Phase I & II Geoenvironmental Site Assessment
Cherryfield Drive

Reference:15-280-R1-2
Date: December 2022

PHASE I & II GEOENVIRONMENTAL SITE ASSESSMENT

Cherryfield Drive
Kirkby
Liverpool
L32 8RX

Prepared for:
Barratt and David Wilson Homes

Report Ref: 15-280-R1-2
Date Issued: December 2022

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QUALITY ASSURANCE

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EXECUTIVE SUMMARY

Site Address	Cherryfield Drive, Kirkby, Liverpool, L32 8RX	
Grid Reference	E 341100 N 398150	
Site Area	22.51 Ha	
Proposed Development	Barrett and David Wilson Homes intend to construct a low-rise residential development of circa 730 plots with associated gardens, estate roads and infrastructure. A final proposed layout is still pending.	
Current Site Use	The subject site is a large irregular shaped parcel of land located to the south of Cherryfield Drive in Kirkby. The southern sector of the site comprises maintained grassland with an area in the southeast of the site having recently undergone the felling of semi-mature and mature trees. The central sector of the site is currently unmaintained vacant grassland. Within the north of the site, is an area of active car park and former roadways and hardstanding associated with previous development. Knowsley community College is located in the north west of the site with a Covid-19 Walk-through Testing Centre. There is an additional area of vacant land with areas of hardstanding associated with former development, with a small building fronting Cherryfield Drive.	
Site History	Historical mapping indicates that the site was undeveloped until the 1960s, with the subsequent construction of the college campus in the north western sector and a school in the south-eastern sector. Circa 1961, historical mapping shows earthworks associated with the adjacent landfill site, by 1976 the landfill is no longer shown. Residential dwellings and retail buildings, including a fuel station and electrical substations, are shown at the northern site boundary pre-1961. Aerial imagery indicates the south-eastern sector of the site was cleared pre-2011; the hotel pre-2012; the residential housing pre-2015, the college in the north-west pre-2016; with the remainder of buildings in the north of the site demolished by pre-2019 and pre-2021. There is currently no evidence of the petrol filling station above ground however it is understood the underground storage tanks are still present. At present, the site is largely vacant, with the former roads and hardstanding at the north of the site and areas of car parking associated with thenow-demolishedd school and college. A building associated with the former college remains in the north-western sector.	
Environmental Setting	**Drift Geology**	None recorded in North-West of the site Glacial Till across majority of the site Shirley Hill Sand Formation – Northern boundary
	Bedrock Geology	Chester Sandstone Formation – SANDSTONE.
	Faults	223m South West trending NNW-SSE
	Hydrogeology	Secondary Undifferentiated Aquifer (drift) across the majority of the site with a Secondary A drift aquifer within the north and north-west of the site. Bedrock comprises a Principal Aquifer (solid). No groundwater abstractions have been identified within a 1 km radius.

Environmental Setting	**Hydrology**	The Kirkby Brook is located 52m west to the site at a lower topographical gradient.
	Flood Risk	Unaffected by flooding from rivers.
Natural Landform and Geomorphology	In areas of previous development on the site, for instance, in the north, north-west and south-west of the site, there is likely to have been some cut/fill works to provide a development platform, which may indicate the presence of Made Ground. For areas of the site that have remained undeveloped, the site topography is likely to broadly represent the natural landform. There is evidence of level changes in the 1960s in the central sector of the site from historical mapping showing changes in contours, likely attributed to the levelling of the site for use as playing fields.	
Previous Reports	A series of previous reports have been provided to E3P from the client and are summarised within section 3.5 of this report.	
Utility Locations	A full Ground Penetrating Radar (GPR) survey has not been at the site however a review of statutory utility plans has identified water, electricity, Virgin Media, gas and electrical infrastructure in the north of the site, with further infrastructure in the south-east of the site.	
Landfill Sites and Ground Gases	A historical landfill site is located adjacent to the southwestern boundary of the site which was a Pre-Control of Pollution Act 1974 landfill. Three further historical landfills have been identified between 271m and 810m of the site.	
Radon	The Envirocheck report indicates the site is situated in an area where less than 1% of homes are above the "Action Level" and that the BGS reports that full radon protective measures are not necessary in the construction of new dwellings or extensions.	
Coal Mining/Land Stability	The Envirocheck report confirms the site is in an area that may not be affected by coal mining and is not within a Coal Authority Coal Mining Reporting Area. No further works are required and the site is not at risk from coal mining.	
Hazardous Installations	No hazardous installations that could potentially prejudice the proposed construction of highly sensitive residential dwellings have been identified within influencing distance of the subject site.	

E3P GROUND INVESTIGATION

Ground Investigation Works	E3P has completed an intrusive ground investigation comprising: - 132 x mechanically excavated trial pits, - 69 x window sample boreholes, - 46 x Dynamic Cone Penetrometers, - 11 x BRE365 Soakaway Tests, - 3 x Cable Percussion Boreholes with Rotary Borehole follow on and, - Construction of environmental monitoring installations.

Ground Conditions	**Made Ground** Made Ground deposits were encountered within the majority of exploratory hole locations to depths of between 0.00m and 5.50 bgl. The depth of Made Ground was not proven in 20 locations due to either underground obstructions, the collapse of the trial pit, or the ingress of water. Made Ground deposits generally comprised reworked topsoil of dark grey slightly gravelly clayey fine to coarse SAND or gravelly sandy to very sandy CLAY with frequent rootlets with gravel of brick, mudstone, sandstone and ceramic. TP164 was overlain by asphalt and concrete associated with the former garage/petrol station, with TP168 overlain by ceramic tiles overlying concrete indicative of the former residential dwellings in this area of the site. Furthermore, WS150, TP188 and TP196 in the north-east of the site was overlain by asphalt, with WS144, WS146, WS148, TP190, TP192 and TP194 overlain by concrete with rebar. TP197 and WS147 in the north-west of the site was overlain by asphalt and concrete. Underlying the reworked topsoil or hardstanding, deeper Made Ground deposits comprised of reworked brown very sandy gravelly clays or gravelly sands. Within TP160 the exploratory hole location was dug down the side of a former foundation which showed the slab to be 1.10m thick and the foundation going down to 2.80mbgl. Made Ground deposits across the central and northern sector of the site comprised a clayey very gravelly fine to coarse ashy sand with gravel of ash, glass, ceramic, textiles, clinker, wood, timber, brick, metal, mudstone and cardboard. This material was considered to be incinerated materials utilised to create the level platform currently on site.
	DRIFT Drift deposits were encountered within the majority of exploratory locations with the exception of locations where the full depth of Made Ground could not be proven. The drift deposits are varied, generally comprising a soft to very stiff, medium to very high strength, slightly gravelly sandy brown CLAY with gravel of sandstone and mudstone or a slightly gravelly to gravelly slightly, slightly clayey to very clayey fine to medium SAND with gravel of sandstone and mudstone.
	SOLID The solid bedrock geology was first encountered between 4.70 mbgl and 6.10mbgl. and comprised of SANDSTONE. A number of window sample probeholes terminated on or within weathered sandstone bedrock which was recovered as gravelly SANDs from 1.20mbgl. to in excess of 5.45mbgl.
	GROUNDWATER Groundwater was encountered as perched water, strikes and seepages at depths of between 0.40mbgl. and 4.00mbgl. True groundwater is considered to be between 1.40m and 4.00mbgl. within the natural drift deposits.

CONTAMINATED LAND ASSESSMENT

Human Health	Elevated concentrations of heavy metals, mercury, non-volatile PAHs, naphthalene, asbestos and SVOCs have been identified within the soil analysis completed to date. Heavy metals and non-volatile PAHs are considered to pose a risk to future end-users through dermal contact and ingestion. The risk can be mitigated through the installation of a cover system within garden and landscaping areas. Mercury, naphthalene and Dibutyl phthalate have been noted to be elevated in isolated locations across the site, and present a vapour risk to future end-users. It is recommended that a hotspot removal is completed and the materials either placed in an area of low sensitivity or removed from the site. Within the soils analysis, no elevated concentrations of TPH or BTEX in the area of the former petrol filling station were identified to date. A hydrocarbon odour was identified within WS142 in this vicinity within SAND deposits underlying Made Ground. The tanks are understood to still be in-situ and the presence of contamination cannot be ruled out at this stage. Asbestos, quantified between <0.001% and 0.005% has been identified within three locations at the site. As only trace fibres have been encountered, impacted soils and Made Ground will need to be placed in accordance with the asbestos conceptual site model with a suitable cover system placed in all garden and landscaped areas to prevent exposure to future site users. A hotspot removal should be completed in areas in which asbestos quantification is greater than 0.001%.
Controlled Waters	The assessment prepared in consideration of the developed CSM has not identified any potentially complete pollutant linkage or risk to controlled waters. Elevated TPHs against EQS screening values were identified in groundwater samples from WS142 in close proximity to the former petrol filling station, however concentrations did not exceed the DWS screening value in relation to the underlying principal aquifer which is considered to be the primary receptor in this instance.
Ground Gas	Preliminary ground gas monitoring has characterised the site as CS1 with areas of Made Ground material adhering to a CS2 / Amber 1 / Amber 2 classification. It is recommended an allowance of CS2 protection measures are allowed for until the ground gas monitoring regime has been completed.
Potable Water Infrastructure	This will need to be confirmed following the completion of a UKWIR risk assessment. Post-remediation and enabling works ground conditions may be different from those identified during this site investigation however it is anticipated that barrier pipe would be required.

GEOTECHNICAL ASSESSMENT

Underground Obstructions	Significant concrete and brick obstructions have been encountered within the Made Ground, indicative of relic foundations of the area of former buildings. Historical deposited fill materials included cobbles of brick however oversized concrete or brick obstructions were not encountered. During a phase of cut-and-fill enabling works to create a developable platform, all below-ground obstructions will require grubbing out to the base of the Made Ground to enable the construction of proposed plots.
Allowable Bearing Pressure	The underlying natural clay drift deposits have been assessed as being very soft to very stiff with a net ABP in the order of 8.94 – 469.56 kN/m^2 at circa 1.00 m – 6.00 m bgl. Generally, the underlying granular strata were assessed as being loose to dense with a net ABP in the order of 42 to 434 KN/m^2 at 1.00 m – 5.00 m bgl. The underlying weathered bedrock has been assessed as having an ABP of between 185-466 kN/m^2 at a depth of 2.00-4.80 m bgl.
Foundation Options	A site-wide process of remediation and enabling works will be required, to lift, sort and process the Made Ground in order to remove unacceptable material (timber, glass, plastic wood and organic materials) and process relict obstructions within the former development areas to create a suitable redevelopment platform. Within the historical deposition areas, pockets of Made Ground which are found to contain any putrescible content which will degrade and induce consolidation and potential subsidence at the surface will be unsuitable for retention and reuse within the context of residential development and will therefore require removal as it is not possible to model or predict the potential for future consolidation, therefore such material cannot remain beneath areas of adopted highway, drives, garden or service infrastructure. It is likely that due to the gas generation potential of this material it will not be suitable beneath plots in the event a plot structure was piled. It is anticipated that on completion of the proposed site remediation comprising the lifting, sorting and processing of Made Ground, the ground will generally comprise circa 0.50 to <5.00 m of Made Ground overlying CLAY or Granular soils or weathered bedrock. Materials will subsequently be replaced and engineered to the required specification. Therefore, upon completion of these enabling works, it is likely that the most cost-effective option for the majority of the site would be a combination of shallow strip foundations, mass trench foundations and re-engineering the Made Ground using Vibro stone columns (VSCs) to support a doubly reinforced shallow strip spread foundation.

Foundation Options *Cont.*	Localised areas of the site have been noted to have soft low strength CLAYs: TP116, TP129, TP131, TP133, TP141, TP146, TP157, TP163, TP171, TP185, TP197, TP1103, TP1116, TP1123, WS103 and WS105. Where the Cu is <30 kPa, the use of VSC will not be permitted as the materials would provide limited lateral support for the construction of VSC. As such, there will be a requirement to utilise a driven piled foundation; alternatively, the materials may be removed and replaced with suitable granular fill to allow the use of VSC. Driven piled foundations may be required in areas of infilled ponds should this remain or within tree influence where VSC would not be suitable. Foundation depths should take account of the presence of existing and proposed trees, with foundations deepened locally to mitigate the potential for volumetric instability attributed to fluctuations in moisture content, in accordance with the requirements of NHBC standards.
Building Floor Slabs	Ground-bearing floor slabs are unlikely to be viable given the anticipated depths or reworked Made Ground > 600 mm and shallow cohesive soils.
Heave Precautions	The site has been noted to be underlain by low to medium volume change potential clays. A conservative approach should be followed and the site should be deemed to be of medium volume change potential therefore heave precautions are required to the internal face of the external load-bearing walls (within tree influence). Heave precautions will be required to the underside of floor slabs (where there is no 250 mm void) and pile ground beams are required within the modelled influencing distance of trees.
Soakaway Drainage	Eleven BRE365 Soakaway tests have been completed within granular and cohesive deposits across the site. The results for all soakaways indicate poor permeability as an infiltration rate could not be calculated. Infiltration drainage should not be used within areas of deep Made Ground. However, the application of soakaway drainage will ultimately be dependent on the specific requirements of the development. All soakaways should be designed in accordance with BRE Special Digest 365 – Soakaway Design.
Sulphate Assessment	Chemical analyses for pH and soluble sulphate content shows that the soils at the site generally meet Class DS-1, Aggressive Chemical Environment for Concrete Classification (ACEC) AC-1s in accordance with BRE *Special Digest 1* (2005). Elevated sulphate concentrations meeting Class DS-2, AC-1s were noted within the Made Ground deposits in TP117 at 0.70 m. Elevated sulphate concentrations meeting Class DS-3, AC-2s were noted within the Made Ground deposits in TP118 at 0.50m and TP1101 at 0.90m.
CBR Design %	Granular soils can be re-engineered to ensure 5% within the subgrade during favourable climatic conditions. Natural clay soils will provide a CBR in the order of 3–5% during drier climatic periods. However, if water is allowed to shed onto the formation, the CBR will reduce to < 2%, which will require specialist engineering of the subgrade.
Cut/Fill	Development levels are unknown at this time; however, significant cut-and-fill works will be required to prepare the development platform. The historically deposited ash deposits have undergone PSD analysis and are summarised within Section 8.12. Made Ground will require processing to ensure suitability as backfill to be complaint with a geotechnical design standard.

Civil Engineering Excavations	The E3P Intrusive Ground Investigation identified high water ingress during the excavation of exploratory hole locations. Minor water ingress will require localised dewatering/sump pumping during the construction of site drainage infrastructure. Ingress of water into foundation excavation will potentially flood foundation excavations, limiting the viability of spread foundations to be constructed.
Waste Characterisation	Any material that is to be disposed of off-site should undergo assessment using Technical Guidance WM3: *Waste Classification – Guidance on the classification and assessment of waste*.

RECOMMENDATIONS

Based on the findings of the Geoenvironmental site assessment, the following additional works are recommended to be completed in due course:

- Supplementary ground investigation within area inaccessible at time of site investigation;
- Further investigation and validation of tanks associated with former petrol filling station;
- Post demolition sampling for PCBs in the vicinity of the former substations;
- Plot-specific foundation schedule (upon receipt of the final development levels);
- Arboriculture survey;
- CL:AIRE DoW CoP Materials management plan;
- Pre-commencement geotechnical materials testing to confirm earthworks design;
- Geotechnical earthworks strategy (infrastructure);
- Remediation and enabling works strategy;
- Full three-dimensional earthworks cut/fill model;
- Settlement Analysis for earthworks design; and,
- Build Phase Mitigation Plan and design of specialist ground gas mitigation measures.

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DRAWING LIST

15-280-001 - Site Location Plan
15-280-002 - Proposed Development Plan
15-280-003 - Historical Features Plan
15-280-004 - Site Features Plan
15-280-005 - Exploratory Hole Location Plan
15-280-006 - Depth of Made Ground Plan
15-280-007 - Depth to Natural Topsoil Plan
15-280-008 – Depth to Founding Plan
15-280-009 – Concept Foundation Zoning Plan
15-280-010 – Conceptual Site Model
15-280-025 – Depth and Thickness of Historical Deposited Materials
15-250-031 – Petrol Filling Station Location Plan

1. INTRODUCTION

1.1. BACKGROUND

E3P has been commissioned by Barrett and David Wilson Homes to undertake a detailed Phase I and II Geoenvironmental Site Assessment for a parcel of land to the south of Cherryfield Drive, Kirkby.

