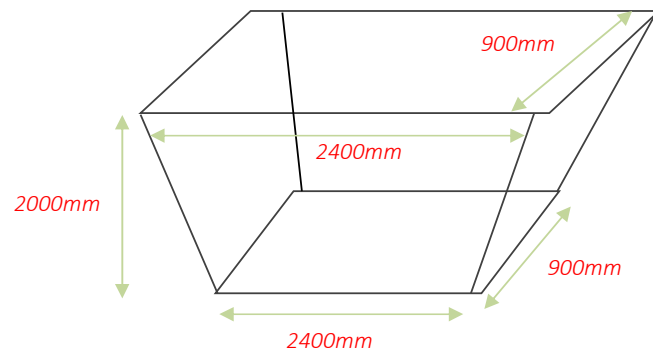
POSITION: TP112
TEST 2

Weather: Sunny, clear

Engineer: R Rowlinson

Checked: R Wyatt

Trial Pit Measurements



Test Data

Time Elapsed (mins)

0
6.5

Depth to Water Level (mm)

2000
2000

Pit Depth (mm): 2000

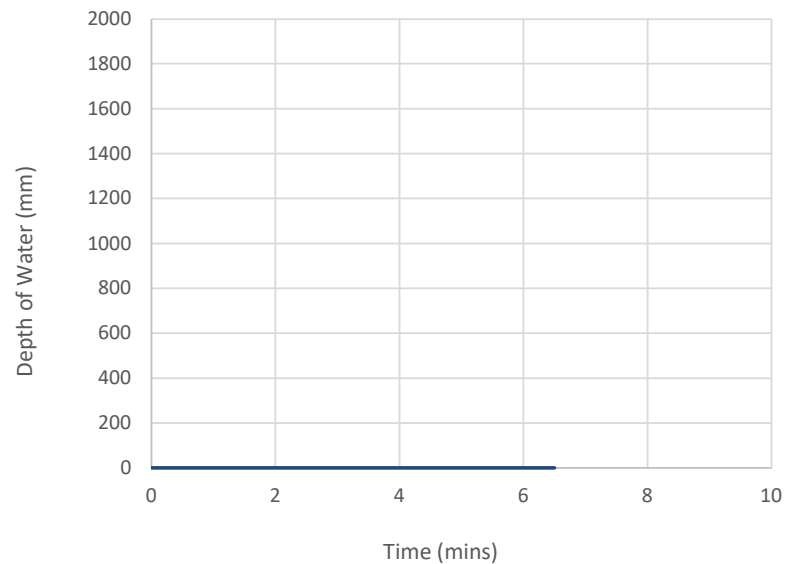
Pit Details: Open with no stone filling

Groundwater Level: NGW

SOIL PERCOLATION TEST

POSITION: TP112
TEST 2

Depth vs Time



Volume of Pit (m ³)	4.32
Void Ratio of Infill	1
Volume of Infill (m ³)	N/A
Volume of Water in Pit (m ³)	0

Compliance Check:

Water Level at 75% effective depth (mm)	0
Water Level at 25% effective depth (mm)	0

Test not BRE 365 compliant with BRE 365 - insufficient time to drain past 25% effective depth

Soil Infiltration Rate Calculation

Water Level 1	0
Water Level 2	0
Time to Drain from Level 1 to Level 2 (mins)	6.5
Volume of water discharged (m ³)	500

Discharge Area (m ²)	2.16
----------------------------------	------

Soil Infiltration Rate (m/min)	35.612536
--------------------------------	-----------

Soil Infiltration Rate (m/sec)	5.94E-01
--------------------------------	----------

Sheet 1 of 2

Date of Test: 04/10/2022

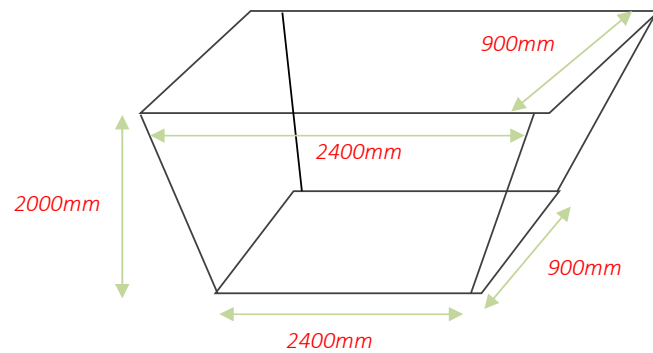
POSITION: TP112
TEST 3

Weather: Sunny, clear

Engineer: R Rowlinson

Checked: R Wyatt

Trial Pit Measurements



Test Data

Time Elapsed (mins)

0
9.5

Depth to Water Level (mm)

2000
2000

Pit Depth (mm): 2000

Pit Details: Open with no stone filling

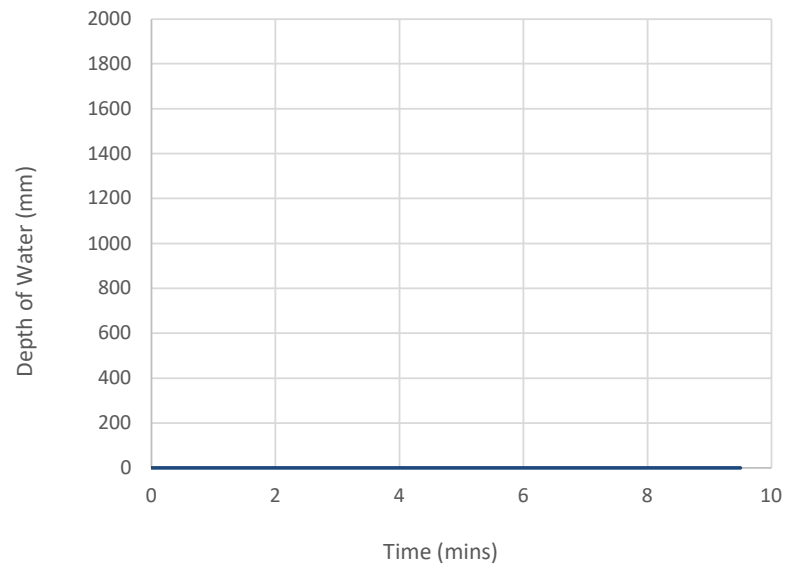
Groundwater Level: NGW

SOIL PERCOLATION TEST

Sheet 2 of 2

POSITION: TP112
TEST 3

Depth vs Time



Volume of Pit (m ³)	4.32
Void Ratio of Infill	1
Volume of Infill (m ³)	N/A
Volume of Water in Pit (m ³)	0

Compliance Check:

Water Level at 75% effective depth (mm)	0
Water Level at 25% effective depth (mm)	0

Test not BRE 365 compliant with BRE 365 - insufficient time to drain past 25% effective depth

Soil Infiltration Rate Calculation

Water Level 1	0
Water Level 2	0
Time to Drain from Level 1 to Level 2 (mins)	9.5
Volume of water discharged (m ³)	500

Discharge Area (m ²)	2.16
----------------------------------	------

Soil Infiltration Rate (m/min)	24.366472
--------------------------------	-----------

Soil Infiltration Rate (m/sec)	4.06E-01
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SOIL PERCOLATION TEST

Sheet 1 of 2

Date of Test: 04/10/2022

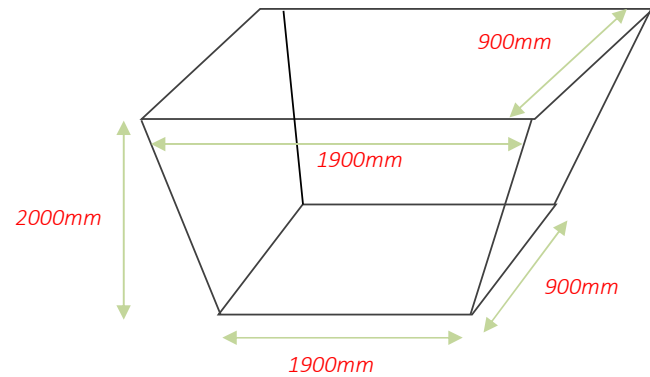
POSITION: TP101
TEST 1

Weather: Sunny, clear

Engineer: R Rowlinson

Checked: R Wyatt

Trial Pit Measurements



Test Data

Time Elapsed (mins)	Depth to Water Level (mm)
0	1730
2	2000

Pit Depth (mm): 2000

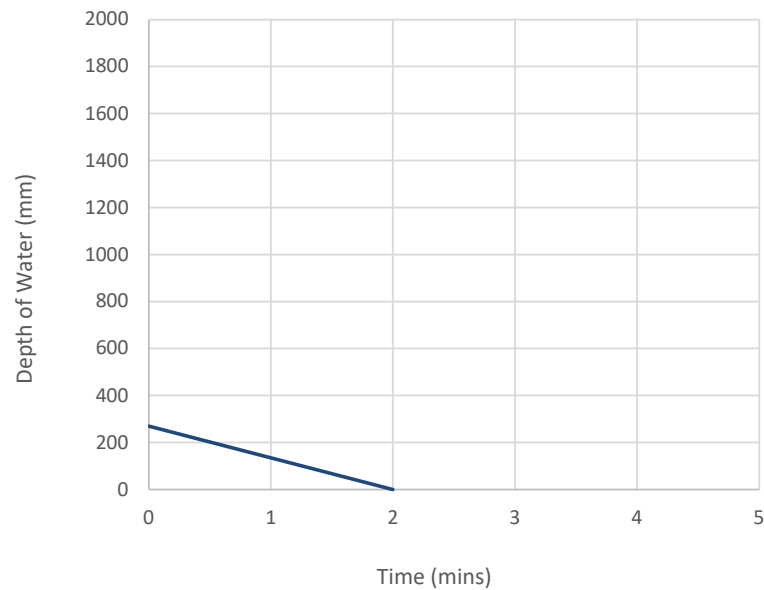
Pit Details: Open with no stone filling

Groundwater Level: NGW

SOIL PERCOLATION TEST

POSITION: TP101
TEST 1

Depth vs Time



Volume of Pit (m ³)	3.42
Void Ratio of Infill	1
Volume of Infill (m ³)	N/A
Volume of Water in Pit (m ³)	0.9234

Compliance Check:

Water Level at 75% effective depth (mm)	202.5
Water Level at 25% effective depth (mm)	67.5

Compliant with BRE 365

Soil Infiltration Rate Calculation

Water Level 1	202.5
Water Level 2	67.5
Time to Drain from Level 1 to Level 2 (mins)	1
Volume of water discharged (m ³)	0.23085

Discharge Area (m ²)	2.844
----------------------------------	-------

Soil Infiltration Rate (m/min)	0.0811709
--------------------------------	-----------

Soil Infiltration Rate (m/sec)	1.35E-03
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SOIL PERCOLATION TEST

Sheet 1 of 2

Date of Test: 04/10/2022

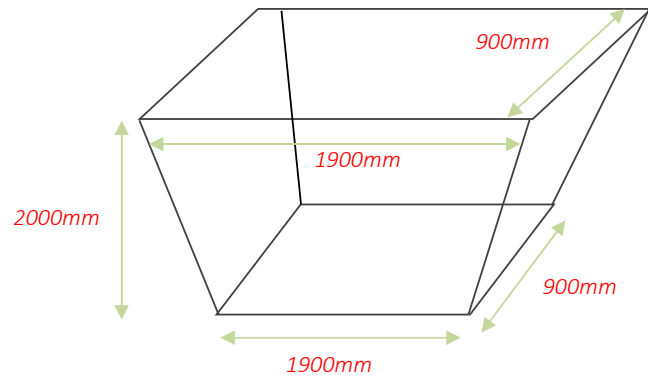
POSITION: TP101
TEST 2

Weather: Sunny, clear

Engineer: R Rowlinson

Checked: R Wyatt

Trial Pit Measurements



Test Data

Time Elapsed (mins)	Depth to Water Level (mm)
0	1720
3.5	2000

Pit Depth (mm): 2000

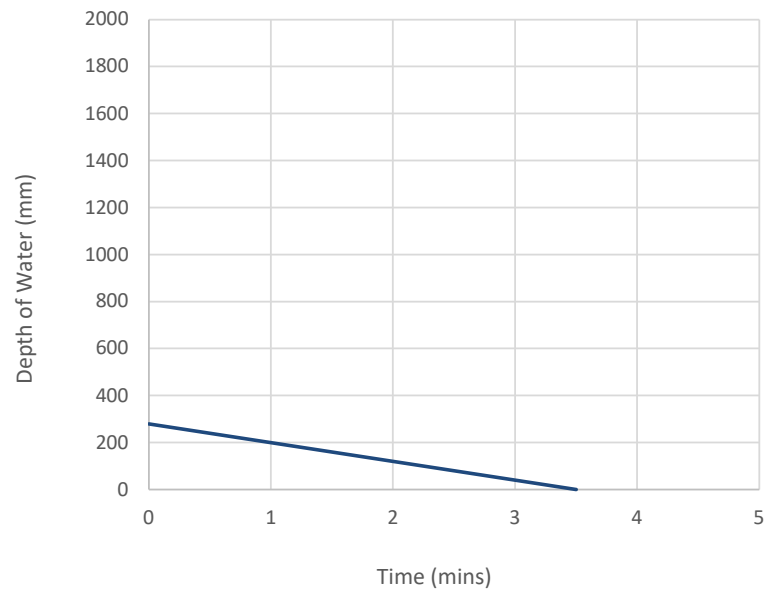
Pit Details: Open with no stone filling

Groundwater Level: NGW

SOIL PERCOLATION TEST

POSITION: TP101
TEST 2

Depth vs Time



Volume of Pit (m ³)	3.42
Void Ratio of Infill	1
Volume of Infill (m ³)	N/A
Volume of Water in Pit (m ³)	0.9576

Compliance Check:

Water Level at 75% effective depth (mm)	210
Water Level at 25% effective depth (mm)	70

Compliant with BRE 365

Soil Infiltration Rate Calculation

Water Level 1	210
Water Level 2	70
Time to Drain from Level 1 to Level 2 (mins)	1.75
Volume of water discharged (m ³)	0.2394

Discharge Area (m ²)	2.886
----------------------------------	-------

Soil Infiltration Rate (m/min)	0.0474012
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Soil Infiltration Rate (m/sec)	7.90E-04
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SOIL PERCOLATION TEST

Sheet 1 of 2

Date of Test: 04/10/2022

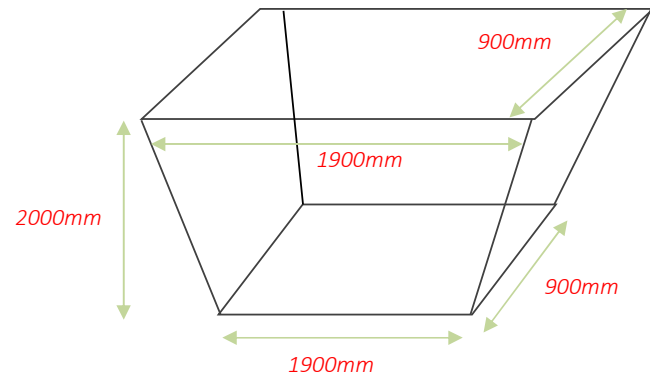
POSITION: TP101
TEST 3

Weather: Sunny, clear

Engineer: R Rowlinson

Checked: R Wyatt

Trial Pit Measurements



Test Data

Time Elapsed (mins)	Depth to Water Level (mm)
0	1700
1	1800
2	1880
3	1900
4	1950
5	2000

Pit Depth (mm): 2000

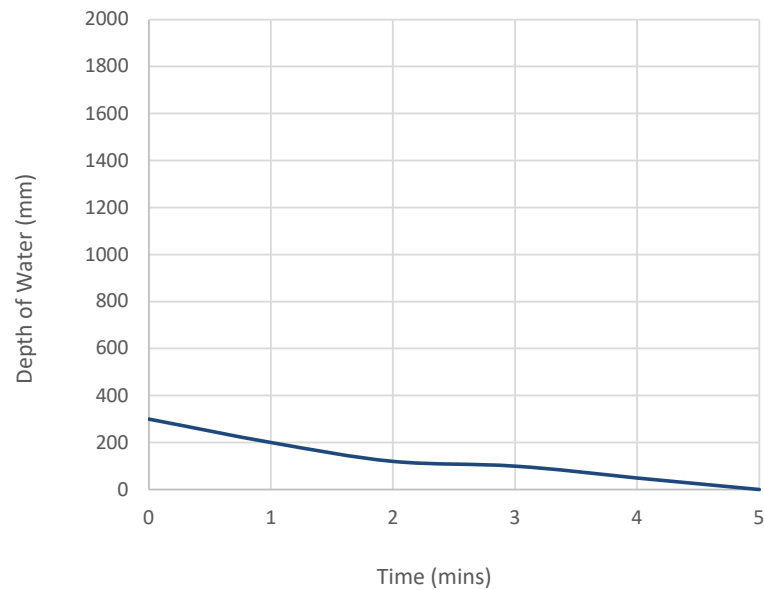
Pit Details: Open with no stone filling

Groundwater Level: NGW

SOIL PERCOLATION TEST

POSITION: TP101
TEST 3

Depth vs Time



Volume of Pit (m ³)	3.42
Void Ratio of Infill	1
Volume of Infill (m ³)	N/A
Volume of Water in Pit (m ³)	1.026

Compliance Check:

Water Level at 75% effective depth (mm)	225
Water Level at 25% effective depth (mm)	75

Compliant with BRE 365

Soil Infiltration Rate Calculation

Water Level 1	225
Water Level 2	75
Time to Drain from Level 1 to Level 2 (mins)	2.75
Volume of water discharged (m ³)	0.2565

Discharge Area (m ²)	2.97
----------------------------------	------

Soil Infiltration Rate (m/min)	0.031405
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Soil Infiltration Rate (m/sec)	5.23E-04
--------------------------------	----------



APPENDIX 6 – Plate Load Test Results



LABORATORY REPORT



4043

Contract Number: PSL22/6390

Report Date: 04 October 2022

Client's Reference:

Client Name: Groundtech Consulting
First Floor
Lloyd House
Orford Court
Greenfold Way
WN7 3XJ

For the attention of: Rebeca Rowlinson

Contract Title: 87 Rochdale Road, Manchester, M4 4HY

Date Received: 3/10/2022

Date Commenced: 3/10/2022

Date Completed: 4/10/2022

Notes: Opinions and Interpretations are outside the UKAS Accreditation

A copy of the Laboratory Schedule of accredited tests as issued by UKAS is attached to this report. This certificate is issued in accordance with the accreditation requirements of the United Kingdom Accreditation Service. The results reported herein relate only to the material supplied to the laboratory. This certificate shall not be reproduced other than in full, without the prior written approval of the laboratory.

Checked and Approved Signatories:

A Watkins
(Director)

R Berriman
(Quality Manager)

S Royle
(Laboratory Manager)

L Knight
(Senior Technician)

S Eyre
(Senior Technician)


T Watkins
(Senior Technician)

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rberriman@prosoils.co.uk

Page 1 of

VERTICAL DEFORMATION TESTS.

BS 1377 : Part 9 : 1990.

Date of Test: 03-Oct-22

Test Ref: TP102

Grid Ref:

Depth (m): 0.45

Layer:

Comments:

Maximum Applied Pressure (kPa):

127.66

Maximum Deformation (mm):

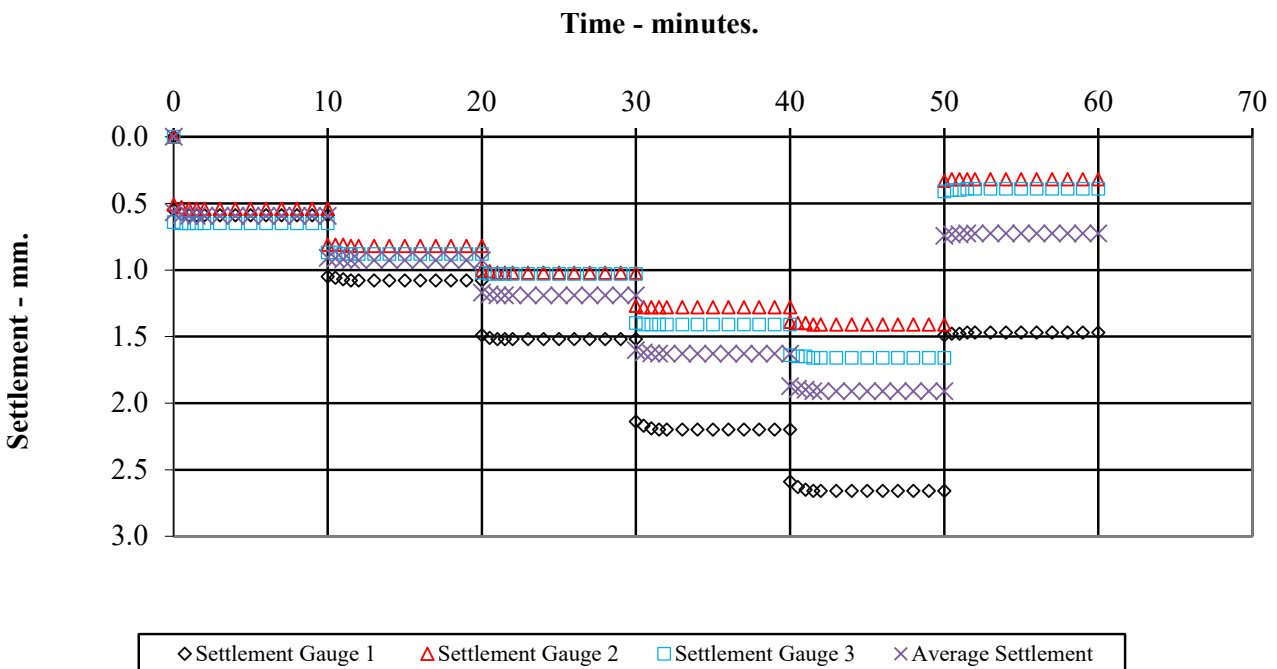
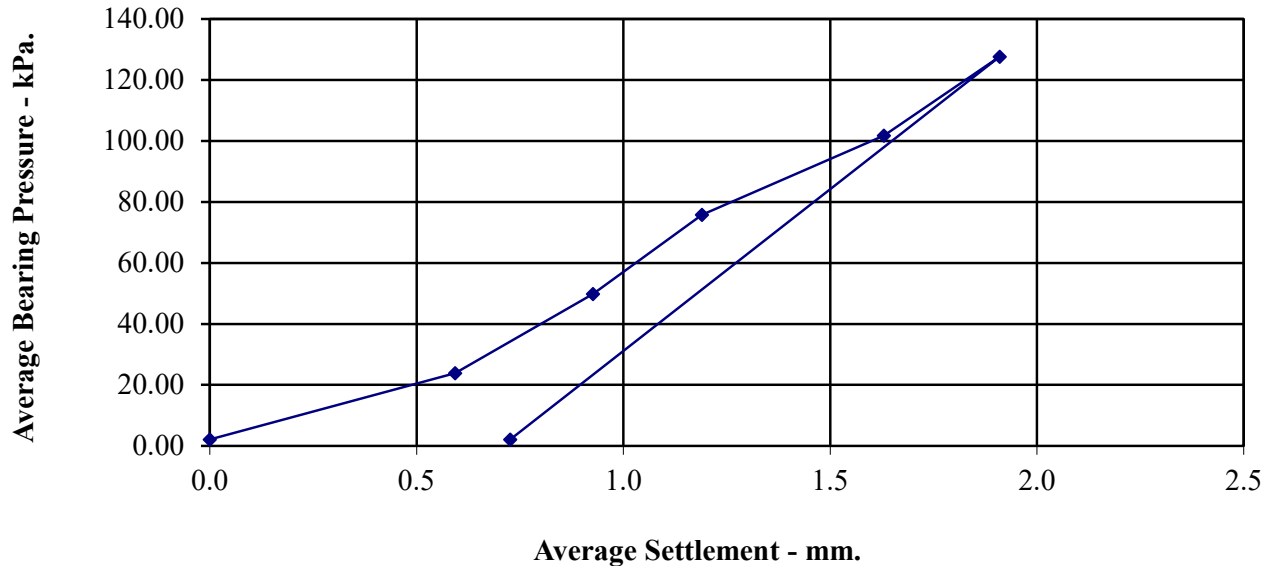
1.91

Plate Area (m2):

0.1626

Description:

MADE GROUND



Calculation of Equivalent CBR Value from Plate Bearing Test

Design Manual for Roads and Bridges Volume 7 Section 2 Chapter 4

Incorporating IAN 73/06

Date of Test 3-Oct-22

Test Ref TP102

Depth (m) 0.45

Grid Ref

Layer

Comments

Description MADE GROUND

Maximum Deflection 1.91 mm

Deflection required for CBR value 1.25 mm

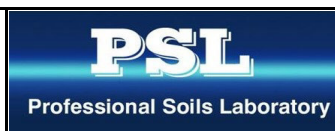
Load at 1.25mm 79 kN/m²

Plate diameter 455 mm

Conversion factor for plate diameter 0.629

K₇₆₂(modulus of subgrade reaction)
calculated using 1.25mm settlement 39.9 kN/m²/mm

CBR Value 5.7 %



87 Rochdale Road. Manchester

Contract No:

PSL22/6390

Client Ref:

VERTICAL DEFORMATION TESTS.

BS 1377 : Part 9 : 1990.

Date of Test: 03-Oct-22

Test Ref: TP113

Grid Ref:

Depth (m): 0.50

Layer:

Comments:

Maximum Applied Pressure (kPa):

127.66

Maximum Deformation (mm):

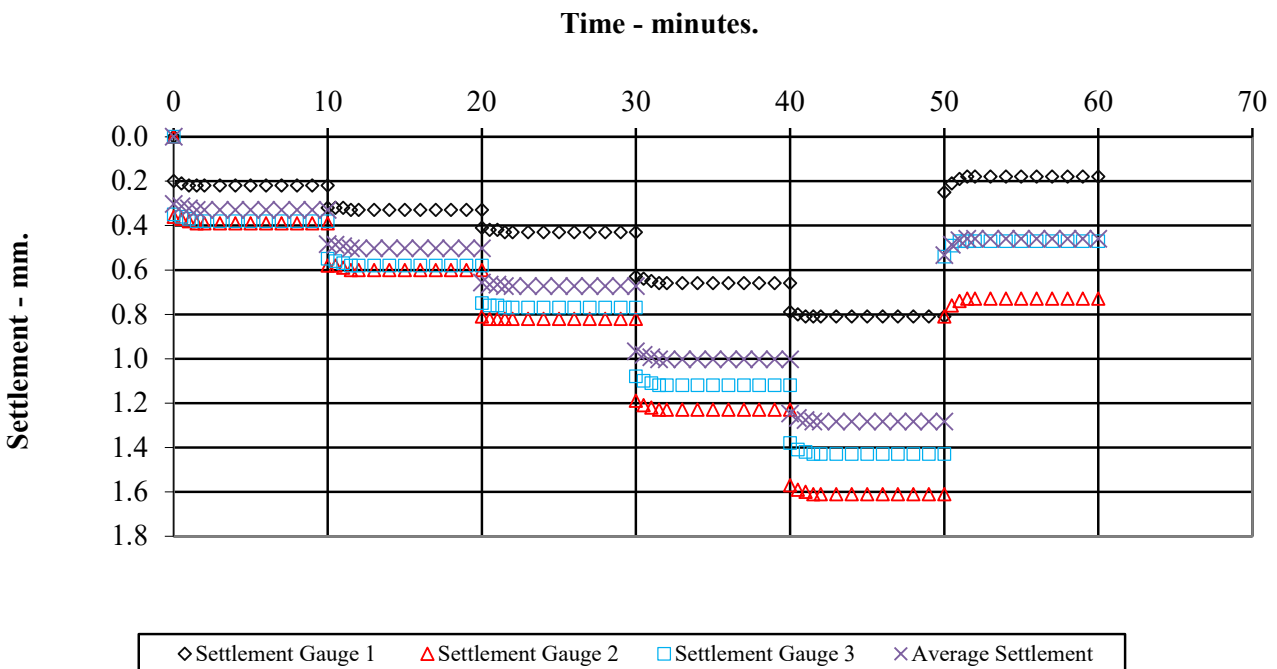
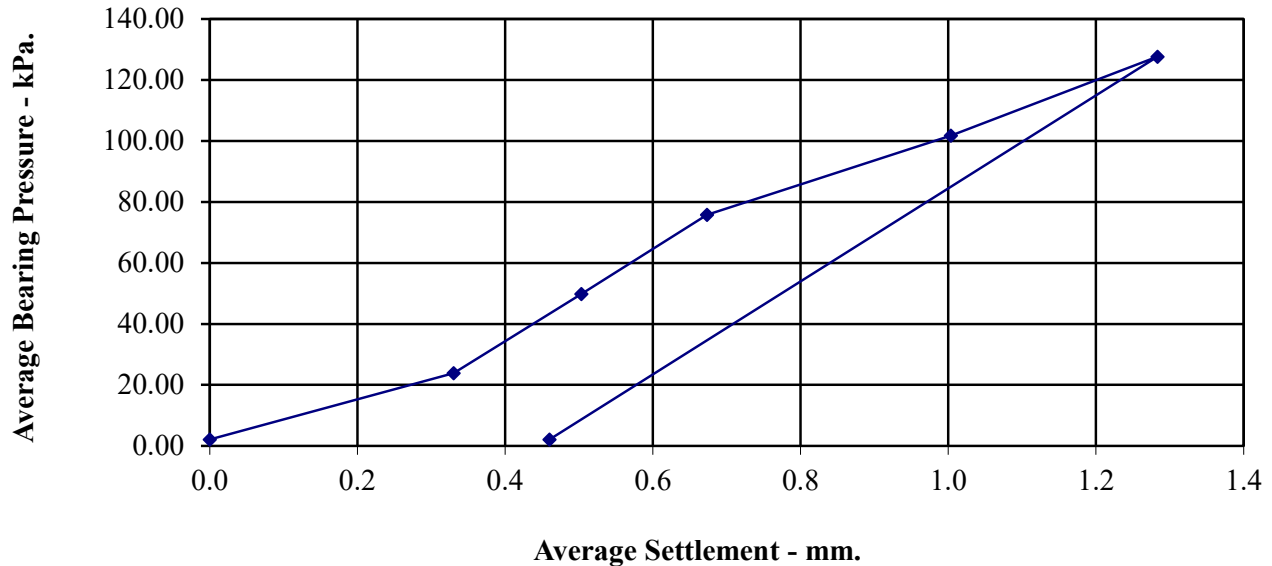
1.28

Plate Area (m2):

0.1626

Description:

MADE GROUND



Calculation of Equivalent CBR Value from Plate Bearing Test

Design Manual for Roads and Bridges Volume 7 Section 2 Chapter 4

Incorporating IAN 73/06

Date of Test 3-Oct-22

Test Ref TP113

Depth (m) 0.50

Grid Ref

Layer

Comments

Description MADE GROUND

Maximum Deflection 1.28 mm

Deflection required for CBR value 1.25 mm

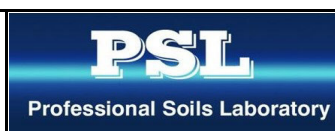
Load at 1.25mm 125 kN/m²

Plate diameter 455 mm

Conversion factor for plate diameter 0.629

K₇₆₂(modulus of subgrade reaction)
calculated using 1.25mm settlement 62.7 kN/m²/mm

CBR Value 12.6 %



87 Rochdale Road. Manchester

Contract No:

PSL22/6390

Client Ref:

VERTICAL DEFORMATION TESTS.

BS 1377 : Part 9 : 1990.

Date of Test: 03-Oct-22

Test Ref: TP114

Grid Ref:

Depth (m): 0.50

Layer:

Comments:

Maximum Applied Pressure (kPa):

127.66

Maximum Deformation (mm):

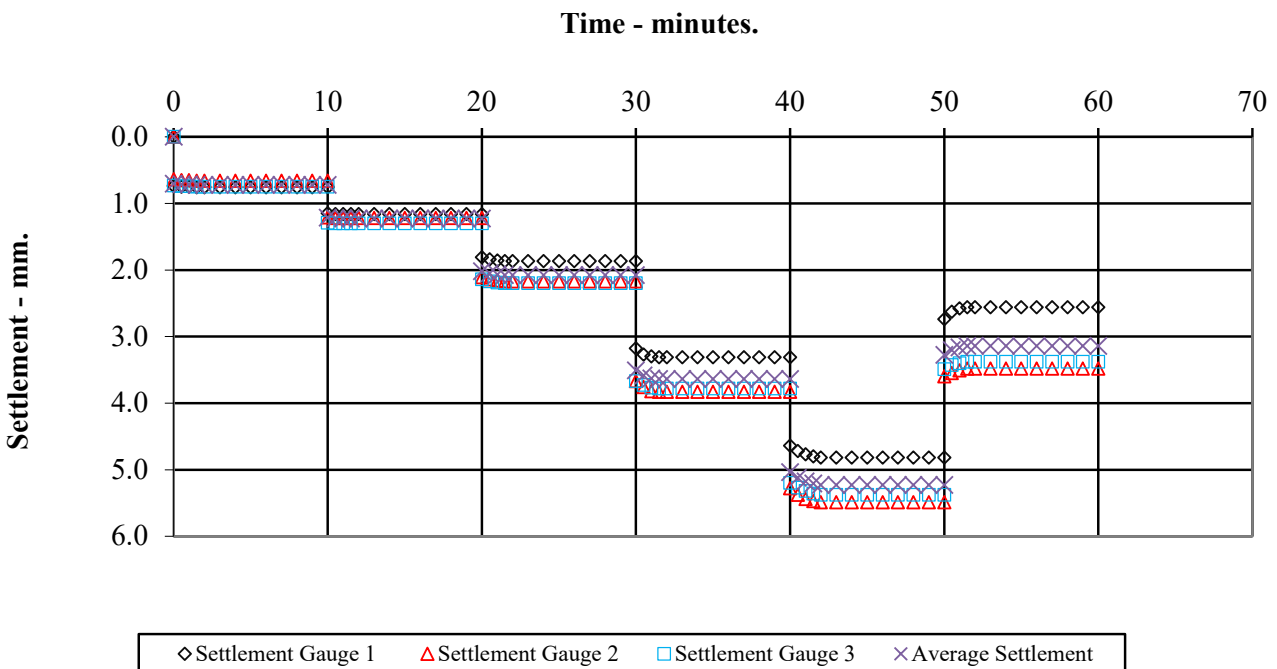
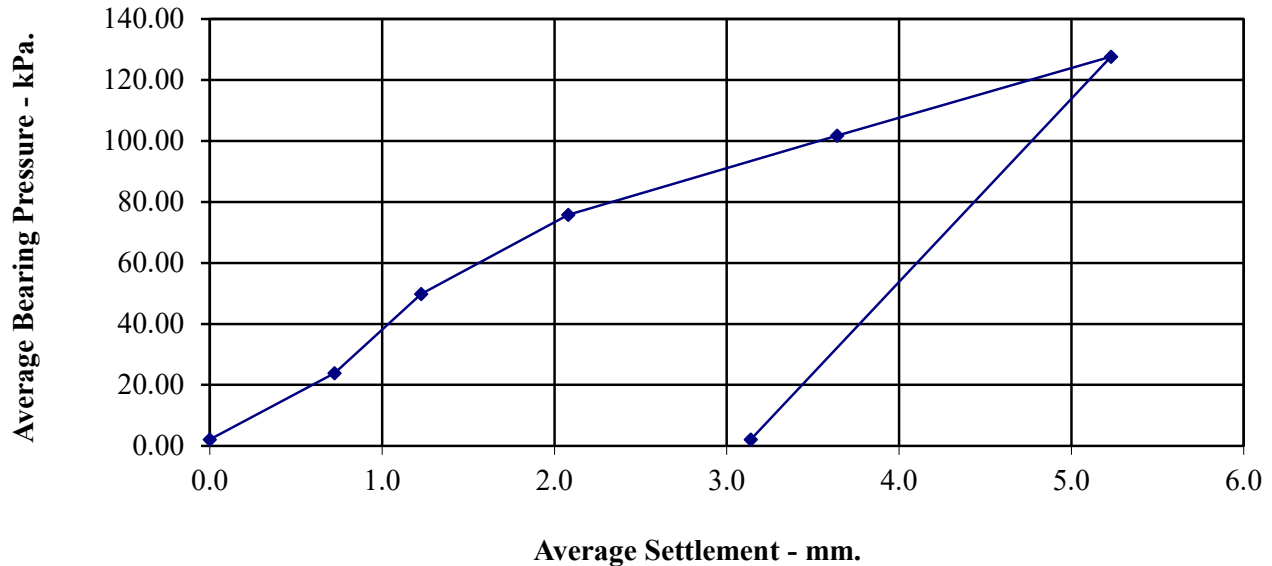
5.23

Plate Area (m2):

0.1626

Description:

MADE GROUND



Calculation of Equivalent CBR Value from Plate Bearing Test

Design Manual for Roads and Bridges Volume 7 Section 2 Chapter 4

Incorporating IAN 73/06

Date of Test 3-Oct-22

Test Ref TP114

Depth (m) 0.50

Grid Ref

Layer

Comments

Description MADE GROUND

Maximum Deflection 5.23 mm

Deflection required for CBR value 1.25 mm

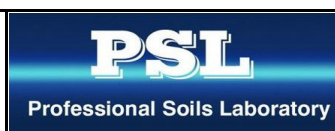
Load at 1.25mm 51 kN/m²

Plate diameter 455 mm

Conversion factor for plate diameter 0.629

K₇₆₂(modulus of subgrade reaction)
calculated using 1.25mm settlement 25.4 kN/m²/mm

CBR Value 2.6 %



87 Rochdale Road. Manchester

Contract No:

PSL22/6390

Client Ref:

VERTICAL DEFORMATION TESTS.

BS 1377 : Part 9 : 1990.

Date of Test: 03-Oct-22

Test Ref: TP115

Grid Ref:

Depth (m): 0.50

Layer:

Comments:

Maximum Applied Pressure (kPa):

127.66

Maximum Deformation (mm):

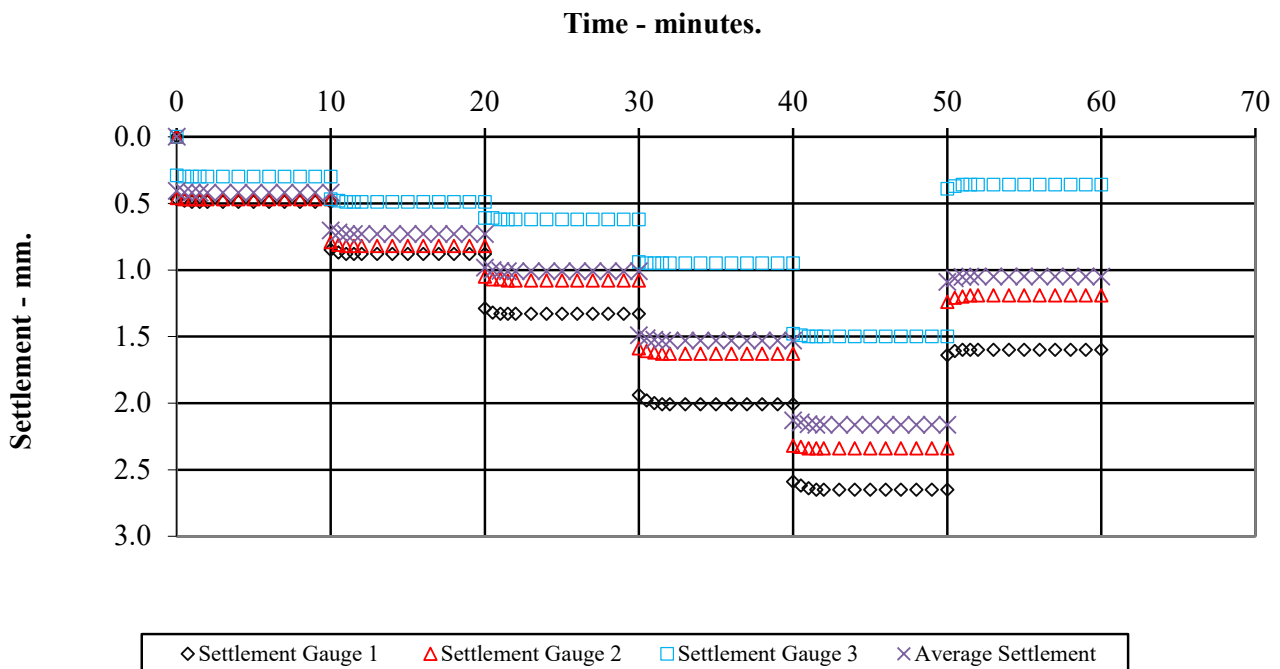
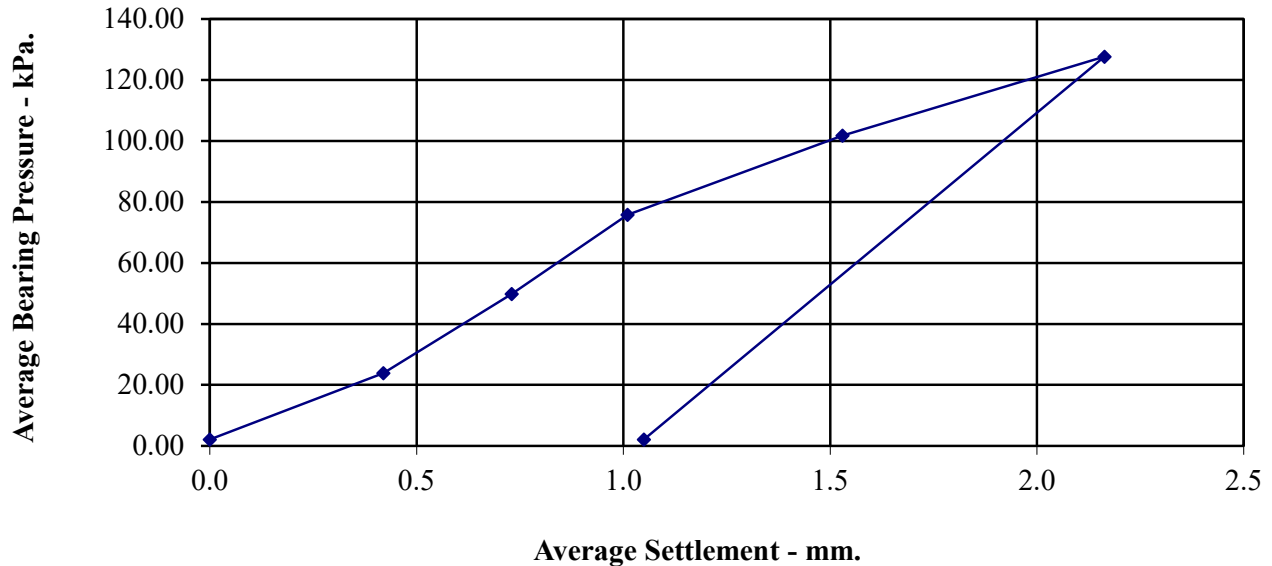
2.16

Plate Area (m2):

0.1626

Description:

MADE GROUND



Calculation of Equivalent CBR Value from Plate Bearing Test

Design Manual for Roads and Bridges Volume 7 Section 2 Chapter 4

Incorporating IAN 73/06

Date of Test 3-Oct-22

Test Ref TP115

Depth (m) 0.50

Grid Ref

Layer

Comments

Description MADE GROUND

Maximum Deflection 2.16 mm

Deflection required for CBR value 1.25 mm

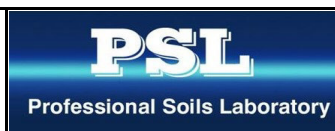
Load at 1.25mm 88 kN/m²

Plate diameter 455 mm

Conversion factor for plate diameter 0.629

K₇₆₂(modulus of subgrade reaction)
calculated using 1.25mm settlement 44.2 kN/m²/mm

CBR Value 6.8 %



87 Rochdale Road. Manchester

Contract No:

PSL22/6390

Client Ref:

VERTICAL DEFORMATION TESTS.

BS 1377 : Part 9 : 1990.

Date of Test: 03-Oct-22

Test Ref: TP116

Grid Ref:

Depth (m): 0.50

Layer:

Comments:

Maximum Applied Pressure (kPa):

127.66

Maximum Deformation (mm):

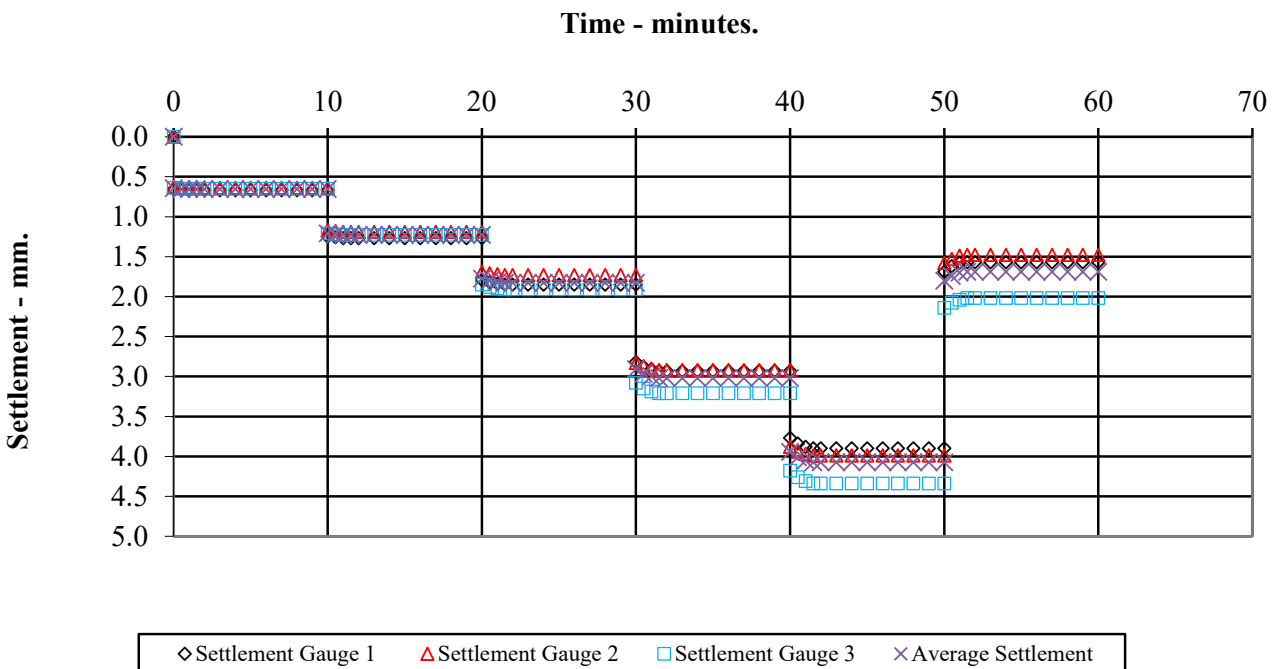
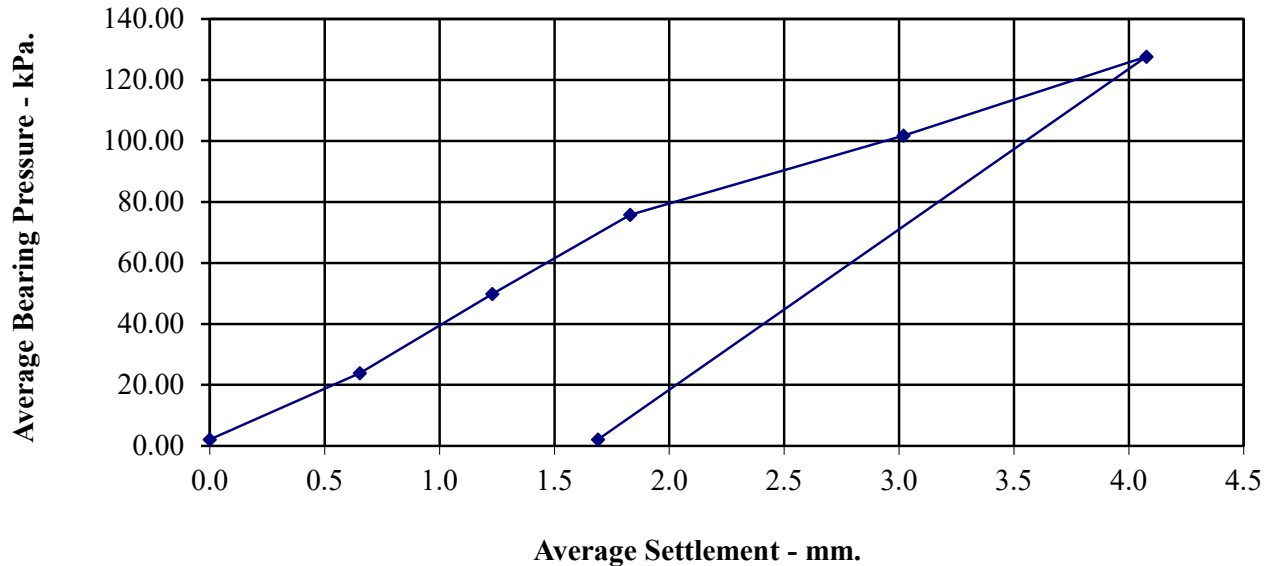
4.08

Plate Area (m2):

0.1626

Description:

MADE GROUND



Calculation of Equivalent CBR Value from Plate Bearing Test

Design Manual for Roads and Bridges Volume 7 Section 2 Chapter 4

Incorporating IAN 73/06

Date of Test 3-Oct-22

Test Ref TP116

Depth (m) 0.50

Grid Ref

Layer

Comments

Description MADE GROUND

Maximum Deflection 4.08 mm

Deflection required for CBR value 1.25 mm

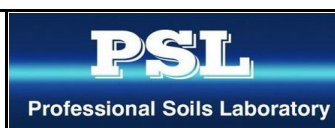
Load at 1.25mm 51 kN/m²

Plate diameter 455 mm

Conversion factor for plate diameter 0.629

K₇₆₂(modulus of subgrade reaction)
calculated using 1.25mm settlement 25.5 kN/m²/mm

CBR Value 2.6 %



87 Rochdale Road. Manchester

Contract No:

PSL22/6390

Client Ref:



APPENDIX 7 – Geotechnical Testing Results



LABORATORY REPORT



4043

Contract Number: PSL22/6631

Report Date: 10 November 2022

Client's Reference:

Client Name: Groundtech Consulting
First Floor
Lloyd House
Orford Court
Greenfold Way
WN7 3XJ

For the attention of: Rebecca Rowlinson

Contract Title: Rochdale Road, Manchester

Date Received: 14/10/2022

Date Commenced: 14/10/2022

Date Completed: 10/11/2022

Notes: Opinions and Interpretations are outside the UKAS Accreditation

A copy of the Laboratory Schedule of accredited tests as issued by UKAS is attached to this report. This certificate is issued in accordance with the accreditation requirements of the United Kingdom Accreditation Service. The results reported herein relate only to the material supplied to the laboratory. This certificate shall not be reproduced other than in full, without the prior written approval of the laboratory.

Checked and Approved Signatories:

A Watkins
(Director)

R Berriman
(Quality Manager)

S Royle
(Laboratory Manager)

L Knight
(Assistant Laboratory Manager)

S Eyre
(Senior Technician)

T Watkins
(Senior Technician)

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awatkins@prosoils.co.uk

Page 1 of

SUMMARY OF LABORATORY SOIL DESCRIPTIONS

Hole Number	Sample Number	Sample Type	Top Depth m	Base Depth m	Description of Sample
TP108		B	2.00		MADE GROUND brown slightly gravelly very sandy clay.
BH101		B	2.00		MADE GROUND dark brown very sandy silty gravel.
BH101		B	8.00		Brown slightly gravelly sandy CLAY.
BH101		B	13.00		Brown slightly gravelly sandy CLAY.
BH101		B	21.50		Brown gravelly very sandy CLAY with some cobbles.
BH101		U	4.00		CON
BH101		D	5.00	5.45	Brown slightly gravelly sandy CLAY.
BH101		U	6.50	6.95	Stiff brown slightly gravelly sandy CLAY.
BH101		D	8.00	8.45	Brown slightly gravelly sandy CLAY.
BH101		U	9.50	9.95	CON
BH101		D	11.00	11.45	Brown slightly gravelly sandy CLAY.
BH101		U	12.50	12.95	Stiff brown slightly gravelly sandy CLAY.
BH101		U	15.00	15.45	Stiff brown slightly gravelly very sandy CLAY.
BH101		D	15.50		Brown slightly gravelly very sandy CLAY.
BH101		U	18.50	18.95	Firm brown slightly gravelly very sandy CLAY.
BH101		D	20.00	20.45	Brown slightly gravelly very sandy CLAY.
BH103		D	9.50		Brown slightly gravelly sandy CLAY.
TP112		B	1.00		MADE GROUND dark brown very sandy slightly clayey silty gravel with cobbles.
TP101		B	1.00		MADE GROUND dark grey sandy clayey silty gravel with many cobbles.



4043

PSL

Professional Soils Laboratory

Rochdale Road, Manchester

Contract No:

PSL22/6631

Client Ref:

GRO-22292

SUMMARY OF LABORATORY SOIL DESCRIPTIONS

Hole Number	Sample Number	Sample Type	Top Depth m	Base Depth m	Description of Sample
BH102		D	10.00		Brown slightly gravelly sandy CLAY.
BH102		B	0.50	1.00	MADE GROUND dark brown very sandy silty gravel.
BH102		B	2.00		MADE GROUND dark brown very sandy slightly clayey silty gravel.
BH102		B	7.50		Dark brown sandy slightly silty GRAVEL with cobbles.
BH102		U	9.00	9.50	Stiff brown slightly gravelly sandy CLAY.
BH105		B	2.00		MADE GROUND brown sandy silty gravel with cobbles.
BH105		B	9.00		Brown slightly gravelly sandy CLAY.
BH105		B	15.00		Brown slightly gravelly very sandy CLAY.
BH105		B	19.50		Brown gravelly very clayey SAND.
BH105		D	7.00		Brown slightly gravelly sandy CLAY.
BH105		D	11.00		Brown slightly gravelly sandy CLAY.
BH105		D	14.00		Brown slightly very sandy CLAY.
BH105		D	18.00		Brown slightly very sandy CLAY.
BH105		D	21.00		Brown silty SAND.
BH105		U	9.00	9.45	Stiff brown slightly gravelly sandy CLAY.
BH105		U	15.00	15.45	Stiff brown slightly gravelly very sandy CLAY.
BH107		D	2.50		Brown slightly gravelly very sandy CLAY.
BH107		D	6.00		Brown slightly gravelly sandy CLAY.
BH107		D	10.50		Brown slightly gravelly sandy CLAY.



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SUMMARY OF LABORATORY SOIL DESCRIPTIONS

[illegible]

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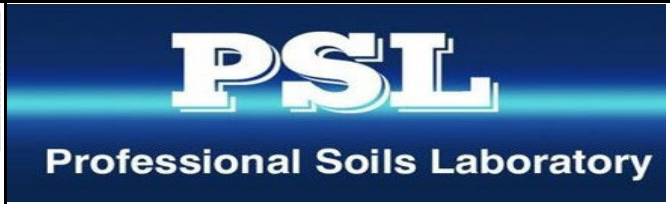
SUMMARY OF SOIL CLASSIFICATION TESTS

(BS1377 : PART 2 : 1990)

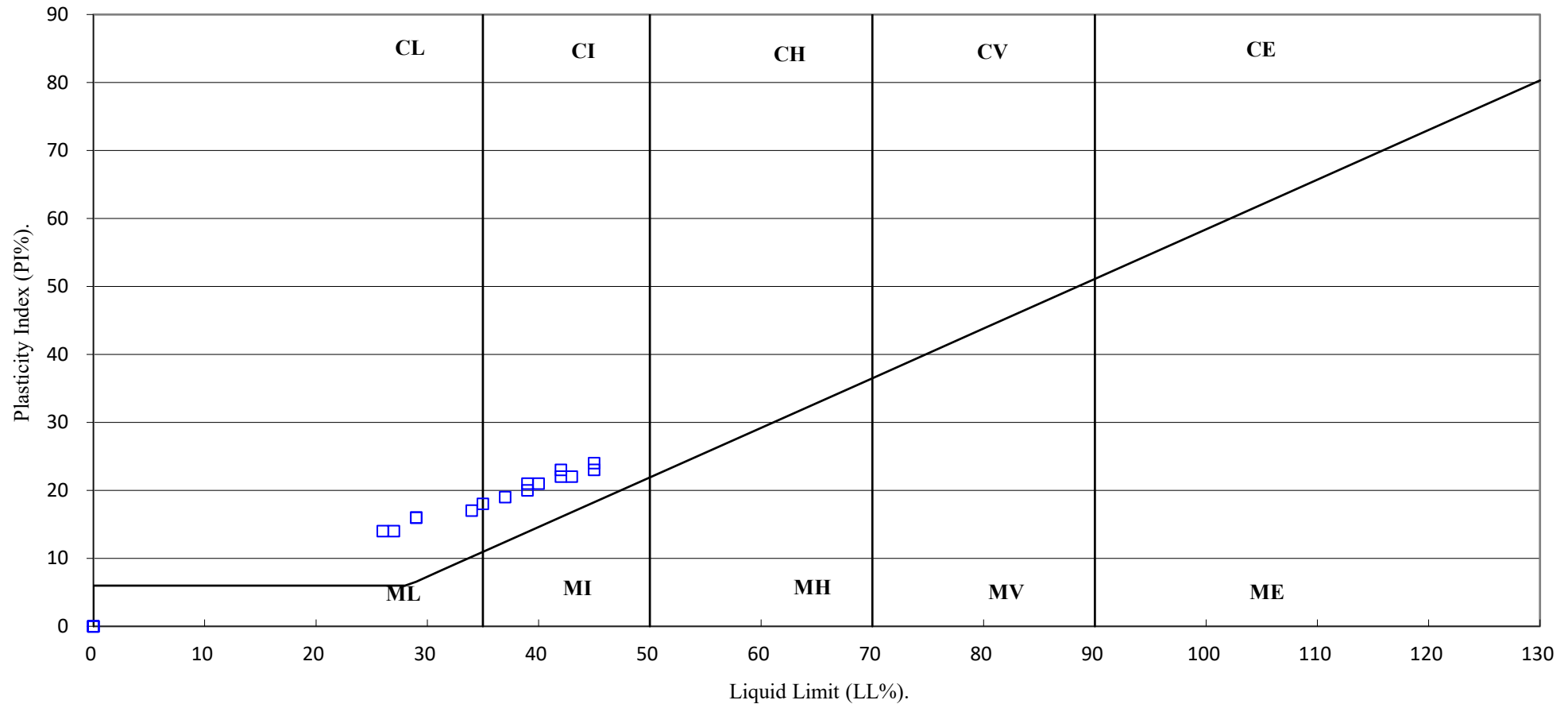
Hole Number	Sample Number	Sample Type	Top Depth m	Base Depth m	Moisture Content % Clause 3.2	Linear Shrinkage % Clause 6.5	Particle Density Mg/m ³ Clause 8.2	Liquid Limit % Clause 4.3/4	Plastic Limit % Clause 5.3	Plasticity Index % Clause 5.4	Passing .425mm %	Remarks
BH101		D	5.00	5.45	19			42	20	22	95	Intermediate Plasticity CI
BH101		D	8.00	8.45	18			37	18	19	93	Intermediate Plasticity CI
BH101		D	11.00	11.45	17			40	19	21	96	Intermediate Plasticity CI
BH101		D	15.50		17			35	17	18	97	Intermediate Plasticity CI
BH101		D	20.00	20.45	9.6			27	13	14	92	Low Plasticity CL
BH103		D	9.50		18			43	21	22	98	Intermediate Plasticity CI
BH102		D	10.00		18			39	18	21	95	Intermediate Plasticity CI
BH105		D	7.00		27			45	21	24	97	Intermediate Plasticity CI
BH105		D	11.00		18			39	19	20	93	Intermediate Plasticity CI
BH105		D	14.00		12			29	13	16	96	Low Plasticity CL
BH105		D	18.00		10			26	12	14	97	Low Plasticity CL
BH105		D	21.00		8.5				NP			
BH107		D	2.50		16			34	17	17	95	Low Plasticity CL
BH107		D	6.00		20			42	19	23	98	Intermediate Plasticity CI
BH107		D	10.50		22			45	22	23	93	Intermediate Plasticity CI
BH107		D	13.50		8.9			29	13	16	98	Low Plasticity CL

SYMBOLS : NP : Non Plastic

* : Liquid Limit and Plastic Limit Wet Sieved.

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PLASTICITY CHART FOR CASAGRANDE CLASSIFICATION.



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PARTICLE SIZE DISTRIBUTION TEST

BS1377 : Part 2 : 1990

Wet Sieve, Clause 9.2

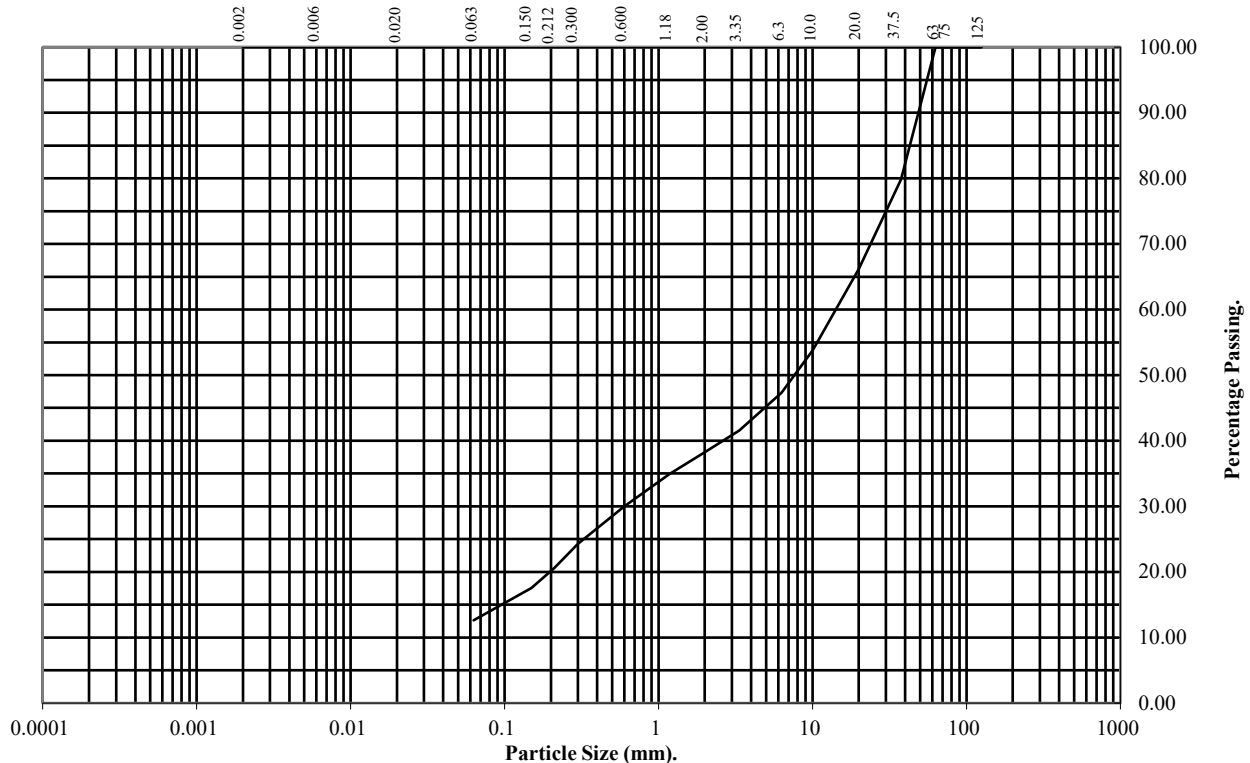
Hole Number: BH101

Top Depth (m): 2.00

Sample Number:

Base Depth(m):

Sample Type: B



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	80
20	66
10	54
6.3	47
3.35	42
2	38
1.18	35
0.6	30
0.3	24
0.212	21
0.15	18
0.063	13

Soil Fraction	Total Percentage
Cobbles	0
Gravel	62
Sand	25
Silt/Clay	13

Remarks:

See Summary of Soil Descriptions



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PARTICLE SIZE DISTRIBUTION TEST

BS1377 : Part 2 : 1990

Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4

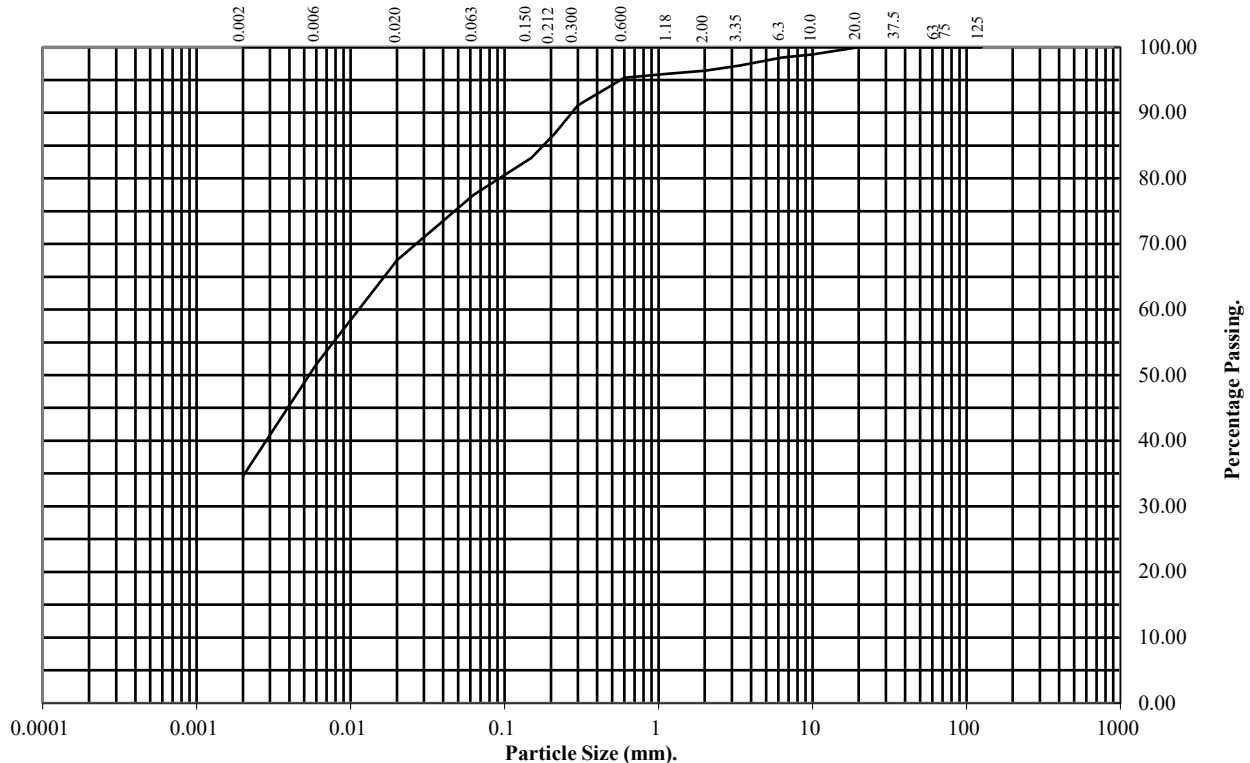
Hole Number: BH101

Top Depth (m): 8.00

Sample Number:

Base Depth(m):

Sample Type: B



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	100
20	100
10	99
6.3	98
3.35	97
2	96
1.18	96
0.6	95
0.3	91
0.212	87
0.15	83
0.063	77

Particle Diameter	Percentage Passing
0.02	67
0.006	52
0.002	35

Soil Fraction	Total Percentage
Cobbles	0
Gravel	4
Sand	19
Silt	42
Clay	35

Remarks:

See Summary of Soil Descriptions



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PARTICLE SIZE DISTRIBUTION TEST