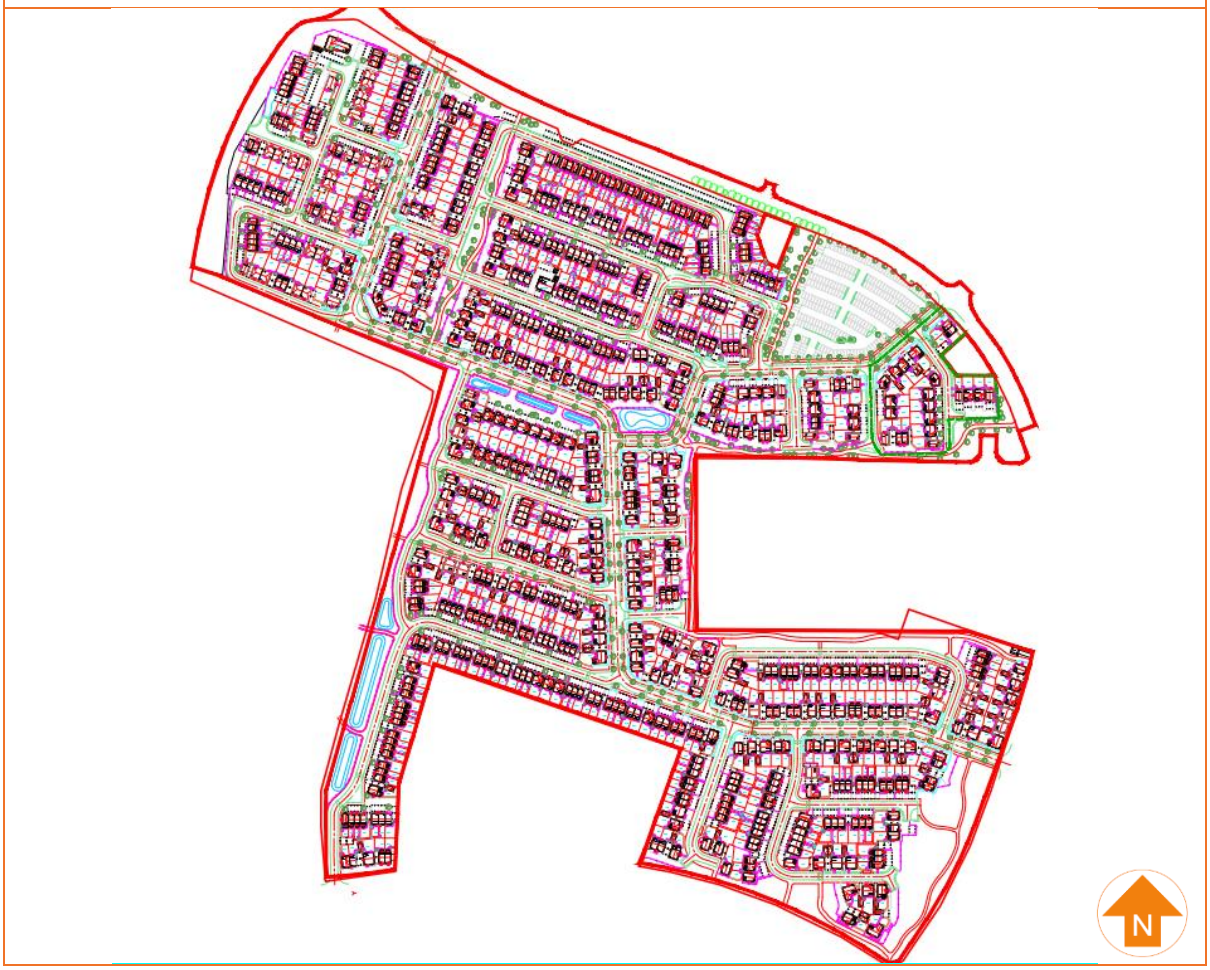
This report is required to determine potential contaminated land liabilities, remediation requirements and geotechnical engineering works that will be required as part of the proposed development for a proposed low-rise residential development.

1.2. PROPOSED DEVELOPMENT

Barrett and David Wilson Homes intend to construct a low-rise residential development of circa 730 plots with associated gardens, estate roads and infrastructure. A final proposed layout is still pending however Drawing 15-280-002 (Appendix III) identifies the current indicative proposed development layout.

A snapshot of the proposed development layout is indicated in Figure 1.1.

FIGURE 1.1 SNAPSHOT OF THE PROPOSED DEVELOPMENT



1.3. OBJECTIVES

The objectives of the geoenvironmental assessment are as follows:

- Review historical plans, geology, hydrogeology, site sensitivity, floodplain issues, mining records and any local authority information available in order to complete a desk study in line with Environment Agency (EA) document *Land Contamination:Risk Management (LCRM) (2019)*.
- Undertake sampling and analysis to provide an overview of environmental issues identified.
- Assess the implications of any potential environmental risks, liabilities and development constraints associated with the site in relation to the future use of the site and in relation to off-site receptors.
- Assess the geotechnical information and provide preliminary recommendations in relation to foundations, pavement construction and floor slabs.
- Provide recommendations regarding future works required.

1.4. SCOPE OF WORKS

The scope of work includes the following elements:

- Desk Study
- Design of suitable intrusive ground investigation;
- Window sample probeholes with, and construction of, environmental monitoring installations;
- Deep cable percussive boreholes with rotary follow on with groundwater monitoring installations;
- BRE365 Soakaway Testing;
- Mechanically excavated trial pits;
- In-situ geotechnical testing;
- Chemical and geotechnical laboratory analysis;
- Groundwater monitoring and sampling;
- Ground gas monitoring;
- Contamination risk assessment and conceptual site model;
- Geotechnical assessment and interpretation; and
- Factual and interpretive reporting.

1.5. LIMITATIONS

The limitations of this report are presented in Appendix I.

Access was not available within the car park in the north of the site, or in the north-west of the site in the vicinity of the college and Covid-19 Testing centre due to their active nature. Areas of the northern sector of the site were limited in terms of access due to a high volume of services.

Investigation of the Electricity Substation on the northern boundary was not possible due to the live nature of infrastructure in this area.

1.6. CONFIDENTIALITY

E3P has prepared this report solely for the use of the client and those parties with whom a warranty agreement has been executed, or with whom an assignment has been agreed. Should any third party wish to use or rely upon the contents of the report, written approval must be sought from E3P; a charge may be levied against such approval.

2. SITE SETTING

2.1. SITE DETAILS

Site Address	Cherryfield Drive, Kirkby, Liverpool, L32 8RX
National Grid Reference	E 341100 N 398150
Site Area	22.51 Ha

All acronyms used within this report are defined in the Glossary presented in Appendix II.

A site location map is presented in Appendix III as Drawing 15-280-001.

2.2. CURRENT SITE USE

E3P has undertaken a site walkover of the entire site and a description of the key findings is summarised in Table 2.1.

TABLE 2.1 SITE DESCRIPTION

Occupancy/Use	The subject site is an irregularly shaped parcel of land located to the south of Cherryfield Drive in Kirkby. The southern sector of the site comprises maintained grassland with an area in the south east of the site having recently undergone the felling of semi-mature and mature trees. The central sector of the site is currently unmaintained vacant grassland. Within the north of the site, is an area of active car park and former roadways and hardstanding associated with former development. Within the north-west of the site is Knowsley community College and a Covid-19 Walk-through Testing Centre. There is an additional area of vacant land with areas of hardstanding associated with former development, with a small building against Cherryfield Drive.	
Surface Cover (%)	**Buildings**	5%
	Hardstand	15%
	Soft Cover	80%
Structures	The site is predominantly vacant land with the only structures present in the north of the site associated with the community college and an unused entrance building associated with former development in the north-west of the site. A temporary structure associated with the Covid-19 walk-through testing site is also present in the northwest of the site. Two former gas pressure governors are present in the south-east of the site, with an additional electricity substation present in the northern sector of the site and a secondary substation on the northern boundary.	
Access	Pedestrian and vehicular access to the site can be gained via a locked gated entrance of Cherryfield Drive on the northern boundary of the site. Additional separate entrances are present to the north-western corner of the site and the north-eastern sector of the site off Cherryfield Drive. The car park is also accessed off Cherryfield Drive.	

Access ***Cont.***	Pedestrian access can also be gained in the south of the site via an entrance off Bewley Drive. There is a locked gated entrance off Bewley Drive also however bollards are currently present preventing vehicular access.
Slope	The site is largely topographically level however the slope generally falls from north to south with a gentle slope from the hardstanding area in the north to the overgrown field directly to the south. A slope is present along a tree line in the central area of the site. The college and Covid-19 Test Centre is at a higher elevation to Cherryfield Drive and Valley Road to the west.
Retaining Structures	There are no retaining structures present on site.
Vegetation/Ecology	The southern sector of the site comprises maintained grassland, with the exception of the south-eastern sector of the site which comprises scrub vegetation where trees have recently been felled. The northern central sector of the site comprises unmaintained grassland. Dense mature trees are present in the north-east of the site, with sporadic young trees present throughout the site. Brambles and semi-mature trees are present along the boundary of the hardstanding area in the north and the unmaintained grassland. Mature trees are present along the western boundary and in the north-west of the site. A habitat survey will be required to support the planning application.
Hazardous Material Storage	Underground infilled petrol and diesel storage tanks are present on site associated with a former fuel station in the northern sector of the site. Previous site investigations indicate there are seven tanks present, where one is filled with concrete and the remainder filled with foam. However, during the walkover four fuel storage tanks and two vapour isolation tanks were identified.
Asbestos-Containing Material (ACM)	Due to the age of the former buildings in the north and south-east of the site, it is likely that ACM is present within any Made Ground present. A pre-demolition asbestos survey will be required within all existing buildings within the site boundary.
Polychlorinated Biphenyls (PCBs)	Two electrical substations are present in the northern sector of the site and given their age PCBs may be present.
Waste Storage	Potentially hazardous waste streams are unlikely to be generated at the site and none were observed during the preliminary site inspection.
Drainage	A formal drainage survey has not been completed; however, a review of online records held by United Utilities indicates live distribution mains in the north of the site and runs along the entire perimeter of the site. Foul and surface water sewers are present in the north of the site and run along the northern, eastern and southern boundaries of the site.

2.3. SURROUNDING AREA

The surrounding area land uses are summarised in Table 2.2.

TABLE 2.2 SURROUNDING LAND USES

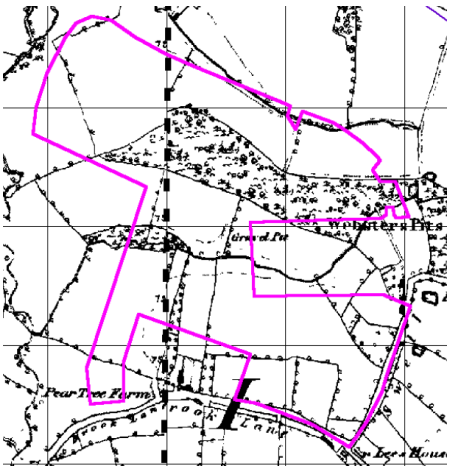
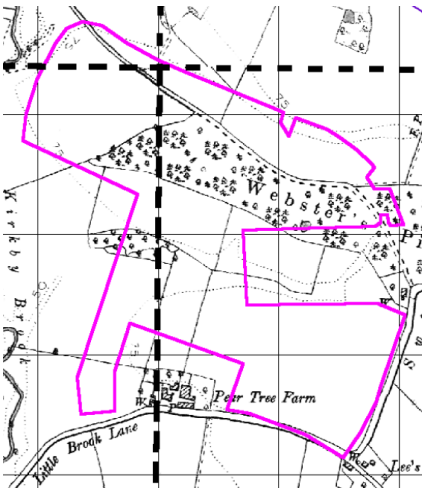
DIRECTION	LAND USE
North	Kirkby Bus Station, Kirkby Shopping Centre
East	Kirkby Leisure Centre, residential dwellings
South	Residential units, St Joseph The Worker Roman Catholic School
West	Public Open Space, Kirkby Brook, residential dwellings

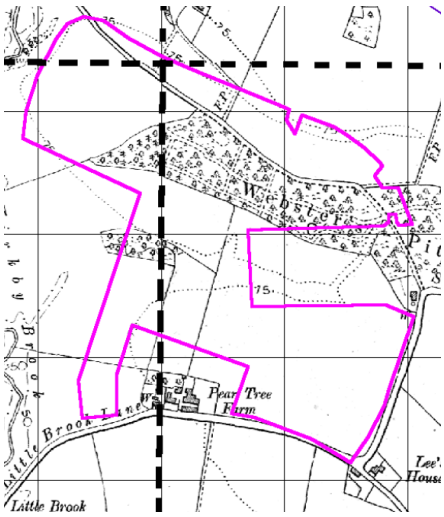
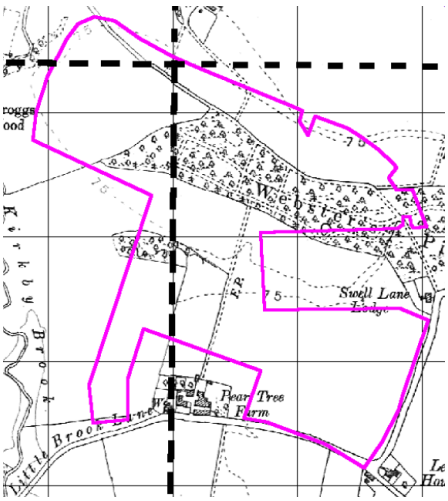
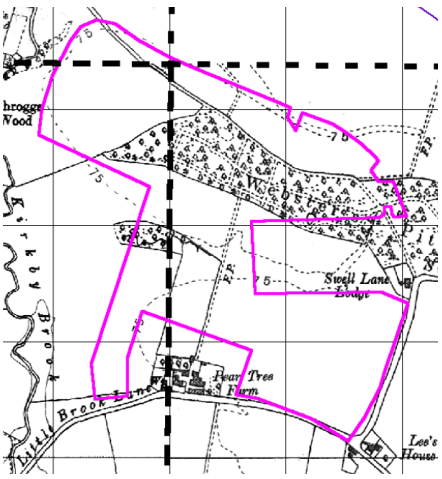
3. SITE HISTORY

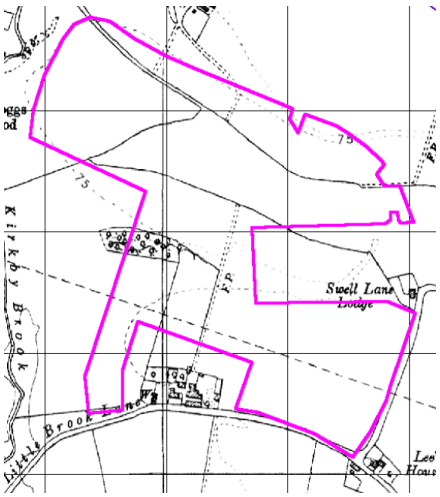
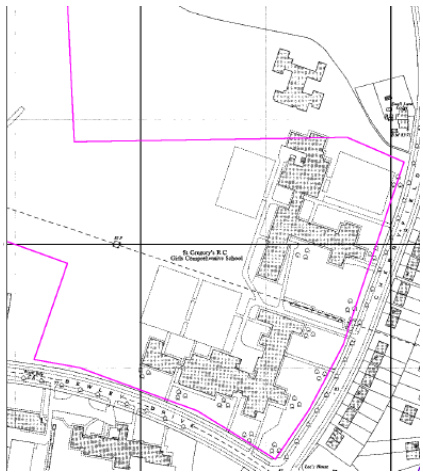
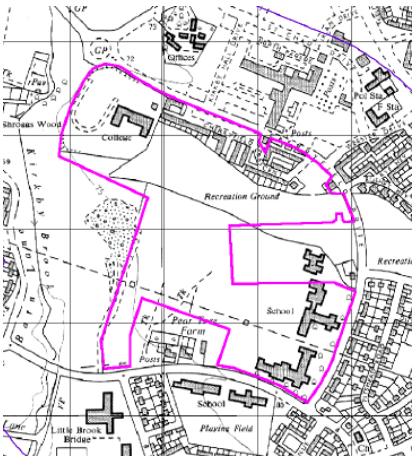
3.1. ON-SITE HISTORICAL DEVELOPMENT

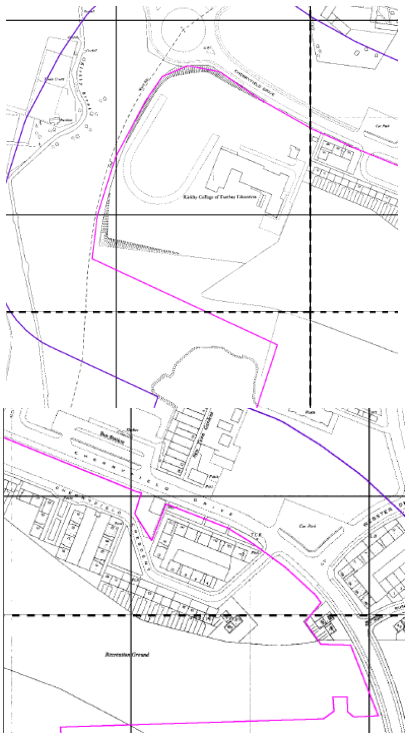
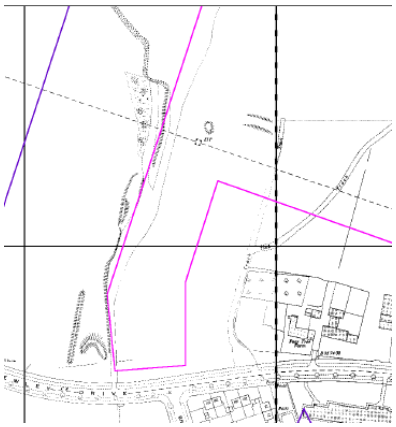
A review of historical mapping and historical aerial imagery pertinent to the site is summarised in Table 3.1. In addition, historical site features are presented on Drawing No 15-280-003 in Appendix III.