BS1377 : Part 2 : 1990

Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4

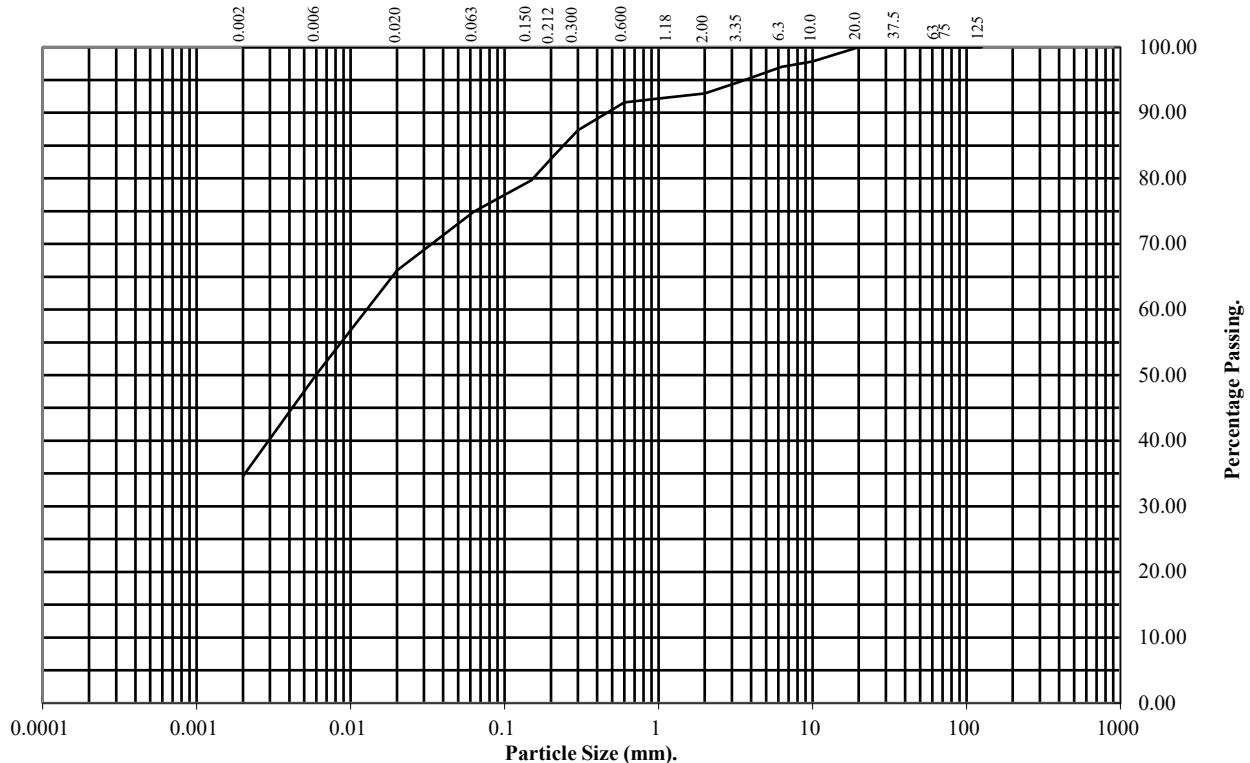
Hole Number: BH101

Top Depth (m): 13.00

Sample Number:

Base Depth(m):

Sample Type: B



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	100
20	100
10	98
6.3	97
3.35	95
2	93
1.18	92
0.6	92
0.3	87
0.212	84
0.15	80
0.063	75

Particle Diameter	Percentage Passing
0.02	66
0.006	50
0.002	35

Soil Fraction	Total Percentage
Cobbles	0
Gravel	7
Sand	18
Silt	40
Clay	35

Remarks:

See Summary of Soil Descriptions



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PARTICLE SIZE DISTRIBUTION TEST

BS1377 : Part 2 : 1990

Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4

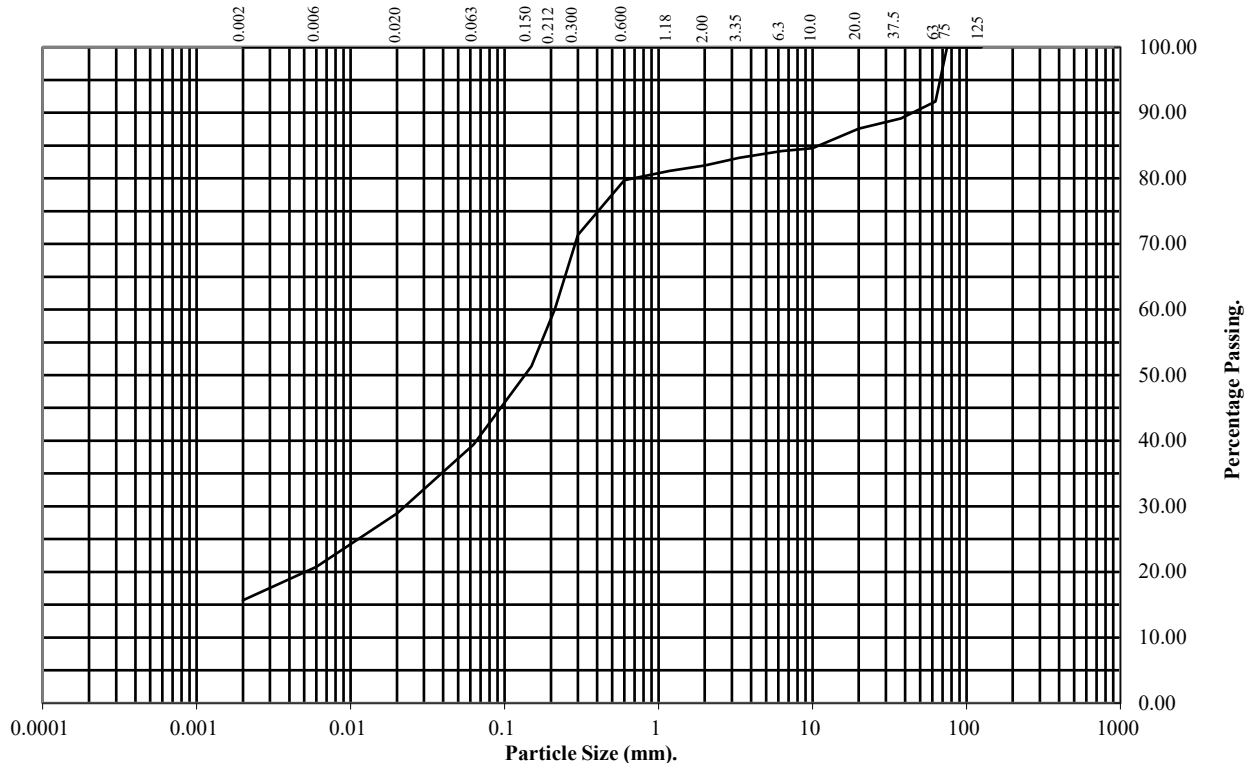
Hole Number: BH101

Top Depth (m): 21.50

Sample Number:

Base Depth(m):

Sample Type: B



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	92
37.5	89
20	88
10	85
6.3	84
3.35	83
2	82
1.18	81
0.6	80
0.3	71
0.212	60
0.15	51
0.063	39

Particle Diameter	Percentage Passing
0.02	29
0.006	21
0.002	16

Soil Fraction	Total Percentage
Cobbles	8
Gravel	10
Sand	43
Silt	23
Clay	16

Remarks:

See Summary of Soil Descriptions



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PARTICLE SIZE DISTRIBUTION TEST

BS1377 : Part 2 : 1990

Wet Sieve, Clause 9.2

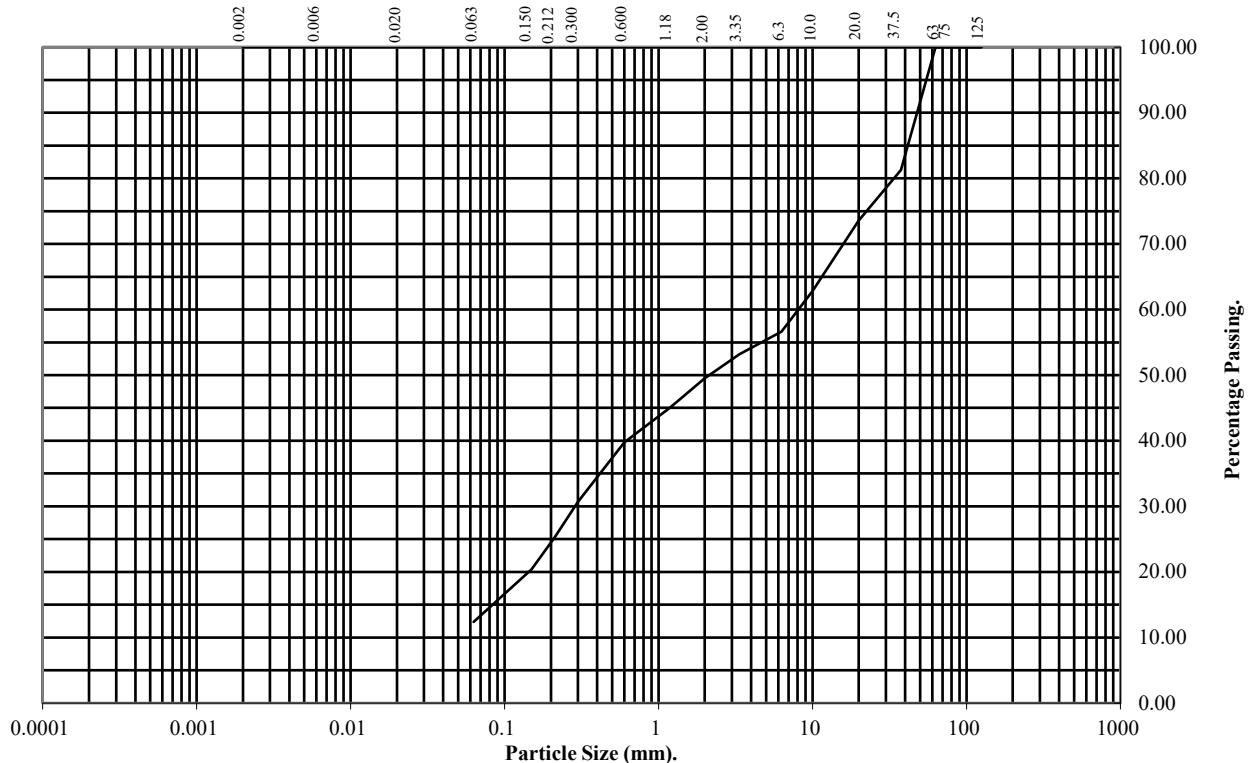
Hole Number: BH102

Top Depth (m): 0.50

Sample Number:

Base Depth(m): 1.00

Sample Type: B



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	81
20	74
10	63
6.3	57
3.35	53
2	50
1.18	45
0.6	40
0.3	31
0.212	25
0.15	20
0.063	12

Soil Fraction	Total Percentage
Cobbles	0
Gravel	50
Sand	38
Silt/Clay	12

Remarks:

See Summary of Soil Descriptions



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PARTICLE SIZE DISTRIBUTION TEST

BS1377 : Part 2 : 1990

Wet Sieve, Clause 9.2

Hole Number:

BH102

Top Depth (m):

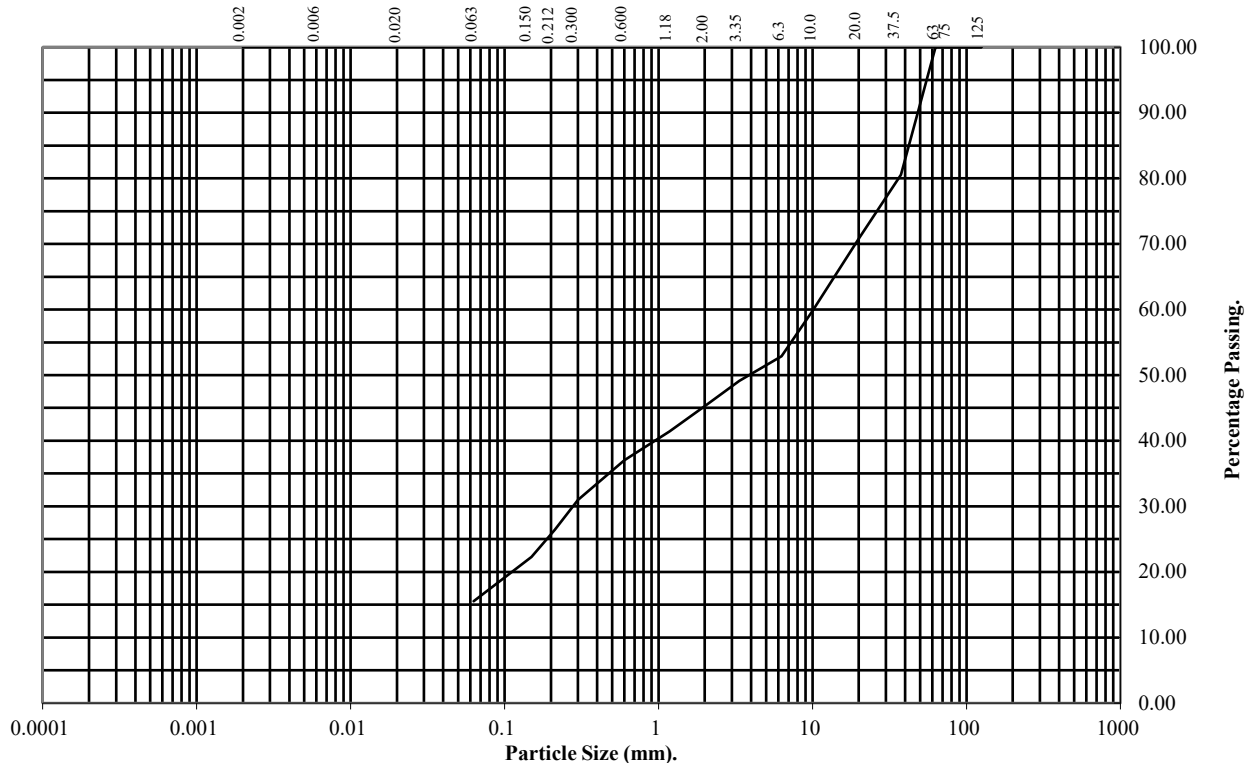
2.00

Sample Number:

Base Depth(m):

Sample Type:

B



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	81
20	71
10	60
6.3	53
3.35	49
2	45
1.18	41
0.6	37
0.3	31
0.212	26
0.15	22
0.063	16

Soil Fraction	Total Percentage
Cobbles	0
Gravel	55
Sand	29
Silt/Clay	16

Remarks:

See Summary of Soil Descriptions



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PARTICLE SIZE DISTRIBUTION TEST

BS1377 : Part 2 : 1990

Wet Sieve, Clause 9.2

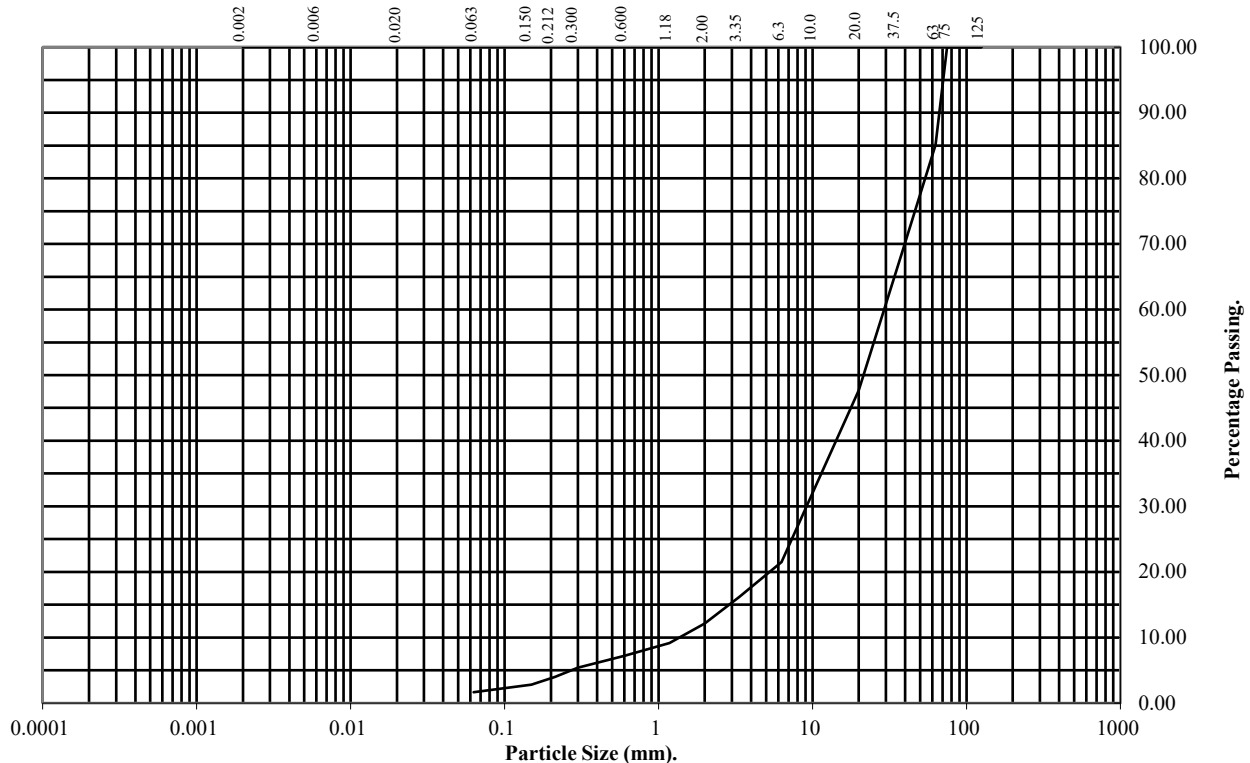
Hole Number: BH102

Top Depth (m): 7.50

Sample Number:

Base Depth(m):

Sample Type: B



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	85
37.5	68
20	48
10	32
6.3	21
3.35	16
2	12
1.18	9
0.6	7
0.3	5
0.212	4
0.15	3
0.063	2

Soil Fraction	Total Percentage
Cobbles	15
Gravel	73
Sand	10
Silt/Clay	2

Remarks:

See Summary of Soil Descriptions



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PARTICLE SIZE DISTRIBUTION TEST

BS1377 : Part 2 : 1990

Wet Sieve, Clause 9.2

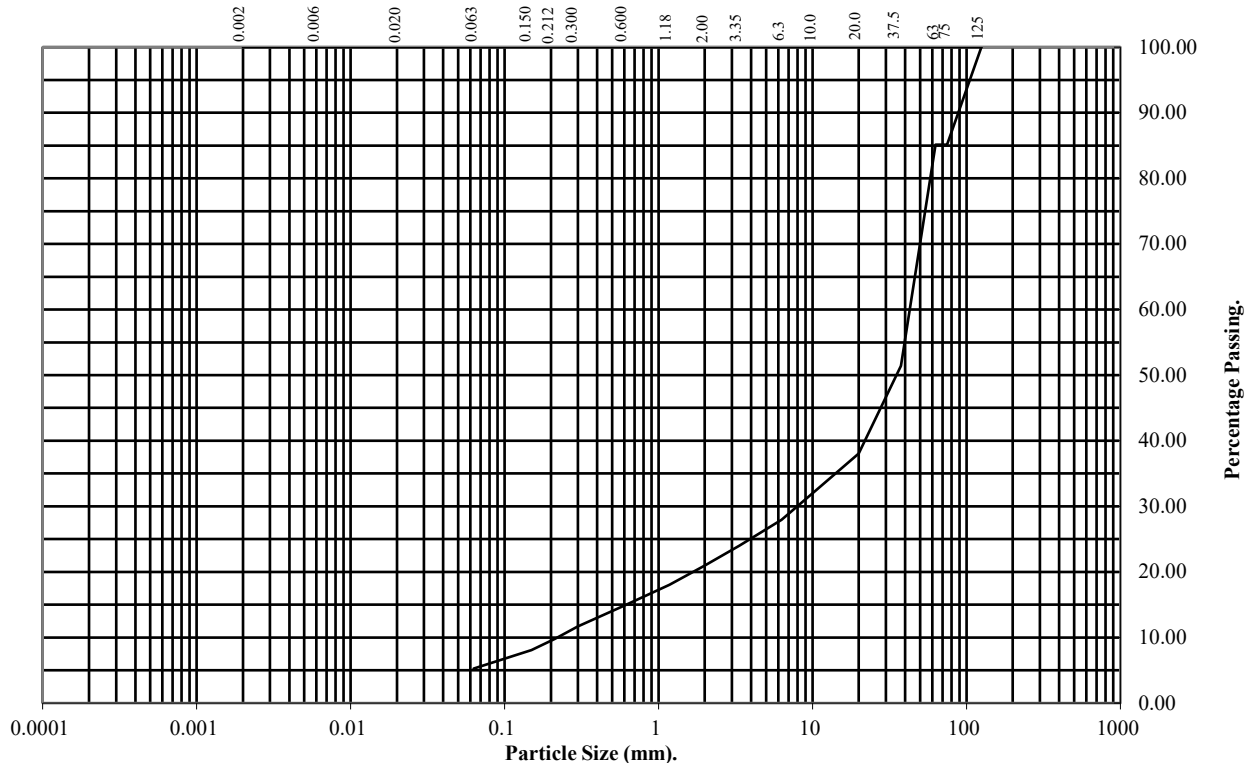
Hole Number: BH105

Top Depth (m): 2.00

Sample Number:

Base Depth(m):

Sample Type: B



BS Test Sieve (mm)	Percentage Passing
125	100
75	85
63	85
37.5	51
20	38
10	32
6.3	28
3.35	24
2	21
1.18	18
0.6	15
0.3	12
0.212	10
0.15	8
0.063	5

Soil Fraction	Total Percentage
Cobbles	15
Gravel	64
Sand	16
Silt/Clay	5

Remarks:

See Summary of Soil Descriptions



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PARTICLE SIZE DISTRIBUTION TEST

BS1377 : Part 2 : 1990

Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4

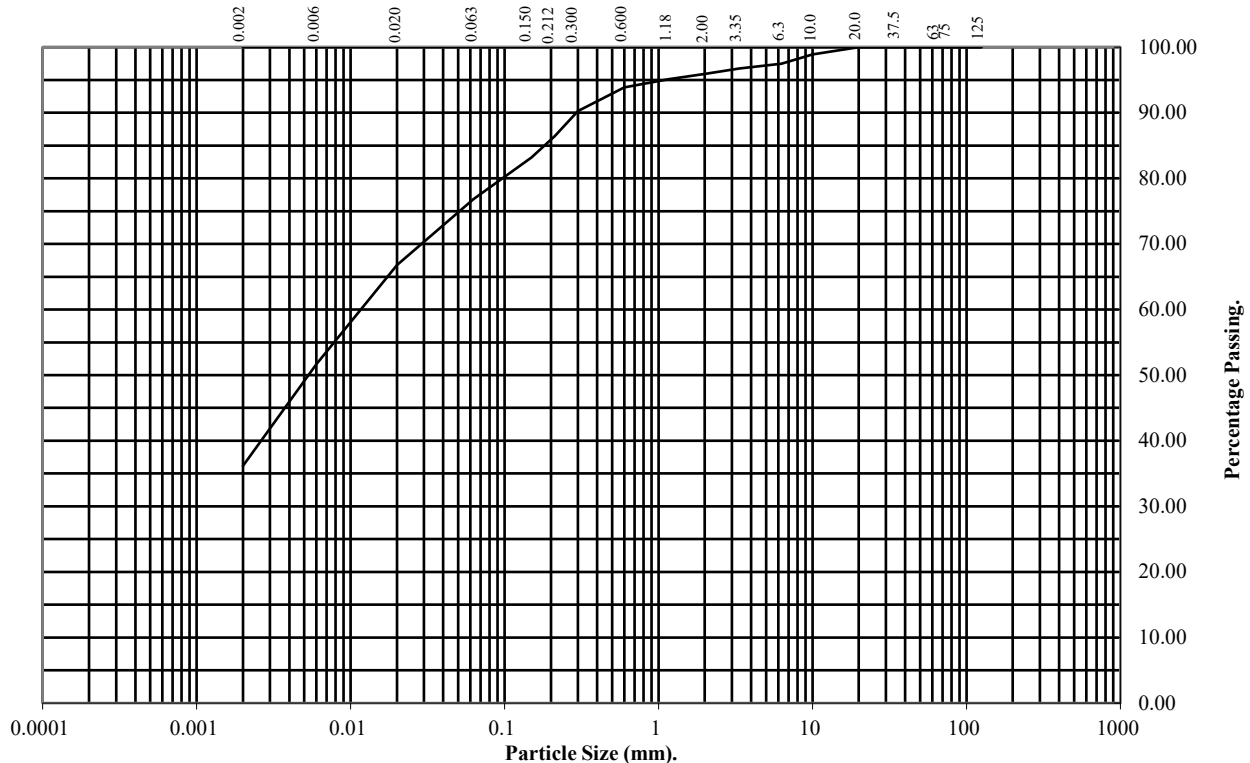
Hole Number: BH105

Top Depth (m): 9.00

Sample Number:

Base Depth(m):

Sample Type: B



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	100
20	100
10	99
6.3	97
3.35	97
2	96
1.18	95
0.6	94
0.3	90
0.212	86
0.15	83
0.063	77

Particle Diameter	Percentage Passing
0.02	67
0.006	52
0.002	36

Soil Fraction	Total Percentage
Cobbles	0
Gravel	4
Sand	19
Silt	41
Clay	36

Remarks:

See Summary of Soil Descriptions



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PARTICLE SIZE DISTRIBUTION TEST

BS1377 : Part 2 : 1990

Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4

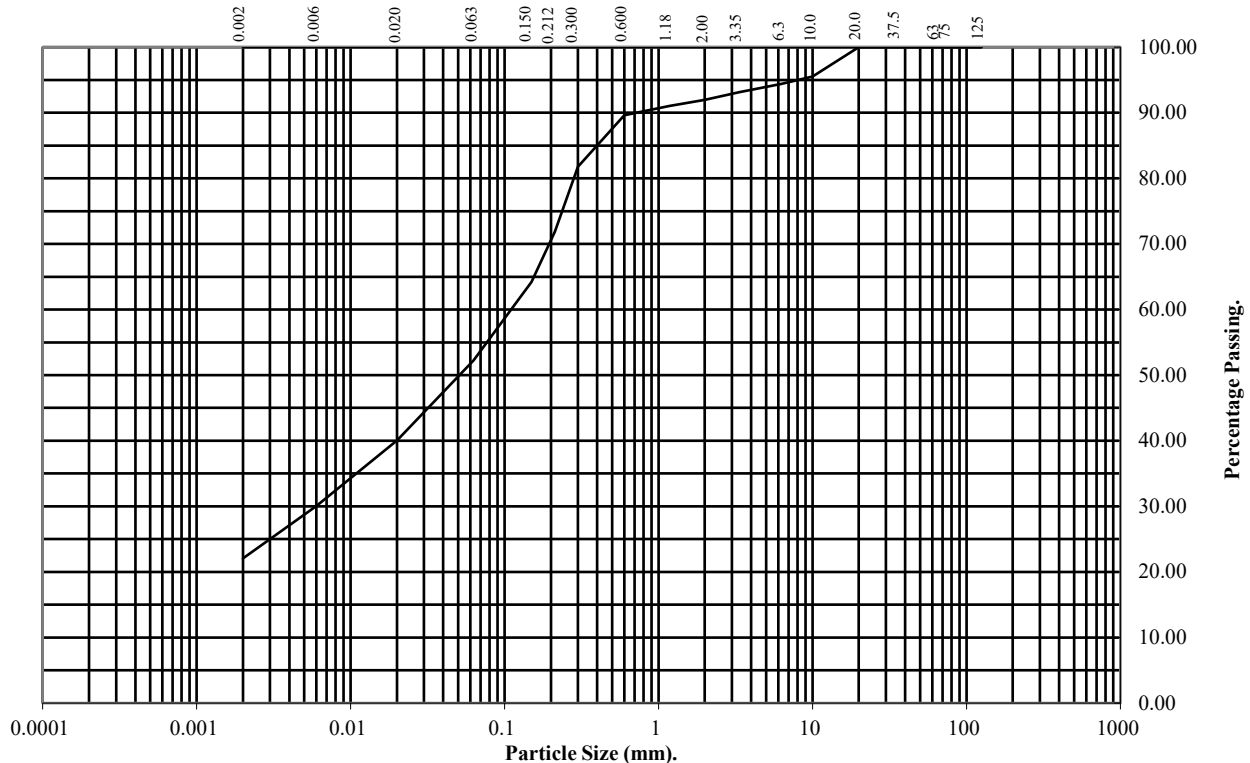
Hole Number: BH105

Top Depth (m): 15.00

Sample Number:

Base Depth(m):

Sample Type: B



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	100
20	100
10	96
6.3	94
3.35	93
2	92
1.18	91
0.6	90
0.3	82
0.212	72
0.15	64
0.063	52

Particle Diameter	Percentage Passing
0.02	40
0.006	30
0.002	22

Soil Fraction	Total Percentage
Cobbles	0
Gravel	8
Sand	40
Silt	30
Clay	22

Remarks:

See Summary of Soil Descriptions



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PARTICLE SIZE DISTRIBUTION TEST

BS1377 : Part 2 : 1990

Wet Sieve, Clause 9.2

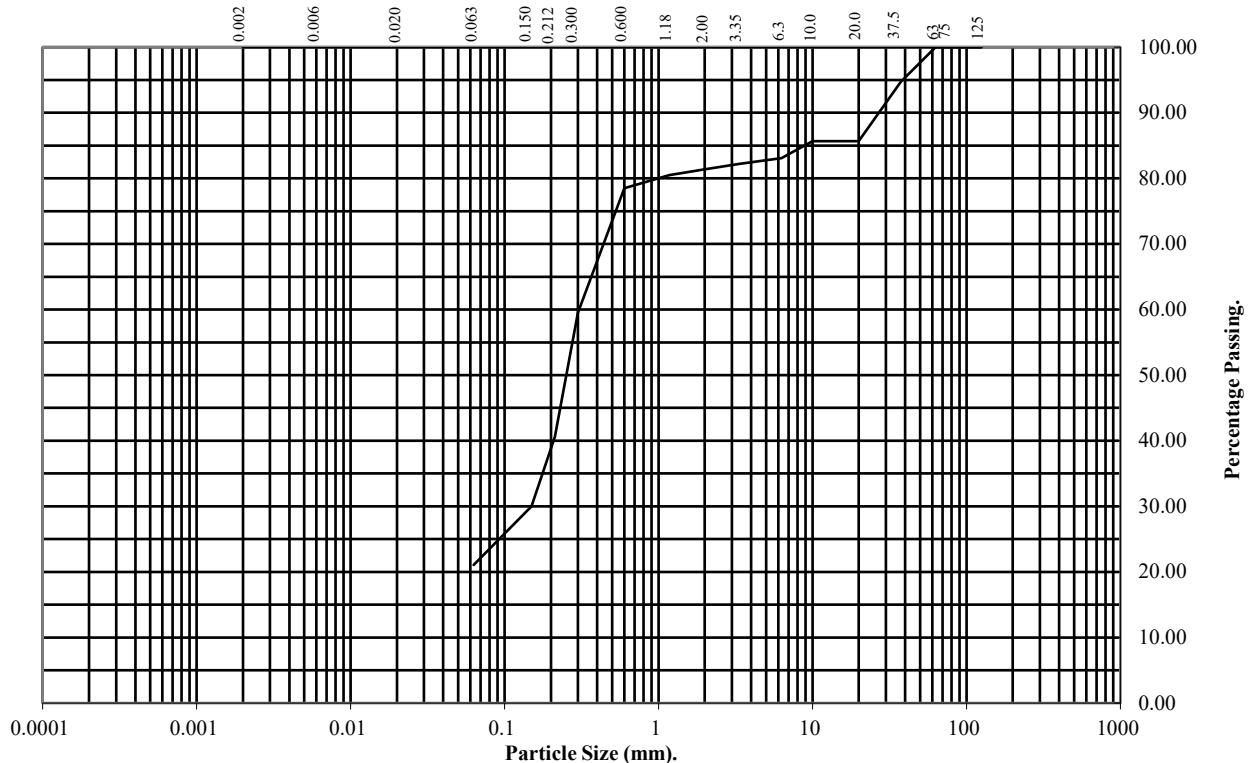
Hole Number: BH105

Top Depth (m): 19.50

Sample Number:

Base Depth(m):

Sample Type: B



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	95
20	86
10	86
6.3	83
3.35	82
2	81
1.18	81
0.6	78
0.3	60
0.212	41
0.15	30
0.063	21

Soil Fraction	Total Percentage
Cobbles	0
Gravel	19
Sand	60
Silt/Clay	21

Remarks:

See Summary of Soil Descriptions



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PARTICLE SIZE DISTRIBUTION TEST

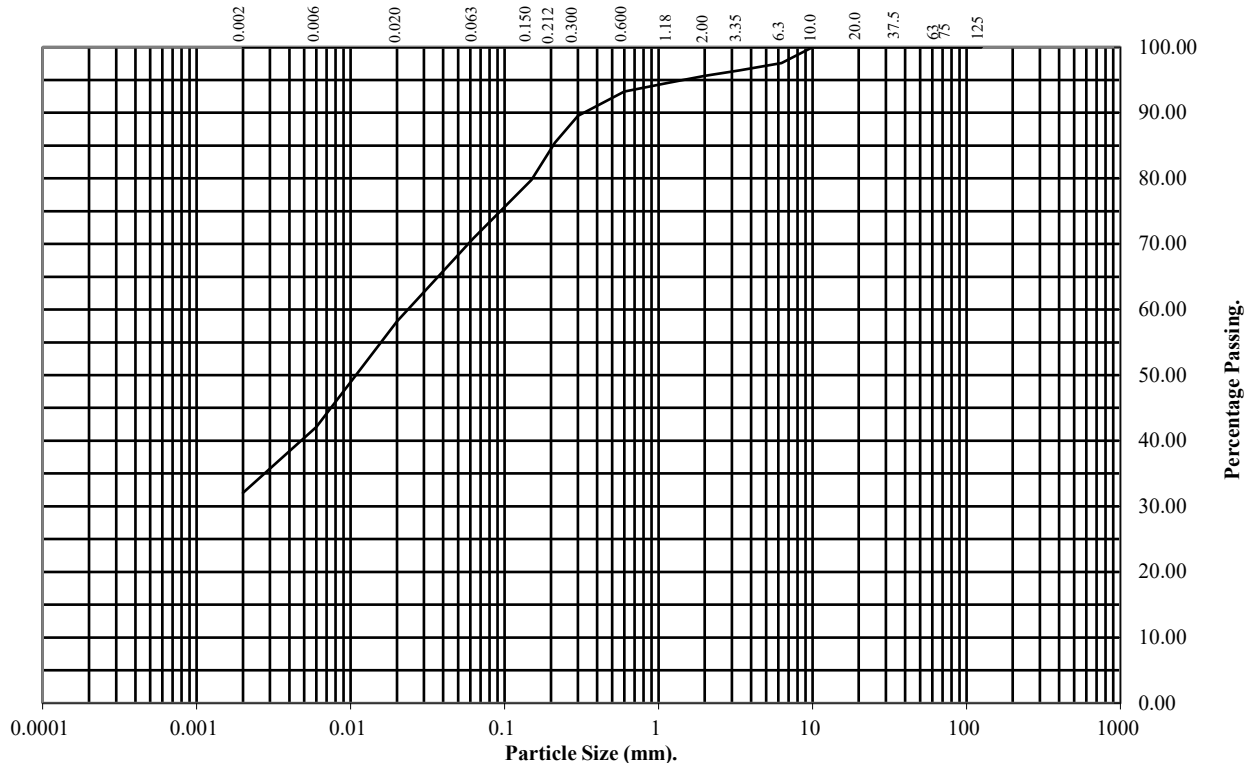
BS1377 : Part 2 : 1990

Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4

Hole Number: BH107 Top Depth (m): 3.00

Sample Number: Base Depth(m): 3.45

Sample Type: B



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	100
20	100
10	100
6.3	98
3.35	96
2	96
1.18	95
0.6	93
0.3	90
0.212	85
0.15	80
0.063	71