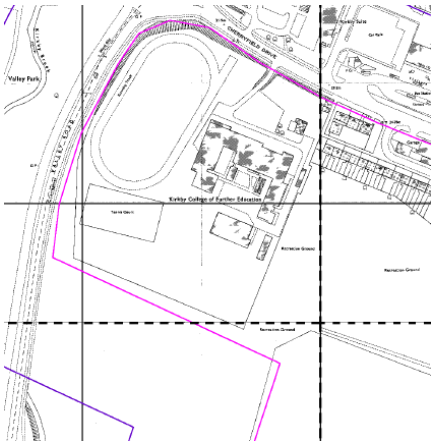
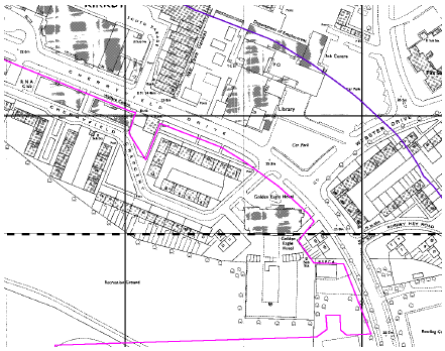
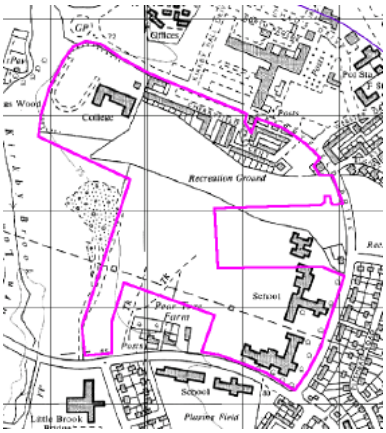
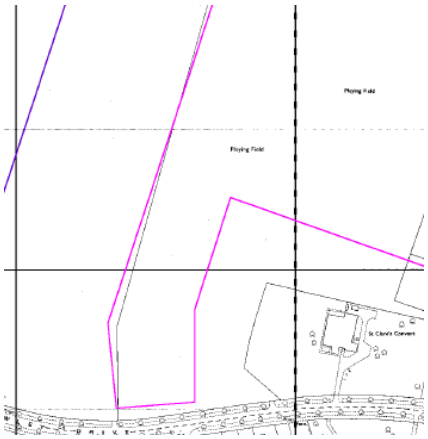
TABLE 3.1 HISTORICAL DEVELOPMENT

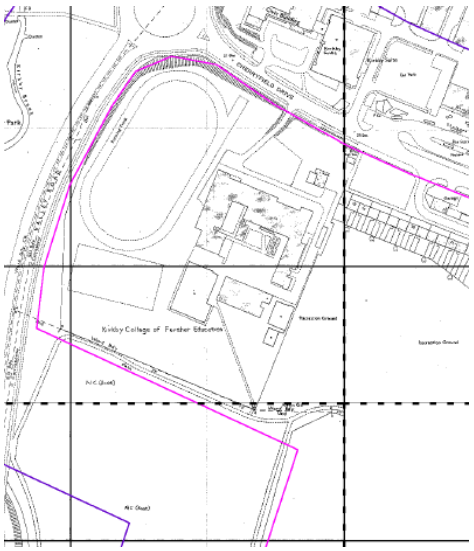
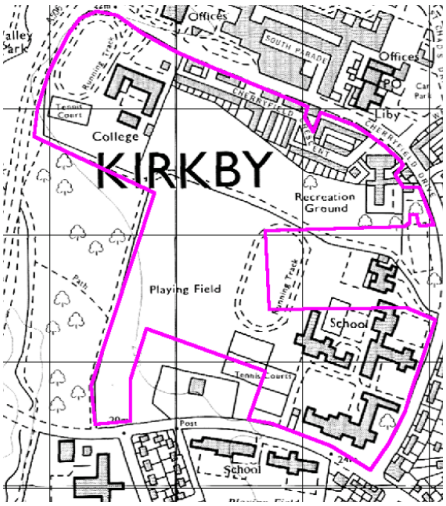
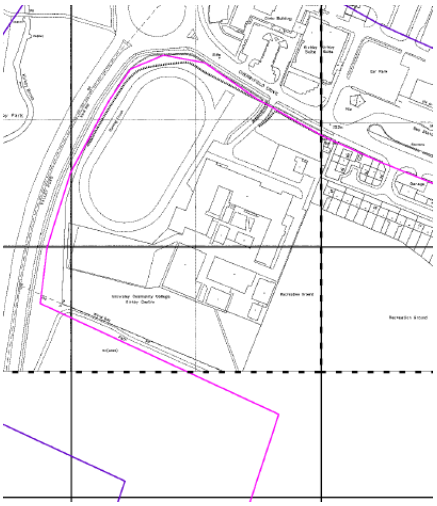
MAP EDITION	HISTORICAL LAND USE	HISTORICAL MAP EXCERPT
1850 **1:10,000**	The site is predominantly undeveloped agricultural land with numerous field boundaries. The Webster Pits are located in the northern sector of the site which are as woodland comprising of non-coniferous and coniferous trees. A Gravel Pit is marked in the centre of the site.	
1894 **1:10,000**	A track is marked entering the site from the northwest corner and runs east along the north of the Webster Pits. A pond is recorded in the northeast of the site within the Webster Pits. Woodland in the centre of the site is no longer recorded with numerous field boundaries also no longer recorded. A stream crosses the centre of the site from east to west. Contour lines are noted across the site.	

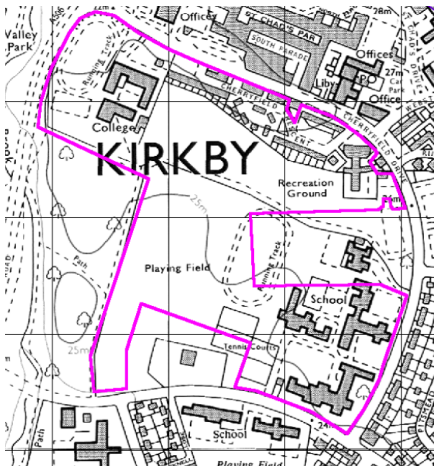
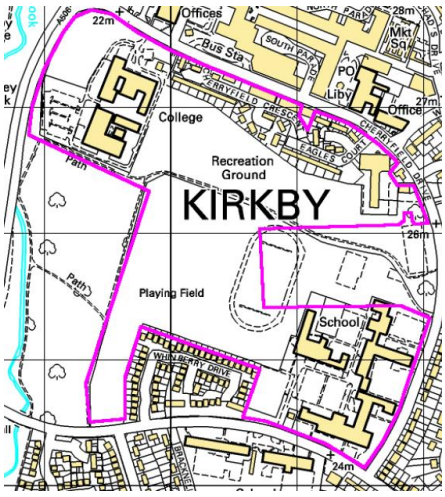
MAP EDITION	HISTORICAL LAND USE	HISTORICAL MAP EXCERPT
1909 **1:10,000**	A footpath is recorded entering the site on the northern boundary and runs south to the Webster Pits. Numerous footpaths are recorded within the Webster Pits.	
1928 **1:10,000**	A footpath is recorded running north-south through the centre of the site. No other significant changes are recorded.	
1938 **1:10,000**	No significant changes are recorded.	

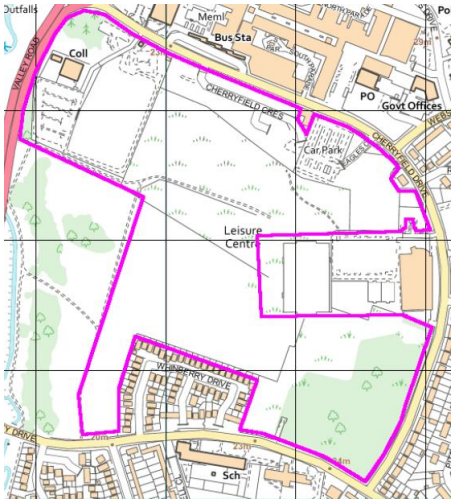
MAP EDITION	HISTORICAL LAND USE	HISTORICAL MAP EXCERPT
1956 **1:10,000**	The Webster Pits and associated woodland, pond and footpaths are no longer recorded.	
1961 **1:2,500** **(South-East)**	St Gregory's R C Girls Comprehensive School is present in the south-east of the site comprising two large building and associated hardstanding.	
1966-1967 **1:10,000**	Contour lines indicating low areas of the site are no longer marked suggesting infilling of the site in the central sector.	

MAP EDITION	HISTORICAL LAND USE	HISTORICAL MAP EXCERPT
1961-1962 **1:1,250**	Kirkby college of Further Education is present in the north-west of the site, with associated running track and hardstanding, along with an embankment. Levels have been inferred to have been raised to create the college plateau. Housing is present along the northern boundary of the site. The former site of the Webster Pits is now marked as a recreation ground.	
1961 **1:1,250**	Tracks are present in the south-west of the site along with some areas of embankments and a potential pond.	

MAP EDITION	HISTORICAL LAND USE	HISTORICAL MAP EXCERPT
1966-1967 **1:1,250**	Kirkby college has extended with further buildings present along with a tennis green. Three electrical substations are located in the northwest and northeast of the site. A garage is recorded in the northwest of the site. The Golden Eagle Hotel is present in the north-east of the site. A Garage / Petrol Filling Station has been built.	 
1966-1967 **1:10,000**	The south-western boundary of the site borders a refuse tip.	
1967-1975 **1:1,250**	Embankments in the south-west of the site are no longer present and the area is now marked as playing fields.	

MAP EDITION	HISTORICAL LAND USE	HISTORICAL MAP EXCERPT
1971-1989 **1:1,250**	An additional building is now present in the north-west of the site associated with the Kirkby College of Further Education.	
1974-1978 **1:10,000**	A playing field and running track are recorded in the centre of the site. Another building associated with the comprehensive school is located in the sout-east of the site.	
1987-1991 **1:1,250**	Further buildings have been constructed in the north-west of the site associated with the college.	

MAP EDITION	HISTORICAL LAND USE	HISTORICAL MAP EXCERPT
1990 **1:10,000**	Expansion of buildings associated with college in north-west of the site is recorded. No other significant changes are recorded.	
2001 **Historical Aerial Photography**	The running track in the north-west of the site is no longer present. A further building is present to the south of the college buildings with an area of car parking now present to the west of the college buildings.	
2006 **1:10,000**	No significant changes to the site.	

MAP EDITION	HISTORICAL LAND USE	HISTORICAL MAP EXCERPT
2021 1:10,000	Residential units in the north of the site are no longer recorded. The garage in the north of the site is no longer recorded. The college in the northwest has been demolished with now only a single building recorded associated with the college. The Golden Eagle Hotel no longer recorded. The comprehensive school and associated playing fields are no longer recorded and is marked as non-coniferous woodland in the south-east of the site. The recreation ground is no longer recorded and is marked as rough grassland. Aerial imagery indicates the south-eastern sector of the site was cleared pre-2011; the hotel pre 2012; the residential housing pre-2015, the college in the north-west pre-2016; with remainder of buildings in the north of the site demolished by pre-2019 and pre-2021. The Petrol filling station is understood to have been demolished pre-2012	

3.2. OFF-SITE HISTORICAL DEVELOPMENT

A review of potentially contaminative uses identified on historical Ordnance Survey maps within a 250 m radius of the site is summarised in Table 3.2.

TABLE 3.2 SURROUNDING HISTORICAL DEVELOPMENT

SURROUNDING FEATURE	DISTANCE	DATES	DIRECTION
Gravel Pit Historical landfill / Refuse Tip Then: no longer marked	0-100 m	Pre 1961 – Pre 1966 Pre 1966–Pre 1978 Pre 1978–Present	West
Bus Station	20 m	Pre 1961 - Present	North
Ponds (x4)	15-44 m	Pre 1850 – Pre 1894 Pre 1894 - Present	East
Pond Then: no longer marked	42 m	Pre 1908 – Pre 1937 Pre 1937 - Present	North
Electricity substations (x7)	56-202 m	Pre 1973/1977 - Present	North/ North East
Chimney Then: no longer marked	75 m	Pre 1975 – Pre 1993 Pre 1993 - Present	East
Electricity Substation	120 m	Pre 1975 - Present	South East
Electricity Substation	170 m	Pre 1971 - Present	North
Electricity Substation	170 m	Pre 1971 - Present	West

SURROUNDING FEATURE	DISTANCE	DATES	DIRECTION
Pond Then: no longer marked	175 m	Pre 1894–Pre 1928 Pre 1928–Present	North

3.3. PLANNING HISTORY

E3P has undertaken a review of online planning records held by Knowsley Council which has identified several planning applications for the subject site, including, the demolition of buildings on the site; installation of sprinkler tank and pump housing; construction of a mixed use development including petrol filling station, car parking, landscaping, highway improvements and other associated works (including 3 no. Electricity substations) and the construction of a car park; construction of a mixed use development for a new stadium including retail, superstore, food and drink uses, hotel, offices and commercial units; proposal for a new leisure centre with associated external facilities; erection of learning centre; erection of skills and enterprise centre and additional college buildings; and extension of college buildings.

3.4. ANECDOTAL INFORMATION

A web-based search of the subject site has recovered the following photographs, courtesy of Historic England.

September 1954



Aerial imagery from September 1954 of the southern sector of the site shows the site to comprise of agricultural land with woodland in the north of the site which have been interpreted to be the Webster Pits.

May 1959



Aerial imagery from May 1959 has identified the school in the south-east of the site, along with housing in the north of the site. works appear to be starting in relation to the college in the north-west of the site.

June 1962



Aerial imagery from Junne 1962 shows the school in the south-east of the site, along with housing in the north and college in the north-west. The former gravel pit can be seen to the south-west of the site.

July 1964	
Aerial imagery looking from the south-west of the site eastwards, shows the gravel pit in the foreground, with the school in the south-east of the site and residential buildings in the north of the site.	

3.5. PREVIOUS REPORTS

E3P have been provided with previous reports prepared for the site: Clancy Consulting - Ref: 10/1533/001, Clancy Consulting – Ref: 10/1519/001, Resource & Environmental Consultants Ltd – Ref: 45759Fp1r0, ALM Consult Limited – Ref: 30090/11, ALM Consult Limited – Ref: 30090/11/2, ESG – Ref: F5013-15, Ian Farmer Associates – Ref: 41989, RPS – No reference provided, Atkins – Ref: 5145660, and Baro Happold Drawings).

A summary of the previous reports is provided below:

- Historical mapping indicates that the site was undeveloped until the 1960s, with the development of a college in the north western sector and a school in the south eastern sector. Circa 1961, historical mapping shows earthworks associated with the adjacent landfill site, by 1976 the landfill is no longer shown. By circa 2014 the school and college had been demolished.

  Residential dwellings and retail buildings, including a fuel station and electrical substations, are shown at the northern site boundary pre-1961, these buildings were demolished circa 2014, with the exception of a bank and the substations. The Petrol filling station is understood to have been demolished pre-2012.

  The site at present is largely vacant, with the former roads and hardstanding at the north of the site and areas of car parking associated with the former school and college. A building associated with eh former college remains in the western sector.

- The EA records an area of historical landfill located to the west sector of the site (south of the former college). The landfill was active from 1956 to 1974 and received domestic waste.

- The BGS indicates that the superficial deposits are predominantly glacial till (clay, sands and gravels), Shirdley Hill Sand Formation underlies the northern boundary. No drift is recorded in

the north western corner of the site. The solid bedrock geology comprises the Chester Formation (sandstone) beneath the entire site.

- The underlying drift geology is classified as a Secondary Undifferentiated Aquifer (Glacial Till) underlain by a Principal Aquifer in the solid geology. The site is also located with a Source Protection Zone. Kirkby Brook is adjacent to the western site boundary.

- Zetica lists the site as being at low risk from belligerent World War 2 UXOs.

- The Coal Authority does not list the site being located within a coal mining development high risk area.

- A previous phase of intrusive investigation undertaken by Clancy within the former college area, Made Ground was encountered to a maximum depth of 3.50m bgl and bedrock east encountered from 1.40m to 3.50m bgl. Elevated heavy metals, PAHs and TPHs were recorded in the chemical analysis and are associated with the on site Made Ground deposits.

- Ground gas protection measures for the former college area were recommended to be CS2.

- For proposed residential dwellings in the area of the former college it was recommended to utilise strip and mass trench fil foundations, although it is considered that engineered foundations may be required where deeper Made Ground associated with the historical landfill was encountered.

- Clancy also undertook a ground investigation within the norther sector (former houses and retail land use) where made ground associated with the former development was encountered, overlying the glacial till deposits.

- Chemical analysis identified no concentrations of PCBs near the electrical substation; no exceedances of any TPHs were recorded in the former fuel station. Elevated concentrations of heavy metals and PAHs were recorded in the Made Ground.

- Ground gas monitoring suggested that the northern sector can be classified as CS1.

- Shallow strip and mass trench foundations have been recommended but again where deeper Made Ground in excess of 2.50m bgl is encountered, an engineered foundation solution may be required.

- REC prepared a desk based assessment of the former school and list the historical landfill as a potential source of ground gases and contamination, with the fill material posing potential geotechnical risks to the proposed development.

- ALM were commissioned by Knowsley Metropolitan Borough Council to prepare an interpretative report for the southern part of the subject site utilising works previously completed by REC and ESG. The pertinent points are summarised below:

    - Made Ground was identified across the site typically <1.00m, with deposits in excess of 3m in the north of the site within an east to west valley feature thought to be related to a former surface water course. Made Ground in the east of the site in the area of former school buildings were variable and circa 1.00-2.80m in depth. Buried foundations were identified in the east of the site in the vicinity of the former school.

    - The site is underlain with firm to stiff glacial boulder clay locally overlain or underlain with medium dense to dense sands; locally very loose sand deposits have been identified.

    - Weathered sandstone was encountered as a dense to very dense sand at depths of between 1.90m and 3.50mbgl.

- Reworked topsoil had not been analysed. ALM assumed it to be suitable for reuse however E3P recommend chemical analysis is completed to confirm this given the reworked nature of the deposits.

- Made Ground materials identified localised exceedances of heavy metals and PAHs.

- Asbestos impacted soils (loose fibres) have been identified extensively across the east and south west of the site.

- The site has been provisionally noted to be classified as Green/CS1 however limited monitoring has been completed and the presence of a former domestic waste landfill site is noted as a possible ground gas risk.

- The Atkins report covers the subject site along with the town centre of Kirkby to the north of the site. Additionally, the report includes previous reports completed by WSP, Arcadis and Buro Happold. Historical site investigations identified elevated xylene, benzene, MTBE and TPH concentrations in groundwater in the vicinity of the former petrol station in the north of the site along with hydrocarbon odours and staining. Cresols were identified in Made Ground deposits in the Buro Happold investigation with elevated SVOC and VOC concentrations within leachate analysis. The Buro Happold report and investigation highlighted the presence of landfill materials across the subject site. The Buro Happold investigation included works within the mapped landfill which identified two types of wastes comprising of natural arisings and construction and demolition wastes from the construction of the Mersey Tunnel along with 1960s municipal wastes including but not limited to paper, plastic, wood, ceramic, asbestos. The WSP report also indicates the landfill spans a larger area than that mapped within the Envirocheck report. Landfill materials were identified when the leisure centre to the east of the site and the residential dwellings at Whinberry Drive were constructed and it is understood the residential dwellings have gas membranes installed.

- The Atkins report has included information in relation to the underground fuel tanks associated with the former garage in the north of the site and correspondence with the petroleum officer, which indicated the presence of seven diesel and petrol underground storage tanks where one tank has been filled with concrete with all others infilled with RG22 hard foam. It is understood the tanks are still in-situ.

- The RPS report was prepared for St Modwen Developments Ltd and St Modwen Homes and a proposed residential development in the south-east of the site. The report was a Due Diligence report where Atkins were appointed to complete an intrusive investigation; Ian Farmer Associates completed the ground investigation works and a factual report has been provided by them, however the exploratory hole location plan is not detailed on a base plan so the locations are open to interpretation.

4. ENVIRONMENTAL SETTING

4.1. GEOLOGY AND HYDROGEOLOGY

The British Geological Survey (BGS) map (Sheet 84) for the site, (1:50,000, Solid and Drift editions) and online records indicate the site is underlain by the geological sequence presented in Table 4.1.

TABLE 4.1 SUMMARY OF UNDERLYING GEOLOGY

GEOLOGICAL UNIT	CLASSIFICATION	DESCRIPTION	AQUIFER CLASSIFICATION
Drift – North-west	None Recorded	N/A	Secondary A Aquifer
Drift – Northern Boundary	Shirley Hill Sand Formation	SAND	
Drift – Majority of Site	Glacial Till	Diamicton	Secondary Undifferentiated Aquifer
Solid	Chester Sandstone Formation	Sandstone	Principal Aquifer

TABLE 4.2 SUMMARY OF BGS BOREHOLE RECORDS

LOCATION	DEPTH	MADE GROUND	DRIFT	SOLID
20 m N (SJ49NW30)	4.00 m	0.00-1.30 mbgl	SAND 1.30-2.30 mbgl	SANDSTONE 2.30-4.00 mbgl
236 m W (SJ49NW962)	15.00 m	N/A	SAND and CLAY 0.10-1.70 mbgl	Weathered Red SANDSTONE 1.70 – 15.00 mbgl

TABLE 4.3 FAULTING

LOCATION	DESCRIPTION
223 m SW	Running NNW-SSE. Downthrow on the north-eastern side.

The Envirocheck report indicates that the site is located within a Groundwater Source Protection Zone 3 – Total Catchment. There are no groundwater/potable abstractions within 1 km of the site.

4.2. NATURAL LANDFORM AND GEOMORPHOLOGY

Based on the initial geological assessment, a review of available topographic data and pertinent mapping, E3P has undertaken a preliminary geomorphological assessment of the landform and its possible mechanism for formation.

The subject site is predominately underlain by glacial till – these are deposits laid down by the deposition of melting ice shelf in the most recent glaciation. The underlying rock formations are associated with the Chester Sandstone Formation.

In areas of previous development on the site, for instance in the north, north-west and south-west of the site, there is likely to have been some cut/fill works to provide a development platform, which may indicate the presence of Made Ground. For areas of the site that have remained undeveloped, the site topography is likely to broadly represent the natural landform.

From a review of historical site investigations at the subject site, there appears to have been infilling and historical deposition across the site. Additionally, areas of embankments have been identified on site, which would have been filled or levelled to produce the level plateau on site. Additionally, some of the level plateau of the playing fields may be attributed to historical excavation and subsequent infilling.

There is evidence of level changes in the 1960s in the central sector of the site from historical mapping showing changes in contours and demarks a depression where the deeper Made Ground is located. This area was filled in the 1950s and early 1960s, likely attributed to the levelling of the site for use as playing fields.

Figure 4.1 -4.2 shows the site with contours marked in 1938 and then the contours no longer marked in 1966-1967 mapping.

FIGURE 4.1 HISTORIC MAPPING DATED 1938

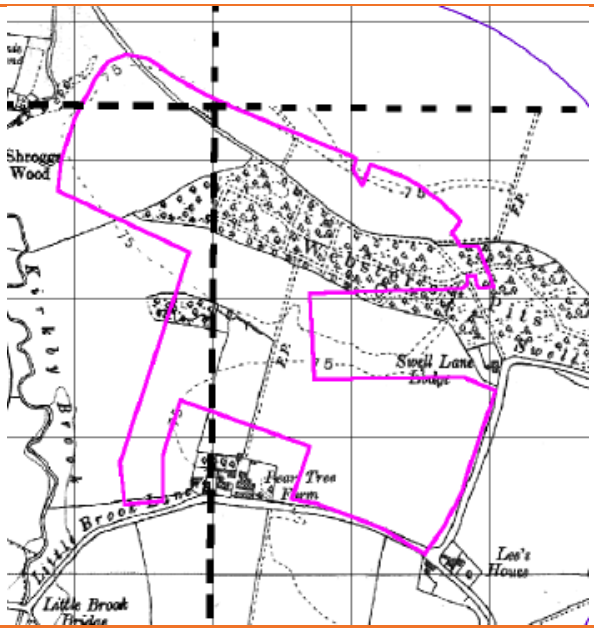


FIGURE 4.2 HISTORIC MAPPING DATES 1966-1967

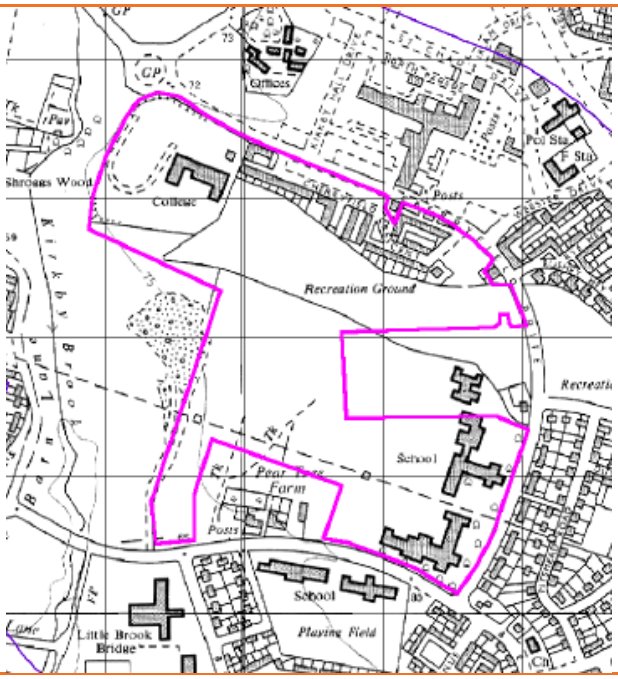


FIGURE 4.3 SURFACE LIDAR DATA OF THE SITE AND SURROUNDING AREA



4.3. GEOTECHNICAL DATA

Geotechnical data presented within a commercially available environmental database is summarised in Table 4.4.

TABLE 4.4 SUMMARY OF GEOTECHNICAL DATA

HAZARD	DESIGNATION
Shrink-Swell Clay	No hazard to very low risk
Landslides	Very low risk
Ground Dissolution	No hazard
Compressible Ground	No hazard
Collapsible Deposits	Very low risk
Running Sand	Very low to low risk

4.4. COAL MINING

The Envirocheck report confirms the site is in an area that may not be affected by coal mining and is not within a Coal Authority Coal Mining Reporting Area. No further works are required and the site is not at risk from coal mining.

4.5. RADON RISK POTENTIAL

The Envirocheck report indicates the site is situated in an area where less than 1% of homes are above the “Action Level” and that the BGS reports that full radon protective measures are not necessary in the construction of new dwellings or extensions.

4.6. PRELIMINARY GEOTECHNICAL ASSESSMENT

Based on the desk-study information, the following geotechnical assessment has been made:

- In areas where the site has been previously developed, it is likely there will be Made Ground fill deposits and obstructions. Existing buildings will require demolition, with all relict foundations grubbing out, prior to the construction of the proposed development.
- Historically infilled ponds present within the site boundary, are a potential source of alluvial deposits, silts and possible organic peat deposits in addition to potential depths of Made Ground. Investigation will be required in order to assess these and undertake in-situ geotechnical testing to determine the likely foundation solution for plots in these areas.
- There is considered to have been former cut and fill works across the site to provide a level development platform. In addition to the potential for historical to have expanded from the mapped gravel pit/landfill located to the west of the site into the subject site. Ground investigation will be required to assess the materials and understand the extent of infill deposits.
- There is the potential for relatively shallow bedrock to be present underlying the subject site which may impede drainage excavations.

4.7. HYDROLOGY

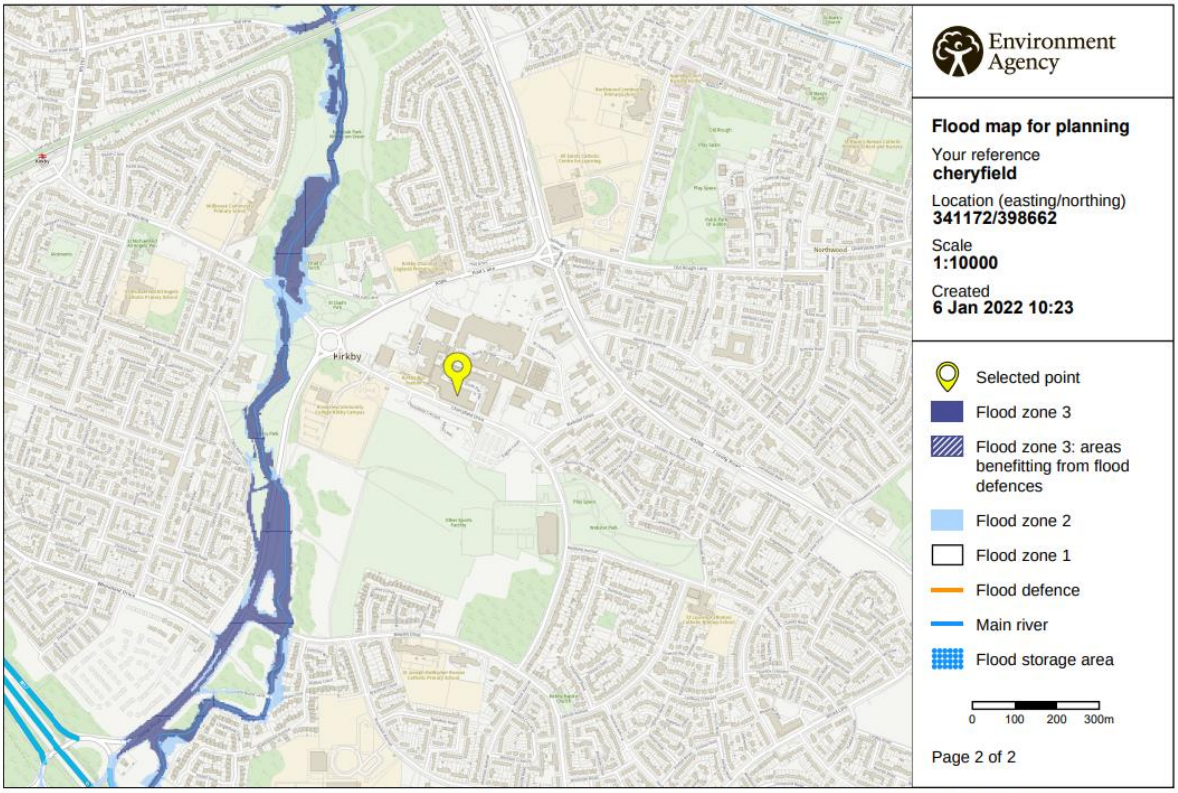
Surface water features within 250 m of the subject site are summarised in Table 4.5.

TABLE 4.5 SURFACE WATER FEATURES

SURFACE WATER FEATURE	QUALITY	DISTANCE (m)	DIRECTION
Kirkby Brook (Simonswood Brook)	Moderate	52 m	West

The site is located within a currently defined “Flood Risk Zone 1”; defined as land assessed as having less than 1 in 1,000 annual probability of river or sea flooding (< 0.1%), and as such is considered to be unaffected by river flooding. In addition, the Envirocheck report states there is a limited potential for groundwater flooding to occur at the site. The Environment Agency (EA) Flood Risk Map for the site is presented as Figure 4.4.

FIGURE 4.4 EA FLOOD RISK MAP



Source - https://flood-map-for-planning.service.gov.uk/

4.8. INDUSTRIAL LAND USES

The following active industrial land uses have been identified within 250 m of the subject site:

- Liverprint – Printers Textile – 130 m North.

4.9. SENSITIVE LAND USES

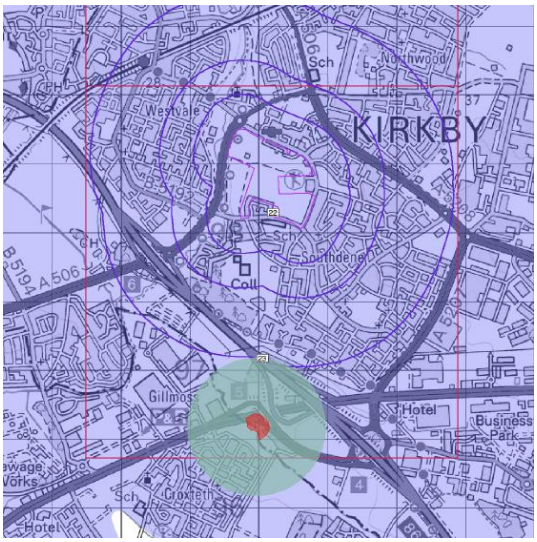
- The closest residential properties are located adjacent to the southern and eastern boundaries of the site.
- The Envirocheck report indicates that the site located within a nitrate vulnerable zone.

There are no other sensitive land uses within 250 m of the subject site.

4.10. SITE SENSITIVITY ASSESSMENT

The site is assessed to be located within a "Moderate" sensitivity setting as discussed within Table 4.6.

TABLE 4.6 SITE SENSITIVITY ASSESSMENT

SENSITIVITY PROFILE	DISCUSSION	RATING
Groundwater Source Protection Zone or Drinking Water Safeguard Zone	The entire site is located within Groundwater Source Protection Zone 3 – Total Catchment. 	**High**
Distance to the Closest Groundwater Abstraction Point	The nearest groundwater abstraction point is located 1074 m north east of the site.	**Low**
Aquifer Classification in Superficial Drift Deposits	Secondary Aquifer (Undifferentiated) across majority of the site and Secondary A Aquifer in the north of the site.	**Low**
Aquifer Classification in Bedrock	Principal Aquifer	**High**
Is the Site Underlain by Low-Permeability Drift to Depths in Excess of 10 m?	The underlying superficial deposits are likely to comprise interbedded SANDs and low permeability CLAYs to depths of less than 5.00 mbgl. Any cohesive drift deposits will afford some protection to the underlying bedrock aquifer, however SAND deposits may facilitate the movement of any potential mobile contaminants if present.	**High**
Is the Site Located Within 50 m of a Surface Watercourse?	Kirkby Brook is located 52 m west of the site at its closest point.	**Moderate**
Sensitive Land Uses	The site is located within a nitrate vulnerable zone with residential dwellings to the south and east of the site.	**High**
OVERALL SITE ENVIRONMENTAL SENSITIVITY		**Moderate**

5. CONSULTATIONS

5.1. KNOWSLEY METROPOLITAN BOROUGH COUNCIL

E3P contacted Knowsley Metropolitan Borough Council regarding the subject site, who confirmed the historical landfill site located directly west of the site is a landfill, pre COPA 1974 due to the possibility of filling of a former clay pit, then raising to the present level. It was also confirmed that the site has not been identified as contaminated land under Part 2A of the Environmental Protection Act 1990 and

5.2. LANDFILL SITES AND WASTE TREATMENT SITES

A historical landfill site is located adjacent to the south western boundary of the site, where the licence holder was probably the Local Authority. The Envirocheck report indicates the site was active from 1956 to 1974 and deposited waste included household waste. The site has also been recorded as a local Authority Recorded Landfill Site.

A further three historical landfill sites have been identified within 1 km of the site and are summarised below:

- 271m South-West – Brookfield School – Wastes first inputted in 1990, and no last input date supplied. Deposited Wastes included inert waste.
- 718 m South-West – Burtons Bridge – Deposited wastes included household wastes however no input dates have been provided.
- 810 m West – Ingoe Lane – no further information provided.

There are 5 Local Authority Recorded Landfill Sites within 1 km of the site.

There is one registered landfill site within 1 km of the subject site: Brookfield School is located 436 m south-west of the site however the licence is noted to have lapsed or been cancelled. Authorised wastes included brick, stone, concrete, inert spoil, soils and clays.

5.3. REGULATORY DATABASE

The information summarised in Table 5.1 has been obtained from a commercially available environmental database. The summary table only includes records from within 250 m of the subject site and not otherwise detailed in the report.