Particle Diameter	Percentage Passing
0.02	58
0.006	42
0.002	32

Soil Fraction	Total Percentage
Cobbles	0
Gravel	4
Sand	25
Silt	39
Clay	32

Remarks:

See Summary of Soil Descriptions



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PARTICLE SIZE DISTRIBUTION TEST

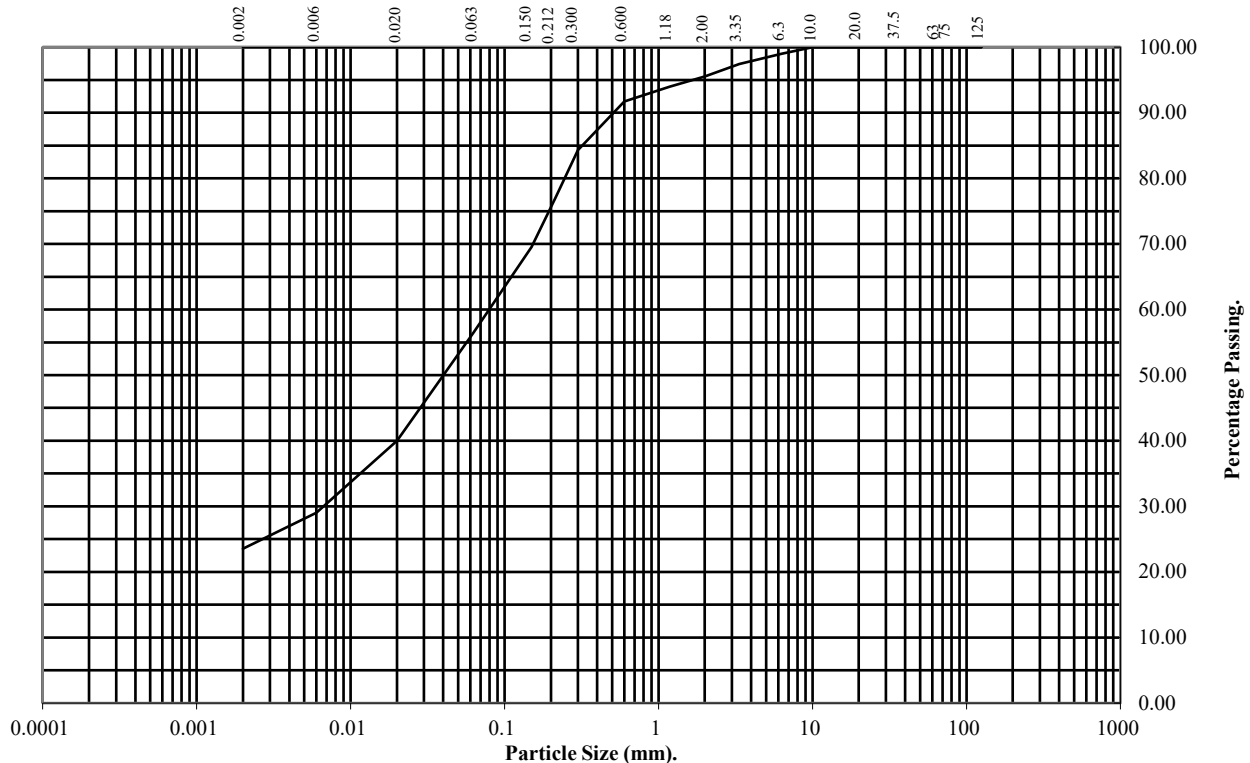
BS1377 : Part 2 : 1990

Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4

Hole Number: BH107 Top Depth (m): 5.00

Sample Number: Base Depth(m): 5.45

Sample Type: B



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	100
20	100
10	100
6.3	99
3.35	97
2	96
1.18	94
0.6	92
0.3	84
0.212	77
0.15	70
0.063	56

Particle Diameter	Percentage Passing
0.02	40
0.006	29
0.002	24

Soil Fraction	Total Percentage
Cobbles	0
Gravel	4
Sand	40
Silt	32
Clay	24

Remarks:

See Summary of Soil Descriptions



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PARTICLE SIZE DISTRIBUTION TEST

BS1377 : Part 2 : 1990

Wet Sieve, Clause 9.2

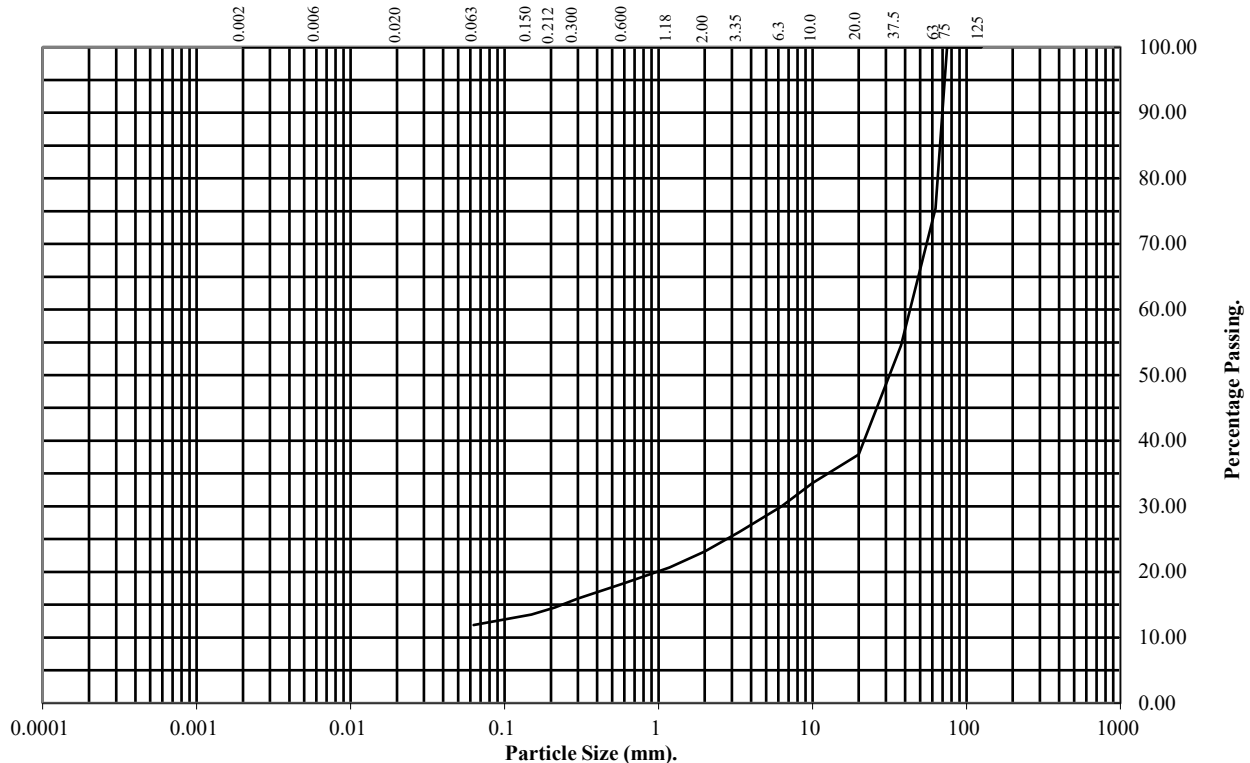
Hole Number: TP101

Top Depth (m): 1.00

Sample Number:

Base Depth(m):

Sample Type: B



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	75
37.5	54
20	38
10	34
6.3	30
3.35	26
2	23
1.18	21
0.6	18
0.3	16
0.212	15
0.15	14
0.063	12

Soil Fraction	Total Percentage
Cobbles	25
Gravel	52
Sand	11
Silt/Clay	12

Remarks:

See Summary of Soil Descriptions



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PARTICLE SIZE DISTRIBUTION TEST

BS1377 : Part 2 : 1990

Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4

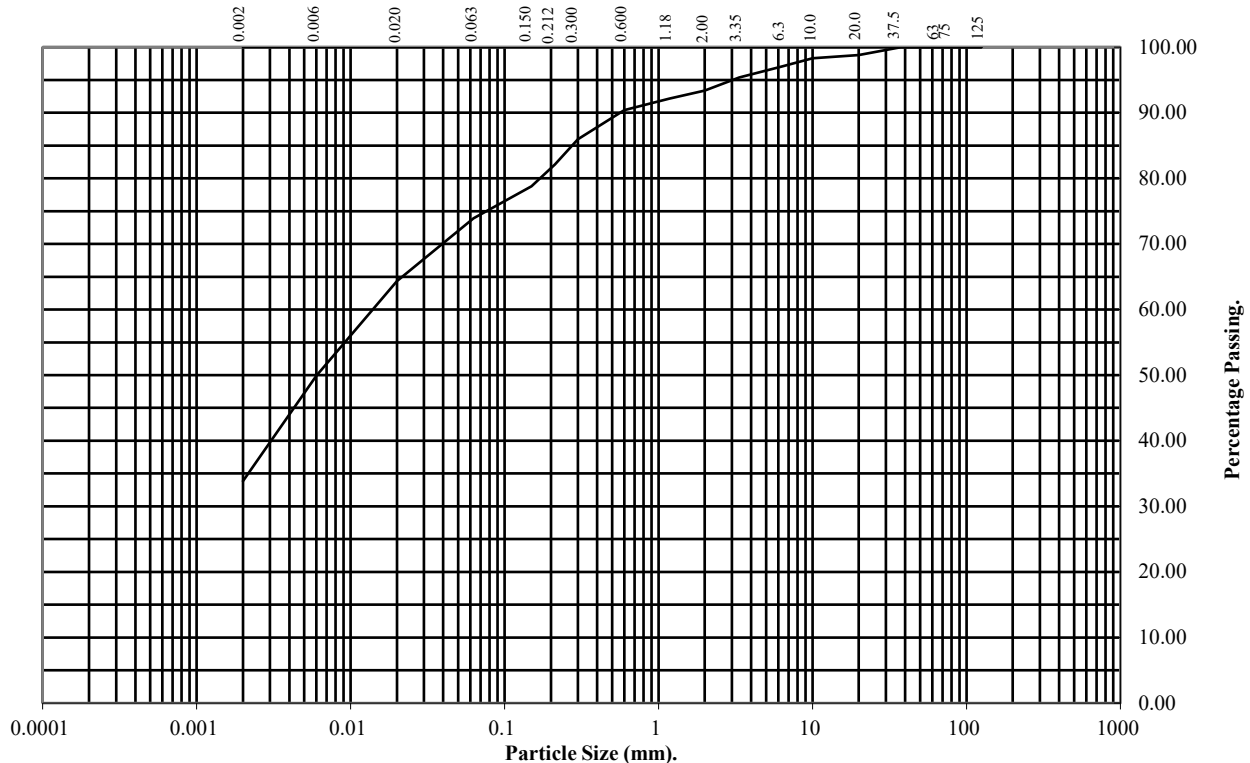
Hole Number: TP108

Top Depth (m): 2.00

Sample Number:

Base Depth(m):

Sample Type: B



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	100
20	99
10	98
6.3	97
3.35	95
2	93
1.18	92
0.6	90
0.3	86
0.212	82
0.15	79
0.063	74

Particle Diameter	Percentage Passing
0.02	64
0.006	50
0.002	34

Soil Fraction	Total Percentage
Cobbles	0
Gravel	7
Sand	19
Silt	40
Clay	34

Remarks:

See Summary of Soil Descriptions



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PARTICLE SIZE DISTRIBUTION TEST

BS1377 : Part 2 : 1990

Wet Sieve, Clause 9.2

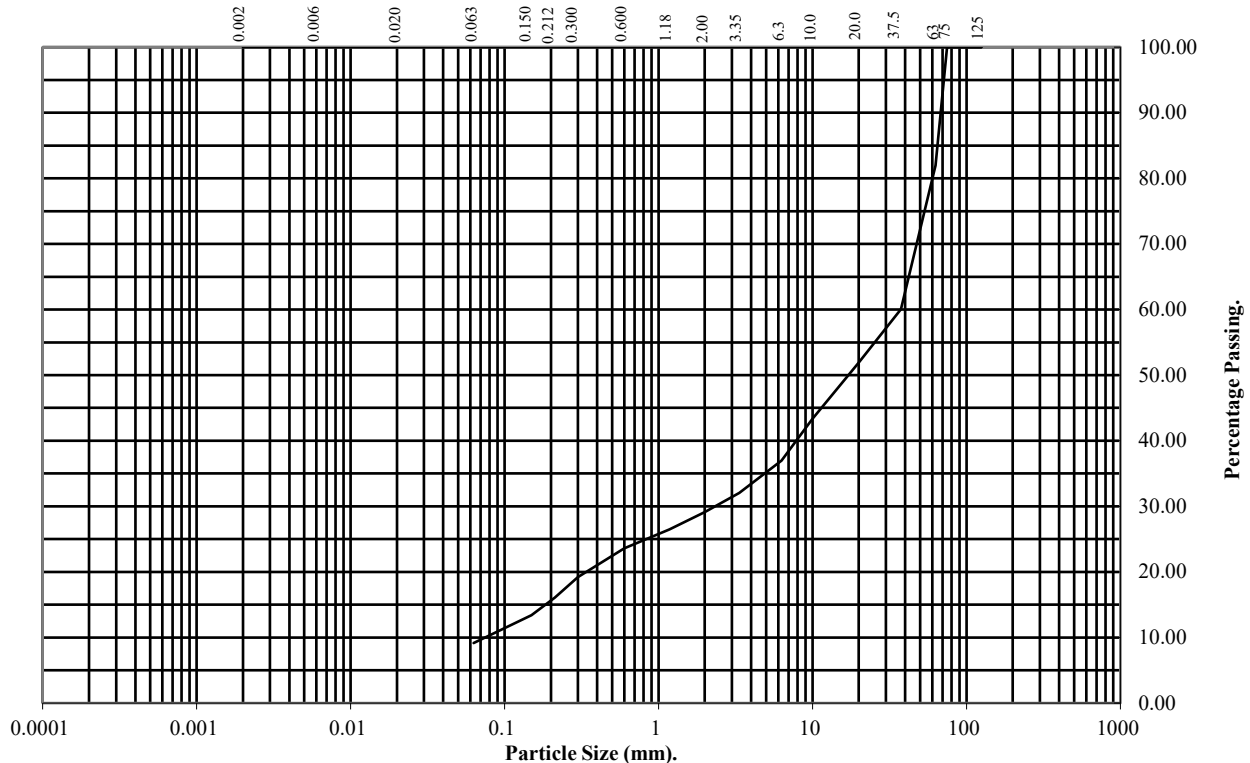
Hole Number: TP112

Top Depth (m): 1.00

Sample Number:

Base Depth(m):

Sample Type: B



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	82
37.5	60
20	52
10	43
6.3	37
3.35	32
2	29
1.18	26
0.6	24
0.3	19
0.212	16
0.15	13
0.063	9

Soil Fraction	Total Percentage
Cobbles	18
Gravel	53
Sand	20
Silt/Clay	9

Remarks:

See Summary of Soil Descriptions



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DRY DENSITY / MOISTURE CONTENT RELATIONSHIP

Non compliance with BS 1377 : Part 4 : Clause 3.4 : 1990

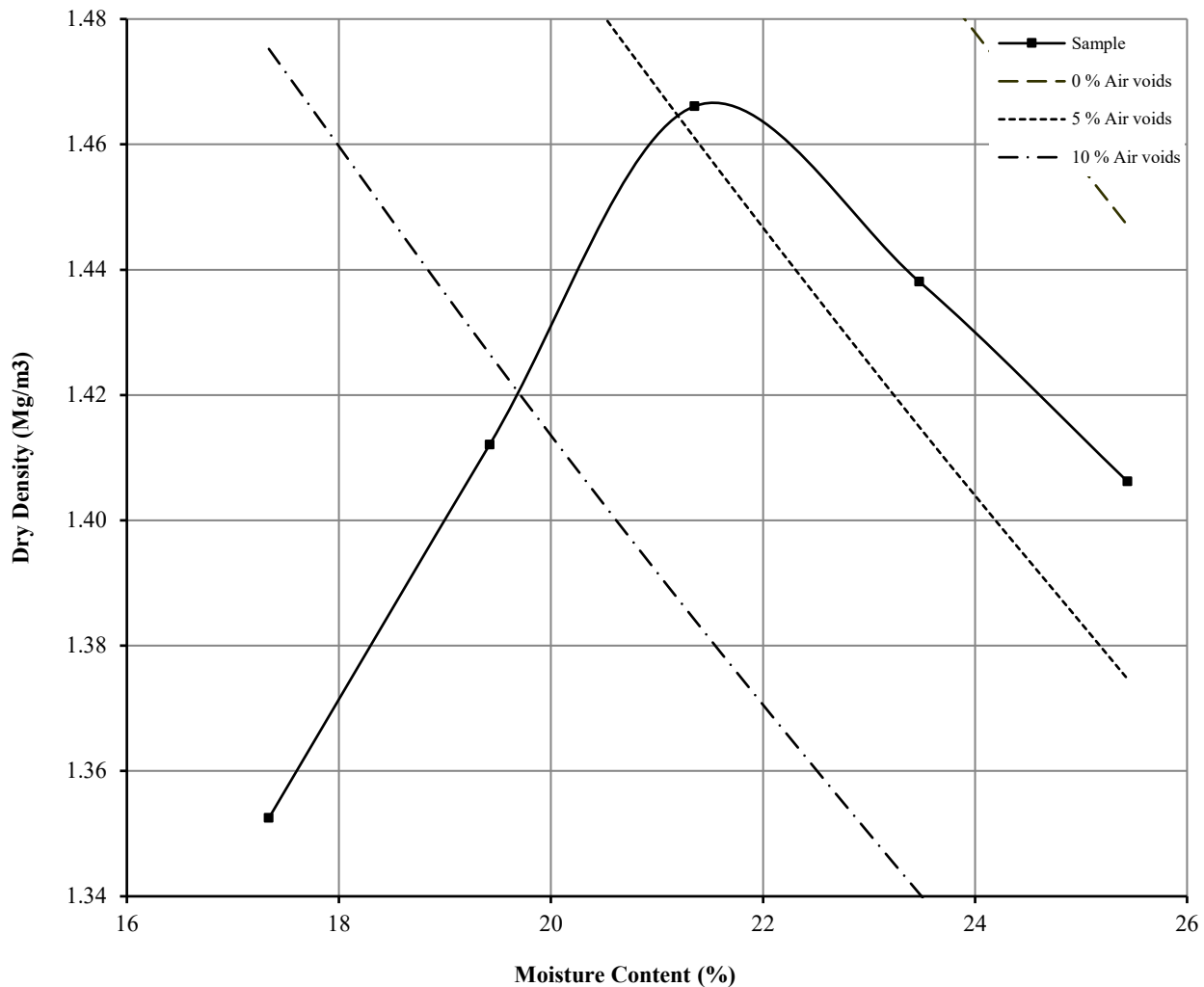
Hole Number: TP101

Top Depth (m) : 1.00

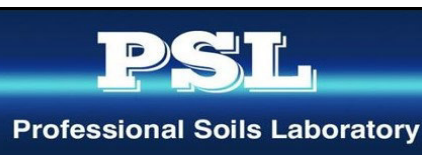
Sample Number:

Base Depth (m) :

Sample Type: B



Initial Moisture Content:	27	Method of Compaction:	2.5kg	Separate Samples
Particle Density (Mg/m3):	2.29	Assumed	Material Retained on 37.5 mm Test Sieve (%):	46
Maximum Dry Density (Mg/m3):	1.47		Material Retained on 20.0 mm Test Sieve (%):	16
Optimum Moisture Content (%):	21			
Remarks See summary of soil descriptions				



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DRY DENSITY / MOISTURE CONTENT RELATIONSHIP

BS 1377 : Part 4 : Clause 3.3 : 1990

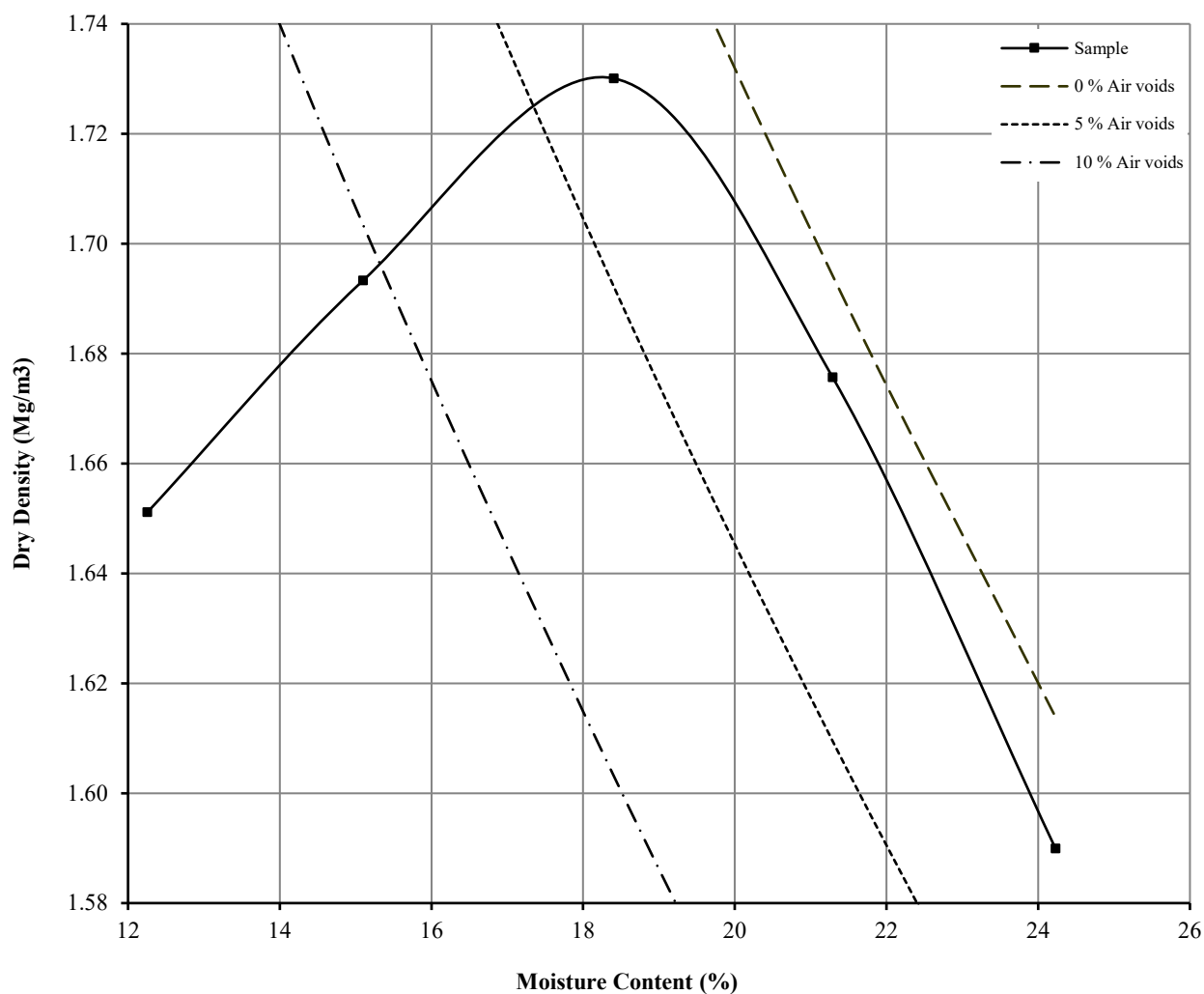
Hole Number: TP108

Top Depth (m) : 2.00

Sample Number:

Base Depth (m) :

Sample Type: B



Initial Moisture Content:	21	Method of Compaction:	2.5kg	Separate Samples
Particle Density (Mg/m ³):	2.65	Assumed	Material Retained on 37.5 mm Test Sieve (%):	0
Maximum Dry Density (Mg/m ³):	1.73		Material Retained on 20.0 mm Test Sieve (%):	1
Optimum Moisture Content (%):	18			
Remarks See summary of soil descriptions				



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DRY DENSITY / MOISTURE CONTENT RELATIONSHIP

Non compliance with BS 1377 : Part 4 : Clause 3.4 : 1990

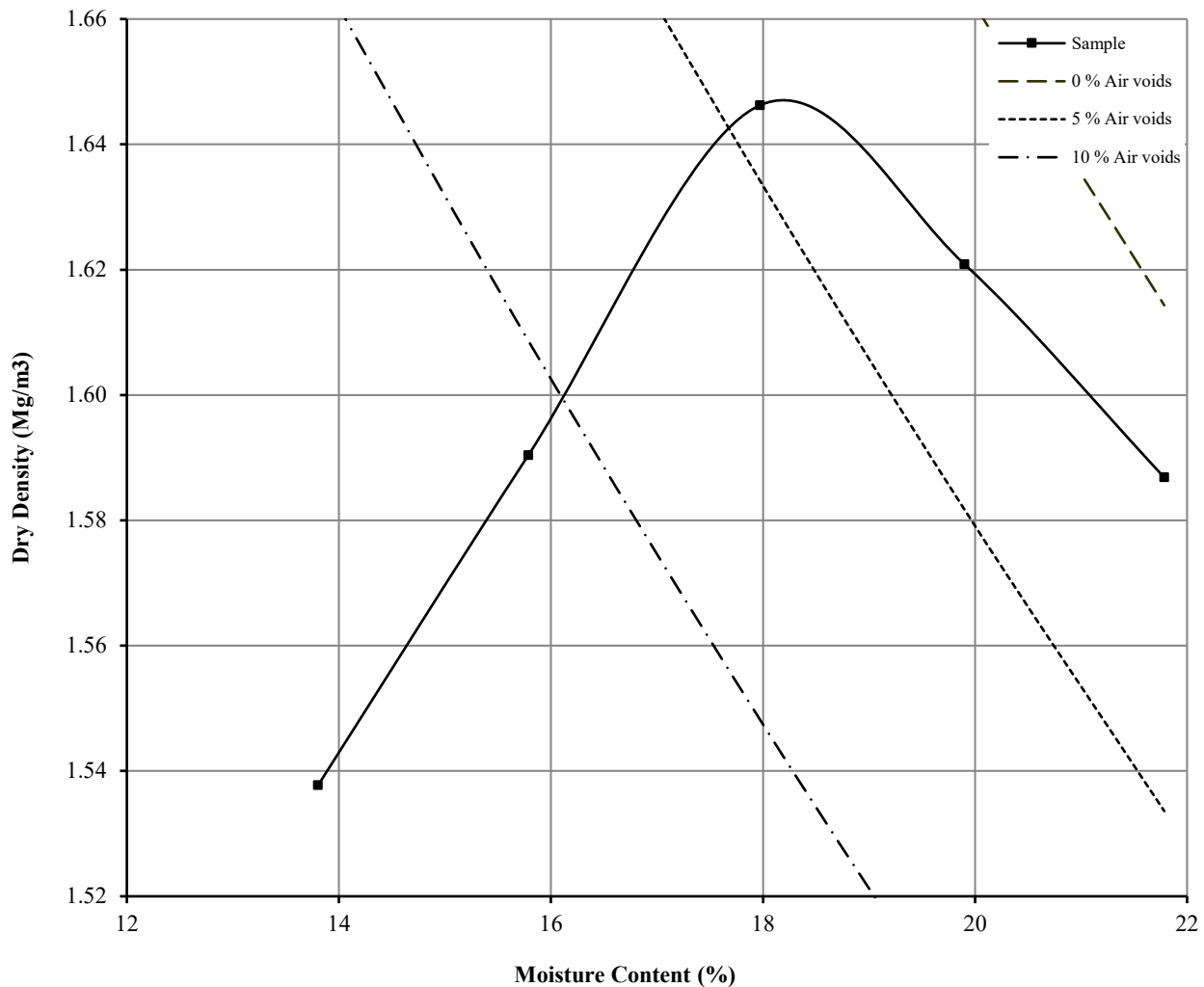
Hole Number: TP112

Top Depth (m) : 1.00

Sample Number:

Base Depth (m) :

Sample Type: B



Initial Moisture Content:	22	Method of Compaction:	2.5kg	Separate Samples
Particle Density (Mg/m3):	2.49	Assumed	Material Retained on 37.5 mm Test Sieve (%):	40
Maximum Dry Density (Mg/m3):	1.65		Material Retained on 20.0 mm Test Sieve (%):	8
Optimum Moisture Content (%):	18			
Remarks See summary of soil descriptions				



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Professional Soils Laboratory

Rochdale Road, Manchester

Contract
PSL22/6631
Client Ref
GRO-22292

UNDRAINED SHEAR STRENGTH IN TRIAXIAL COMPRESSION

WITHOUT MEASUREMENT OF PORE PRESSURE

BS1377 : Part7 : 1990: Clause 8

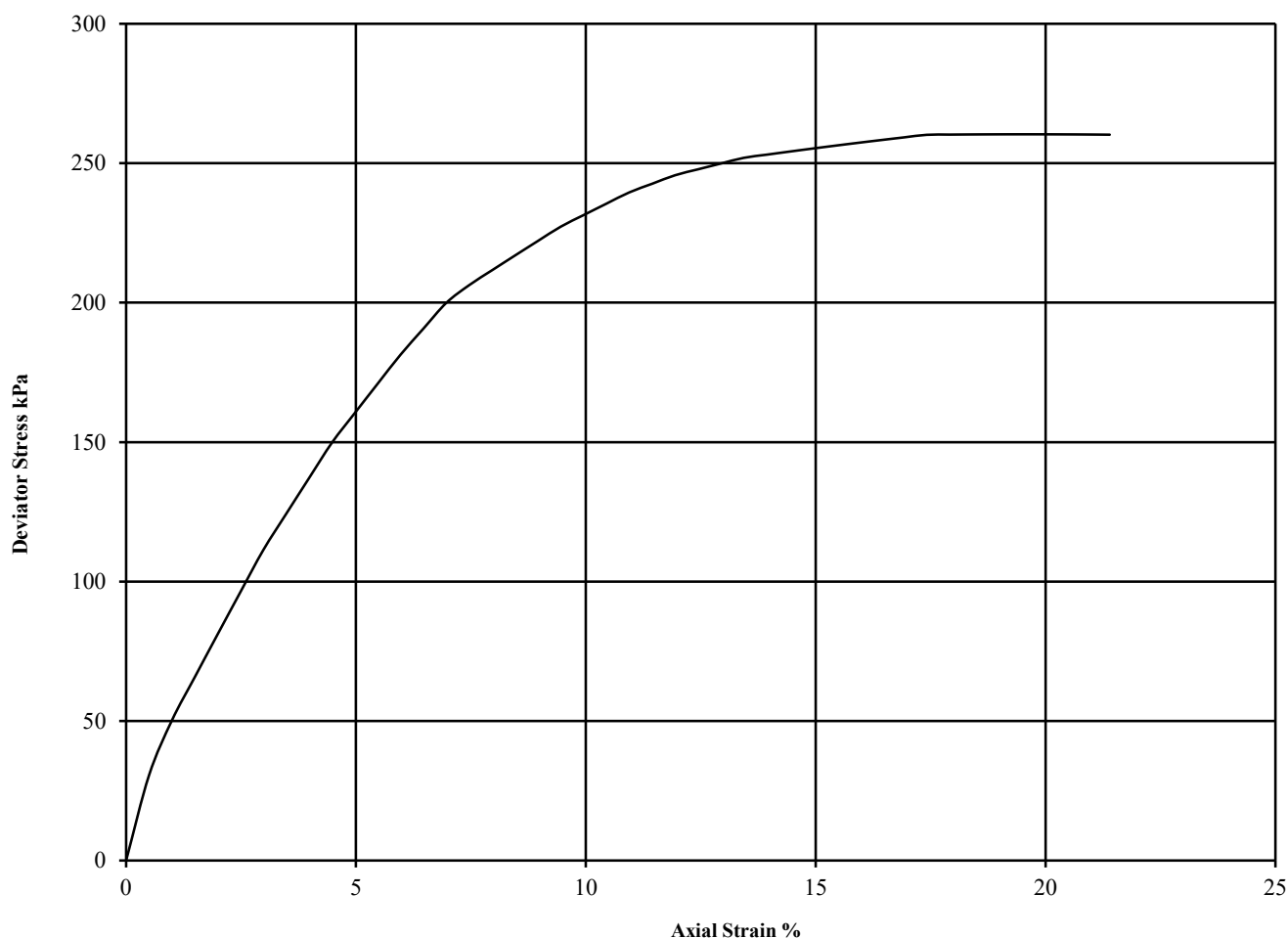
Hole Number: BH101

Top Depth (m): 6.50

Sample Number:

Base Depth (m): 6.95

Sample Type U



Diameter (mm):		103	Height (mm):		207	Test:	UU Single Stage		Remarks:
Specimen	Moisture Content (%)	Bulk Density (Mg/m3)	Dry Density (Mg/m3)	Cell Pressure (kPa)	Corr. Max. Deviator Stress (kPa)	Shear Strength Cu (kPa)	Failure Strain (%)	Mode of Failure	Undisturbed Sample Sample taken from top of tube Rate of strain = 2 %/min Latex Membrane used 0.2 mm thick, Correction applied 0.33 See summary of soil descriptions
				θ_3	$(\theta_1 - \theta_3)_f$	$\frac{1}{2}(\theta_1 - \theta_3)_f$			
1	19	2.10	1.77	130	260	130	19.4	Plastic	



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Professional Soils Laboratory

Rochdale Road, Manchester

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Client Ref:

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UNDRAINED SHEAR STRENGTH IN TRIAXIAL COMPRESSION

WITHOUT MEASUREMENT OF PORE PRESSURE

BS1377 : Part7 : 1990: Clause 8

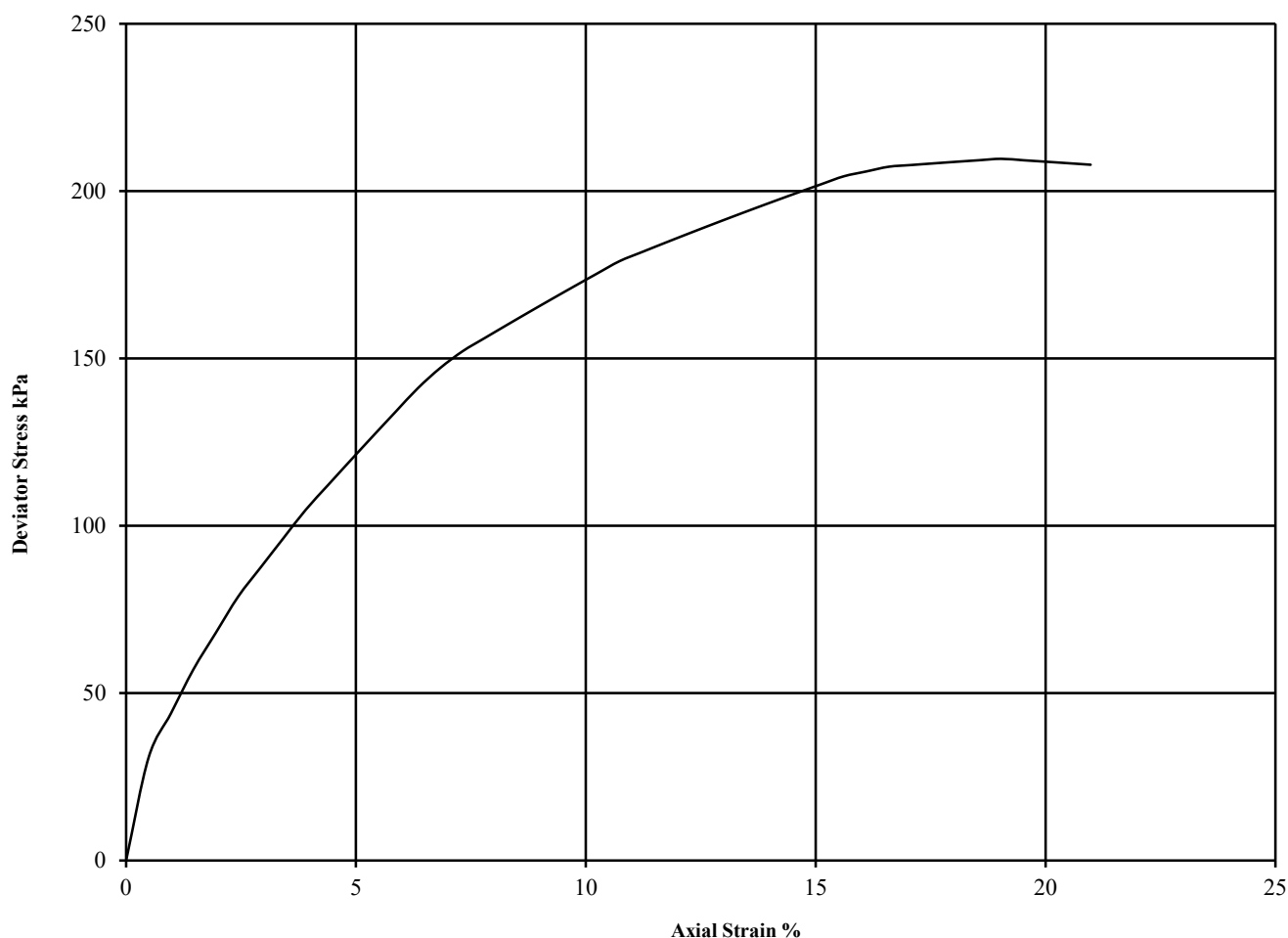
Hole Number: BH101

Top Depth (m): 12.50

Sample Number:

Base Depth (m): 12.95

Sample Type U



Diameter (mm):		101	Height (mm):		207	Test:	UU Single Stage		Remarks:
Specimen	Moisture Content (%)	Bulk Density (Mg/m ³)	Dry Density (Mg/m ³)	Cell Pressure (kPa)	Corr. Max. Deviator Stress (kPa)	Shear Strength Cu (kPa)	Failure Strain (%)	Mode of Failure	Undisturbed Sample Sample taken from top of tube Rate of strain = 2 %/min Latex Membrane used 0.2 mm thick, Correction applied 0.34 See summary of soil descriptions
				θ_3	$(\theta_1 - \theta_3)_f$	$\frac{1}{2}(\theta_1 - \theta_3)_f$			
1	18	2.14	1.81	250	210	105	19.0	Plastic	



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UNDRAINED SHEAR STRENGTH IN TRIAXIAL COMPRESSION

WITHOUT MEASUREMENT OF PORE PRESSURE

BS1377 : Part7 : 1990: Clause 8

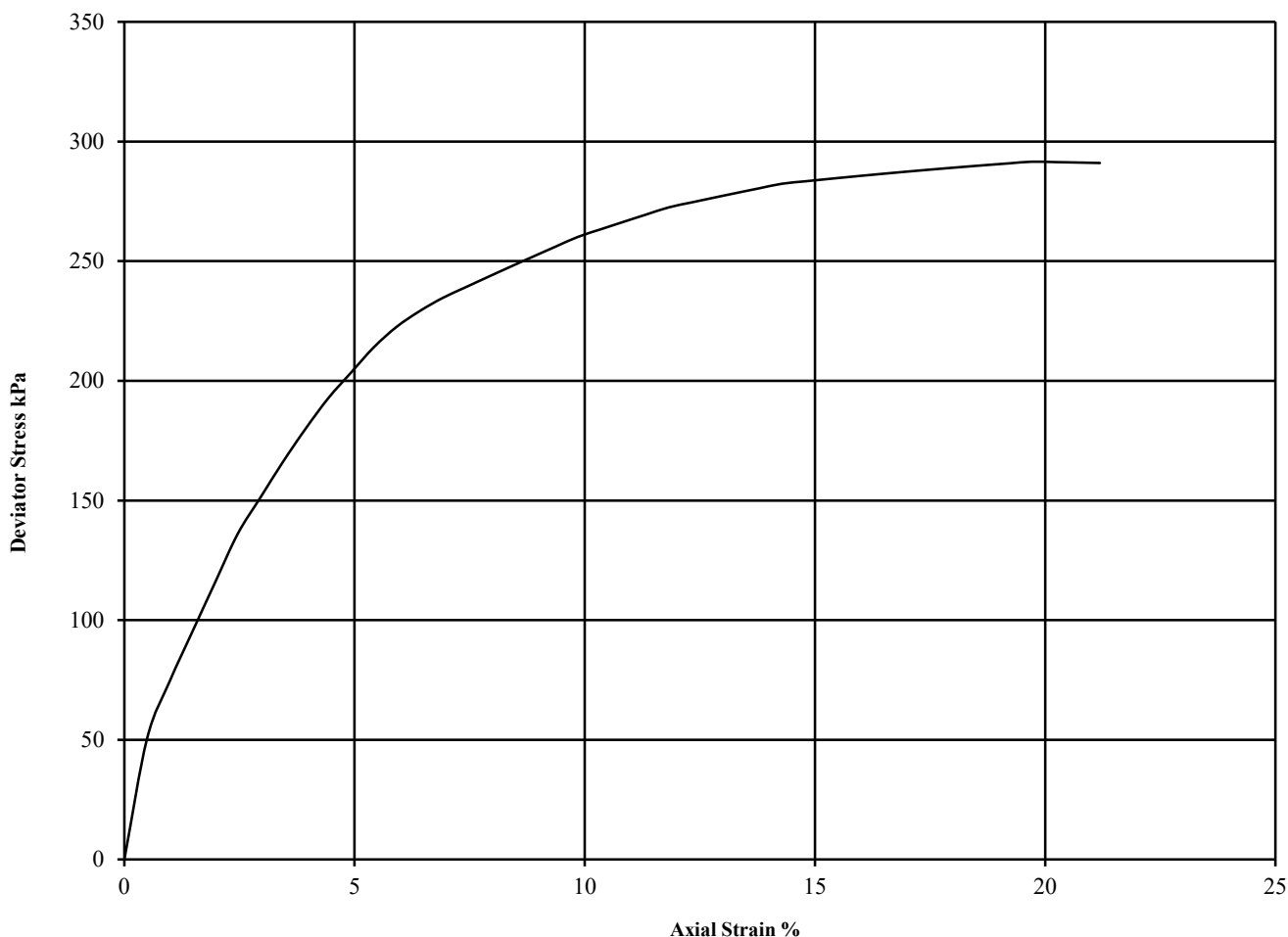
Hole Number: BH101

Top Depth (m): 15.00

Sample Number:

Base Depth (m): 15.45

Sample Type U



Diameter (mm):		102	Height (mm):		207	Test:	UU Single Stage		Remarks:
Specimen	Moisture Content (%)	Bulk Density (Mg/m3)	Dry Density (Mg/m3)	Cell Pressure (kPa)	Corr. Max. Deviator Stress (kPa)	Shear Strength Cu (kPa)	Failure Strain (%)	Mode of Failure	Undisturbed Sample Sample taken from top of tube Rate of strain = 2 %/min Latex Membrane used 0.2 mm thick, Correction applied 0.33 See summary of soil descriptions
				θ_3	$(\theta_1 - \theta_3)_f$	$\frac{1}{2}(\theta_1 - \theta_3)_f$			
1	15	2.16	1.88	300	292	146	19.7	Plastic	



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UNDRAINED SHEAR STRENGTH IN TRIAXIAL COMPRESSION

WITHOUT MEASUREMENT OF PORE PRESSURE

BS1377 : Part7 : 1990: Clause 8

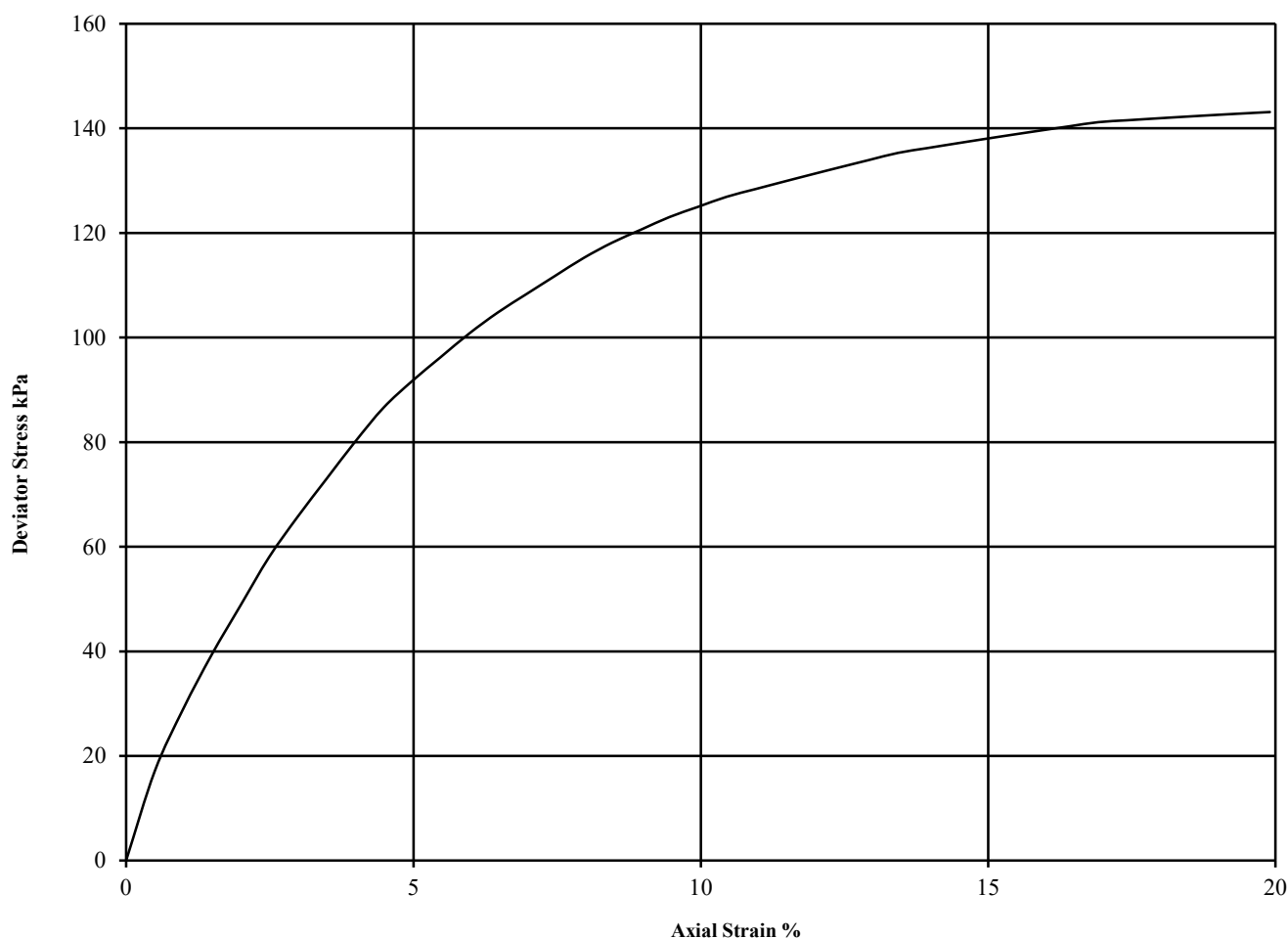
Hole Number: BH101

Top Depth (m): 18.50

Sample Number:

Base Depth (m): 18.95

Sample Type U



Diameter (mm):		103	Height (mm):		207	Test:	UU Single Stage		Remarks:
Specimen	Moisture Content (%)	Bulk Density (Mg/m3)	Dry Density (Mg/m3)	Cell Pressure (kPa)	Corr. Max. Deviator Stress (kPa)	Shear Strength Cu (kPa)	Failure Strain (%)	Mode of Failure	Undisturbed Sample Sample taken from top of tube Rate of strain = 2 %/min Latex Membrane used 0.2 mm thick, Correction applied 0.33 See summary of soil descriptions
				θ_3	$(\theta_1 - \theta_3)_f$	$\frac{1}{2}(\theta_1 - \theta_3)_f$			
1	13	2.18	1.92	370	143	72	19.9	Plastic	



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UNDRAINED SHEAR STRENGTH IN TRIAXIAL COMPRESSION

WITHOUT MEASUREMENT OF PORE PRESSURE

BS1377 : Part7 : 1990: Clause 8

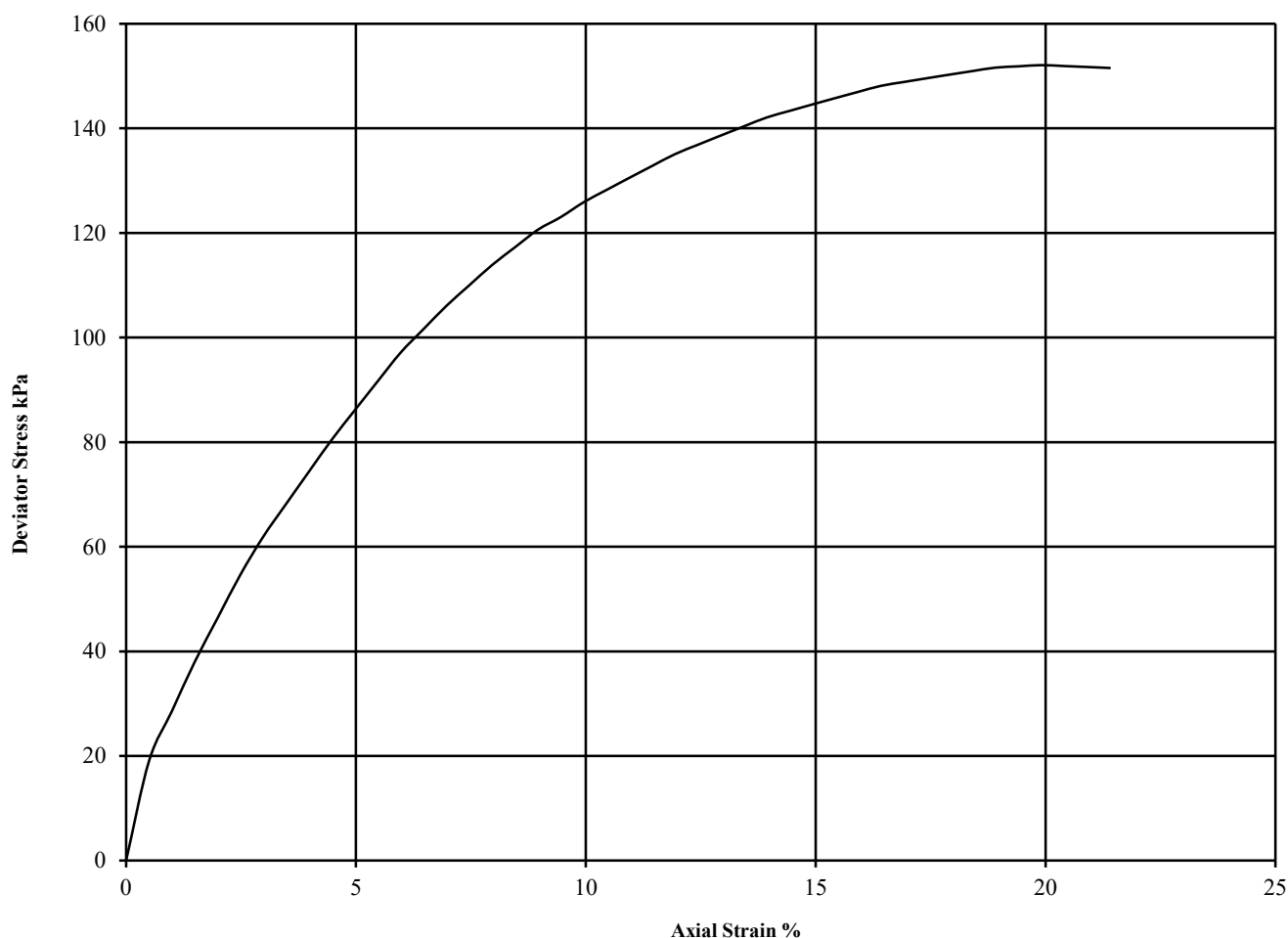
Hole Number: BH102

Top Depth (m): 9.00

Sample Number:

Base Depth (m): 9.50

Sample Type U



Diameter (mm):		103	Height (mm):		207	Test:	UU Single Stage		Remarks:
Specimen	Moisture Content (%)	Bulk Density (Mg/m3)	Dry Density (Mg/m3)	Cell Pressure (kPa)	Corr. Max. Deviator Stress (kPa)	Shear Strength Cu (kPa)	Failure Strain (%)	Mode of Failure	Undisturbed Sample Sample taken from top of tube Rate of strain = 2 %/min Latex Membrane used 0.2 mm thick, Correction applied 0.33 See summary of soil descriptions
				θ_3	$(\theta_1 - \theta_3)_f$	$\frac{1}{2}(\theta_1 - \theta_3)_f$			
1	18	2.15	1.82	180	152	76	19.9	Plastic	



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GRO-22292

UNDRAINED SHEAR STRENGTH IN TRIAXIAL COMPRESSION

WITHOUT MEASUREMENT OF PORE PRESSURE

BS1377 : Part7 : 1990: Clause 8

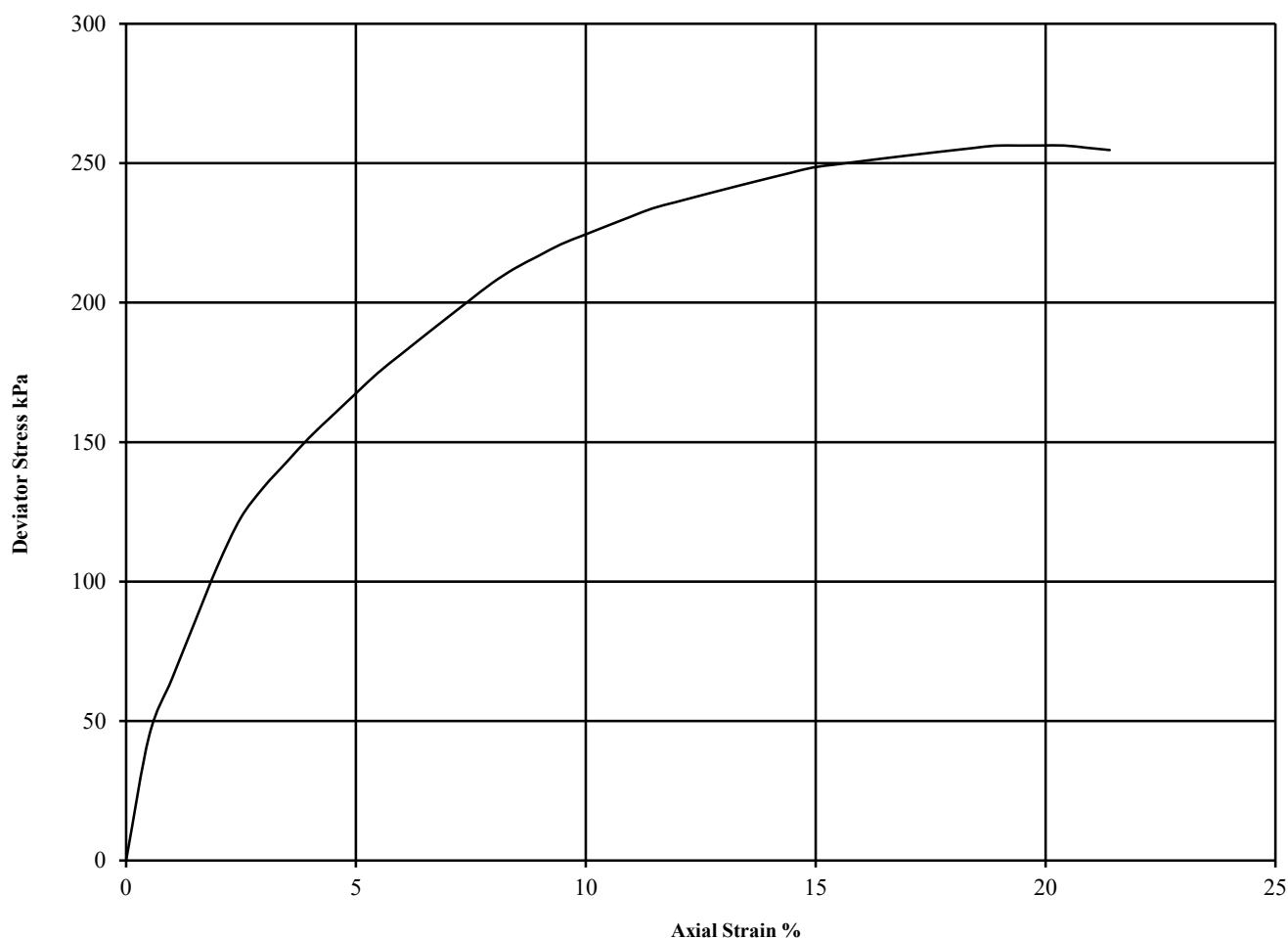
Hole Number: BH105

Top Depth (m): 9.00

Sample Number:

Base Depth (m): 9.45

Sample Type U



Diameter (mm):		103	Height (mm):		207	Test:	UU Single Stage		Remarks:
Specimen	Moisture Content (%)	Bulk Density (Mg/m ³)	Dry Density (Mg/m ³)	Cell Pressure (kPa)	Corr. Max. Deviator Stress (kPa)	Shear Strength Cu (kPa)	Failure Strain (%)	Mode of Failure	Undisturbed Sample Sample taken from top of tube Rate of strain = 2 %/min Latex Membrane used 0.2 mm thick, Correction applied 0.33 See summary of soil descriptions
				θ_3	$(\theta_1 - \theta_3)_f$	$\frac{1}{2}(\theta_1 - \theta_3)_f$			
1	18	2.18	1.84	180	256	128	20.4	Plastic	



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UNDRAINED SHEAR STRENGTH IN TRIAXIAL COMPRESSION

WITHOUT MEASUREMENT OF PORE PRESSURE

BS1377 : Part7 : 1990: Clause 8

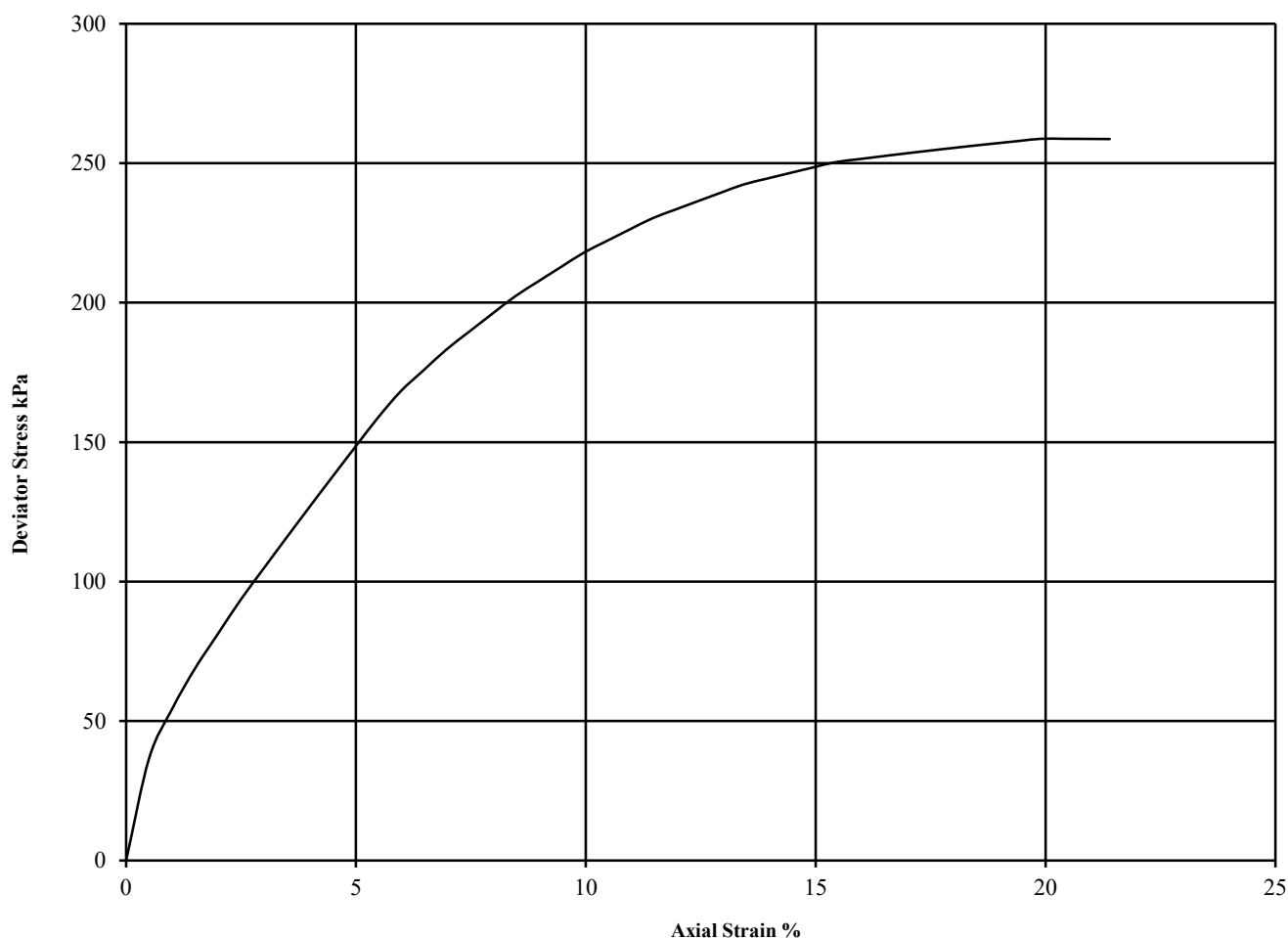
Hole Number: BH105

Top Depth (m): 15.00

Sample Number:

Base Depth (m): 15.45

Sample Type U



Diameter (mm):		103	Height (mm):		207	Test:	UU Single Stage		Remarks:
Specimen	Moisture Content (%)	Bulk Density (Mg/m ³)	Dry Density (Mg/m ³)	Cell Pressure (kPa)	Corr. Max. Deviator Stress (kPa)	Shear Strength Cu (kPa)	Failure Strain (%)	Mode of Failure	Undisturbed Sample Sample taken from top of tube Rate of strain = 2 %/min Latex Membrane used 0.2 mm thick, Correction applied 0.33 See summary of soil descriptions
				θ_3	$(\theta_1 - \theta_3)_f$	$\frac{1}{2}(\theta_1 - \theta_3)_f$			
1	12	2.28	2.04	300	259	129	19.9	Plastic	



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UNDRAINED SHEAR STRENGTH IN TRIAXIAL COMPRESSION

WITHOUT MEASUREMENT OF PORE PRESSURE

BS1377 : Part7 : 1990: Clause 8

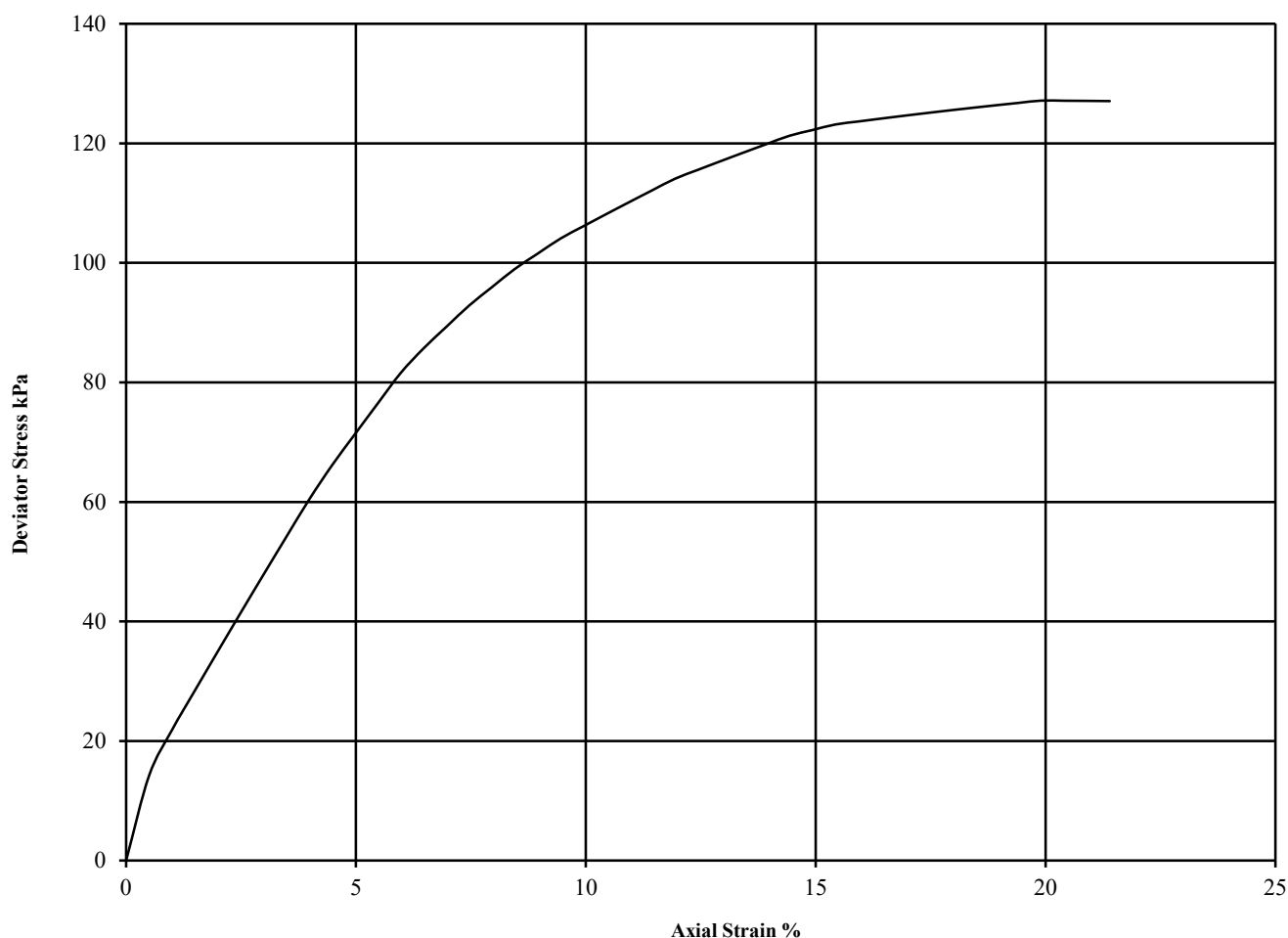
Hole Number: BH107

Top Depth (m): 2.00

Sample Number:

Base Depth (m): 2.45

Sample Type U



Diameter (mm):		103	Height (mm):		207	Test:	UU Single Stage		Remarks:
Specimen	Moisture Content (%)	Bulk Density (Mg/m3)	Dry Density (Mg/m3)	Cell Pressure (kPa)	Corr. Max. Deviator Stress (kPa)	Shear Strength Cu (kPa)	Failure Strain (%)	Mode of Failure	Undisturbed Sample Sample taken from top of tube Rate of strain = 2 %/min Latex Membrane used 0.2 mm thick, Correction applied 0.33 See summary of soil descriptions
				θ_3	$(\theta_1 - \theta_3)_f$	$\frac{1}{2}(\theta_1 - \theta_3)_f$			
1	17	2.15	1.84	40	127	64	19.9	Plastic	



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UNDRAINED SHEAR STRENGTH IN TRIAXIAL COMPRESSION

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BS1377 : Part7 : 1990: Clause 8

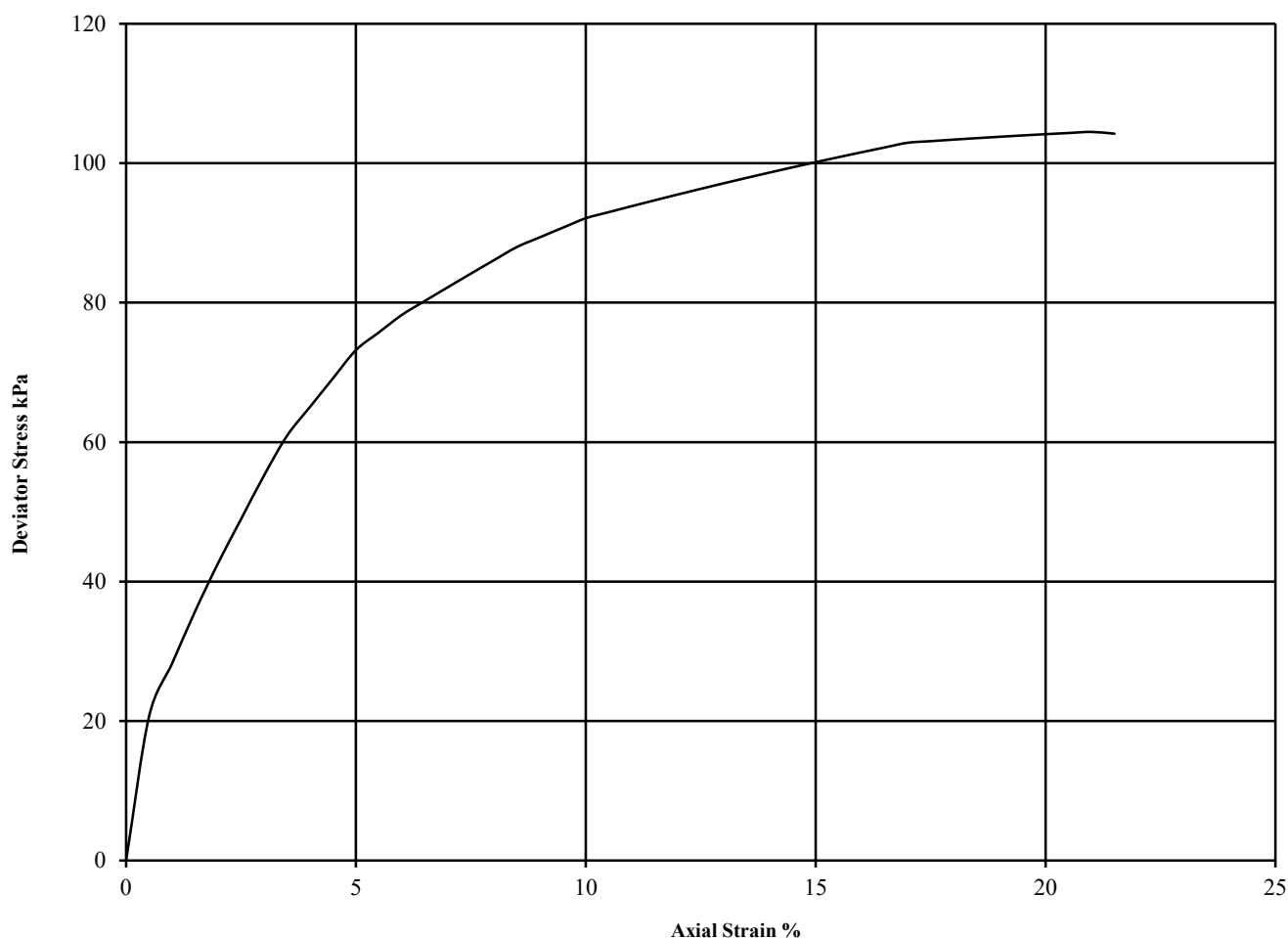
Hole Number: BH107

Top Depth (m): 4.00

Sample Number:

Base Depth (m): 4.45

Sample Type U



Diameter (mm):		100	Height (mm):		200	Test:	UU Single Stage		Remarks:
Specimen	Moisture Content (%)	Bulk Density (Mg/m ³)	Dry Density (Mg/m ³)	Cell Pressure (kPa)	Corr. Max. Deviator Stress (kPa)	Shear Strength Cu (kPa)	Failure Strain (%)	Mode of Failure	Undisturbed Sample Sample taken from top of tube Rate of strain = 2 %/min Latex Membrane used 0.2 mm thick, Correction applied 0.34 See summary of soil descriptions
				θ_3	$(\theta_1 - \theta_3)_f$	$\frac{1}{2}(\theta_1 - \theta_3)_f$			
1	21	1.93	1.60	80	104	52	21.0	Plastic	



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DETERMINATION OF UNCONFINED COMPRESSIVE STRENGTH

ISRM Suggested Methods, pp 111 –116, 1981.