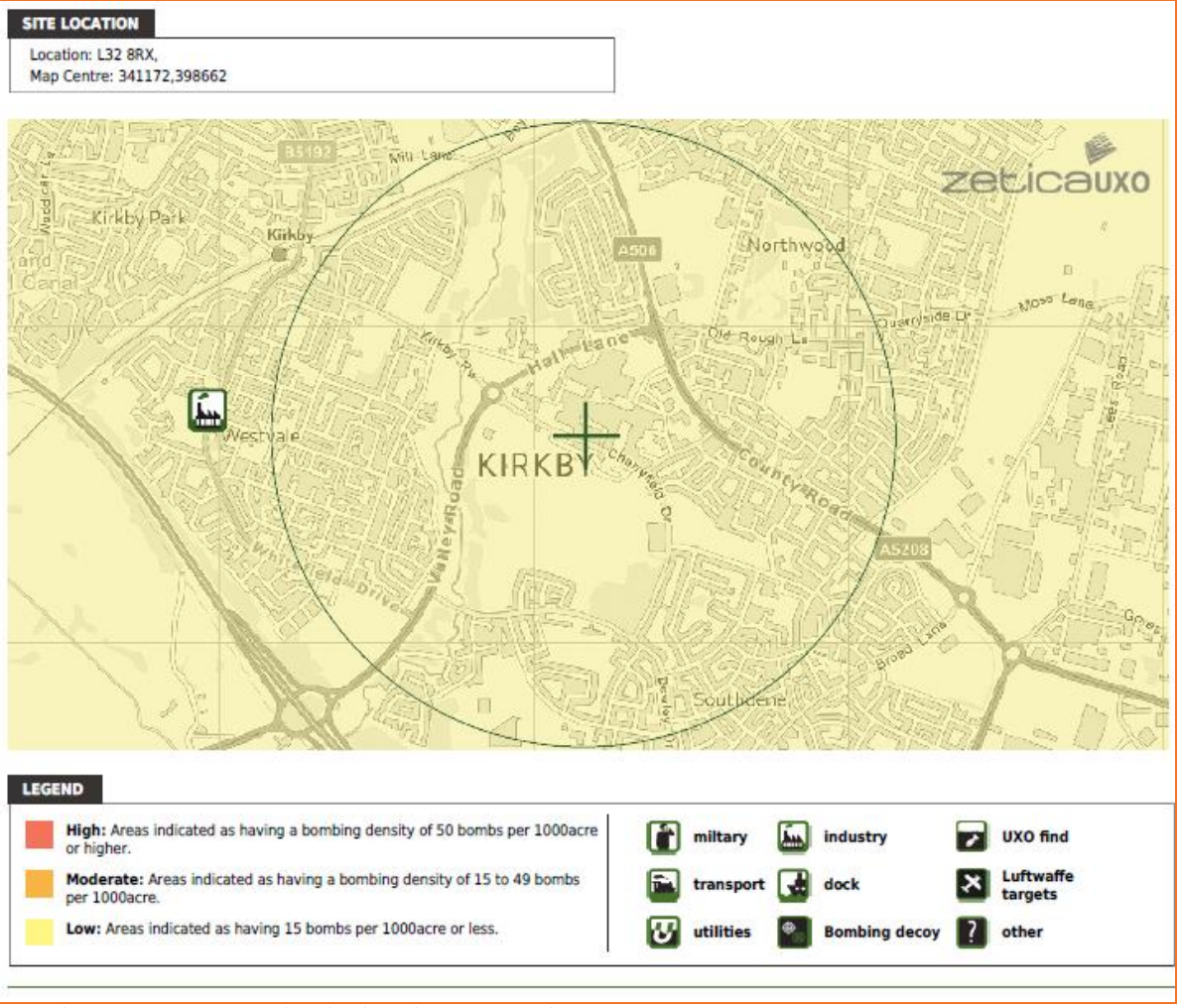
TABLE 5.1 SUMMARY OF ENVIRONMENTAL DATA

RECORD	ENTRIES WITHIN 250 m	DETAILS
Contaminated Land Register Entries and Notices	0	None Identified
Authorised Industrial Processes (IPC/IPPC/LAPPC)	2	• Local Authority Pollution Prevention and Controls (LAPPC) located on site. Associated with air pollution control at former petrol filling station. • LAPPC located 90 m north of the site associated with Johnsons Dry Cleaners.
Fuel Stations Entries	1	• One fuel station entry located onsite. Status is obsolete.
Licensed Radioactive Substances	0	None Identified
Enforcements, Prohibitions or Prosecutions	0	None Identified
Discharge Consents	0	None Identified
Pollution Incidents	5	• Category 3 – minor incident occurring in 1991 located 18 m northeast of the site. Pollutant: heating oil. • Category 3 – minor incident occurring in 1998 located 72 m west of the site. Pollutant: chemicals – paints/dyes. • Category 3 – minor incident occurring in 1996 located 152 m northwest of the site. Pollutant: unknown. • Category 3 – minor incident occurring in 1996 located 155 m northwest of the site. Pollutant: crude sewage. • Category 2 – significant incident occurring in 1997 located 171 m west of the site. Pollutant: crude sewage.
Consents Issued Under the Planning (Hazardous Substances) Act 1990	0	None Identified
Control of Major Accident Hazard (COMAH) Sites	0	None Identified

5.4. UNEXPLODED ORDNANCE

The regional unexploded bomb risk map from Zetica (2014) indicates that the site is in an area at low risk from possible unexploded ordnance (UXO) resulting from the Second World War. The Zeticia UXO Risk Map is presented as Figure 5.1.

FIGURE 5.1 ZETICA UXO RISK MAP



Source - https://zeticauxo.com/downloads-and-resources/risk-maps/

6. INITIAL CONCEPTUAL SITE MODEL

In accordance with EA LCRM (2019) and BSI 10175 (Code of Practice for Investigation of Potentially Contaminated Land), E3P has developed an initial conceptual site model (CSM) to identify potential contamination sources, migration pathways and receptors within the study area. This is summarised within Table 6.1.

6.1. ON-SITE SOURCES OF CONTAMINATION

The following potential on-site sources of contamination have been identified:

- Former On-site Developments
  - Made Ground associated with former school, college, hotel and residential buildings and associated demolition rubble may contain heavy metals, PAHs and ACM,
  - Substantial depths of Made Ground can present a risk of hazardous ground gases (e.g., carbon dioxide and methane).
- Infilled Features and Former Field Boundaries
  - Infilled ponds, embankments and former field boundaries may contain heavy metals, inorganic compounds, PAHs, hydrocarbon compounds and ACM.
  - Infilled features present a potential risk of hazardous ground gases (e.g., carbon dioxide and methane) due to unknown depths of Made Ground comprising potentially putrescible and degrading materials.
- Areas of Historical Deposition
  - The site is considered to contain areas of historical deposition which may be associated with the adjacent landfill to the west of the site. Made Ground deposits associated with these works may contain heavy metals, PAHs, TPHs, SVOCs, VOCs and Asbestos.
  - Should organic or putrescible materials be present they are a potential source of ground gases.
- Former fuel station
  - The former fuel station / garage and underground fuel storage tanks in the north of the site are a potential source of hydrocarbon compounds.
- Electrical sub station
  - The electricity substations in the north of the site are a potential source of PCBs.

6.2. OFF-SITE SOURCES OF CONTAMINATION

The following potential off-site source of contamination have been identified:

- Made Ground/infilled ponds – Heavy metals, PAHs and ground gas.
- Historic landfill site – Methane, carbon dioxide, ammonia containing leachates.
- Bus station potential leakages of hydrocarbon compounds.

TABLE 6.1 INITIAL CONCEPTUAL SITE MODEL

SOURCE	PATHWAY	RECEPTOR
Human Health		
Heavy Metals, PAHs, heavy end TPH compounds associated Within Made Ground	Dermal Contact and Ingestion. Consumption of Homegrown Produce.	Construction Workers. Residential End Users. Off-site receptors
Discussion: Made Ground is anticipated on site associated with former developments, associated demolition materials and areas of historical deposition. This may pose a risk to future residential end users in areas of soft land scaping and also a short-term risk to construction workers, who may come into contact with impacted soils during earthworks. All construction works must be undertaken using the appropriate Personal Protective Equipment (PPE) to remove this potential risk. Future residential users may come into contact with impacted soils within any garden and landscaped areas. If impacted soils are identified then localised remediation or an appropriate cover system, designed in accordance with best practice will mitigate the risk. If contamination is only encountered within localised areas, impacted material should be delineated and removed as a localised hotspot. Impacted material should be sampled to determine suitability to be placed in an area of lower sensitivity or removed off-site.		
Volatile Hydrocarbon Compounds Associated Within Former Fuel Station and Made Ground associated with infilling activities.	Volatilisation/Accumulation. Vapour Inhalation.	Construction Workers. Residential End Users.
Discussion: Historical land uses such as a former garage / petrol station, as well as Made Ground associated with various infilling activities on-site represent potential sources of hydrocarbon compounds and volatile PAHs such as naphthalene. It cannot be ruled out that spillages or leaks associated with the fuel station have occurred previously within the area of the USTs. If high permeability soils are present, hydrocarbon compounds may have migrated across the site. Hydrocarbon compounds, SVOCs and VOCs may pose a risk to construction workers if they come into contact with impacted soils during further earthworks, however appropriate PPE/ Respiratory Protective Equipment (RPE) will ensure they are at no unacceptable risk. Future residential end users may come into contact with impacted soils in garden and landscaped areas, though the main pathway of volatile compounds is considered to be vapour inhalation indoors. If identified, it is likely that additional remediation of impacted soils and/or perched groundwater will be required to mitigate the risk to future residential end users.		

SOURCE	PATHWAY	RECEPTOR
Polychlorinated Biphenyl (PCB) associated with on-site sub stations	Dermal Contact Inhalation Accumulation	Construction Workers. Residential End Users. Third-Party Property.
Discussion: Two electricity substations have been identified in the north of the site, therefore the presence of PCBs cannot be ruled out. However, given PCBs have general limited mobility, it is unlikely that if PCBs are present in this area, they will impact much of the proposed development site and impacted soils can be through localised delineation and removal of impact or through the provision of a cover system in landscaped areas.		
Asbestos-Containing Materials (ACMs) within Made Ground	Fibre/Dust Inhalation.	Construction Workers. Residential End Users. Third-Party Property.
Discussion: The presence of Made Ground underlying the site from former infilling activities may be a potential source of ACM Dust associated with any Made Ground underlying the site may potentially contain ACMs which could be released during future earthworks and then subsequently inhaled by construction workers and possibly third-party property. However, with the appropriate construction phase health and safety controls, asbestos containing material is likely to represent a low risk. If asbestos is identified, it is likely to be encountered within localised areas based on the historic development on site. Therefore, in these localised areas if ACMs are identified, impacted material should be delineated and removed as a localised hotspot. Impacted material should be sampled to determine suitability to be placed in an area of lower sensitivity or removed off-site. All works should be completed by suitably trained groundworkers who can identify ACMs.		
Hazardous Ground Gases		
Methane and Carbon Dioxide Associated with Made Ground, infilled on-site features and off site historical landfill.	Inhalation. Accumulation.	Construction Workers. Residential End Users.
Discussion: Given the presence of infilled ponds, field boundaries, embankments, Made Ground and the adjacent historical landfill, there is the potential for alluvial/organic deposits and/or Made Ground which may be a source of carbon dioxide and methane. Carbon dioxide and methane can migrate to indoor air spaces through service ducts and collect in deep excavations and have associated asphyxiation and explosive risks, respectively. Intrusive investigation is required to determine the ground gas regime on site and subsequent mitigation measures required in the construction of new properties. Hazardous ground gases such as carbon dioxide and methane have associated asphyxiation and explosive risks. Should a ground gas risk be identified to end users, the risks can be mitigated through the adoption of suitable control measures within the building construction using guidance presented within CIRIA 665 (Assessing Risk Posed by Hazardous Ground Gases to Buildings) and BS8485 (Code of Practice for the Characterisation and Remediation from Ground Gas in Affected Developments).		

SOURCE	PATHWAY	RECEPTOR
Controlled Waters		
Hydrocarbon Compounds Associated Within Former Fuel Station	Vertical/Lateral Migration.	Secondary A Aquifer. On-Site Stream Network. Kirkby Brook.
Discussion: Recent land uses such as the Petrol Filling Station, as well as Made Ground, represent potential sources of mobile hydrocarbon contamination. Potential granular drift deposits beneath the site will facilitate the migration of contaminated, if present, to the underlying aquifer, however cohesive deposits will provide protection to the underlying aquifer, therefore a moderate risk to controlled waters is identified. Intrusive investigation with chemical analysis of soil and groundwater samples is recommended to assess the presence of mobile contaminants and facilitate further risk assessment		
Buildings and Infrastructure		
pH and Sulphate	Corrosion of Concrete.	Foundations/Concrete.
Discussion: Presence of pH and sulphate within Made Ground deposits may result in corrosion of buried concrete within the proposed development. Assessment must be undertaken to confirm the levels of pH and sulphate within the underlying strata and in particular any Made Ground deposits so that a concrete classification can be determined.		
Ecology		
Phytotoxic contaminants (Made Ground)	Lateral Migration.	Flora and Fauna on site.
Discussion: Moderate probability as contamination considered possible, which may be taken up by flora in soft landscaping/gardens.		

7. E3P GROUND INVESTIGATION

7.1. GENERAL OVERVIEW

A ground investigation has been designed based on the findings of the desk study, with exploratory holes advanced to target specific potential contaminant sources summarised in Table 7.1. The investigation has also been used to collect geotechnical information to assist in the design and construction of the proposed development.

Exploratory fieldwork was completed between 10th – 13th January 2022, 24th - 25th January 2022 and 7th – 8th February 2022. The works are summarised in Table 7.1.

7.2. LIMITATIONS OF THE INVESTIGATION

Access was not available within the car park in the north of the site, or in the north-west of the site in the vicinity of the college and Covid-19 Testing centre due to their active nature. Areas of the northern sector of the site were limited in terms of access due to a high volume of services.

Investigation of the Electricity Substation on the northern boundary was not possible due to the live nature of infrastructure in this area.

7.3. SCOPE OF INVESTIGATION

TABLE 7.1 SUMMARY OF FIELDWORK

POTENTIAL SOURCE/RATIONALE	LOCATION HOLE	TYPE	MAXIMUM DEPTH (m bgl)	MONITORING WELLS RESPONSE ZONE (m bgl)
General ground conditions including depth of Made Ground on western boundary against adjacent landfill.	TP101-TP104, TP106, TP108, TP109, TP110, TP111, TP112, TP114, TP116, TP118, TP125, TP127, TP129, TP142, TP142B, TP170, TP172, TP174, TP176, TP178	Mechanically Excavated Trial Pit	3.30	N/A
	WS102	Window Sample Probeholes	4.45	1.00 – 3.00
	WS104		2.38	N/A
	WS106		4.18	1.00 – 3.00
	WS107		2.44	N/A
	WS108		2.91	0.80 – 2.80
	WS111		5.45	0.50 – 3.00
	WS113		2.44	1.00 – 2.00
	WS124		4.10	1.00 – 4.00
Ground conditions within the central sector of the site associated with the former woodland, running tracks, tracks, tennis court, gravel pit and known area of upfilling in 20th Century.	TP105, TP107, TP113, TP115, TP117, TP119-TP124, TP126, TP128, TP130-TP138, TP140, TP1126, TP1128, TP1130	Mechanically Excavated Trial Pit	3.10	N/A
	WS101	Window Sample Probeholes	3.30	0.50-2.00
	WS103		4.94	2.50-3.00
	WS105		3.29	0.50-2.50
	WS109		5.45	N/A
	WS112		3.10	N/A
	WS114		2.31	1.00-2.00
	WS115		2.39	1.00-2.00
	WS116		2.45	N/A
	WS117		3.43	1.00-2.50
	WS118		2.31	1.00-2.00
	WS120		2.45	1.00-2.00
	WS122		2.45	0.50-1.50
	WS171		3.01	1.00-2.50

POTENTIAL SOURCE/RATIONALE	LOCATION HOLE	TYPE	MAXIMUM DEPTH (m bgl)	MONITORING WELLS RESPONSE ZONE (m bgl)
Ground conditions associated with the former pond in south west of site.	WS110	Window Sample Probeholes	2.38	1.00-2.00
Ground conditions associated with the former woodland located in the northern central area of the site.	TP139, TP141, TP143-TP149, TP151, TP153, TP155, TP157, TP159, TP161, TP163, TP165, TP167, TP169, TP171, TP173, TP175, TP177, TP179, TP181, TP183, TP185, TP187	Mechanically Excavated Trial Pit	3.10	N/A
	WS119	Window Sample Probeholes	4.44	0.50 – 3.50
	WS125		2.95	0.50 – 1.00
	WS121		3.43	0.50 – 1.50
	WS123		3.44	0.50 – 3.00
	WS127		4.45	N/A
	WS129		4.45	1.00 – 3.50
	WS131		2.44	N/A
	WS133		4.34	0.50 – 3.90
	WS135		3.43	0.50 – 3.00
Ground conditions associated with the former garage and petrol filling station located in the north of the site.	TP164	Mechanically Excavated Trial Pit	2.90	N/A
	WS140	Window Sample Probeholes	3.45	1.00 – 3.00
	WS142		3.11	1.00 – 3.00
Ground conditions associated with the former housing in the north of the site	TP150, TP152, TP154, TP156, TP158, TP160, TP162, TP166, TP168	Mechanically Excavated Trial Pit	3.40	N/A
	WS126	Window Sample Probeholes	2.45	0.60 – 1.60
	WS128		4.02	1.00 – 3.00
	WS130		3.88	1.00 – 3.00
	WS132		4.11	1.00 – 4.00
	WS134		3.45	N/A
	WS136		3.61	0.50 – 3.50
	WS138		4.45	1.00 – 4.00
Ground conditions associated with the former building located in the northeast of the site.	TP188, TP190, TP192 (EAST/WEST), TP194, TP196, TP198	Mechanically Excavated Trial Pit	3.45	N/A
	WS144		3.44	1.00 – 3.00
	WS146		1.00	N/A

POTENTIAL SOURCE/RATIONALE	LOCATION HOLE	TYPE	MAXIMUM DEPTH (m bgl)	MONITORING WELLS RESPONSE ZONE (m bgl)
	WS148	Window Sample Probeholes	5.45	1.00 – 4.00
	WS150		4.44	N/A
	WS152		3.45	0.50 – 2.50
Ground conditions associated with the former collage building located in the northwest of the site	TP180, TP182, TP184, TP186, TP189, TP191, TP193, TP195, TP197, TP199, TP1101, TP1103, TP1105A/B, TP1107	Mechanically Excavated Trial Pit	2.30	N/A
	WS137	Window Sample Probeholes	3.28	2.00 – 3.00
	WS139		3.25	N/A
	WS141		3.44	1.00 – 3.00
	WS143		2.44	N/A
	WS145		2.44	N/A
	WS147		2.42	1.00 – 2.00
Ground conditions associated with the former school and tennis courts in the south-east of the site.	TP1100, TP1102, TP1104, TP1106, TP1108-TP1125, TP1127,	Mechanically Excavated Trial Pit	3.20	N/A
	WS149A	Window Sample Probeholes	1.36	0.50-1.00
	WS149B		1.37	N/A
	WS151		2.44	1.00-2.00
	WS153A		1.17	0.50 – 1.00
	WS153B		1.07	N/A
	WS153C		1.17	N/A
	WS155		2.29	N/A
	WS157		2.22	1.00 – 2.00
	WS159		2.37	N/A
	WS161		2.13	0.50 – 1.50
	WS163		3.44	N/A
	WS165A		0.34	N/A
	WS165B		0.25	N/A
	WS165C		0.35	N/A
	WS167A		0.35	N/A
Ground conditions associated with the former school and tennis courts in the south-east of the site.	WS167B	Window Sample Probeholes	0.30	N/A
	WS167C		0.30	N/A
	WS169		2.44	1.00 – 2.00

POTENTIAL SOURCE/RATIONALE	LOCATION HOLE	TYPE	MAXIMUM DEPTH (m bgl)	MONITORING WELLS RESPONSE ZONE (m bgl)
Investigation of Soakaway Potential	SA101, SA102, SA103, SA104, SA105, SA106, SA107, SA108, SA109, SA110, SA111	BRE365 Permeability Tests	3.20	N/A
Investigation of Deeper Soil Horizons	CP/RB101	Cable Percussive/ Rotary Borehole	12.50	3.00 – 5.00
	CP/RB102		12.00	3.00 – 4.00
	CP/RB102		11.00	3.00 – 4.00

Mechanically excavated trial pits were advanced to investigate ground conditions and to retrieve environmental samples, spatially distributed to offer the maximum site coverage whilst also being advanced to target specific contaminant sources.

Window sample probeholes were advanced to undertake in-situ detailed geotechnical testing, obtain environmental samples and install groundwater and ground gas monitoring wells.

Cable Percussive with rotary follow on boreholes were advanced to facilitate the investigation of deeper soil horizons (in excess of 5.00m) with extensive in-situ geotechnical testing to determine the relative densities of granular soils and undrained strengths of clays.

The sampling locations are illustrated in Drawing 15-280-005 (Appendix III). The ground conditions encountered are indicated on the logs, which are provided in Appendix V.

Return visits were made to monitor installations for groundwater level and gas concentrations. In addition, selected wells were purged via the slow flow method, and samples of groundwater recovered for chemical analysis.

7.4. IN-SITU STANDARD PENETRATION TESTING (SPT)

In-situ geotechnical testing was conducted using the standard penetration test (SPT) and, where the ground is granular, a 60° cone (SPT(C)) was used instead of the sampling tube. The results are shown in the probehole logs in Appendix V and presented in Table 8.6 and discussed in Section 10.

7.5. PERMEABILITY TESTS

Eleven soakaway tests (SA101-SA111) tests were undertaken in order to assess the likely permeability of the underlying strata to determine the potential suitability for soakaway drainage within the proposed development. The results are presented in Table 8.13 and the test certificates are included within Appendix IX.

7.6. LABORATORY ANALYSIS

Selected soil samples were submitted for a range of chemical analysis comprising:

- Metals.
- pH, total sulphate, water-soluble sulphate (2:1 extract).
- Sulphide.

- Cyanide.
- Phenols.
- Total and speciated polycyclic aromatic hydrocarbons (PAHs).
- Semi Volatile Organic Compounds (SVOC).
- Volatile Organic Compounds (VOC).
- Asbestos identification and quantification.
- Speciated and banded total petroleum hydrocarbon (TPH).
- Poly-Chlorinated Biphenyl (PCB)

I2 Analytical undertook the analytical work and the testing results are included in Appendix VI and discussed in Section 9.

Selected samples were submitted to Murray Rix Laboratory where the following geotechnical tests were undertaken:

- Atterberg limits determinations;
- Particle size distribution tests;
- Moisture content;
- Odometer tests;
- Single-stage triaxial tests; and,
- Dry density, moisture content, 2.5kg rammer compaction.

Laboratory analysis sheets are included in Appendix X and are summarised in Section 8.

8. GROUND AND GROUNDWATER CONDITIONS

8.1. SUMMARY OF GROUND CONDITIONS

The ground investigation generally confirms the published geology and identifies the strata set out in Table 8.1.

TABLE 8.1 SUMMARY OF STRATA

HOLE	DEPTH TO STRATUM (m bgl)					
	TOPSOIL	MADE GROUND	CLAY	SAND	GRAVEL	BEDROCK
TP101/SA104	0.00–0.30	–	0.30 – 2.00	2.00 – 2.60	–	–
TP102	-	0.00 –1.30	-	1.30 – 3.10	–	–
TP103	–	0.00 –0.50	0.50 – 1.80	1.80 – 2.60	–	–
TP104	–	0.00 – 0.40	0.40 – 1.30	1.30 – 2.80	–	–
TP105	–	0.00 –0.70	0.70 –1.80	1.80 – 2.40	–	–
TP106	–	0.00 – 0.40	0.40 – 1.40	1.40 – 3.20	–	–
TP107	–	0.00 – 0.80	0.80 – 1.70	1.70 – 2.10	–	–
TP108	–	0.00 – 3.20	-	–	–	–
TP109	–	0.00 – 2.30	–	–	–	–
TP110/SA101	-	0.00 – 1.50	–	1.50 – 3.20	–	–
TP111	–	0.00 – 2.60	–	–	–	–
TP112	–	0.00 – 0.25	–	0.25 – 2.80	–	–
TP113	–	0.00 – 2.40	–	–	–	–
TP114	–	0.00 – 1.10	–	1.10 – 2.90	–	–
TP115	–	0.00 – 2.20	2.20 – 2.50	2.50 – 2.80	–	–
TP116	–	0.00 – 0.25	0.25 – 0.70	0.70 – 1.80	–	–
TP117	–	0.00 – 2.50	–	–	–	–
TP118	–	0.00 – 2.00	2.00 – 2.60	–	–	–
TP119	–	0.00 – 2.50	–	–	–	–
TP120	0.00-0.15	–	0.15 – 0.50	0.50 – 3.10	–	–
TP121	–	0.00-2.90	–	–	–	–
TP122/SA102	0.00-0.30	-	0.30 – 1.20	1.20 – 2.60	–	–
TP123	–	0.00 – 2.80	–	–	–	–
TP124	–	0.00 – 0.20	0.20 – 0.70	0.70 – 2.30	–	–
TP125	–	0.00 – 0.60	0.60 – 1.80	1.80 – 2.50	–	–
TP126	–	0.00 – 0.30	0.30 – 1.35	–	–	–
TP127	0.00-0.10	–	0.10 – 0.70 1.40 – 2.40	0.70 – 1.40	–	–
TP128	–	0.00 – 1.40	1.40 – 2.50	–	–	–

HOLE	DEPTH TO STRATUM (m bgl)					
	TOPSOIL	MADE GROUND	CLAY	SAND	GRAVEL	BEDROCK
TP129	–	0.00 – 0.30	0.60 – 2.10	0.30 – 0.60 2.10 – 2.50	–	–
TP130/SA103	–	0.00 – 0.25	0.25 – 0.80	0.80 – 2.23	–	–
TP131/SA107	–	0.00 – 0.20	0.20 – 2.10	2.10 – 2.50	–	–
TP132	-	0.00 – 0.30	0.30 – 1.20	1.20 – 2.45	–	–
TP133	–	0.00 – 0.20	0.20 – 2.40	–	–	–
TP134	0.00-0.40	–	0.40 – 1.30	1.30 – 2.30	–	–
TP135	–	0.00 – 0.50	0.50 – 2.70	–	–	–
TP136	-	0.00 – 0.80	0.80 – 2.00	–	–	–
TP137	–	0.00 – 2.00	2.00 – 2.50	–	–	–
TP138	-	0.00 – 0.60	0.60 – 3.10	–	–	–
TP139	–	0.00 – 1.50	–	–	–	–
TP140	–	0.00 - 1.30	1.30 – 2.80	–	–	–
TP141	–	0.00 – 1.80	1.80 – 2.40	–	–	–
TP142	-	0.00 – 3.30	–	–	–	–
TP142B	0.00-0.20	–	0.20 – 3.10	–	–	–
TP143	–	0.00 – 0.60	0.60 – 2.50	2.50 – 2.90	–	–
TP144	0.00-0.20	–	0.20 – 1.20	1.20 – 2.00	–	–
TP145	–	0.00 – 1.50	1.50 – 3.10		–	–
TP146	0.00-0.20	–	0.20 – 0.60	0.60 – 2.40	–	–
TP147	-	0.00 – 1.20	1.20 – 2.70	–	–	–
TP148	0.00-0.10	–	0.35 – 1.30	0.10 – 0.35 1.30 – 2.80	–	–
TP149	–	0.00 – 1.90	1.90 – 2.50	–	–	–
TP150	–	0.00 – 0.25	1.50 – 1.80	0.25 – 1.50 1.80 – 2.80	–	–
TP151/SA105	–	0.00 – 1.00	1.00 – 2.20	2.20 – 2.70	–	–
TP152	–	0.00 – 0.25	2.40 – 2.60	0.25 – 2.40 2.60 – 3.00	–	–
TP153	–	0.00 –2.70	–	–	–	–
TP154	–	0.00 – 2.40	3.00 – 3.40	2.40 – 3.00	–	–
TP155	–	0.00 – 1.70	1.70 – 2.50	–	–	–
TP156	–	0.00 – 1.00	1.00 – 2.70	–	–	–
TP157	–	0.00 – 1.50	1.50 – 2.50	–	–	–
TP158	–	0.00 – 0.30	0.30 – 2.90	–	–	–
TP159	–	0.00 – 0.80	0.80 – 2.50	–	–	–
TP160	–	0.00 – 0.60	0.60 – 2.90	–	–	–

HOLE	DEPTH TO STRATUM (m bgl)					
	TOPSOIL	MADE GROUND	CLAY	SAND	GRAVEL	BEDROCK
TP161	–	0.00 – 1.40	1.40 – 2.20	2.20 – 3.00	–	–
TP162	–	0.00 – 0.30	0.30 – 2.50	–	–	–
TP163/SA106	0.00-0.50	–	0.50 – 1.40 2.00 – 2.40	1.40 – 2.00	–	–
TP164	–	0.00 – 0.30	1.70 – 2.90	0.30 – 1.70	–	–
TP165	–	0.00 – 1.40	1.40 – 2.40	–	–	–
TP166	–	0.00 – 0.60	–	–	–	–
TP167	–	0.00 – 2.00	–	–	–	–
TP168	–	0.00 – 0.30	1.00 – 3.00	0.30 – 1.00	–	–
TP169	–	0.00 – 2.40	–	–	–	–
TP170	–	0.00 – 0.90	0.90 – 2.50	–	–	–
TP171	–	0.00 – 0.40	0.40 – 2.50	–	–	–
TP172	–	0.00 – 0.40	–	–	–	–
TP173	–	0.00 – 0.50	0.50 – 2.00	–	–	–
TP174	–	0.00 – 1.00	1.00 – 2.50	–	–	–
TP175	–	0.00 – 1.40	–	–	–	–
TP176	–	0.00 – 1.00	1.00 – 2.50	–	–	–
TP177	–	0.00 – 2.20	2.20 – 2.60	–	–	–
TP178	–	0.00 – 1.00	1.00 – 2.50	–	–	–
TP179	0.00-0.20	–	0.80 – 2.20	0.20 – 0.80	–	–
TP180	–	0.00 – 1.60	1.60 – 1.80	–	–	–
TP181	0.00-0.30	–	0.30 – 2.10	–	–	–
TP182	–	0.00 – 1.00	1.00 – 2.10	–	–	–
TP183	–	0.00 – 0.30	0.30 – 2.10	–	–	–
TP184	–	0.00 – 0.80	0.80 – 1.80	–	–	–
TP185	–	0.00 – 0.60	0.60 – 1.00 1.50 – 2.50	1.00 – 1.50	–	–
TP186	–	0.00 – 1.80	1.80 – 2.00	–	–	–
TP187	–	0.00 – 1.00	1.00 – 2.80	–	–	–
TP188	–	0.00 – 0.30	0.85 – 2.90	0.30 – 0.85 2.90 – 3.45	–	–
TP189	–	0.00 – 1.00	–	1.00 – 2.30	–	–
TP190	–	0.00 – 0.50	1.10 – 3.20	0.50 – 1.10	–	–
TP191	–	0.00 – 0.70	0.70 – 2.10	–	–	–
TP192 East	–	0.00 – 0.80	–	–	–	–
TP192 West	–	0.00 – 0.80	–	–	–	–
TP193	–	0.00 – 1.50	–	–	–	–

HOLE	DEPTH TO STRATUM (m bgl)					
	TOPSOIL	MADE GROUND	CLAY	SAND	GRAVEL	BEDROCK
TP194	–	0.00 – 1.10	1.10 – 3.30	–	–	–
TP195	–	0.00 – 0.80	–	–	–	–
TP196	–	0.00 – 0.70	1.10 – 2.80	0.70 – 1.10 2.80 – 3.00	–	–
TP197	–	0.00 – 0.50	1.20 – 1.80	0.50 – 1.20	–	–
TP198	–	0.00 – 1.20	1.20 – 3.00	3.00 – 3.20	–	–
TP199	–	0.00 – 1.20	–	–	–	–
TP1100	–	0.00 – 0.50	0.50 – 2.00	2.00 – 2.80	–	–
TP1101	–	0.00 – 1.30	–	1.30 – 2.30	–	–
TP1102 / SA111	–	0.00 – 0.40	0.40 – 1.50	1.50 – 2.50	–	–
TP1103	–	0.00 – 0.40	0.40 – 2.00	–	–	–
TP1104	–	0.00 – 1.00	1.00 – 1.30	1.30 – 3.00	–	–
TP1105A	–	0.00 – 1.40	-	–	–	–
TP1105B/SA108	-	0.00-0.40	1.40 – 2.40	0.40 – 1.40	–	–
TP1106	–	0.00 – 0.35	0.35 – 1.50	1.50 – 3.00	–	–
TP1107 / SA109	–	0.00 – 0.90	1.20 – 2.20	0.90 – 1.20	–	–
TP1108	–	0.00 – 0.60	0.60 – 1.20	1.20 – 2.60	–	–
TP1109	–	0.00 – 1.30	1.30 – 2.90	–	–	–
TP1110	0.00-0.30	–	0.30 – 0.40 0.80 – 2.50	0.40 – 0.80 2.50 – 3.00	–	–
TP1111	–	0.00 – 1.00	1.00 – 2.70	–	–	–
TP1112	-	0.00 – 0.40	0.40 – 1.25	1.25 – 3.00	–	–
TP1113	–	0.00 – 0.40	0.40 – 1.20	1.20 – 2.50	–	–
TP1114	–	0.00 – 0.35	0.35 – 2.80	-	–	–
TP1115	–	0.00 – 1.20	1.20 – 1.60	1.60 – 2.70	–	–
TP1116	–	0.00 – 0.20	0.60 – 1.70	0.20 – 0.60 1.70 – 2.50	–	–
TP1117	–	0.00 – 0.80	0.80 – 1.20	1.20 – 2.40	–	–
TP1118	–	0.00 – 0.80	0.80 – 2.80	–	–	–
TP1119	–	0.00 – 0.80	0.80 – 1.70	1.70 – 2.60	–	–
TP1120	–	0.00 – 0.40	1.40 – 2.50	0.40 – 1.40	–	–
TP1121	0.00–0.70	–	0.70 – 1.80	1.80 – 3.00	–	–
TP1122	–	0.00 – 0.50	1.60 – 2.90	0.50 – 1.60	–	–
TP1123	–	0.00 – 2.00	2.00 – 2.60	–	–	–
TP1124	–	0.00 – 0.15	0.70 – 1.70	0.15 – 0.70 1.70 – 3.20	–	–
TP1125	–	0.00 – 0.70	0.70 – 1.40	1.40 – 2.70	–	–

HOLE	DEPTH TO STRATUM (m bgl)					
	TOPSOIL	MADE GROUND	CLAY	SAND	GRAVEL	BEDROCK
TP1126	–	0.00 – 1.50	1.50 – 2.00	2.00 – 2.80	–	–
TP1127 / SA110	–	0.00 – 0.40	0.40 – 1.50	1.50 – 2.20	–	–
TP1128	–	0.00 – 1.80	1.80 – 2.70	2.70 – 3.00	–	–
TP1130	–	0.00 – 2.50	–	2.50 – 3.00	–	–
WS101	–	0.00 – 2.00	2.50 – 3.00	2.00 – 2.50 3.00 – 3.30	–	–
WS102	-	0.00 – 3.10	3.10 - 4.45	–	–	–
WS103	–	0.00 – 2.50	2.50 – 4.00 4.50 – 4.80	4.00 – 4.50 4.80 – 4.94	–	–
WS104	-	0.00 – 1.50	–	1.50 – 2.38	–	–
WS105	–	0.00 – 1.70	1.70 – 2.70	2.70 – 3.29	–	–
WS106	-	0.00 – 2.50	2.50 – 3.70	3.70 – 4.18	–	–
WS107	–	0.00 – 0.70	0.70 – 1.60	1.60 – 2.44	–	–
WS108	–	0.00 – 2.91	–	–	–	–
WS109	–	0.00 – 4.50	–	4.50 – 5.45	–	–
WS110	-	0.00-0.25	0.25 – 1.25	1.25 – 2.38	–	–
WS111	–	0.00 – 5.45	–	–	–	–
WS112	–	0.00 – 1.80	1.80 – 2.30	2.30 – 3.10	–	–
WS113	0.00-0.15	–	0.15 – 2.00	2.00 – 2.44	–	–
WS114	-	0.00-0.20	0.20 – 1.10	1.10 – 2.31	–	–
WS115	0.00-0.50	–	0.50 – 2.00	2.00 – 2.39	–	–
WS116	–	0.00 – 0.30	0.30 – 1.00	1.00 – 2.45	–	–
WS117	–	0.00 – 0.20	0.20 – 2.80	2.80 – 3.43	–	–
WS118	-	0.00 – 0.70	0.70 – 2.31	–	–	–
WS119	–	0.00-1.00	1.00-2.80 3.00-4.00	2.80-3.00 4.00-4.44	–	–
WS120	-	0.00 – 2.45	–	–	–	–
WS121	–	0.00 – 1.60	1.60 – 2.80	2.80 – 3.43	–	–
WS122	–	0.00 – 1.00	1.00 – 2.45		–	–
WS123	–	0.00 – 1.50	1.50 – 2.60	2.60 – 3.44	–	–
WS124	–	0.00 – 4.10	–	–	–	–
WS125	–	0.00 – 1.00	1.00 – 2.95	–	–	–
WS126	-	0.00 - 0.20	–	0.20 – 2.45	–	–
WS127	–	0.00 – 1.00	1.00 – 3.00	3.00 – 4.45	–	–
WS128	0.00–0.15	–	0.15 – 4.02	–	–	–
WS129	–	0.00 – 0.60	0.60 – 2.80	2.80 – 4.45	–	–