[illegible]

Rochdale Road, Manchester

Contract No:

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Client Ref:

GRO-22292

SUMMARY OF POINT LOAD TEST RESULTS

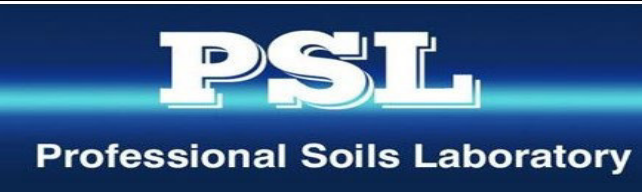
ISRM Suggested Methods : 2007

Borehole Number	Depth (m)	Sample Ref	Test Type	Orientation Par / Perp	Dimensions (mm)		Area (mm ²)	D _c ²	D _c (mm)	Failure Load (P)		I _s (MPa)	Corr Fac F	I _{s50} (MPa)	Failure Type	Remarks
					W	D				(Mpa)	(kN)					
BH101	28.80		A	Perp	80	47	3760	4787.38	69.19	-	1.08	0.23	1.157	0.26	Valid	
BH101	33.20		A	Perp	80	32	2560	3259.49	57.09	-	0.82	0.25	1.062	0.27	Valid	
BH101	32.71		A	Perp	80	45	3600	4583.66	67.70	-	0.67	0.15	1.146	0.17	Valid	
BH101	35.60		A	Perp	80	37	2960	3768.79	61.39	-	0.74	0.20	1.097	0.22	Valid	
BH101	26.38		A	Perp	80	24	1920	2444.62	49.44	-	0.56	0.23	0.995	0.23	Valid	
BH101	27.52		A	Perp	80	47	3760	4787.38	69.19	-	0.61	0.13	1.157	0.15	Valid	
BH101	29.85		A	Perp	80	39	3120	3972.51	63.03	-	0.56	0.14	1.110	0.16	Valid	
BH101	32.20		A	Perp	80	41	3280	4176.23	64.62	-	0.81	0.19	1.122	0.22	Valid	
BH101	34.78		A	Perp	80	42	3360	4278.08	65.41	-	0.94	0.22	1.128	0.25	Valid	
BH102	28.10		A	Perp	80	32	2560	3259.49	57.09	-	0.82	0.25	1.062	0.27	Valid	
BH102	34.15		A	Perp	80	21	1680	2139.04	46.25	-	0.66	0.31	0.966	0.30	Valid	
BH102	26.42		A	Perp	80	30	2400	3055.77	55.28	-	0.81	0.27	1.046	0.28	Valid	
BH102	28.66		A	Perp	80	45	3600	4583.66	67.70	-	0.66	0.14	1.146	0.17	Valid	
BH102	30.40		A	Perp	80	27	2160	2750.20	52.44	-	0.87	0.32	1.022	0.32	Valid	
BH102	32.40		A	Perp	80	38	3040	3870.65	62.21	-	0.84	0.22	1.103	0.24	Valid	
BH102	35.03		A	Perp	80	40	3200	4074.37	63.83	-	0.52	0.13	1.116	0.14	Valid	

***Note** All testing carried out on samples at as received water content

Par = parallel, Perp = perpendicular, U = Random

A = Axial, D = Diametral, I = Irregular

 4043		Rochdale Road, Manchester	Contract No:
			PSL22/6631
			Client Ref:
			GRO-22292

SUMMARY OF POINT LOAD TEST RESULTS

ISRM Suggested Methods : 2007

Borehole Number	Depth (m)	Sample Ref	Test Type	Orientation	Dimensions (mm)		D _c ²	D _c (mm)	Failure Load		I _s (MPa)	Corr Fac F	I _{s50} (MPa)	Failure Type	Remarks
				Par / Perp	L	D			(Mpa)	(kN)					
BH101	28.80		D	Par	-	80	6400	80.00	-	0.74	0.116	1.236	0.14	Valid	
BH101	33.20		D	Par	-	80	6400	80.00	-	0.41	0.064	1.236	0.08	Valid	
BH101	32.71		D	Par	-	80	6400	80.00	-	0.30	0.047	1.236	0.06	Valid	
BH101	35.60		D	Par	-	80	6400	80.00	-	0.38	0.059	1.236	0.07	Valid	
BH101	26.38		D	Par	-	80	6400	80.00	-	0.29	0.045	1.236	0.06	Valid	
BH101	27.52		D	Par	-	80	6400	80.00	-	0.29	0.045	1.236	0.06	Valid	
BH101	29.85		D	Par	-	80	6400	80.00	-	0.29	0.045	1.236	0.06	Valid	
BH101	32.20		D	Par	-	80	6400	80.00	-	0.37	0.058	1.236	0.07	Valid	
BH101	34.78		D	Par	-	80	6400	80.00	-	0.31	0.048	1.236	0.06	Valid	
BH102	28.10		D	Par	-	80	6400	80.00	-	0.39	0.061	1.236	0.08	Valid	
BH102	34.15		D	Par	-	80	6400	80.00	-	0.27	0.042	1.236	0.05	Valid	
BH102	26.42		D	Par	-	80	6400	80.00	-	0.46	0.072	1.236	0.09	Valid	
BH102	28.66		D	Par	-	80	6400	80.00	-	0.26	0.041	1.236	0.05	Valid	
BH102	30.40		D	Par	-	80	6400	80.00	-	0.31	0.048	1.236	0.06	Valid	
BH102	32.40		D	Par	-	80	6400	80.00	-	0.66	0.103	1.236	0.13	Valid	
BH102	35.03		D	Par	-	80	6400	80.00	-	0.23	0.036	1.236	0.04	Valid	

***Note** All testing carried out on samples at as received water content

Par = parallel, Perp = perpendicular, U = Random



Rochdale Road, Manchester

Contract No:

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Client Ref:

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SUMMARY OF POINT LOAD TEST RESULTS

ISRM Suggested Methods : 2007

[illegible]

***Note** All testing carried out on samples at as received water content

Par = parallel, Perp = perpendicular, U = Random

A = Axial, D = Diametral, I = Irregular



Rochdale Road, Manchester

Contract No:

PSL22/6631

Client Ref:

GRO-22292

SUMMARY OF POINT LOAD TEST RESULTS

ISRM Suggested Methods : 2007

Borehole Number	Depth (m)	Sample Ref	Test Type	Orientation	Dimensions (mm)		D _c ²	D _c (mm)	Failure Load		I _s (MPa)	Corr Fac F	I _{s50} (MPa)	Failure Type	Remarks
				Par / Perp	L	D			(Mpa)	(kN)					
BH106	23.20		D	Par	-	80	6400	80.00	-	0.41	0.064	1.236	0.08	Valid	
BH106	27.00		D	Par	-	80	6400	80.00	-	0.29	0.045	1.236	0.06	Valid	
BH106	21.21		D	Par	-	80	6400	80.00	-	0.11	0.017	1.236	0.02	Valid	
BH106	23.30		D	Par	-	80	6400	80.00	-	0.32	0.050	1.236	0.06	Valid	
BH106	26.14		D	Par	-	80	6400	80.00	-	0.38	0.059	1.236	0.07	Valid	
BH106	28.57		D	Par	-	80	6400	80.00	-	0.29	0.045	1.236	0.06	Valid	
BH106	29.37		D	Par	-	80	6400	80.00	-	0.12	0.019	1.236	0.02	Valid	

***Note** All testing carried out on samples at as received water content

Par = parallel, Perp = perpendicular, U = Random



Rochdale Road, Manchester

Contract No:

PSL22/6631

Client Ref:

GRO-22292



ANALYTICAL TEST REPORT

Contract no: 115173

Contract name: Rochdale Road, Manchester

Client reference: PSL22/6631

Clients name: Professional Soils Laboratory

Clients address: 5/7 Hexthorpe Road
Doncaster
DN4 0AR

Samples received: 28 October 2022

Analysis started: 28 October 2022

Analysis completed: 04 November 2022

Report issued: 04 November 2022

Key

U	UKAS accredited test
M	MCERTS & UKAS accredited test
\$	Test carried out by an approved subcontractor
I/S	Insufficient sample to carry out test
N/S	Sample not suitable for testing

Approved by:

Abbie Neasham-Bourn
Senior Reporting Administrator

Chemtech Environmental Limited

SOILS

Lab number			115173-1	115173-2	115173-3	115173-4	115173-5	115173-6
Sample id			BH101	BH101	BH101	BH102	BH102	BH105
Depth (m)			2.00	5.00-5.45	15.50	7.00	10.00	1.20
Sample Type			D	D	D	D	D	D
Date sampled			-	-	-	-	-	-
Test	Method	Units						
pH	CE004 ^U	units	9.1	8.7	8.7	8.5	8.6	9.3
Magnesium (2:1 water soluble)	CE061	mg/l Mg	1.9	24	15	21	17	1.3
Chloride (2:1 water soluble)	CE049 ^U	mg/l Cl	12	30	18	20	16	45
Nitrate (2:1 water soluble)	CE049 ^U	mg/l NO ₃	5.0	<1	<1	<1	<1	2.8
Sulphate (2:1 water soluble)	CE061 ^U	mg/l SO ₄	135	121	106	166	86	437
Sulphate (acid extractable)	CE062 ^U	mg/kg SO ₄	1251	563	430	675	407	2909
Sulphate (acid extractable)	CE062 ^U	% w/w SO ₄	0.13	0.06	0.04	0.07	0.04	0.29
Sulphur (total)	CE119	mg/kg S	905	831	1078	774	868	1825
Sulphur (total)	CE119	% w/w S	0.09	0.08	0.11	0.08	0.09	0.18

Chemtech Environmental Limited

SOILS

Lab number			115173-7	115173-8	115173-9
Sample id			BH105	BH105	BH105
Depth (m)			4.00	8.00	19.50
Sample Type			D	D	D
Date sampled			-	-	-
Test	Method	Units			
pH	CE004 ^U	units	10.0	8.9	9.2
Magnesium (2:1 water soluble)	CE061	mg/l Mg	0.2	71	12
Chloride (2:1 water soluble)	CE049 ^U	mg/l Cl	242	70	14
Nitrate (2:1 water soluble)	CE049 ^U	mg/l NO ₃	19	4.8	<1
Sulphate (2:1 water soluble)	CE061 ^U	mg/l SO ₄	312	1725	185
Sulphate (acid extractable)	CE062 ^U	mg/kg SO ₄	5952	6274	400
Sulphate (acid extractable)	CE062 ^U	% w/w SO ₄	0.60	0.63	0.04
Sulphur (total)	CE119	mg/kg S	2786	2882	423
Sulphur (total)	CE119	% w/w S	0.28	0.29	0.04

Chemtech Environmental Limited

METHOD DETAILS

METHOD	SOILS	METHOD SUMMARY	SAMPLE	STATUS	LOD	UNITS
CE004	pH	Based on BS 1377, pH Meter	As received	U	-	units
CE061	Magnesium (2:1 water soluble)	Aqueous extraction, ICP-OES	Dry		1	mg/l Mg
CE049	Chloride (2:1 water soluble)	Aqueous extraction, IC-COND	Dry	U	1	mg/l Cl
CE049	Nitrate (2:1 water soluble)	Aqueous extraction, IC-COND	Dry	U	1	mg/l NO ₃
CE061	Sulphate (2:1 water soluble)	Aqueous extraction, ICP-OES	Dry	U	10	mg/l SO ₄
CE062	Sulphate (acid extractable)	HCl extract, analysed by ICP-OES	Dry	U	100	mg/kg SO ₄
CE062	Sulphate (acid extractable)	HCl extract, analysed by ICP-OES	Dry	U	0.01	% w/w SO ₄
CE119	Sulphur (total)	Aqua regia digest, analysed by ICP-OES	Dry		100	mg/kg S
CE119	Sulphur (total)	Aqua regia digest, analysed by ICP-OES	Dry		0.01	% w/w S

Chemtech Environmental Limited

DEVIATING SAMPLE INFORMATION

Comments

Sample deviation is determined in accordance with the UKAS note "Guidance on Deviating Samples" and based on reference standards and laboratory trials.

For samples identified as deviating, test result(s) may be compromised and may not be representative of the sample at the time of sampling.

Chemtech Environmental Ltd cannot be held responsible for the integrity of sample(s) received if Chemtech Environmental Ltd did not undertake the sampling. Such samples may be deviating.

Key

N	No (not deviating sample)
Y	Yes (deviating sample)
NSD	Sampling date not provided
NST	Sampling time not provided (waters only)
EHT	Sample exceeded holding time(s)
IC	Sample not received in appropriate containers
HP	Headspace present in sample container
NCF	Sample not chemically fixed (where appropriate)
OR	Other (specify)

Lab ref	Sample id	Depth (m)	Deviating	Tests (Reason for deviation)
115173-1	BH101	2.00	Y	All (NSD)
115173-2	BH101	5.00-5.45	Y	All (NSD)
115173-3	BH101	15.50	Y	All (NSD)
115173-4	BH102	7.00	Y	All (NSD)
115173-5	BH102	10.00	Y	All (NSD)
115173-6	BH105	1.20	Y	All (NSD)
115173-7	BH105	4.00	Y	All (NSD)
115173-8	BH105	8.00	Y	All (NSD)
115173-9	BH105	19.50	Y	All (NSD)

Chemtech Environmental Limited

ADDITIONAL INFORMATION

Notes

Opinions and interpretations expressed herein are outside the UKAS accreditation scope.

Unless otherwise stated, Chemtech Environmental Ltd was not responsible for sampling.

All testing carried out at Unit 6 Parkhead, Stanley, DH9 7YB, except for subcontracted testing.

Methods, procedures and performance data are available on request.

Results reported herein relate only to the material supplied to the laboratory.

This report shall not be reproduced except in full, without prior written approval.

Samples will be disposed of 4 weeks from initial receipt unless otherwise instructed.

For soils and solids, all results are reported on a dry basis. Samples dried at no more than 30°C in a drying cabinet.

Analytical results are inclusive of stones, where applicable.



APPENDIX 8 – Interim Permanent Ground Gas Monitoring Results

PERMANENT GROUND GAS MONITORING FORM



SITE NAME:	ROCHDALE ROAD, MANCHESTER					ENGINEER:	William Sandiford Mitchell						
CLIENT:	WATERMAN I & E					DATE:	21/10/2022						
JOB NO:	GRO-22292												
Pressure Trend:	Falling	Weather:	Overcast			Equipment:	GFM 436						
Ambient:	O ₂ (%v/v)	CH ₄ (%v/v)	CO ₂ (%v/v)	LEL	H ₂ S (ppm)	CO (ppm)							
Start	20.8	0.0	0.0	0.0	0.0	0.0							
Finish	20.8	0.0	0.0	0.0	0.0	0.0							

BH Ref.	Gas Flow Rate (l/hr)		Borehole Pressure (mb)	Methane (%v/v)			Carbon Dioxide (%v/v)		Oxygen (%v/v)		Hydrogen Sulphide (ppm)		Carbon Monoxide (ppm)		Q _{hg} CO ₂ (l/hr)	Q _{hg} CH ₄ (l/hr)	Atmos Press (mb)	PID (ppm)	Sheen (Y/N)	LNAPL (Y/N)	DNAPL (Y/N)	Depth to Water (m bgl)
	Peak	Steady		Peak	Steady	LEL	Peak	Steady	Peak	Steady	Peak	Steady	Peak	Steady								
BH101	0.0	0.0	0.00	0.0	0.0	0.0	2.7	2.4	18.4	18.6	0.0	0.0	0.0	0.0	0.0027	0.0000	993	-	N	N/A	N/A	NGW
BH101 (Piezo)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	N	N/A	N/A	NGW
BH102	0.0	0.0	0.00	0.0	0.0	0.0	0.0	0.0	20.3	20.8	0.0	0.0	0.0	0.0	0.0000	0.0000	993	-	N	N/A	N/A	5.65
BH102 (Piezo)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	N	N/A	N/A	NGW
BH103	0.0	0.0	0.00	0.0	0.0	0.0	0.0	0.0	20.4	20.4	0.0	0.0	0.0	0.0	0.0000	0.0000	993	-	N	N/A	N/A	5.56
BH104	0.0	0.0	0.00	0.0	0.0	0.0	0.0	0.0	20.4	20.7	0.0	0.0	0.0	0.0	0.0000	0.0000	994	-	N	N/A	N/A	NGW
BH105	0.0	0.0	0.00	0.0	0.0	0.0	0.0	0.0	20.5	20.5	0.0	0.0	0.0	0.0	0.0000	0.0000	993	-	N	N/A	N/A	5.32
BH106	0.0	0.0	0.00	0.0	0.0	0.0	1.1	1.0	14.3	14.7	0.0	0.0	0.0	0.0	0.0011	0.0000	992	-	N	N/A	N/A	NGW
BH107	0.0	0.0	0.00	0.0	0.0	0.0	0.6	0.6	19.4	19.5	0.0	0.0	0.0	0.0	0.0006	0.0000	992	-	N	N/A	N/A	1.11
WS101	0.0	0.0	0.00	0.0	0.0	0.0	0.6	0.5	20.0	20.3	0.0	0.0	0.0	0.0	0.0006	0.0000	993	-	N	N/A	N/A	NGW
WS102	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
WS103	0.0	0.0	0.00	0.0	0.0	0.0	0.5	0.3	19.6	20.1	0.0	0.0	0.0	0.0	0.0005	0.0000	993	-	N	N/A	N/A	NGW
WS105	0.0	0.0	0.00	0.0	0.0	0.0	0.2	0.1	20.5	20.7	0.0	0.0	0.0	0.0	0.0002	0.0000	992	-	N	N/A	N/A	NGW

Notes:

PERMANENT GROUND GAS MONITORING FORM



SITE NAME:	ROCHDALE ROAD, MANCHESTER					ENGINEER:	Jack Perkins						
CLIENT:	WATERMAN I & E					DATE:	11/11/2022						
JOB NO:	GRO-22292												
Pressure Trend:	Rising	Weather:	Overcast			Equipment:	GFM 436						
Ambient:	O ₂ (%v/v)	CH ₄ (%v/v)	CO ₂ (%v/v)	LEL	H ₂ S (ppm)	CO (ppm)							
Start	20.5	0.0	0.0	0.0	0.0	0.0							
Finish	20.5	0.0	0.0	0.0	0.0	0.0							

BH Ref.	Gas Flow Rate (l/hr)		Borehole Pressure (mb)	Methane (%v/v)			Carbon Dioxide (%v/v)		Oxygen (%v/v)		Hydrogen Sulphide (ppm)		Carbon Monoxide (ppm)		Q _{hg} CO ₂ (l/hr)	Q _{hg} CH ₄ (l/hr)	Atmos Press (mb)	PID (ppm)	Sheen (Y/N)	LNAPL (Y/N)	DNAPL (Y/N)	Depth to Water (m bgl)
	Peak	Steady		Peak	Steady	LEL	Peak	Steady	Peak	Steady	Peak	Steady	Peak	Steady								
BH101	0.0	0.0	0.00	0.0	0.0	0.0	0.6	0.6	20.0	20.1	0.0	0.0	0.0	0.0	0.0006	0.0000	1009	-	N	N/A	N/A	NGW
BH101 Piezo	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	N	N/A	N/A	NGW
BH102	0.0	0.0	0.00	0.0	0.0	0.0	0.0	0.0	20.9	20.9	0.0	0.0	0.0	0.0	0.0000	0.0000	1009	-	N	N/A	N/A	5.53
BH102 Piezo	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	N	N/A	N/A	NGW
BH103	0.0	0.0	0.00	0.0	0.0	0.0	0.0	0.0	20.8	20.8	0.0	0.0	0.0	0.0	0.0000	0.0000	1009	-	N	N/A	N/A	5.56
BH104	0.0	0.0	0.00	0.0	0.0	0.0	0.0	0.0	20.5	20.5	0.0	0.0	0.0	0.0	0.0000	0.0000	1011	-	N	N/A	N/A	NGW
BH105	0.0	0.0	0.00	0.0	0.0	0.0	0.4	0.2	20.0	20.3	0.0	0.0	0.0	0.0	0.0004	0.0000	1011	-	N	N/A	N/A	5.14
BH106	0.0	0.0	0.00	0.0	0.0	0.0	1.0	1.0	14.7	14.9	0.0	0.0	0.0	0.0	0.0010	0.0000	1011	-	N	N/A	N/A	1.28
BH107	0.0	0.0	0.00	0.0	0.0	0.0	0.5	0.4	19.4	19.5	0.0	0.0	0.0	0.0	0.0005	0.0000	1011	-	N	N/A	N/A	1.09
WS101	0.0	0.0	0.00	0.0	0.0	0.0	0.0	0.0	20.6	20.6	0.0	0.0	0.0	0.0	0.0000	0.0000	1010	-	N	N/A	N/A	1.25
WS102	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
WS103	0.0	0.0	0.00	0.0	0.0	0.0	0.2	0.2	20.4	20.4	0.0	0.0	0.0	0.0	0.0002	0.0000	1011	-	N	N/A	N/A	NGW
WS105	0.0	0.0	0.00	0.0	0.0	0.0	0.1	0.1	20.3	20.5	0.0	0.0	0.0	0.0	0.0001	0.0000	1009	-	N	N/A	N/A	NGW

Notes:



APPENDIX 9 – In-Situ Groundwater Multi Parameter Data

Location Properties

Rochdale Road - BH102

Report Properties

Start Time = 2022-10-21 15:32:02

Time Offset = 01:00:00

Duration = 00:03:14

Readings = 95

Instrument Properties

Device Model = Aqua TROLL 500

Device SN = 719803

Instrument Properties

Device Model = PowerPack

Device SN = 859304

Date Time	RDO Saturation (%Sat) (718446)	RDO Concentration (mg/L) (718446)	Oxygen Partial Pressure (Torr) (718446)	Turbidity (NTU) (800168)	Actual Conductivity (µS/cm) (717887)	Specific Conductivity (µS/cm) (717887)	Salinity (PSU) (717887)	Resistivity (Ω-cm) (717887)	Density (g/cm³) (717887)	Total Dissolved Solids (ppt) (717887)	pH (pH) (704219)	pH mV (mV) (704219)	ORP (mV) (704219)	Temperature (°C) (719803)	External Voltage (V) (719803)	Barometric Pressure (mbar) (859304)	Temperature (°C) (859304)	Latitude (°)	Longitude (°)	Marked
10/21/22 15:32:08.000	15.97419	1.498241	21.57975	1960.248	786.7907	901.7828	0.4477851	1272.218	0.9988867	0.5859721	6.612554	20.96653	-181.1613	18.32375	17.264	991.9196	18.79	53.48869167	-2.232296667	
10/21/22 15:32:10.000	15.97419	1.498241	21.57975	1960.248	786.7907	901.7828	0.4477851	1272.218	0.9988867	0.5859721	6.612554	20.96653	-181.1613	18.32375	17.264	991.9196	18.79	53.48869167	-2.232296667	
10/21/22 15:32:12.000	15.76992	1.448988	20.87617	2278.01	785.952	902.0661	0.4480671	1272.374	0.9988933	0.5863382	6.606291	21.32664	-180.8871	18.26072	17.22892	991.9196	18.79974	53.48869167	-2.232296667	
10/21/22 15:32:14.000	14.92935	1.373111	19.79635	2513.684	785.4041	901.6008	0.4478236	1273.271	0.9988948	0.5860342	6.607703	21.2422	-180.8077	18.25245	17.2369	991.9282	18.81678	53.48869167	-2.232296667	
10/21/22 15:32:16.000	14.81802	1.361627	19.63279	2557.03	785.2986	901.5576	0.4478072	1273.387	0.9988953	0.5860145	6.607582	21.24874	-180.7853	18.24851	17.23623	991.9293	18.81929	53.48869167	-2.232296667	
10/21/22 15:32:18.000	14.34556	1.318842	19.02889	2395.934	785.0387	901.5186	0.4477811	1273.904	0.9988983	0.5859871	6.605962	21.34167	-180.7436	18.2402	17.22871	991.9204	18.81989	53.48869167	-2.232296667	
10/21/22 15:32:20.000	13.9765	1.285121	18.11724	2590.609	784.8362	901.2349	0.4476361	1274.16	0.9988973	0.5858027	6.60599	21.33945	-180.7424	18.23846	17.22821	991.9376	18.83767	53.48869167	-2.232296667	
10/21/22 15:32:22.000	13.31333	1.22432	17.63977	2613.014	784.3109	900.8568	0.4474381	1275.008	0.9988992	0.5851668	6.605882	21.34523	-180.8885	18.22678	17.2584	991.939	18.85614	53.48869167	-2.232296667	
10/21/22 15:32:24.000	13.22094	1.215852	17.54933	2624.301	784.2407	900.7999	0.4474084	1275.118	0.9988993	0.5850824	6.60588	21.3453	-180.9064	18.22534	17.26209	991.9398	18.85908	53.48881	-2.231188333	
10/21/22 15:32:26.000	12.92462	1.189024	17.19198	2900.644	783.5631	900.5528	0.447274	1276.222	0.9989043	0.5853222	6.606791	21.29135	-180.9898	18.1985	17.23907	991.8669	18.8598	53.48933167	-2.23157	
10/21/22 15:32:28.000	12.41775	1.162797	16.54308	2858.242	782.8227	899.641	0.4468043	1277.429	0.9989034	0.5847548	6.609227	21.24162	-181.2057	18.20158	17.23769	991.9142	18.87751	53.48936667	-2.231593333	
10/21/22 15:32:30.000	12.34796	1.158809	16.45305	2864.284	782.7097	899.5243	0.4467439	1277.613	0.9989035	0.5846993	6.609552	21.23357	-181.2341	18.20091	17.2365	991.9169	18.87958	53.48936667	-2.231593333	
10/21/22 15:32:32.000	12.11008	1.116474	16.14661	2856.518	781.6845	898.9628	0.4464461	1279.609	0.9989104	0.5842738	6.61057	21.07703	-181.4058	18.16965	17.27073	991.9386	18.88943	53.489385	-2.231605	
10/21/22 15:32:34.000	11.9013	1.096282	15.87773	2930.689	780.6263	898.0424	0.4459673	1281.053	0.9989117	0.5837227	6.610714	21.06277	-181.574	18.15462	17.27246	991.9394	18.88985	53.48945667	-2.231656667	
10/21/22 15:32:36.000	11.5591	1.065124	15.4367	3020.651	779.901	897.7313	0.4457998	1282.225	0.9989164	0.5835236	6.611269	21.02682	-181.7624	18.1281	17.23417	991.9397	18.90726	53.489335	-2.23157	
10/21/22 15:32:38.000	11.51097	1.060781	15.37467	3034.269	779.7772	897.6603	0.4457622	1282.413	0.998917	0.5834799	6.611337	21.02258	-181.7908	18.12447	17.22954	991.9397	18.90932	53.48929	-2.231548333	
10/21/22 15:32:40.000	11.35964	1.046867	15.17949	3044.823	779.9254	897.8552	0.4456635	1282.788	0.9989176	0.5833558	6.611967	20.98607	-182.0117	18.12324	17.23644	991.9119	18.91923	53.48926667	-2.23154	
10/21/22 15:32:42.000	11.17216	1.029612	14.9373	3168.908	779.1221	897.1786	0.4454906	1283.556	0.9989194	0.5831414	6.613066	20.92238	-182.167	18.11066	17.25286	991.928	18.92872	53.48923833	-2.231518333	
10/21/22 15:32:44.000	10.94084	1.008246	14.63913	2978.671	779.838	897.7676	0.4458095	1282.341	0.9989174	0.5846234	6.614814	20.82157	-182.4236	18.12258	17.2391	991.912	18.93812	53.48923833	-2.231518333	
10/21/22 15:32:46.000	10.90662	1.005088	14.59501	2960.899	779.8907	897.8101	0.445841	1282.225	0.9989173	0.5847918	6.615062	20.80723	-182.4593	18.12351	17.23808	991.9109	18.93957	53.48923833	-2.231518333	
10/21/22 15:32:48.000	10.7948	0.9947136	14.45052	2999.456	781.9709	900.3298	0.4471376	1278.821	0.9989194	0.5853224	6.615693	20.77094	-182.713	18.11719	17.2372	991.9189	18.94893	53.48923833	-2.231518333	
10/21/22 15:32:50.000	10.71637	0.9876666	14.25087	3393.757	781.3942	899.5597	0.4467417	1279.764	0.9989181	0.5847489	6.615493	20.68363	-182.8663	18.12256	17.26856	991.9194	18.94973	53.48923833	-2.231518333	
10/21/22 15:32:52.000	10.70348	0.9864984	14.2226	3442.57	781.4025	899.5624	0.4467432	1279.75	0.9989181	0.5846961	6.615488	20.67222	-182.8933	18.1229	17.27229	991.9197	18.95015	53.48923833	-2.231518333	
10/21/22 15:32:54.000	10.56649	0.9740579	14.14934	3492.624	782.2173	900.7949	0.4473751	1278.417	0.9989218	0.5848858	6.616588	20.71092	-182.9939	18.10804	17.25619	991.9196	18.96885	53.48923833	-2.231518333	
10/21/22 15:32:56.000	10.53424	0.9711825	14.1133	3503.31	781.0602	899.3431	0.4466277	1280.311	0.9989197	0.5845146	6.615189	20.79692	-183.1268	18.11406	17.23903	991.9286	18.97874	53.48923833	-2.231518333	
10/21/22 15:32:58.000	10.47677	0.9657376	14.04069	3690.588	782.0042	900.4727	0.4472099	1278.766	0.9989206	0.5852864	6.616769	20.7076	-183.2917	18.1119	17.22983	991.9294	18.97969	53.48923833	-2.231518333	
10/21/22 15:33:00.000	10.46923	0.9650277	14.03097	3712.914	782.0662	900.5434	0.4472464	1278.664	0.9989206	0.5853614	6.616896	20.70035	-183.3159	18.11194	17.22814	991.9298	18.98012	53.48923833	-2.231518333	
10/21/22 15:33:02.000	10.44597	0.9628578	14.00097	3765.345	781.3887	899.744	0.4466216	1279.585	0.9989145	0.5845563	6.616258	20.73732	-183.3362	18.11292	17.22803	991.9203	18.98931	53.48923833	-2.231518333	
10/21/22 15:33:04.000	10.44323	0.9620604	13.99708	3533.652	781.3922	899.3795	0.446631	1279.749	0.9989159	0.5845703	6.616405	20.73075	-183.4274	18.13154	17.23606	991.9377	18.99879	53.48923833	-2.231518333	
10/21/22 15:33:06.000	10.46585	0.9642168	14.02652	3775.63	782.2441	900.2715	0.447105	1278.367	0.9989157	0.5851668	6.617635	20.65945	-183.5776	18.13602	17.26749	991.9219	19.01678	53.48923833	-2.231518333	
10/21/22 15:33:08.000	10.46856	0.964453	14.03002	3795.129	782.3494	900.3674	0.447165	1278.204	0.9989158	0.5852424	6.617791	20.65048	-183.5991	18.13729	17.27158	991.9207	19.01927	53.48923833	-2.231518333	
10/21/22 15:33:10.000	10.5002	0.9670928	14.07049	3966.104																