HOLE	DEPTH TO STRATUM (m bgl)					
	TOPSOIL	MADE GROUND	CLAY	SAND	GRAVEL	BEDROCK
WS130	–	0.00 – 0.20	0.20 – 0.60 1.00 – 3.88	0.60 – 1.00	–	–
WS131	0.00–0.20	–	0.20 – 2.44	–	–	–
WS132	0.00–0.20	–	0.20 – 4.11	–	–	–
WS133	–	0.00 – 0.40	2.00 – 4.00	0.40 – 2.00 4.00 – 4.27	–	–
WS134	–	0.00 – 0.20	0.20 – 3.45	–	–	–
WS135	0.00-0.20	–	1.90 – 3.43	0.20 – 1.90	–	–
WS136	0.00-0.20	–	0.20 – 3.61	–	–	–
WS137	–	0.00 – 1.50	1.50 – 2.50	2.50 – 3.28	–	–
WS138	–	0.00 – 1.00	1.00 – 1.80	1.80 – 4.45	–	–
WS139	–	0.00 – 1.30	1.30 – 3.00	3.00 – 3.25	–	–
WS140	–	0.00 – 1.00	1.40 – 3.45	1.00 – 1.40	–	–
WS141	–	0.00 – 0.60	1.00 – 3.00	0.60 – 1.00 3.00 – 3.44	–	–
WS142	–	0.00 – 1.00	2.40 – 3.11	1.00 – 2.40	–	–
WS143	–	0.00 – 0.50	0.50 – 1.40	1.40 – 2.44	–	–
WS144	–	0.00 – 1.20	2.10 – 3.00	1.20 – 2.10	3.00 – 3.44	–
WS145	–	0.00 – 1.20	–	1.20 – 2.44	–	–
WS146	–	0.00 – 1.00	–	–	–	–
WS147	–	0.00 – 0.50	0.50 – 2.42	–	–	–
WS148	–	0.00 – 1.20	1.20 – 2.00	2.00 – 5.45	–	–
WS149A	–	0.00 – 1.36	–	–	–	–
WS149B	–	0.00 – 1.37	–	–	–	–
WS150	–	0.00 – 0.75	3.30 – 4.44	0.75 – 3.30	–	–
WS151	–	0.00 – 0.70	0.70 – 2.00	2.00 – 2.44	–	–
WS152	–	0.00 – 3.45	–	–	–	–
WS153A	–	0.00 – 1.17	–	–	–	–
WS153B	–	0.00 – 1.07	–	–	–	–
WS153C	–	0.00 – 1.17	–	–	–	–
WS155	–	0.00 – 0.70	0.70 – 1.20	1.20 – 2.29	–	–
WS157	–	0.00 – 0.10	0.10 – 1.60	1.60 – 2.22	–	–
WS159	–	0.00 – 0.50	0.50 – 1.70	1.70 – 2.37	–	–
WS161	–	0.00 – 0.40	0.40 – 1.60	1.60 – 2.06	–	–
WS163	–	0.00 – 0.30	2.00 – 3.44	0.30 – 2.00	–	–
WS165A	–	0.00 – 0.34	–	–	–	–
WS165B	–	0.00 – 0.25	–	–	–	–

HOLE	DEPTH TO STRATUM (m bgl)					
	TOPSOIL	MADE GROUND	CLAY	SAND	GRAVEL	BEDROCK
WS165C	–	0.00 – 0.35	–	–	–	–
WS167A	–	0.00 – 0.35	–	–	–	–
WS167B	–	0.00 – 0.30	–	–	–	–
WS167C	–	0.00 – 0.30	–	–	–	–
WS169	–	0.00 – 0.50	0.50 – 2.00	2.00 – 2.44	–	–
WS171	–	0.00 – 0.60	0.60 – 1.90	1.90 – 3.01	–	–
CP/RB101	–	0.00 – 5.50	5.50 – 6.10	–	–	6.10 – 12.50
CP/RB102	–	0.00 – 4.90	4.90 – 5.10	–	–	5.10 – 12.00
CP/RB103	–	0.00 – 3.60	3.60 – 4.70	–	–	4.70 – 11.00

8.2. MADE GROUND

Made Ground deposits were encountered within the majority of exploratory hole locations to depths of between 0.00m and 5.50 bgl. The depth of Made Ground was not proven in 20 locations due to either underground obstructions, collapse of the trial pit, or the ingress of water.

Made Ground deposits generally comprised a reworked topsoil of dark grey slightly gravelly clayey fine to coarse SAND or gravelly sandy to very sandy CLAY with frequent rootlets with gravel of brick, mudstone, sandstone and ceramic. TP164 was overlain by asphalt and concrete associated with the former garage/petrol station, with TP168 overlain by ceramic tiles overlying concrete indicative of the former residential dwellings in this area of the site. Furthermore, WS150, TP188 and TP196 in the north-east of the site were overlain by asphalt, with WS144, WS146, WS148, TP190, TP192 and TP194 overlain by concrete with rebar. TP197 and WS147 in the north-west of the site were overlain by asphalt and concrete.

Underlying the reworked topsoil or hardstanding, deeper Made Ground deposits comprised of reworked brown very sandy gravelly clays or gravelly sands.

Within TP160 the exploratory hole location was dug down the side of a former foundation which showed the slab to be 1.10m thick and the foundation going down to 2.80mbgl.

Within the vicinity of the 1950s-1960s historical deposition to create a level platform within the central and northern sectors of the site Made Ground deposits comprised a clayey very gravelly fine to coarse ashy sand with gravel of ash, glass, ceramic, textiles, clinker, wood, timber, brick, metal, mudstone and cardboard.

Within the north-western sector of the site, there is considered to have been further level raising in order to construct the college; further investigation is required when access is available. However, where investigation has been able to be completed, Made Ground deposits in this area comprised the reworked topsoil or concrete deposits as described above, underlain with either the ash fill described above in the southern area of this sector, or a gravelly sand with gravel of brick or sandy gravel with gravel of sandstone, ash, concrete, mudstone and occasional glass and ceramic.

A Depth of Made Ground Plan is presented as Drawing 15-280-006 in Appendix III.

8.3. DRIFT DEPOSITS

Drift deposits were encountered within the majority of exploratory locations with the exception of locations where the full depth of Made Ground could not be proven. The drift deposits are varied, generally comprising a soft to very stiff, medium to very high strength, slightly gravelly sandy brown CLAY with gravel of sandstone and mudstone or a slightly gravelly to gravelly slightly, slightly clayey to very clayey fine to medium SAND with gravel of sandstone and mudstone.

8.4. SOLID GEOLOGY

The solid bedrock geology was first encountered between 4.70 m bgl and 6.10 m bgl. and comprised of SANDSTONE.

A number of window sample probeholes terminated on or within weathered sandstone bedrock which was recovered as gravelly SAND from 1.20 m bgl. to in excess of 5.45 m bgl.

8.5. GROUNDWATER

Groundwater strikes were encountered as seepages and strikes along with perched water. The depth of the strikes are shown on the exploratory hole records in Appendix V and are summarised in Table 8.2.

TABLE 8.2 SUMMARY GROUNDWATER STRIKES

LOCATION	DEPTH TO STRIKE (m)	NOTES
TP101	2.60	Seepage - Slow ingress
TP103	2.60	Seepage - Slow ingress
TP104	0.40	Seepage
TP106	1.40	Seepage - Slow ingress
TP107	2.00	Strike
TP109	2.30	Strike
TP110 / SA101	1.80	Seepage – Slow ingress
TP111	2.40	Strike – Fast water ingress
TP113	1.80	Strike – Fast water ingress
TP114	2.80	Seepage - Slow ingress
TP116	0.40	Strike – Fast water ingress
TP117	2.40	Strike – Fast water ingress
TP118	2.00	Strike
TP119	2.40	Strike
TP120	2.00	Strike – Fast water ingress
TP123	2.40	Strike – Fast water ingress
TP124	0.65	Seepage - Slow ingress
TP128	1.40	Strike – Fast water ingress
TP129	1.50	Seepage - Slow ingress
TP130 / SA103	0.80	Seepage – Very slow ingress



LOCATION	DEPTH TO STRIKE (m)	NOTES
TP134	2.00	Seepage - Slow ingress
TP135	1.40	Seepage - Slow ingress
TP136	0.80	Seepage - Slow ingress
TP137	2.30	Seepage - Slow ingress
TP139	1.30	Land drain
TP140	1.20	Seepage - Slow ingress
TP141	1.00	Perched water
TP142	0.40	Perched water
TP143	2.00	Seepage - Slow ingress
TP144	1.20	Seepage - Slow ingress
TP145	0.60	Seepage - Slow ingress
TP146	1.40	Seepage - Slow ingress
TP148	0.50	Strike – Fast water ingress
TP149	1.20	Strike – Fast water ingress
TP152	2.40	Seepage - Slow ingress
TP153	0.50	Strike – Fast water ingress
TP154	2.90	Seepage - Slow ingress
TP155	0.80	Strike – Fast water ingress
TP156	2.70	Seepage - Slow ingress
TP160	0.50	Perched water – rapid ingress
TP161	1.50	Seepage - Slow ingress
TP167	1.50	Perched water – slow ingress
TP169	1.80	Strike – Fast water ingress
TP170	0.90	Seepage - Slow ingress
TP174	0.90	Seepage - Slow ingress
TP177	2.00	Seepage - Slow ingress
TP178	1.20	Seepage - Slow ingress
TP179	1.60	Seepage - Slow ingress
TP180	1.70	Seepage
TP181	1.80	Seepage - Slow ingress
TP182	1.00	Seepage - Slow ingress
TP183	1.40	Seepage - Slow ingress
TP184	0.80	Seepage - Slow ingress
TP185	0.70	Strike – Fast water ingress
TP186	1.80	Land drain
TP187	1.40	Seepage - Slow ingress

LOCATION	DEPTH TO STRIKE (m)	NOTES
TP188	3.00	Seepage - Slow ingress
TP191	0.80	Seepage - Slow ingress
TP193	1.00	Perched water – fast ingress
TP196	1.10	Seepage - Slow ingress
TP198	3.00	Seepage - Slow ingress
TP199	1.00	Land drain – fast ingress
TP1100	2.00	Seepage - Slow ingress
TP1101	0.90	Perched Water
TP1106	2.00	Seepage - Slow ingress
TP1114	2.60	Seepage - Slow ingress
TP1115	0.60	Strike
TP1116	0.60	Perched water
TP1116	1.70	Running sands
TP1119	1.80	Strike
TP1122	2.80	Seepage - Slow ingress
TP1123	2.00	Land drain
TP1124	0.70	Perched water
TP1124	1.70	Seepage - Slow ingress
WS105	2.20	Strike
WS108	2.20	Strike – slow ingress
WS109	4.00	Perched water
WS116	1.00	Seepage – slow ingress
WS117	2.00	Strike
WS119	2.80	Strike
WS129	2.50	Strike
WS133	3.00	Strike
WS136	3.50	Seepage - Slow ingress
WS144	3.00	Seepage - Slow ingress
WS145	1.00	Perched water - Slow ingress
WS148	3.00	Seepage - Slow ingress
WS150	2.00	Seepage - Slow ingress
WS152	2.00	Seepage - Slow ingress
WS155	1.20	Strike
WS163	1.30	Strike
CP/RB102	2.00	Strike
CP/RB103	3.40	Strike

True groundwater is considered to be within the natural SAND deposits between circa 1.40 m and 4.00 m bgl and generally encountered as seepages with occasional water strikes. Perched water was encountered within the Made Ground deposits overlying the underlying drift deposits.

Groundwater has not been noted within the SANDSTONE deposits during the cable percussive with rotary follow-on boreholes or generally within the shallow weathered bedrock deposits recovered as SANDs and GRAVELs with the exception of WS144 where a seepage at 3.00mbgl was encountered.

Monitoring was undertaken using an electronic dip meter and interface probe to record the depth to groundwater and the thickness of any free-phase hydrocarbon product, if present.

8.6. VISUAL AND OLFACTORY EVIDENCE OF CONTAMINATION

Visual and olfactory evidence of potential contamination has been identified during the site investigation and these are summarised in Table 8.3.

TABLE 8.3 SUMMARY VISUAL AND OLFACTORY EVIDENCE OF CONTAMINATION

LOCATION	DEPTH (m)	STRATUM	NOTES
TP107	0.70	Made Ground	Slight hydrocarbon odour
TP1128	0.80	Made Ground	Strong hydrocarbon odour
TP139	1.20-1.50m	Made Ground	Slight hydrocarbon odour
TP1101	0.90	Made Ground	Very strong hydrogen sulphide odour.
WS141	0.00-0.20	Made Ground	Suspected asbestos sheeting.
WS142	1.00-2.40	SAND	Hydrocarbon odour
WS163	1.00-1.40	SAND	Organic odour

8.7. SOIL CONSISTENCY

Undrained shear strength values were measured using both field hand shear vane tests and laboratory undrained triaxial tests. Results of the tests are presented in Table 8.4 and Table 8.5, which indicate the clay soils varying between soft and stiff. Strength test data is generally consistent with the field descriptions of the aforementioned soils.

TABLE 8.4 SUMMARY OF HAND SHEAR VANE TESTS

LOCATION	DEPTH	SHEAR STRENGTH (kPA)	CALCULATED ALLOWABLE BEARING PRESSURE (kN/m^2)
TP101	1.50	90	212
TP103	0.60	53	125
TP103	1.00	76	179
TP103	1.50	65	153
TP104	0.60	61	143
TP104	0.80	54	127
TP104	1.00	71	167
TP105	0.80	89	209

LOCATION	DEPTH	SHEAR STRENGTH (kPA)	CALCULATED ALLOWABLE BEARING PRESSURE (kN/m^2)
TP105	1.50	55	129
TP106	0.80	52	122
TP106	1.20	60	141
TP106	1.40	66	155
TP107	1.50	58	136
TP115	2.20	72	169
TP116	0.25	23	54
TP116	0.45	30	71
TP118	2.30	54	127
TP120	0.30	68	160
TP122	0.50	70	165
TP122	1.00	65	153
TP124	0.40	64	150
TP124	0.70	58	136
TP126	0.50	70	165
TP126	1.00	73	172
TP127	1.50	83	195
TP128	1.40	73	172
TP128	2.00	91	214
TP128	2.30	74	174
TP128	2.50	104	244
TP129	0.80	61	143
TP129	1.50	29	68
TP130	0.50	64	150
TP131	0.50	111	261
TP131	1.00	28	66
TP132	0.50	83	195
TP132	1.00	70	165
TP132	1.20	100	235
TP133	0.40	107	251
TP133	1.00	34	80
TP134	0.70	54	127
TP134	0.90	76	179
TP134	1.10	90	214
TP134	1.30	85	200

LOCATION	DEPTH	SHEAR STRENGTH (kPA)	CALCULATED ALLOWABLE BEARING PRESSURE (kN/m^2)
TP135	0.70	112	263
TP135	1.20	52	122
TP136	0.90	96	226
TP136	1.00	105	247
TP136	1.50	107	251
TP136	2.00	89	209
TP138	0.80	58	136
TP138	1.20	72	169
TP138	1.50	66	155
TP138	2.00	60	141
TP140	1.30	86	202
TP140	1.60	84	197
TP140	1.80	81	190
TP140	2.00	70	165
TP142b	0.50	66	155
TP142b	1.00	74	174
TP142b	2.00	64	150
TP142b	2.50	74	174
TP142b	3.00	99	233
TP143	0.80	113	266
TP144	0.40	52	122
TP144	0.60	56	132
TP144	1.00	58	136
TP145	1.80	109	256
TP146	0.20	39	92
TP146	0.40	52	122
TP146	0.60	39	92
TP147	1.50	128	301
TP148	0.50	78	183
TP148	1.00	81	190
TP148	1.30	85	200
TP149	2.00	71	167
TP150	1.60	108	254
TP150	1.70	116	273
TP151	1.20	60	141

LOCATION	DEPTH	SHEAR STRENGTH (kPA)	CALCULATED ALLOWABLE BEARING PRESSURE (kN/m^2)
TP153	2.00	29	68
TP154	3.00	69	162
TP154	3.20	70	165
TP155	1.70	103	242
TP155	2.10	119	280
TP156	1.30	103	242
TP156	1.80	115	270
TP156	2.20	103	242
TP157	1.70	73	172
TP158	0.50	86	202
TP158	1.00	99	233
TP158	1.50	82	193
TP158	2.00	79	186
TP158	2.50	100	235
TP159	1.50	122	287
TP160	0.80	53	125
TP160	1.50	54	127
TP160	2.00	63	148
TP161	1.40	138	324
TP161	2.00	69	162
TP162	0.50	85	200
TP162	1.20	75	176
TP163	1.10	84	197
TP163	2.00	31	73
TP163	2.40	35	82
TP164	1.50	46	108
TP164	2.20	63	148
TP165	1.40	75	176
TP165	1.80	106	249
TP165	2.30	104	244
TP168	1.00	84	197
TP168	1.50	85	200
TP168	2.00	96	226
TP168	2.50	92	216
TP168	3.00	90	214

LOCATION	DEPTH	SHEAR STRENGTH (kPA)	CALCULATED ALLOWABLE BEARING PRESSURE (kN/m^2)
TP170	1.00	55	129
TP171	0.60	24	56
TP171	0.80	93	219
TP171	1.80	64	150
TP173	0.50	62	146
TP173	1.80	48	113
TP174	1.20	103	242
TP176	1.50	94	221
TP177	2.30	46	108
TP178	1.20	99	233
TP179	0.80	82	193
TP179	1.40	196	461
TP179	1.80	85	200
TP180	1.70	96	226
TP181	0.50	51	120
TP181	1.00	136	320
TP181	1.50	103	242
TP181	2.00	57	134
TP182	1.20	95	223
TP183	0.40	112	263
TP183	0.90	57	134
TP184	1.40	105	247
TP185	1.80	43	101
TP186	1.40	94	221
TP186	1.80	99	232
TP187	1.00	76	179
TP187	1.80	75	176
TP187	2.10	62	146
TP188	1.00	81	190
TP188	1.50	72	169
TP188	2.00	72	169
TP188	2.50	69	162
TP190	1.50	74	174
TP190	2.00	76	179
TP190	2.50	82	193

LOCATION	DEPTH	SHEAR STRENGTH (kPA)	CALCULATED ALLOWABLE BEARING PRESSURE (kN/m^2)
TP191	0.70	73	172
TP191	1.30	84	197
TP191	2.00	75	176
TP194	1.30	84	197
TP194	1.80	82	193
TP194	2.20	72	169
TP194	2.80	53	125
TP194	3.20	53	125
TP196	1.50	76	179
TP196	2.00	76	179
TP196	2.50	72	169
TP198	1.50	85	200
TP198	2.00	75	176
TP198	2.50	66	155
TP1100	0.50	62	146
TP1100	1.00	72	169
TP1100	1.50	72	169
TP1102	0.50	59	139
TP1102	1.00	63	148
TP1102	1.50	64	150
TP1103	1.20	76	179
TP1103	1.50	63	148
TP1104	1.00	49	115
TP1105B	1.40	60	141
TP1105B	2.00	88	207
TP1106	0.50	59	139
TP1106	1.00	57	134
TP1106	1.50	60	141
TP1107	1.20	50	118
TP1107	1.60	119	280
TP1107	2.00	103	242
TP1108	1.00	51	120
TP1109	2.50	114	268
TP1110	1.00	53	125
TP1110	1.50	56	132

LOCATION	DEPTH	SHEAR STRENGTH (kPA)	CALCULATED ALLOWABLE BEARING PRESSURE (kN/m^2)
TP1110	2.00	62	146
TP1111	1.20	112	263
TP1111	1.80	56	132
TP1111	2.50	119	280
TP1112	0.50	55	129
TP1112	1.00	56	132
TP1113	0.70	77	181
TP1114	0.50	58	136
TP1114	1.00	62	146
TP1114	1.50	61	143
TP1114	2.00	61	143
TP1114	2.50	60	141
TP1115	1.50	59	139
TP1116	0.80	41	96
TP1116	1.30	49	115
TP1116	1.70	37	87
TP1117	0.80	75	176
TP1117	1.10	84	197
TP1118	0.80	57	134
TP1118	1.50	62	146
TP1118	2.00	64	150
TP1118	2.50	62	146
TP1119	1.00	61	143
TP1119	1.50	44	103
TP1120	1.50	50	118
TP1120	2.00	64	150
TP1120	2.50	86	202
TP1121	1.00	67	157
TP1121	1.50	77	181
TP1122	1.60	80	188
TP1122	2.00	68	160
TP1122	2.40	45	106
TP1124	0.80	45	106
TP1125	0.80	91	214
TP1125	1.20	75	176

LOCATION	DEPTH	SHEAR STRENGTH (kPA)	CALCULATED ALLOWABLE BEARING PRESSURE (kN/m^2)
TP1126	1.50	53	125
TP1127	0.80	56	132
TP1127	1.30	94	221
TP1128	1.80	55	129

Notes
ABP Calculated using Stroud and Butler et al 1974.