10/21/22 15:33:46.000	11.03605	1.017664	14.76188	4818.144	781.2103	899.9562	0.4469381	1280.058	0.998924	0.5868766	6.586266	22.46898	-184.8053	18.09192	17.23652	991.8895	19.10902	53.48923833	-2.231518333
10/21/22 15:33:48.000	11.0413	1.018332	14.76856	4819.304	782.9605	901.9334	0.4479588	1277.204	0.9989245	0.5864243	6.581287	22.75594	-184.8691	18.09378	17.22876	991.8625	19.11892	53.48923833	-2.231518333
10/21/22 15:33:50.000	11.02244	1.016339	14.73696	4990.074	782.7432	902.1194	0.4480489	1277.558	0.9989286	0.5864294	6.580783	22.88017	-184.8865	18.0718	17.23614	991.8868	19.12852	53.48923833	-2.231518333
10/21/22 15:33:52.000	11.02037	1.016125	14.73342	5009.693	782.7831	902.215	0.4480975	1277.493	0.9989291	0.5864057	6.580534	22.90572	-184.8911	18.06931	17.23668	991.8887	19.12999	53.48923833	-2.231518333
10/21/22 15:33:54.000	10.99536	1.014092	14.70875	4974.521	781.3044	900.2912	0.4471079	1279.911	0.998928	0.5854557	6.574715	23.14269	-184.8812	18.08038	17.23704	991.871	19.13004	53.48923833	-2.231518333
10/21/22 15:33:56.000	10.98403	1.013204	14.69437	4964.086	781.2061	900.6494	0.4472863	1280.072	0.9989311	0.5854453	6.57366	23.19745	-184.967	18.05659	17.22886	991.9333	19.13	53.48923833	-2.231518333
10/21/22 15:33:58.000	10.93831	1.009511	14.63656	5004.642	782.6348	902.4481	0.4482123	1277.736	0.9989331	0.5865995	6.568935	23.46727	-185.0226	18.04897	17.25933	991.9722	19.14726	53.48923833	-2.231518333
10/21/22 15:34:00.000	10.93257	1.009049	14.62928	5009.163	782.8038	902.6807	0.4483318	1277.459	0.9989335	0.5867381	6.568359	23.50031	-185.0326	18.04707	17.26258	991.9793	19.14929	53.48923833	-2.231518333
10/21/22 15:34:02.000	10.89849	1.005706	14.58579	4946.508	781.7085	901.1669	0.4473945	1280.437	0.9989354	0.5855667	6.56672	23.59595	-185.1171	18.0597	17.28061	991.9424	19.14994	53.48923833	-2.231518333
10/21/22 15:34:04.000	10.86926	1.003503	14.54783	4920.349	780.2822	899.9709	0.4469158	1281.702	0.9989347	0.5849628	6.563338	23.78931	-185.1371	18.03708	17.24146	991.9493	19.15	53.48923833	-2.231518333
10/21/22 15:34:06.000	10.80074	0.9972048	14.45953	4911.663	780.8805	900.7335	0.4473177	1280.649	0.9989353	0.5854698	6.560965	23.92631	-185.1826	18.03343	17.2385	991.9494	19.16707	53.48923833	-2.231518333
10/21/22 15:34:08.000	10.79154	0.9963802	14.44767	4909.875	780.9005	900.7841	0.447351	1280.559	0.9989354	0.5855119	6.560555	23.94993	-185.1885	18.03204	17.23652	991.9498	19.16911	53.48923833	-2.231518333
10/21/22 15:34:10.000	10.7295	0.9910411	14.36781	5000.924	781.2583	901.337	0.4476326	1279.986	0.9989371	0.5858691	6.557811	24.10685	-185.2078	18.02498	17.237	991.922	19.17909	53.48923833	-2.231518333
10/21/22 15:34:12.000	10.67713	0.9859662	14.24795	4911.223	782.7059	903.0961	0.448539	1277.62	0.9989386	0.5870125	6.5574	24.20642	-185.1696	18.02051	17.24486	991.964	19.17977	53.48923833	-2.231518333
10/21/22 15:34:14.000	10.5927	0.9786214	14.18462	4821.79	782.7498	903.509	0.448747	1277.548	0.9989398	0.5876197	6.553633	24.35744	-185.1	18.00232	17.23049	991.934	19.18841	53.48923833	-2.231518333
10/21/22 15:34:16.000	10.5808	0.9775671	14.17291	4807.1	782.8066	903.6212	0.4488043	1277.455	0.99894	0.587734	6.553174	24.37868	-185.09	17.99998	17.22902	991.932	19.18944	53.48923833	-2.231518333
10/21/22 15:34:18.000	10.52453	0.9720644	14.10249	4859.195	782.831	903.8356	0.4489124	1277.415	0.9989442	0.587525	6.551569	24.46847	-184.9758	17.99063	17.2282	991.921	19.18989	53.48923833	-2.231518333
10/21/22 15:34:20.000	10.42593	0.9682347	13.97584	4860.675	783.8889	905.0524	0.4495403	1275.692	0.9989448	0.5882946	6.55017	24.53207	-184.9174	17.99086	17.26716	991.9112	19.19	53.48923833	-2.231518333
10/21/22 15:34:22.000	10.41232	0.967585	13.95824	4863.265	784.015	905.2037	0.4496183	1275.486	0.998945	0.5883751	6.549953	24.5427	-184.9061	17.99057	17.27177	991.9097	19.19	53.48923833	-2.231518333
10/21/22 15:34:24.000	10.33835	0.9554593	13.86276	4686.3	784.525	905.6028	0.4498269	1276.099	0.9989449	0.5881098	6.54825	24.6571	-184.8149	18.00007	17.27307	991.9285	19.19939	53.48923833	-2.231518333
10/21/22 15:34:26.000	10.2876	0.9506979	13.79761	4880.944	783.3326	904.2679	0.4491374	1276.728	0.9989433	0.587726	6.546663	24.74879	-184.9243	17.99799	17.24053	991.9385	19.19987	53.48923833	-2.231518333
10/21/22 15:34:28.000	10.16332	0.9390984	13.6374	4784.201	784.498	905.6941	0.4498724	1274.745	0.9989445	0.5886847	6.544062	24.8995	-184.8285	17.99395	17.23025	991.9654	19.20866	53.48923833	-2.231518333
10/21/22 15:34:30.000	10.14667	0.9375647	13.61596	4781.044	784.5883	905.8102	0.4499322	1274.531	0.9989446	0.5887852	6.543694	24.92078	-184.8217	17.99334	17.22772	991.9689	19.2097	53.48923833	-2.231518333
10/21/22 15:34:32.000	10.08997	0.9323704	13.54319	4786.466	784.1945	905.3809	0.449585	1275.922	0.9989473	0.5883448	6.540993	25.0767	-184.6682	17.99208	17.23635	991.9418	19.20999	53.48923833	-2.231518333
10/21/22 15:34:34.000	10.0156	0.9257324	13.44701	4815.964	782.9318	904.1507	0.4490594	1277.326	0.9989467	0.5876823	6.540198	25.12147	-184.6364	17.98066	17.24479	991.9492	19.21885	53.48923833	-2.231518333
10/21/22 15:34:36.000	9.907331	0.9160593	13.30753	4768.08	782.6248	904.1785	0.4490765	1277.78	0.99895	0.5877101	6.539604	25.15431	-184.5173	17.96149	17.238	991.9236	19.21964	53.48923833	-2.231518333
10/21/22 15:34:38.000	9.891661	0.9146601	13.28733	4763.355	782.5417	904.1374	0.4490604	1277.881	0.9989504	0.5876905	6.539514	25.15926	-184.5023	17.95874	17.23746	991.921	19.22007	53.48923833	-2.231518333
10/21/22 15:34:40.000	9.820793	0.9081896	13.19559	4723.011	782.9792	904.4914	0.4492423	1277.362	0.9989504	0.5879194	6.53753	25.27338	-184.3582	17.95963	17.22884	991.9382	19.22914	53.48923833	-2.231518333
10/21/22 15:34:42.000	9.770958	0.9034823	13.07461	4649.89	783.6331	905.6937	0.4498581	1276.128	0.9989539	0.5887009	6.537438	25.37135	-184.2389	17.94326	17.26775	991.9743	19.22976	53.48923833	-2.231518333
10/21/22 15:34:44.000	9.667531	0.8941323	12.99082	4580.44	784.4861	906.6169	0.4503355	1274.728	0.9989519	0.5891017	6.534771	25.44492	-184.1288	17.94681	17.24094	991.936	19.23841	53.48923833	-2.231518333
10/21/22 15:34:46.000	9.653418	0.892849	12.97647	4569.383	784.613	906.7739	0.4504165	1274.513	0.9989517	0.5891795	6.534454	25.457	-184.1116	17.94661	17.23923	991.9327	19.23944	53.48923833	-2.231518333
10/21/22 15:34:48.000	9.57743	0.8856168	12.88098	4767.276	784.4521	906.809	0.4504316	1274.775	0.9989555	0.589406	6.535561	25.38869	-183.9929	17.93553	17.23743	991.9484	19.24892	53.48923833	-2.231518333
10/21/22 15:34:50.000	9.497494	0.8822909	12.77842	4609.082	785.4741	907.7689	0.45093	1273.117	0.9989541	0.5900432	6.532297	25.57534	-183.8977	17.94659	17.237	991.9142	19.24101	53.48923833	-2.231518333
10/21/22 15:34:52.000	9.485349	0.8816428	12.7627	4598.27	785.5865	907.8817	0.4509884	1272.934	0.9989541	0.5901269	6.531961	25.59464	-183.8821	17.94744	17.237	991.911	19.24041	53.48923833	-2.231518333
10/21/22 15:34:54.000	9.421854	0.8716429	12.68079	4773.751	785.7482	908.0239	0.4510625	1274.938	0.998956	0.5893705	6.531725	25.60836	-183.7414	17.94967	17.22861	991.9283	19.25864	53.48923833	-2.231518333
10/21/22 15:34:56.000	9.37041	0.866936	12.61473	4905.014	784.3646	906.4193	0.4502345	1275.134	0.9989532	0.5890918	6.531296	25.63188	-183.5526	17.94995	17.2684	991.9473	19.25072	53.48923833	-2.231518333
10/21/22 15:34:58.000	9.247895	0.8555181	12.45689	4542.682	785.4651	907.9346	0.4510131	1273.211	0.998956	0.5901278	6.530448	25.68095	-183.4208	17.9378	17.23292	991.9748	19.26748	53.48923833	-2.231518333
10/21/22 15:35:00.000	9.23151	0.8540127	12.43579	4503.746	785.542	908.0524	0.4510736	1272.98	0.9989561	0.590244	6.53033	25.68772	-183.3983	17.93636	17.23028	991.9787	19.2691	53.48923833	-2.231518333
10/21/22 15:35:02.000	9.174141	0.8487217	12.36212	4665.936	785.7862	908.3417	0.4507606	1273.457	0.9989532	0.5898349	6.529	25.76459	-183.2122	17.93601	17.22817	991.9888	19.26993	53.48923833	-2.231518333
10/21/22 15:35:04.000	9.097651	0.8414078	12.26348	4866.375	785.6771	908.2686	0.4511389	1272.871	0.9989564	0.590317	6.529604	25.73096	-183.0437	17.93336	17.228	991.9984	19.27	53.48923833	-2.231518333
10/21/22 15:35:06.000	9.001191	0.8328196	12.13924	4826.201	784.7047	907.227	0.4506287	1274.396	0.998957	0.5896762	6.527348	25.85959	-182.8415	17.92925	17.26646	991.9822	19.27855	53.48923833	-2.231518333
10/21/22 15:35:08.000	8.986729	0.8315129	12.12061	4828.497	784.5815	907.0965	0.4505833	1274.555	0.9989572	0.5896195	6.527105	25.8735	-182.8111	17.92865	17.27112	991.9806	19.27958	53.48923833	-2.231518333
10/21/22 15:35:10.000	8.940073	0.8273631	12.06026	4815.132	784.4715	908.2767	0.4511847	1273.157	0.9989592	0.5903799	6.527779	25.83361	-182.6134	17.91983	17.26449	991.9249	19.27994	53.48923833	-2.231518333
10/21/22 15:35:12.000	8.894534	0.8230975	11.94729	4838.151	785.6443	908.6312	0.4513674	1272.678	0.9989595	0.									

Location Properties

Rochdale Road, BH103

Report Properties

Start Time = 2022-10-21 13:34:43

Time Offset = 01:00:00

Duration = 00:02:26

Readings = 72

Instrument Properties

Device Model = Aqua TROLL 500

Device SN = 719803

Instrument Properties

Device Model = PowerPack

Device SN = 859304

Date Time	RDO Saturation (%Sat) (718446)	RDO Concentration (mg/L) (718446)	Oxygen Partial Pressure (Torr) (718446)	Turbidity (NTU) (800168)	Actual Conductivity (µS/cm) (717887)	Specific Conductivity (µS/cm) (717887)	Salinity (PSU) (717887)	Resistivity (Ω-cm) (717887)	Density (g/cm³) (717887)	Total Dissolved Solids (ppt) (717887)	pH (pH) (704219)	pH mV (mV) (704219)	ORP (mV) (704219)	Temperature (°C) (719803)	External Voltage (V) (719803)	Barometric Pressure (mbar) (859304)	Temperature (°C) (859304)	Latitude (°)	Longitude (°)	Marked
10/21/22 13:34:47.000	60.74231	5.493409	80.41534	3639.681	2092.063	2317.294	1.217359	472.7798	0.9991556	1.523105	7.590451	-35.78424	-56.06064	19.91123	17.228	992.4297	17.96	53.488615	-2.232265	
10/21/22 13:34:49.000	60.74231	5.493409	80.41534	3639.681	2092.063	2317.294	1.217359	472.7798	0.9991556	1.523105	7.590451	-35.78424	-56.06064	19.91123	17.228	992.4297	17.96	53.48863	-2.232296667	
10/21/22 13:34:51.000	60.73088	5.381146	78.77915	3571.368	2134.699	2365.305	1.229907	468.282	0.9991669	1.538013	7.583096	-35.35564	-55.79564	19.89553	17.2367	992.3524	17.96	53.48864833	-2.2323	
10/21/22 13:34:53.000	59.18129	5.243888	76.78608	3464.691	2136.086	2366.573	1.23066	467.9586	0.9991664	1.538904	7.57772	-35.04281	-55.42404	19.90091	17.24423	992.3863	17.97681	53.48866	-2.232308333	
10/21/22 13:34:55.000	58.99462	5.222122	76.46973	3448.665	2138.257	2368.983	1.231341	467.7082	0.9991668	1.539712	7.576728	-34.98508	-55.36694	19.90082	17.24554	992.3868	17.97883	53.48866	-2.232308333	
10/21/22 13:34:57.000	58.0583	5.140608	75.27998	2902.892	2134.085	2389.891	1.242891	463.6948	0.9991781	1.553429	7.577498	-35.02954	-55.19822	19.89851	17.2623	992.3801	17.98888	53.48867167	-2.2323	
10/21/22 13:34:59.000	57.05799	5.052504	73.9928	2644.925	2177.395	2416.005	1.257198	458.7544	0.9991903	1.570403	7.578983	-35.1148	-54.90506	19.8837	17.22417	992.3799	18.00726	53.48867167	-2.2323	
10/21/22 13:35:01.000	56.90765	5.03927	73.79946	2592.663	2182.363	2419.954	1.259362	458.0066	0.9991922	1.57297	7.579209	-35.12779	-54.86488	19.88183	17.2203	992.3795	18.00977	53.48868167	-2.2323	
10/21/22 13:35:03.000	55.23232	4.893756	71.64663	2515.68	2207.189	2447.878	1.274656	453.0888	0.9992104	1.614359	7.566486	-34.38356	-54.83752	19.84981	17.24431	992.2853	18.01953	53.48868167	-2.2323	
10/21/22 13:35:05.000	54.44415	4.826582	70.62914	2430.394	2263.251	2515.663	1.311815	441.8728	0.9992599	1.637195	7.555084	-33.71619	-54.6669	19.7471	17.25388	992.2898	18.02897	53.48868167	-2.2323	
10/21/22 13:35:07.000	52.91545	4.762029	68.67686	2356.888	2292.931	2552.561	1.332052	436.1474	0.9992902	1.659846	7.546262	-32.7894	-54.5347	19.67498	17.23138	992.3413	18.05569	53.48868167	-2.2323	
10/21/22 13:35:09.000	52.70864	4.752153	68.41234	2344.992	2298.635	2559.574	1.335898	435.0326	0.9992957	1.66331	7.544801	-32.65559	-54.51222	19.66242	17.22902	992.3479	18.0592	53.48868167	-2.2323	
10/21/22 13:35:11.000	51.91216	4.624426	67.39196	2332.912	2312.686	2578.059	1.346034	432.3994	0.9993425	1.699782	7.530828	-32.25079	-54.50019	19.61076	17.23639	992.2848	18.06919	53.48868167	-2.2323	
10/21/22 13:35:13.000	51.14317	4.557325	66.40311	2325.05	2324.56	2598.193	1.357025	430.191	0.9993504	1.691056	7.523576	-31.84722	-54.40313	19.48617	17.26908	992.281	18.07877	53.48868167	-2.2323	
10/21/22 13:35:15.000	49.93062	4.459199	64.85142	2314.466	2312.913	2589.015	1.351916	432.357	0.9993591	1.683717	7.523953	-31.86434	-54.18376	19.41656	17.27181	992.3309	18.09673	53.48869167	-2.232296667	
10/21/22 13:35:17.000	49.75928	4.445446	64.63198	2312.952	2311.934	2588.639	1.351698	432.5393	0.9993602	1.682318	7.523775	-31.85212	-54.15383	19.40352	17.27341	992.3369	18.0992	53.48869167	-2.232296667	
10/21/22 13:35:19.000	49.06908	4.38435	63.74723	2381.798	2330.234	2609.32	1.372454	426.2347	0.9993739	1.707095	7.521246	-31.70464	-54.11081	19.40015	17.23186	992.2844	18.11813	53.48869167	-2.232296667	
10/21/22 13:35:21.000	48.17764	4.303053	62.5948	2412.113	2348.512	2630.142	1.375494	425.5148	0.9993804	1.710699	7.517083	-31.46445	-54.07694	19.39384	17.23701	992.2634	18.12839	53.48869167	-2.232296667	
10/21/22 13:35:23.000	46.86684	4.187741	60.90713	2297.887	2354.728	2637.44	1.378953	424.5609	0.9993843	1.714786	7.509473	-31.02013	-53.96288	19.38786	17.23666	992.2604	18.13806	53.48869167	-2.232296667	
10/21/22 13:35:25.000	46.6769	4.170918	60.66236	2284.879	2356.103	2639.033	1.379372	424.4532	0.9993849	1.715282	7.508401	-30.95768	-53.94801	19.38692	17.23707	992.2596	18.13953	53.48869167	-2.232296667	
10/21/22 13:35:27.000	46.10282	4.122175	59.92533	2331.328	2359.529	2644.935	1.382654	424.0103	0.9993992	1.719208	7.510248	-31.06147	-53.90988	19.32877	17.237	992.3052	18.14901	53.48869167	-2.232296667	
10/21/22 13:35:29.000	45.49387	4.070215	58.53267	2314.954	2354.619	2643.594	1.38187	424.7207	0.9994096	1.718336	7.508754	-30.86243	-53.65248	19.27432	17.21363	992.3863	18.16704	53.48869167	-2.232296667	
10/21/22 13:35:31.000	45.40407	4.062571	58.34665	2315.377	2354.18	2643.668	1.381903	424.7876	0.9994113	1.718384	7.508681	-30.84501	-53.62151	19.26567	17.21092	992.3975	18.16949	53.48869167	-2.232296667	
10/21/22 13:35:33.000	44.38417	3.97859	57.683	2311.869	2344.714	2634.859	1.377021	426.4922	0.9994187	1.711108	7.504203	-30.69023	-53.54351	19.23461	17.26052	992.3248	18.17931	53.48869167	-2.232296667	
10/21/22 13:35:35.000	43.88932	3.936584	57.07792	2343.293	2357.61	2653.192	1.38707	424.1598	0.9994355	1.72443	7.502874	-30.61577	-53.5821	19.16726	17.23086	992.312	18.18882	53.48869167	-2.232296667	
10/21/22 13:35:37.000	43.06721	3.898463	56.03485	2262.106	2368.51	2668.423	1.395425	422.2087	0.9994519	1.734424	7.502496	-30.62247	-53.58438	19.11561	17.26017	992.31	18.19832	53.48869167	-2.232296667	
10/21/22 13:35:39.000	42.95316	3.892572	55.88841	2253.603	2370.366	2671.01	1.396844	421.8756	0.9994545	1.736178	7.502416	-30.62095	-53.58648	19.10688	17.26232	992.3096	18.1998	53.48869167	-2.232296667	
10/21/22 13:35:41.000	42.61706	3.83388	55.45729	2214.13	2368.879	2670.848	1.396731	422.826	0.9994622	1.733961	7.500722	-30.48268	-53.5792	19.08057	17.23045	992.319	18.23721	53.48869167	-2.232296667	
10/21/22 13:35:43.000	42.22635	3.79866	54.95563	2183.161	2369.92	2675.096	1.399026	422.0273	0.9994723	1.738593	7.50128	-30.5109	-53.74102	19.0272	17.22867	992.2753	18.23925	53.48869167	-2.232296667	
10/21/22 13:35:45.000	41.65997	3.751494	54.22762	2274.783	2374.768	2682.522	1.403093	421.1219	0.999482	1.743555	7.497651	-30.2932	-53.70084	18.99345	17.23562	992.3563	18.24	53.48869167	-2.232296667	
10/21/22 13:35:47.000	41.57871	3.744766	54.12319	2284.749	2375.396	2683.574	1.403668	420.9787	0.9994835	1.744335	7.497245	-30.26881	-53.70221	18.98749	17.23654	992.3643	18.24	53.48869167	-2.232296667	
10/21/22 13:35:49.000	41.28261	3.719959	53.7481	2372.133	2394.796	2706.794	1.42797	414.5518	0.99951	1.77298	7.494196	-30.08957	-53.73343	18.9652	17.23692					

10/21/22 13:36:25.000	38.30906	3.486758	49.94548	2230.057	2485.187	2841.389	1.490323	402.5175	0.9996602	1.84723	7.487044	-29.62256	-54.63172	18.42141	17.2279	992.3409	18.39904	53.48869167	-2.232296667
10/21/22 13:36:27.000	38.14067	3.480941	49.72949	2135.183	2483.087	2842.062	1.490656	402.7398	0.9996674	1.84745	7.487395	-29.71661	-54.68117	18.38529	17.228	992.3052	18.40839	53.48869167	-2.232296667
10/21/22 13:36:29.000	38.11532	3.479783	49.6969	2125.974	2482.993	2842.378	1.490824	402.7464	0.9996687	1.847487	7.487436	-29.72762	-54.68905	18.37945	17.228	992.3007	18.40986	53.48869167	-2.232296667
10/21/22 13:36:31.000	38.08617	3.472391	49.65995	2031.716	2483.348	2843.514	1.491441	402.2549	0.999677	1.8511	7.48745	-29.64464	-54.86166	18.36843	17.228	992.2443	18.43773	53.48869167	-2.232296667
10/21/22 13:36:33.000	38.0626	3.471147	49.62805	2004.831	2484.873	2847.302	1.493502	402.3922	0.9996796	1.851029	7.487194	-29.62277	-54.80425	18.33568	17.25994	992.2675	18.43939	53.48869167	-2.232296667
10/21/22 13:36:35.000	37.93364	3.461977	49.4649	2012.944	2485.717	2849.979	1.494953	402.2818	0.9996856	1.852596	7.487024	-29.60725	-54.81838	18.30827	17.27037	992.3027	18.44851	53.48869167	-2.232296667
10/21/22 13:36:37.000	37.91743	3.460868	49.44431	2013.333	2485.875	2850.439	1.495202	402.2763	0.9996864	1.852763	7.486994	-29.60497	-54.81702	18.30379	17.27284	992.308	18.44953	53.48869167	-2.232296667
10/21/22 13:36:39.000	37.86638	3.456125	49.38019	1956.878	2484.922	2849.094	1.492612	402.9332	0.9996845	1.849745	7.487132	-29.6133	-54.84464	18.30782	17.23158	992.3094	18.45912	53.48869167	-2.232296667
10/21/22 13:36:41.000	37.75964	3.446685	49.24282	1919.132	2478.495	2842.829	1.490771	403.5264	0.9996858	1.847602	7.487255	-29.62002	-54.89659	18.2901	17.26848	992.3447	18.46853	53.48869167	-2.232296667
10/21/22 13:36:43.000	37.74557	3.445426	49.22478	1912.424	2477.711	2842.044	1.490449	403.6222	0.9996859	1.847227	7.487275	-29.62117	-54.90365	18.28827	17.27105	992.3488	18.46999	53.48869167	-2.232296667
10/21/22 13:36:45.000	37.62735	3.437663	49.07637	1882.346	2476.077	2841.798	1.490374	403.8637	0.9996908	1.847936	7.48315	-29.37849	-54.9979	18.26213	17.23106	992.2936	18.49803	53.48869167	-2.232296667
10/21/22 13:36:47.000	37.59831	3.435135	49.03654	1922.457	2479.474	2846.202	1.492799	403.3114	0.9996941	1.850098	7.481366	-29.27487	-55.03303	18.25403	17.2287	992.3357	18.49954	53.48869167	-2.232296667
10/21/22 13:36:49.000	37.50102	3.432536	48.91299	1897.347	2475.901	2843.749	1.491411	403.8935	0.9996982	1.848461	7.478904	-29.15887	-55.04304	18.22757	17.23578	992.3036	18.50865	53.48869167	-2.232296667
10/21/22 13:36:51.000	37.48881	3.432158	48.89736	1896.09	2475.618	2843.634	1.491344	403.9395	0.9996987	1.84835	7.478559	-29.14201	-55.04524	18.22422	17.23671	992.3017	18.50967	53.48869167	-2.232296667
10/21/22 13:36:53.000	37.46881	3.426648	48.87205	1905.594	2473.949	2842.186	1.490534	403.6821	0.999702	1.850002	7.476305	-28.98085	-55.0951	18.21669	17.23696	992.2906	18.52825	53.48869167	-2.232296667
10/21/22 13:36:55.000	37.42726	3.422801	48.81824	1940.828	2482.755	2853.605	1.496831	402.7268	0.9997085	1.855097	7.475018	-28.90402	-55.13869	18.19591	17.237	992.3165	18.5384	53.48869167	-2.232296667
10/21/22 13:36:57.000	37.39124	3.421757	48.77493	1868.849	2488.781	2861.828	1.501361	401.7828	0.9997157	1.860291	7.473558	-28.81543	-55.17783	18.17528	17.26752	992.2931	18.55659	53.48869167	-2.232296667
10/21/22 13:36:59.000	37.38539	3.421512	48.76775	1861.502	2489.861	2863.272	1.502157	401.6333	0.9997168	1.861106	7.473346	-28.80269	-55.18395	18.17203	17.27119	992.2914	18.55907	53.48869167	-2.232296667
10/21/22 13:37:01.000	37.30864	3.413905	48.66708	1835.857	2491.254	2864.391	1.505593	400.7629	0.9997195	1.86516	7.470172	-28.61991	-55.22908	18.17972	17.26444	992.3267	18.55984	53.48869167	-2.232296667
10/21/22 13:37:03.000	37.25305	3.409397	48.59744	1795.34	2503.398	2879.654	1.511512	399.3909	0.9997267	1.872123	7.468333	-28.51288	-55.3079	18.15916	17.23248	992.2582	18.56881	53.48869167	-2.232296667
10/21/22 13:37:05.000	37.24347	3.408557	48.58524	1789.778	2504.87	2881.477	1.512338	399.1964	0.9997276	1.873094	7.467991	-28.49307	-55.31892	18.15711	17.22835	992.2517	18.56985	53.48869167	-2.232296667
10/21/22 13:37:07.000	37.19097	3.404817	48.51506	1819.973	2506.145	2883.403	1.513271	399.0215	0.9997295	1.876032	7.467569	-28.4666	-55.29729	18.14987	17.26135	992.2493	18.57933	53.48869167	-2.232296667
10/21/22 13:37:09.000	37.15618	3.401393	48.46982	1859.152	2510.601	2888.865	1.516303	398.3112	0.9997329	1.877917	7.465637	-28.35519	-55.37343	18.14456	17.23082	992.295	18.59795	53.48869167	-2.232296667

Location Properties

Rochdale Road, BH105

Report Properties

Start Time = 2022-10-21 13:20:12

Time Offset = 01:00:00

Duration = 00:02:48

Readings = 85

Instrument Properties

Device Model = Aqua TROLL 500

Device SN = 719803

Instrument Properties

Device Model = PowerPack

Device SN = 859304

Date Time	RDO Saturation (%Sat) (718446)	RDO Concentration (mg/L) (718446)	Oxygen Partial Pressure (Torr) (718446)	Turbidity (NTU) (800168)	Actual Conductivity (µS/cm) (717887)	Specific Conductivity (µS/cm) (717887)	Salinity (PSU) (717887)	Resistivity (Ω-cm) (717887)	Density (g/cm³) (717887)	Total Dissolved Solids (ppt) (717887)	pH (pH) (704219)	pH mV (mV) (704219)	ORP (mV) (704219)	Temperature (°C) (719803)	External Voltage (V) (719803)	Barometric Pressure (mbar) (859304)	Temperature (°C) (859304)	Latitude (°)	Longitude (°)
10/21/22 13:20:12.000	94.22077	8.401373	121.8653	545.7618	594.4798	659.4673	0.3240626	1682.137	0.9984872	0.4286538	7.724638	-43.57439	-72.03845	19.84233	17.25012	992.5754	18.11152	53.48873333	-2.231816667
10/21/22 13:20:14.000	94.22021	8.40149	121.8649	545.6648	594.4824	659.4409	0.3240493	1682.133	0.9984868	0.4286366	7.724673	-43.57624	-72.03479	19.84353	17.24737	992.5718	18.11051	53.48873333	-2.231816667
10/21/22 13:20:16.000	94.32852	8.409017	121.998	544.326	594.4951	659.549	0.3241036	1682.099	0.9984881	0.428729	7.722574	-43.45583	-71.91711	19.83606	17.23802	992.5701	18.12837	53.48873333	-2.231816667
10/21/22 13:20:18.000	94.30212	8.406676	121.9637	543.1915	594.5164	659.4517	0.324055	1682.04	0.9984864	0.4286461	7.723156	-43.48964	-71.90495	19.84457	17.24509	992.5872	18.12951	53.48873333	-2.231816667
10/21/22 13:20:20.000	94.30325	8.406687	121.9649	543.0068	594.5193	659.4455	0.3240519	1682.031	0.9984862	0.4286406	7.723137	-43.48862	-71.8988	19.84525	17.24562	992.5892	18.13038	53.48873333	-2.231816667
10/21/22 13:20:22.000	94.34193	8.4048	122.0198	542.9152	594.527	659.6205	0.3241396	1682.009	0.9984887	0.4287533	7.721409	-43.35172	-71.75823	19.83334	17.22073	992.6085	18.13937	53.48873333	-2.231816667
10/21/22 13:20:24.000	94.30018	8.405103	121.9648	542.8393	594.5358	659.5129	0.3240858	1681.984	0.9984897	0.4288087	7.719534	-43.27709	-71.76363	19.84173	17.21936	992.5822	18.13986	53.48873333	-2.231816667
10/21/22 13:20:26.000	94.24716	8.402505	121.8954	542.2503	594.556	659.6066	0.3241329	1681.927	0.9984884	0.4287587	7.720266	-43.31989	-71.72939	19.83664	17.22681	992.5718	18.14	53.48873333	-2.231816667
10/21/22 13:20:28.000	94.239	8.402215	121.8847	542.1775	594.5588	659.6126	0.3241359	1681.919	0.9984882	0.4287546	7.720284	-43.32249	-71.72609	19.83643	17.22774	992.5695	18.14	53.48873333	-2.231816667
10/21/22 13:20:30.000	94.42413	8.415773	122.119	542.0519	594.5817	659.511	0.3240852	1681.854	0.9984862	0.4286822	7.719235	-43.26331	-71.63381	19.84552	17.26986	992.5697	18.14	53.48873333	-2.231816667
10/21/22 13:20:32.000	94.34621	8.41078	122.0206	542.1178	594.5766	659.6749	0.3241426	1681.841	0.9984878	0.4287565	7.719975	-43.30459	-71.62654	19.83338	17.24003	992.5697	18.14	53.48873333	-2.231816667
10/21/22 13:20:34.000	94.32896	8.408664	121.9978	541.4998	594.59	659.6131	0.3241335	1681.828	0.9984875	0.4287446	7.717612	-43.16774	-71.55294	19.83887	17.23042	992.5611	18.14	53.48873333	-2.231816667
10/21/22 13:20:36.000	94.32299	8.408153	121.9901	541.4283	594.5914	659.6125	0.3241349	1681.826	0.9984875	0.4287464	7.717361	-43.15314	-71.54419	19.83902	17.22791	992.5601	18.14	53.48873333	-2.231816667
10/21/22 13:20:38.000	94.37637	8.413552	122.0584	541.1834	594.5989	659.7141	0.324187	1681.806	0.998489	0.4288141	7.718105	-43.19569	-71.55022	19.83235	17.23637	992.569	18.14927	53.48873333	-2.231816667
10/21/22 13:20:40.000	94.22715	8.397967	121.8649	540.9217	594.6229	659.5665	0.3241135	1681.707	0.9984862	0.4287182	7.718111	-43.1981	-71.4763	19.84632	17.23684	992.5695	18.15871	53.48873333	-2.231816667
10/21/22 13:20:42.000	94.25162	8.400067	121.8964	540.4114	594.6418	659.447	0.3240538	1681.681	0.9984842	0.4286406	7.716698	-43.11607	-71.33255	19.85506	17.25992	992.5781	18.16814	53.48873333	-2.231816667
10/21/22 13:20:44.000	94.24841	8.399678	121.8922	540.3409	594.645	659.4264	0.3240434	1681.674	0.9984838	0.4286271	7.716525	-43.10611	-71.31234	19.85669	17.26268	992.5792	18.1696	53.48873333	-2.231816667
10/21/22 13:20:46.000	94.36797	8.408459	122.0453	540.3369	594.6732	659.4128	0.3240369	1681.595	0.9984832	0.4287461	7.715489	-43.04757	-71.24973	19.85982	17.23082	992.5613	18.16992	53.48873333	-2.231816667
10/21/22 13:20:48.000	94.34988	8.408651	122.0219	539.8193	594.6816	659.3689	0.324015	1681.572	0.9984824	0.4286031	7.715983	-43.0746	-71.27399	19.86362	17.22883	992.569	18.16118	53.48873333	-2.231816667
10/21/22 13:20:50.000	94.3382	8.405255	121.9822	539.3369	594.717	659.4354	0.3240486	1681.472	0.9984828	0.4286383	7.713652	-42.93916	-71.14435	19.86167	17.2356	992.6115	18.16883	53.48873333	-2.231816667
10/21/22 13:20:52.000	94.33538	8.404797	121.9755	539.2574	594.7216	659.442	0.3240519	1681.459	0.9984828	0.4286363	7.713392	-42.92397	-71.12978	19.86156	17.23653	992.6171	18.16942	53.48873333	-2.231816667
10/21/22 13:20:54.000	94.29546	8.402418	121.9543	539.2059	594.7413	659.5082	0.3240852	1681.403	0.9984813	0.4285815	7.712729	-42.88681	-71.14905	19.85839	17.23691	992.5739	18.1699	53.48873333	-2.231816667
10/21/22 13:20:56.000	94.37553	8.407557	122.0522	538.585	594.7624	659.5498	0.3241062	1681.344	0.9984835	0.4286959	7.713203	-42.91595	-71.0647	19.85708	17.26817	992.5278	18.17	53.48873333	-2.231816667
10/21/22 13:20:58.000	94.38335	8.408076	122.0629	538.5117	594.7656	659.557	0.3241098	1681.335	0.9984837	0.4287069	7.713241	-42.91836	-71.05604	19.85681	17.27182	992.5206	18.17	53.48873333	-2.231816667
10/21/22 13:21:00.000	94.39075	8.409022	122.0667	537.5546	594.7811	659.4718	0.3240673	1681.291	0.9984823	0.4286564	7.712748	-42.88907	-71.02831	19.86415	17.23953	992.5198	18.17928	53.48873333	-2.231816667
10/21/22 13:21:02.000	94.30615	8.400765	121.9567	537.384	594.7768	659.4008	0.3241385	1681.179	0.9984838	0.4287486	7.71216	-42.85548	-70.90341	19.8689	17.22965	992.5197	18.17981	53.48873333	-2.231816667
10/21/22 13:21:04.000	94.34881	8.406391	122.0134	536.8987	594.826	659.3956	0.3240428	1681.148	0.9984807	0.4286243	7.710237	-42.74205	-70.8987	19.87317	17.22831	992.494	18.16289	53.48873333	-2.231816667
10/21/22 13:21:06.000	94.35061	8.406741	122.0159	536.8383	594.8317	659.3926	0.3240343	1681.141	0.9984804	0.4286132	7.709985	-42.72728	-70.89339	19.87384	17.22791	992.491	18.16084	53.48873333	-2.231816667
10/21/22 13:21:08.000	94.29774	8.400756	121.9433	537.2195	594.8146	659.5035	0.3240841	1681.195	0.9984822	0.4286782	7.710008	-42.72951	-70.91695	19.86454	17.228	992.4899	18.17852	53.48873333	-2.231816667
10/21/22 13:21:10.000	94.36446	8.405652	122.028	536.9039	594.8506	659.4291	0.3240465	1681.094	0.9984805	0.4286289	7.709367	-42.69316	-70.8208	19.86974	17.26004	992.5253	18.18849	53.48873333	-2.231816667
10/21/22 13:21:12.000	94.34014	8.403196	122.0003	536.43	594.8932	659.5964	0.3241306	1680.974	0.9984823	0.4287377	7.708091	-42.61947	-70.70383	19.86374	17.26274	992.5114	18.18965	53.48873333	-2.231816667
10/21/22 13:21:14.000	94.34017	8.403129	122.0007	536.358	594.9	659.6131	0.324139	1680.955	0.9984825	0.4287485	7.707911	-42.6091	-70.68571	19.86327	17.26436	992.5111	18.1901	53.48873333	-2.231816667
10/210																			

10/21/22 13:21:50.000	94.33727	8.400433	121.9967	534.0626	595.185	659.6833	0.3241766	1680.15	0.9984788	0.4287871	7.699047	-42.09709	-70.2412	19.88106	17.22776	992.4918	18.24043	53.48873333	-2.231816667
10/21/22 13:21:52.000	94.21738	8.390368	121.8368	535.0543	595.2101	659.6975	0.3241839	1680.079	0.9984788	0.4288034	7.69829	-42.05101	-70.18857	19.88204	17.26147	992.5641	18.2586	53.48873333	-2.231816667
10/21/22 13:21:54.000	94.30744	8.397316	121.9596	535.1124	595.223	659.5668	0.3242061	1680.034	0.9984791	0.4288319	7.69844	-42.06116	-70.16207	19.89243	17.27143	992.5146	18.25966	53.48873333	-2.231816667
10/21/22 13:21:56.000	94.299	8.397989	121.9448	534.903	595.244	659.6887	0.3241911	1679.982	0.9984784	0.4288124	7.697494	-42.00457	-70.18558	19.88536	17.24974	992.5543	18.277	53.48873333	-2.231816667
10/21/22 13:21:58.000	94.30215	8.398391	121.9487	534.8762	595.2469	659.6978	0.3241902	1679.975	0.9984784	0.4288111	7.697392	-41.9985	-70.18753	19.88494	17.24743	992.5566	18.27901	53.48873333	-2.231816667
10/21/22 13:22:00.000	94.3008	8.395988	121.9496	535.5958	595.2651	659.5497	0.3241112	1679.924	0.9984757	0.4287084	7.696551	-41.95191	-70.13879	19.897	17.22973	992.5042	18.27983	53.48873333	-2.231816667
10/21/22 13:22:02.000	94.29602	8.397514	121.9396	535.7462	595.2655	659.5483	0.3241099	1679.845	0.9984751	0.4287064	7.696563	-41.95055	-70.13784	19.89932	17.26016	992.5187	18.28	53.48873333	-2.231816667
10/21/22 13:22:04.000	94.28439	8.394062	122.0154	536.455	595.3121	659.6783	0.3241752	1679.781	0.9984767	0.4287909	7.695746	-41.82851	-70.1489	19.8918	17.23216	992.5613	18.28	53.48873333	-2.231816667
10/21/22 13:22:06.000	94.28278	8.393711	122.0243	536.5436	595.3177	659.6951	0.3241836	1679.77	0.9984769	0.4288018	7.695652	-41.81377	-70.1505	19.8909	17.23002	992.5674	18.28	53.48873333	-2.231816667
10/21/22 13:22:08.000	94.31822	8.397913	121.9825	536.7562	595.3332	659.6641	0.3241682	1679.731	0.998475	0.4287356	7.694213	-41.80805	-70.10998	19.89423	17.22834	992.533	18.28907	53.48873333	-2.231816667
10/21/22 13:22:10.000	94.23153	8.389094	121.8603	536.8116	595.354	659.7962	0.3242345	1679.673	0.9984778	0.4288619	7.694057	-41.80465	-70.05999	19.8864	17.228	992.5309	18.29832	53.48873333	-2.231816667
10/21/22 13:22:12.000	94.22299	8.388258	121.8443	536.8243	595.3569	659.8098	0.3242413	1679.665	0.998478	0.4288736	7.693984	-41.80441	-70.05258	19.88565	17.228	992.5292	18.29974	53.48873333	-2.231816667
10/21/22 13:22:14.000	94.32629	8.399193	121.9803	537.0523	595.3898	659.8054	0.3242394	1679.572	0.9984775	0.4288732	7.693269	-41.76008	-70.03581	19.88858	17.26975	992.5018	18.29995	53.48873333	-2.231816667
10/21/22 13:22:16.000	94.30102	8.395064	121.9427	537.1603	595.419	659.6882	0.3242541	1679.484	0.9984773	0.4288922	7.692943	-41.7425	-70.02182	19.89929	17.23185	992.536	18.3	53.48873333	-2.231816667
10/21/22 13:22:18.000	94.29042	8.395934	121.9346	536.9327	595.4374	659.8068	0.3242498	1679.437	0.998477	0.4288864	7.69223	-41.69977	-70.04902	19.89225	17.23715	992.5469	18.30854	53.48873333	-2.231816667
10/21/22 13:22:20.000	94.28767	8.395821	121.9315	536.909	595.4406	659.8162	0.3242499	1679.428	0.9984769	0.4288865	7.692136	-41.69419	-70.05177	19.89183	17.23606	992.5497	18.30955	53.48873333	-2.231816667
10/21/22 13:22:22.000	94.30145	8.395287	121.9488	537.4232	595.4579	659.7085	0.324192	1679.38	0.9984749	0.4288113	7.692269	-41.70353	-69.96795	19.90092	17.22043	992.5037	18.3191	53.48873333	-2.231816667
10/21/22 13:22:24.000	94.35417	8.399472	122.0111	537.5187	595.4667	659.7739	0.3242244	1679.297	0.9984754	0.428853	7.691113	-41.63641	-69.94566	19.89858	17.22737	992.5007	18.31978	53.48873333	-2.231816667
10/21/22 13:22:26.000	94.35013	8.399517	122.0379	537.1188	595.5026	659.8121	0.3242438	1679.246	0.9984757	0.4288779	7.690228	-41.58453	-69.93003	19.89727	17.22766	992.4828	18.33686	53.48873333	-2.231816667
10/21/22 13:22:28.000	94.35165	8.399692	122.0435	537.0715	595.5072	659.8199	0.3242477	1679.237	0.9984758	0.428883	7.690074	-41.57557	-69.92773	19.89697	17.22806	992.4808	18.33889	53.48873333	-2.231816667
10/21/22 13:22:30.000	94.43978	8.408449	122.123	536.4328	595.5078	659.888	0.3242818	1679.238	0.9984767	0.4288543	7.691213	-41.64086	-69.84268	19.89205	17.21163	992.5072	18.33978	53.48873333	-2.231816667
10/21/22 13:22:32.000	94.31041	8.395469	121.9557	536.7469	595.5518	659.968	0.3243222	1679.115	0.9984773	0.4289712	7.689825	-41.56159	-69.86777	19.8898	17.2656	992.4739	18.33125	53.48873333	-2.231816667
10/21/22 13:22:34.000	94.29865	8.394283	121.939	536.7602	595.5569	659.98	0.3243283	1679.101	0.9984773	0.4289838	7.689708	-41.55495	-69.86739	19.88934	17.27134	992.4711	18.33021	53.48873333	-2.231816667
10/21/22 13:22:36.000	94.17194	8.38284	121.7723	536.7284	595.5682	659.8265	0.3242515	1679.069	0.9984748	0.4288873	7.689274	-41.52953	-69.82587	19.90122	17.23152	992.4789	18.35768	53.48873333	-2.231816667
10/21/22 13:22:38.000	94.2702	8.393098	121.9011	537.2223	595.5807	659.9501	0.3243135	1678.974	0.9984772	0.4290108	7.689346	-41.53249	-69.81031	19.89337	17.2289	992.4168	18.3415	53.48873333	-2.231816667
10/21/22 13:22:40.000	94.3691	8.402001	122.0215	536.8157	595.6291	659.8652	0.3242714	1678.89	0.9984745	0.4289176	7.6872	-41.40722	-69.85345	19.90328	17.228	992.5066	18.37506	53.48873333	-2.231816667
10/21/22 13:22:42.000	94.38548	8.403531	122.0419	536.7864	595.6353	659.8607	0.3242691	1678.876	0.9984743	0.4289117	7.686947	-41.39236	-69.85825	19.9041	17.228	992.5149	18.37832	53.48873333	-2.231816667
10/21/22 13:22:44.000	94.42058	8.407014	122.099	536.8049	595.6368	660.0141	0.324346	1678.875	0.9984766	0.4290093	7.68599	-41.33714	-69.78331	19.89323	17.228	992.4457	18.37065	53.48873333	-2.231816667
10/21/22 13:22:46.000	94.37501	8.401894	122.0317	537.1275	595.6614	659.8683	0.3242732	1678.82	0.9984741	0.4289144	7.687189	-41.40729	-69.70055	19.89543	17.228	992.4326	18.37021	53.48873333	-2.231816667
10/21/22 13:22:48.000	94.4194	8.404107	122.0856	536.8915	595.6768	660.0511	0.3243648	1678.765	0.9984764	0.4290332	7.686318	-41.35806	-69.63934	19.89243	17.25852	992.4809	18.38695	53.48873333	-2.231816667
10/21/22 13:22:50.000	94.4228	8.404157	122.0892	536.8754	595.6796	660.0667	0.3243727	1678.756	0.9984766	0.4290434	7.686265	-41.35513	-69.6291	19.89221	17.26221	992.4866	18.389	53.48873333	-2.231816667
10/21/22 13:22:52.000	94.40326	8.402574	122.0706	537.1135	595.7075	659.8992	0.324289	1678.676	0.9984764	0.4290636	7.685044	-41.28441	-69.60761	19.90697	17.2719	992.4526	18.38982	53.48873333	-2.231816667
10/21/22 13:22:54.000	94.40767	8.404711	122.0744	538.3217	595.7228	660.0424	0.3243609	1678.633	0.9984759	0.4290425	7.685983	-41.33733	-69.55399	19.89803	17.23368	992.4594	18.39869	53.48873333	-2.231816667
10/21/22 13:22:56.000	94.40723	8.404884	122.0739	538.4718	595.7257	660.0515	0.3243655	1678.625	0.9984758	0.4290404	7.686046	-41.34077	-69.54706	19.8976	17.22956	992.4586	18.39969	53.48873333	-2.231816667
10/21/22 13:22:58.000	94.27337	8.399068	121.9017	539.5586	595.7518	659.8684	0.3242739	1678.552	0.9984725	0.4289146	7.685256	-41.29737	-69.60129	19.91279	17.23645	992.4783	18.39999	53.48873333	-2.231816667
10/21/22 13:23:00.000	94.43735	8.407842	122.1153	539.9911	595.7614	660.0685	0.3243743	1678.452	0.998472	0.4289171	7.685209	-41.29273	-69.56992	19.89922	17.22875	992.4973	18.4	53.48873333	-2.231816667

Location Properties

Rochdale Road, BH107

Report Properties

Start Time = 2022-10-21 12:40:54

Time Offset = 01:00:00

Duration = 00:02:06

Readings = 64

Instrument Properties

Device Model = Aqua TROLL 500

Device SN = 719803

Instrument Properties

Device Model = PowerPack

Device SN = 859304

	RDO Saturation (%Sat) (718446)	RDO Concentration (mg/L) (718446)	Oxygen Partial Pressure (Torr) (718446)	Turbidity (NTU) (800168)	Actual Conductivity (µS/cm) (717887)	Specific Conductivity (µS/cm) (717887)	Salinity (PSU) (717887)	Resistivity (Ω-cm) (717887)	Density (g/cm³) (717887)	Total Dissolved Solids (ppt) (717887)	pH (pH) (704219)	pH mV (mV) (704219)	ORP (mV) (704219)	Temperature (°C) (719803)	External Voltage (V) (719803)	Barometric Pressure (mbar) (859304)	Temperature (°C) (859304)	Latitude (°)	Longitude (°)	Marked
10/21/22 12:40:54.000	25.44595	2.279328	33.62519	2720.823	520.3491	579.6631	0.2836159	1922.85	0.9984951	0.3749354	6.855276	6.959796	-239.0764	19.64285	17.23105	992.9049	18.4087	#####	-2.23161	
10/21/22 12:40:56.000	26.69371	2.391097	34.72586	2688.417	516.1008	574.9068	0.28121	1937.478	0.9984937	0.3728335	6.864175	6.442402	-238.9039	19.64475	17.22915	992.9009	18.40969	#####	-2.23161	
10/21/22 12:40:58.000	32.22324	2.88576	42.05781	2622.986	517.3702	576.4294	0.2819783	1932.856	0.9984968	0.374671	6.901546	4.271696	-236.3444	19.63577	17.24488	992.9185	18.41	#####	-2.23161	
10/21/22 12:41:00.000	34.29156	3.070356	44.72272	1663.134	519.6021	578.795	0.2833249	1923.617	0.9984961	0.3764116	6.918429	3.291012	-235.1168	19.64559	17.26992	992.9283	18.41896	#####	-2.23161	
10/21/22 12:41:02.000	35.93728	3.217765	46.84354	1642.37	521.0242	580.6647	0.2841345	1919.184	0.9985012	0.3774564	6.933779	2.399221	-234.0022	19.62248	17.2798	992.955	18.42822	#####	-2.23161	
10/21/22 12:41:04.000	36.18896	3.240284	47.16786	1602.676	521.2725	580.9695	0.2842786	1918.325	0.9985017	0.3776421	6.936088	2.265082	-233.8334	19.6202	17.28188	992.9585	18.42966	#####	-2.23161	
10/21/22 12:41:06.000	38.43252	3.442337	50.0609	1314.431	524.5226	584.5046	0.2860567	1906.495	0.9985017	0.3799293	6.961999	0.7596503	-231.8636	19.62721	17.23206	992.9225	18.4207	#####	-2.23161	
10/21/22 12:41:08.000	39.41269	3.531149	51.32307	1268.932	525.5817	588.4997	0.2880728	1894.179	0.9985062	0.3825248	6.972752	0.1350329	-230.8179	19.61216	17.2772	992.9562	18.42019	#####	-2.23161	
10/21/22 12:41:10.000	40.22213	3.60388	52.3678	1394.226	533.5111	595.0963	0.291407	1873.377	0.9985096	0.3868126	6.983779	-0.5056086	-227.7837	19.60798	17.23408	992.8901	18.42854	#####	-2.23161	
10/21/22 12:41:12.000	40.34807	3.615224	52.53025	1409.077	534.4981	596.0378	0.2918827	1870.423	0.9985102	0.3874246	6.985415	-0.6006406	-227.3841	19.60684	17.23091	992.8835	18.42957	#####	-2.23161	
10/21/22 12:41:14.000	41.23338	3.697108	53.66962	1225.828	528.2566	589.377	0.2885121	1892.993	0.9985554	0.404276	6.948459	1.545946	-224.6106	19.57169	17.28635	992.8616	18.42995	#####	-2.23161	
10/21/22 12:41:16.000	41.61335	3.740875	54.16721	1383.692	555.4752	622.5463	0.3052763	1800.855	0.9985744	0.4069461	6.977036	-0.1137504	-224.755	19.36087	17.24219	992.9831	18.43879	#####	-2.23161	
10/21/22 12:41:18.000	42.56616	3.792221	55.41013	1389.246	559.1602	627.9884	0.3080209	1788.638	0.9985934	0.4090843	6.998649	-2.11202	-224.6219	19.26254	17.23149	992.9435	18.43961	#####	-2.23161	
10/21/22 12:41:20.000	42.69259	3.799738	55.57522	1396.882	560.678	629.9495	0.3090114	1783.525	0.9985963	0.4093594	7.002574	-2.43095	-224.6256	19.24267	17.2282	992.9434	18.44005	#####	-2.23161	
10/21/22 12:41:22.000	43.10174	3.887786	56.10522	1430.356	561.6299	631.43	0.3097584	1780.533	0.9986068	0.4105711	7.029485	-3.227436	-224.3738	19.21243	17.22808	992.9585	18.4582	#####	-2.23161	
10/21/22 12:41:24.000	43.36856	3.916703	56.45174	1819.136	561.3735	631.7847	0.3099323	1781.345	0.998613	0.4106755	7.039869	-3.780947	-223.9316	19.16503	17.27527	992.9241	18.45949	#####	-2.23161	
10/21/22 12:41:26.000	43.41363	3.923505	56.5102	1866.556	561.3831	631.8851	0.3099824	1781.315	0.9986141	0.4107315	7.042117	-3.872559	-223.8695	19.15842	17.28087	992.9209	18.46037	#####	-2.23161	
10/21/22 12:41:28.000	43.76765	3.957085	56.96694	1441.805	561.3237	631.9092	0.3099938	1781.503	0.9986153	0.4107405	7.060418	-4.949837	-223.0618	19.15173	17.23995	992.9477	18.46938	#####	-2.23161	
10/21/22 12:41:30.000	44.02796	3.984331	57.30727	2684.887	567.07	638.989	0.3139611	1762.97	0.9986354	0.4158402	7.067644	-5.368101	-222.6165	19.10733	17.26987	992.9582	18.46985	#####	-2.23161	
10/21/22 12:41:32.000	44.25759	4.008766	57.60715	1781.16	567.106	639.7896	0.314023	1763.285	0.9986389	0.4159227	7.074597	-5.770406	-222.1969	19.05211	17.24085	992.9421	18.47861	#####	-2.23161	
10/21/22 12:41:34.000	44.29361	4.012592	57.65422	1723.013	567.331	640.1567	0.3141826	1762.611	0.9986402	0.4161283	7.075633	-5.830327	-222.1328	19.04385	17.23871	992.9406	18.47963	#####	-2.23161	
10/21/22 12:41:36.000	44.61498	4.045099	58.07051	1632.965	563.6855	636.4637	0.3122867	1774.043	0.9986443	0.4137034	7.086949	-6.485538	-221.0762	19.01319	17.23713	992.9398	18.48921	#####	-2.23161	
10/21/22 12:41:38.000	44.75653	4.061489	58.25607	1446.912	562.1841	635.2429	0.3116563	1780.259	0.9986582	0.4129079	7.091485	-6.747454	-220.4688	18.9401	17.237	992.9664	18.49872	#####	-2.23161	
10/21/22 12:41:40.000	44.81425	4.069573	58.42946	1408.78	560.8194	634.457	0.3112549	1783.301	0.9986621	0.4123971	7.09571	-6.991627	-219.1658	18.91831	17.25992	992.9516	18.49965	#####	-2.23161	
10/21/22 12:41:42.000	44.82522	4.071034	58.45554	1397.131	560.6138	634.332	0.3111908	1783.858	0.9986631	0.4123158	7.096341	-7.028047	-218.991	18.91294	17.26266	992.9509	18.5001	#####	-2.23161	
10/21/22 12:41:44.000	44.85783	4.077894	58.40188	1095.565	559.4282	633.4363	0.3107325	1787.554	0.9986691	0.4110456	7.104275	-7.48665	-218.2299	18.88258	17.239	992.959	18.50917	#####	-2.23161	
10/21/22 12:41:46.000	44.86396	4.079108	58.40502	1113.72	557.3305	631.5719	0.3097823	1794.272	0.9986752	0.410448	7.108507	-7.731664	-217.533	18.84552	17.27716	992.9419	18.50098	#####	-2.23161	
10/21/22 12:41:48.000	44.86593	4.079515	58.40281	1103.587	557.0408	631.3196	0.3096536	1795.2	0.9986761	0.4103277	7.109313	-7.778299	-217.4244	18.83998	17.28058	992.9403	18.5004	#####	-2.23161	
10/21/22 12:41:50.000	45.01407	4.092494	58.60138	700.7668	556.0327	630.7155	0.3093419	1798.455	0.9986836	0.4099677	7.114819	-8.09533	-216.047	18.80054	17.23151	992.9584	18.51872	#####	-2.23161	
10/21/22 12:41:52.000	45.01226	4.099728	58.60033	718.7902	555.2914	630.0996	0.3090276	1802.879	0.9986912	0.4093238	7.116815	-8.210498	-215.313	18.78406	17.2695	992.9232	18.52879	#####	-2.23161	
10/21/22 12:41:54.000	45.05628	4.10609	58.65686	721.2964	553.3181	628.6971	0.3083081	1807.519	0.9986984	0.4086249	7.118601	-8.313185	-214.6048	18.72263	17.24056	992.9294	18.52106	#####	-2.23161	
10/21/22 12:41:56.000	45.06083	4.107081	58.66274	723.8738	553.0592	628.5091	0.3082117	1808.233	0.9986995	0.4085181	7.118871	-8.328731	-214.497	18.71488	17.23888	992.9287	18.52048	#####	-2.23161	
10/21/22 12:41:58.000	45.07928	4.114697	58.6921	590.3614	552.1602	627.9518	0.3079244	1811.072	0.9987057	0.4081683	7.126011	-8.74017	-213.1631	18.6808	17.23705	992.9482				

10/21/22 12:42:30.000	45.46353	4.19172	59.22513	448.4396	549.2347	631.242	0.3095141	1821.446	0.9988021	0.4103073	7.159596	-10.66698	-202.694	18.17995	17.26419	992.9524	18.58078	#####	-2.23161
10/21/22 12:42:32.000	45.54066	4.199972	59.45899	553.4005	548.7815	631.3883	0.3095829	1822.316	0.9988082	0.4104024	7.159408	-10.73014	-201.5289	18.14766	17.26434	992.9593	18.58038	#####	-2.23161
10/21/22 12:42:34.000	45.54898	4.200947	59.48589	566.7609	548.7158	631.4	0.309588	1822.486	0.9988092	0.41041	7.159372	-10.73684	-201.3683	18.14256	17.26396	992.959	18.57995	#####	-2.23161
10/21/22 12:42:36.000	45.72442	4.222012	59.57928	526.812	548.5157	631.5476	0.3096583	1823.111	0.9988145	0.4104476	7.16231	-10.82844	-200.7737	18.11632	17.27215	992.9686	18.59811	#####	-2.23161
10/21/22 12:42:38.000	45.77268	4.227047	59.63421	505.9677	548.3531	631.7645	0.3097633	1823.643	0.9988196	0.4106397	7.163082	-10.86824	-200.2378	18.08748	17.24185	992.9608	18.59939	#####	-2.23161
10/21/22 12:42:40.000	45.78483	4.228425	59.64333	501.6526	548.3281	631.7944	0.3097778	1823.726	0.9988204	0.4106627	7.163287	-10.87618	-200.1569	18.08325	17.23871	992.9603	18.60025	#####	-2.23161
10/21/22 12:42:42.000	45.95269	4.246956	59.86395	506.4315	548.0399	631.6014	0.3096783	1824.685	0.9988222	0.4105406	7.165185	-10.98566	-199.0035	18.07324	17.23719	992.941	18.6	#####	-2.23161
10/21/22 12:42:44.000	46.05032	4.257216	59.98997	498.2527	548.1866	632.2358	0.3099921	1824.633	0.9988307	0.4109533	7.167435	-11.11507	-198.3722	18.05928	17.22897	992.9668	18.6	#####	-2.23161
10/21/22 12:42:46.000	46.11357	4.26586	60.07524	481.5733	547.9397	632.2493	0.3099969	1825.073	0.9988329	0.410962	7.168757	-11.19031	-197.4293	18.02082	17.236	992.9431	18.59145	#####	-2.23161
10/21/22 12:42:48.000	46.12424	4.267215	60.08944	479.2464	547.9171	632.2765	0.3100101	1825.12	0.9988334	0.4109797	7.168995	-11.20389	-197.2969	18.01573	17.23652	992.9413	18.59043	#####	-2.23161
10/21/22 12:42:50.000	46.22895	4.278182	60.22416	463.1369	547.8751	632.3175	0.3100299	1825.237	0.9988387	0.4110992	7.176026	-11.60949	-196.7436	18.00829	17.23694	992.9583	18.6084	#####	-2.23161
10/21/22 12:42:52.000	46.32214	4.288812	60.34702	476.4387	547.4129	632.1173	0.3099244	1826.775	0.9988394	0.4108864	7.177476	-11.69239	-196.2087	17.98424	17.237	992.9504	18.60076	#####	-2.23161
10/21/22 12:42:54.000	46.4952	4.293701	60.56975	452.9886	547.2956	632.1979	0.3099625	1827.166	0.9988419	0.4109328	7.178974	-11.95524	-195.2607	17.96874	17.22943	992.9249	18.60882	#####	-2.23161
10/21/22 12:42:56.000	46.51918	4.294632	60.60073	450.7213	547.2642	632.2	0.309963	1827.271	0.9988422	0.4109298	7.179172	-11.98808	-195.1283	17.96599	17.22851	992.9213	18.60942	#####	-2.23161
10/21/22 12:42:58.000	46.58343	4.316154	60.68569	439.1039	547.2189	632.5673	0.3101439	1827.784	0.9988495	0.4111621	7.184552	-12.11588	-194.6406	17.93593	17.2281	992.8928	18.61897	#####	-2.23161
10/21/22 12:43:00.000	46.63617	4.322631	60.75287	434.3215	547.2507	632.8813	0.3102995	1827.357	0.998852	0.4113721	7.188828	-12.35121	-194.2511	17.91609	17.23582	992.9078	18.61973	#####	-2.23161



APPENDIX 10 – PID Results

<i>SITE NAME:</i>	<i>ROCHDALE ROAD, MANCHESTER</i>
<i>CLIENT:</i>	<i>WATERMAN I&E</i>
<i>JOB NO:</i>	<i>GRO-22292</i>

TP Ref.	Depth (m)	Result (ppm)
TP101	0.40	0.3000
TP101	1.00	0.3000
TP101	2.00	0.3000
TP102	0.30	0.0000
TP102	1.00	0.0000
TP102	2.00	0.0000
TP103	0.40	0.0000
TP103	1.00	0.0000
TP103	1.60	3.0000
TP104C	0.20	4.5000
TP105	0.20	0.0000
TP105	1.00	0.0000
TP106	0.40	0.0000
TP106	1.00	0.0000
TP106	1.50	22.6000
TP106	2.00	0.5000
TP106	3.00	0.0000
TP106	3.80	0.0000
TP107	0.30	0.0000
TP107	0.90	0.0000
TP107	1.00	0.0000
TP107	2.00	0.0000
TP107	3.00	0.0000
TP108	0.10	0.0000
TP108	0.40	0.0000
TP108	0.60	0.0000
TP108	1.80	0.0000
TP108	2.20	0.0000
TP108	3.00	0.0000
TP108	4.00	0.0000
TP109	0.40	0.0000
TP109	0.60	0.0000
TP109	1.00	0.0000
TP109	1.70	0.0000
TP109	2.00	0.0000

TP Ref.	Depth (m)	Result (ppm)
TP110	0.35	0.0000
TP111	0.30	0.0000
TP111	0.40	0.0000
TP111	1.00	0.0000
TP111	1.40	0.0000
TP112	0.40	0.2000
TP112	1.00	0.2000
TP112	2.00	0.5000
TP112	2.60	0.3000
TP113	0.10	0.0000
TP113	0.45	0.0000
TP113	0.70	1.0000
TP113	1.00	0.0000
TP113	2.00	0.7000
TP114	0.10	0.0000
TP114	0.45	0.4000
TP114	1.00	0.4000
TP114	2.00	0.5000
TP114	3.00	0.0000
TP115	0.30	0.0000
TP115	1.00	0.4000
TP115	1.20	0.1000
TP115	2.00	0.6000
TP115	3.00	0.0000
TP116	0.30	0.0000
TP116	0.85	0.0000
TP116	1.00	18.1000
TP116	2.00	7.2000
TP116	3.00	3.4000
TP117	1.00	0.0000
TP117	2.00	0.0000
TP118	0.20	0.0000
TP118	0.40	0.0000
TP118	0.80	0.0000
TP118	1.00	0.0000

TP Ref.	Depth (m)	Result (ppm)
TP119	0.15	0.0000
TP119	1.00	0.0000
TP119	2.00	0.0000
TP119	3.00	0.0000
TP120	0.20	5.1000
TP120	1.00	4.9000
TP120	2.00	10.6000
TP120	2.80	7.4000
TP121	0.20	22.5000
TP121	1.00	8.5000
TP121	1.60	9.4000
TP122	0.55	4.4000
TP123	0.50	11.7000

<i>SITE NAME:</i>	<i>ROCHDALE ROAD, MANCHESTER</i>
<i>CLIENT:</i>	<i>WATERMAN I&E</i>
<i>JOB NO:</i>	<i>GRO-22292</i>

BH Ref.	Depth (m)	Result (ppm)
BH101	0.20	0.2000
BH101	0.50	0.2000
BH101	2.00	0.0000
BH101	3.00	0.0000
BH101	3.10	0.0000
BH101	4.50	0.0000
BH101	5.00	0.0000
BH101	7.00	0.0000
BH101	8.00	0.0000
BH101	11.00	0.0000
BH101	13.00	0.0000
BH101	14.00	0.0000
BH101	15.50	0.2000
BH101	17.00	0.2000
BH101	19.00	0.0000
BH101	20.00	0.0000
BH101	21.50	0.0000
BH102	0-0.5	7.3000
BH102	0.50	2.2000
BH102	0.5-1.0	6.5000
BH102	1.00	1.0000
BH102	1.20	6.0000
BH102	1.80	2.5000
BH102	2.00	12.7000
BH102	2.80	1.9000
BH102	3.00	65.6000
BH102	3.80	21.4000
BH102	4.00	53.9000
BH102	4.80	17.7000
BH102	5.00	12.4000
BH102	5.80	15.5000
BH102	6.00	70.2000
BH102	7.20	8.7000
BH102	7.50	33.0000
BH102	8.80	1.1000
BH102	10.20	1.2000

BH Ref.	Depth (m)	Result (ppm)
BH103	0.40	0.1000
BH103	1.00	0.3000
BH103	2.00	0.5000
BH103	3.00	0.6000
BH103	4.00	0.9000
BH103	5.00	3.1000
BH103	6.50	180.0000
BH103	7.80	6.4000
BH103	8.00	3.2000
BH103	9.50	16.9000
BH104	0.40	11.8000
BH104	1.00	40.7000
BH104	2.00	1.4000
BH104	3.00	3.6000
BH104	4.00	21.6000
BH104	5.00	0.0000
BH105	1.00	0.0000
BH105	2.00	0.5000
BH105	3.00	1.5000
BH105	4.00	1.3000
BH105	7.00	9.8000
BH105	7.50	5.2000
BH105	8.00	22.4000
BH105	9.00	4.4000
BH105	10.00	2.1000
BH105	11.00	0.0000
BH105	12.00	0.0000
BH105	13.00	0.7000
BH105	14.00	1.3000
BH105	15.00	1.2000
BH105	16.00	4.0000
BH105	18.00	0.0000
BH105	19.50	0.0000
BH105	21.00	0.0000

BH Ref.	Depth (m)	Result (ppm)
BH106	0.50	45.5000
BH106	1.00	30.2000
BH106	2.00	6.9000
BH106	3.00	2.4000
BH106	5.00	1.2000
BH106	6.50	3.3000
BH106	7.50	3.1000
BH106	9.00	6.5000
BH106	12.00	1.0000
BH106	13.50	9.0000
BH106	15.00	4.7000
BH106	16.50	1.1000
BH106	18.00	2.2000
BH106	19.40	2.1000
BH107	1.00	51.2000
BH107	2.00	32.7000
BH107	3.00	13.5000
BH107	5.00	7.6000
BH107	6.00	2.9000
BH107	7.50	2.5000
BH107	9.00	0.7000
BH107	10.50	3.1000
BH107	11.00	0.2000
BH107	12.00	4.9000
BH107	13.50	1.3000

SITE NAME:	ROCHDALE ROAD, MANCHESTER
CLIENT:	WATERMAN I&E
JOB NO:	GRO-22292

WS Ref.	Depth (m)	Result (ppm)
WS101	0.20	0.0000
WS101	1.00	0.0000
WS101	2.00	0.1000
WS101	3.00	0.1000
WS102	0.30	4.6000
WS102	1.00	0.3000
WS102	2.00	0.1000
WS102	3.00	0.1000
WS103	0.30	0.9000
WS103	1.00	0.4000
WS103	2.00	0.7000
WS104	0.20	1.3000
WS104	0.80	3.8000
WS104	0.20	0.8000
WS104	0.80	1.2000
WS105	0.30	0.9000
WS105	1.00	2.6000
WS105	2.00	1.9000

HDP Ref.	Depth (m)	Result (ppm)
HDP101	0.10	0.0000
HDP101	0.40	0.0000
HDP101	0.80	0.0000
HDP102	0.10	0.0000
HDP102	0.30	0.0000
HDP102	0.60	0.0000
HDP103	0.40	0.0000
HDP104	0.40	0.0000
HDP105	0.10	0.0000
HDP106	0.30	0.0000



APPENDIX 11 – Foundation Pit Cross-Sections