Results of the standard penetration tests, including undrained shear strengths derived from SPTs are included in Table 8.6.

TABLE 8.5 SUMMARY OF UNDRAINED SHEAR STRENGTH TEST RESULTS

LOCATION	SAMPLE DEPTH (m)	LAB DESCRIPTION	UNDRAINED SHEAR STRENGTH (kN/m^2)	CONSISTENCY
WS113	1.50–2.00	Firm brown silty sandy CLAY	44	Firm
WS143	0.50–1.00	Stiff brown silty sandy CLAY	66	Firm
WS116	0.50–1.00	Stiff brown silty sandy CLAY	107	Stiff
WS130	1.50–2.00	Soft brown silty sandy CLAY	22	Soft
WS159	0.50–1.00	Soft brown silty sandy CLAY	83	Stiff

8.8. SIDE STABILITY AND EASE OF EXCAVATION

Trial pits were generally stable in both granular Made Ground and natural strata however instability of trial pits and window sample probeholes was noted within some SAND deposits and areas of deeper Made Ground.

The presence of brick and concrete cobbles within the Made Ground deposits meant that in certain places, excavation was slow through the Made Ground and in some places, Made Ground could not be fully penetrated. The natural strata were excavated with relative ease.

TABLE 8.6 STANDARD/CONE PENETRATION TEST RESULTS

BOREHOLES	DEPTH (m bgl)	MATERIAL FIELD DESCRIPTION	CPT/SPT "N" VALUE	CORRECTED "N" VALUE $(N_1)_{60}$	TERZAGHI & PECK RELATIVE DENSITY (SANDS)	EUROCODE SOIL STRENGTH	CONSISTENCY (BS 5930)	TERZAGHI & PECK APPROXIMATE UNDRAINED SHEAR STRENGTH (kN/m^2)	ALLOWABLE BEARING PRESSURE (kN/m^2)*
WS101	1	MADE GROUND: Sand	1	1.01	Very Loose	N/A	N/A	N/A	10.08
WS101	2	SAND	16	14.62	Medium Dense	N/A	N/A	N/A	146.16
WS101	3	SAND (Weathered bedrock).	50	43.48	Dense	N/A	N/A	N/A	434.83
WS102	1	MADE GROUND: Clay	4	4.03	N/A	Low strength	Firm	20.16	41.46
WS102	2	MADE GROUND: Clay	7	6.39	N/A	Low strength	Firm	31.97	65.74
WS102	3	CLAY	12	10.44	N/A	Medium strength	Stiff	52.18	107.28
WS102	4	CLAY	50	42.24	N/A	Very high strength	Very Stiff	211.21	434.25
WS103	1	MADE GROUND: Gravel	18	18.15	Medium Dense	N/A	N/A	N/A	181.46
WS103	2	MADE GROUND: Sand	1	0.91	Very Loose	N/A	N/A	N/A	9.135
WS103	3	CLAY	0	0.87	N/A	Extremely low strength	Very Soft	4.35	8.94
WS103	4	SAND	5	4.22	Loose	N/A	N/A	N/A	42.24

BOREHOLES	DEPTH (m bgl)	MATERIAL FIELD DESCRIPTION	CPT/SPT "N" VALUE	CORRECTED "N" VALUE $(N_1)_{60}$	TERZAGHI & PECK RELATIVE DENSITY (SANDS)	EUROCODE SOIL STRENGTH	CONSISTENCY (BS 5930)	TERZAGHI & PECK APPROXIMATE UNDRAINED SHEAR STRENGTH (kN/m^2)	ALLOWABLE BEARING PRESSURE (kN/m^2)*
WS103	4.8	SAND (Weathered bedrock).	50	41.61	Dense	N/A	N/A	N/A	416.07
WS104	1	MADE GROUND: Clay	9	9.07	N/A	Medium strength	Stiff	45.37	93.27
WS104	2	Clayey SAND	50	45.68	Dense	N/A	N/A	N/A	456.76
WS105	1	MADE GROUND: gravel	5	5.04	Loose	N/A	N/A	N/A	50.40
WS105	2	CLAY	4	3.65	N/A	Very low strength	Soft	18.27	37.56
WS105	3	SAND	50	43.48	Dense	N/A	N/A	N/A	434.82
WS106	1	MADE GROUND: Clay	8	8.07	N/A	Medium strength	Stiff	40.33	82.91
WS106	2	MADE GROUND: Clay	11	10.05	N/A	Medium strength	Stiff	50.24	103.30
WS106	3	CLAY	13	11.31	N/A	Medium strength	Stiff	56.53	116.22
WS106	3.8	SAND	50	42.44	Dense	N/A	N/A	N/A	424.42
WS107	1	CLAY	11	11.09	N/A	Medium strength	Stiff	55.45	114.00
WS107	2	SAND	50	45.68	Dense	N/A	N/A	N/A	456.76

BOREHOLES	DEPTH (m bgl)	MATERIAL FIELD DESCRIPTION	CPT/SPT "N" VALUE	CORRECTED "N" VALUE $(N_1)_{60}$	TERZAGHI & PECK RELATIVE DENSITY (SANDS)	EUROCODE SOIL STRENGTH	CONSISTENCY (BS 5930)	TERZAGHI & PECK APPROXIMATE UNDRAINED SHEAR STRENGTH (kN/m^2)	ALLOWABLE BEARING PRESSURE (kN/m^2)*
WS108	1	MADE GROUND: Clay	20	20.16	N/A	High strength	Very Stiff	100.81	207.28
WS108	2	MADE GROUND: Clay	1	0.91	N/A	Extremely low strength	Very Soft	4.57	9.39
WS108	2.8	MADE GROUND: Clay	50	43.82	N/A	Very high strength	Very Stiff	219.10	450.48
WS109	1	MADE GROUND: gravel	6	6.05	Loose	N/A	N/A	N/A	60.48
WS109	2	MADE GROUND: gravel	1	0.91	Very Loose	N/A	N/A	N/A	9.13
WS109	3	MADE GROUND: gravel	4	3.48	Very Loose	N/A	N/A	N/A	34.78
WS109	4	MADE GROUND: gravel	1	0.84	Very Loose	N/A	N/A	N/A	8.45
WS109	5	SAND	18	14.93	Medium Dense	N/A	N/A	N/A	149.33
WS110	1	SAND	23	23.19	Medium Dense	N/A	N/A	N/A	231.87
WS110	2	SAND	50	45.68	Dense	N/A	N/A	N/A	456.76
WS111	1	MADE GROUND: gravel	6	6.05	Loose	N/A	N/A	N/A	60.48

BOREHOLES	DEPTH (m bgl)	MATERIAL FIELD DESCRIPTION	CPT/SPT "N" VALUE	CORRECTED "N" VALUE $(N_1)_{60}$	TERZAGHI & PECK RELATIVE DENSITY (SANDS)	EUROCODE SOIL STRENGTH	CONSISTENCY (BS 5930)	TERZAGHI & PECK APPROXIMATE UNDRAINED SHEAR STRENGTH (kN/m^2)	ALLOWABLE BEARING PRESSURE (kN/m^2)*
WS111	2	MADE GROUND: gravel	5	4.57	Loose	N/A	N/A	N/A	45.67
WS111	3	MADE GROUND: gravel	23	20.00	Medium Dense	N/A	N/A	N/A	200.01
WS111	4	MADE GROUND: gravel	4	3.38	Very Loose	N/A	N/A	N/A	33.79
WS111	5	MADE GROUND: gravel	19	15.76	Medium Dense	N/A	N/A	N/A	157.62
WS112	1	MADE GROUND: clay	4	4.03	N/A	Low strength	Firm	20.16	41.46
WS112	2	CLAY	12	10.96	N/A	Medium strength	Stiff	54.81	112.69
WS112	3	SAND	50	43.48	Dense	N/A	N/A	N/A	434.82
WS113	1	CLAY	12	12.10	N/A	Medium strength	Stiff	60.49	124.37
WS113	2	SAND	50	45.68	Dense	N/A	N/A	N/A	456.76
WS114	1	SAND	15	15.12	Medium Dense	N/A	N/A	N/A	151.22
WS114	2	SAND	50	45.68	Dense	N/A	N/A	N/A	456.76
WS115	1	CLAY	8	8.07	N/A	Medium strength	Stiff	40.33	82.91
WS115	2	SAND	50	45.68	Dense	N/A	N/A	N/A	456.76

BOREHOLES	DEPTH (m bgl)	MATERIAL FIELD DESCRIPTION	CPT/SPT "N" VALUE	CORRECTED "N" VALUE $(N_1)_{60}$	TERZAGHI & PECK RELATIVE DENSITY (SANDS)	EUROCODE SOIL STRENGTH	CONSISTENCY (BS 5930)	TERZAGHI & PECK APPROXIMATE UNDRAINED SHEAR STRENGTH (kN/m^2)	ALLOWABLE BEARING PRESSURE (kN/m^2)*
WS116	1	SAND	25	25.20	Medium Dense	N/A	N/A	N/A	252.03
WS116	2	SAND	50	45.68	Dense	N/A	N/A	N/A	456.76
WS117	1	CLAY	16	16.13	N/A	High strength	Very Stiff	80.65	165.82
WS117	2	CLAY	16	14.62	N/A	Medium strength	Stiff	73.08	150.26
WS117	3	SAND	50	43.48	Dense	N/A	N/A	N/A	434.82
WS118	1	CLAY	8	8.07	N/A	Medium strength	Stiff	40.33	82.91
WS118	2	CLAY	50	45.68	N/A	Very high strength	Very Stiff	228.38	469.56
WS119	1	CLAY	17	17.14	N/A	High strength	Very Stiff	85.69	176.18
WS119	2	CLAY	25	22.84	N/A	High strength	Very Stiff	114.19	234.78
WS119	3	CLAY	16	13.91	N/A	Medium strength	Stiff	69.57	143.04
WS119	4	SAND (Weathered Bedrock)	50	42.24	Dense	N/A	N/A	N/A	422.42
WS120	1	SAND	10	10.08	Medium Dense	N/A	N/A	N/A	100.81
WS120	2	SAND	50	45.68	Dense	N/A	N/A	N/A	456.76

BOREHOLES	DEPTH (m bgl)	MATERIAL FIELD DESCRIPTION	CPT/SPT "N" VALUE	CORRECTED "N" VALUE $(N_1)_{60}$	TERZAGHI & PECK RELATIVE DENSITY (SANDS)	EUROCODE SOIL STRENGTH	CONSISTENCY (BS 5930)	TERZAGHI & PECK APPROXIMATE UNDRAINED SHEAR STRENGTH (kN/m^2)	ALLOWABLE BEARING PRESSURE (kN/m^2)*
WS121	1	MADE GROUND: gravel	1	1.01	Very Loose	N/A	N/A	N/A	10.08
WS121	2	CLAY	17	15.53	N/A	High strength	Very Stiff	77.65	159.65
WS121	3	SAND	50	43.48	Dense	N/A	N/A	N/A	434.82
WS122	1	CLAY	7	7.06	N/A	Low strength	Firm	35.29	72.55
WS122	2	CLAY	50	45.68	N/A	Very high strength	Very Stiff	228.38	469.56
WS123	1	MADE GROUND: gravel	1	1.01	Very Loose	N/A	N/A	N/A	10.08
WS123	2	CLAY	12	10.96	N/A	Medium strength	Stiff	54.81	112.69
WS123	3	SAND	50	43.48	Dense	N/A	N/A	N/A	434.82
WS124	1	MADE GROUND: sand	7	7.06	Loose	N/A	N/A	N/A	70.57
WS124	2	MADE GROUND: sand	8	7.31	Loose	N/A	N/A	N/A	73.08
WS124	3	MADE GROUND: clay	11	9.57	N/A	Stiff	Medium strength	47.83	98.34
WS124	4	MADE GROUND: clay	50	42.24	N/A	Very Stiff	Very high strength	211.21	434.25

BOREHOLES	DEPTH (m bgl)	MATERIAL FIELD DESCRIPTION	CPT/SPT "N" VALUE	CORRECTED "N" VALUE $(N_1)_{60}$	TERZAGHI & PECK RELATIVE DENSITY (SANDS)	EUROCODE SOIL STRENGTH	CONSISTENCY (BS 5930)	TERZAGHI & PECK APPROXIMATE UNDRAINED SHEAR STRENGTH (kN/m^2)	ALLOWABLE BEARING PRESSURE (kN/m^2)*
WS125	1	CLAY	12	12.10	N/A	Medium strength	Stiff	60.49	124.37
WS125	2	CLAY	18	16.44	N/A	High strength	Very Stiff	82.22	169.04
WS125	2.5	CLAY	50	44.41	N/A	Very high strength	Very Stiff	222.04	456.52
WS126	1	SAND	10	10.08	Medium Dense	N/A	N/A	N/A	100.81
WS126	2	SAND	50	45.68	Dense	N/A	N/A	N/A	456.76
WS127	1	CLAY	6	6.05	N/A	Low strength	Firm	30.24	62.18
WS127	2	CLAY	18	16.44	N/A	High strength	Very Stiff	82.22	169.04
WS127	3	SAND	17	14.78	Medium Dense	N/A	N/A	N/A	147.84
WS127	4	SAND	18	15.21	Medium Dense	N/A	N/A	N/A	152.07
WS128	1	CLAY	8	8.07	N/A	Medium strength	Stiff	40.33	82.91
WS128	2	CLAY	7	6.39	N/A	Low strength	Firm	31.97	65.74
WS128	3	CLAY	13	11.31	N/A	Medium strength	Stiff	56.53	116.22
WS128	3.7	CLAY	50	42.55	N/A	Very high strength	Very Stiff	212.75	437.42

BOREHOLES	DEPTH (m bgl)	MATERIAL FIELD DESCRIPTION	CPT/SPT "N" VALUE	CORRECTED "N" VALUE $(N_1)_{60}$	TERZAGHI & PECK RELATIVE DENSITY (SANDS)	EUROCODE SOIL STRENGTH	CONSISTENCY (BS 5930)	TERZAGHI & PECK APPROXIMATE UNDRAINED SHEAR STRENGTH (kN/m^2)	ALLOWABLE BEARING PRESSURE (kN/m^2)*
WS129	1	CLAY	15	15.12	N/A	High strength	Very Stiff	75.61	155.46
WS129	2	CLAY	16	14.62	N/A	Medium strength	Stiff	73.08	150.26
WS129	3	SAND	10	8.70	Loose	N/A	N/A	N/A	86.96
WS129	4	SAND (Weathered Bedrock)	22	18.59	Medium Dense	N/A	N/A	N/A	185.86
WS130	1	CLAY	7	7.06	N/A	Low strength	Firm	35.29	72.55
WS130	2	CLAY	7	6.39	N/A	Low strength	Firm	31.97	65.74
WS130	3	CLAY	14	12.18	N/A	Medium strength	Stiff	60.88	125.16
WS130	3.5	CLAY	50	42.78	N/A	Very high strength	Very Stiff	213.92	439.81
WS131	1	CLAY	21	21.17	N/A	High strength	Very Stiff	105.86	217.64
WS131	2	CLAY	50	45.68	N/A	Very high strength	Very Stiff	228.38	469.56
WS132	1	CLAY	8	8.07	N/A	Medium strength	Stiff	40.33	82.91
WS132	2	CLAY	16	14.62	N/A	Medium strength	Stiff	73.08	150.26
WS132	3	CLAY	16	13.91	N/A	Medium strength	Stiff	69.57	143.04

BOREHOLES	DEPTH (m bgl)	MATERIAL FIELD DESCRIPTION	CPT/SPT "N" VALUE	CORRECTED "N" VALUE $(N_1)_{60}$	TERZAGHI & PECK RELATIVE DENSITY (SANDS)	EUROCODE SOIL STRENGTH	CONSISTENCY (BS 5930)	TERZAGHI & PECK APPROXIMATE UNDRAINED SHEAR STRENGTH (kN/m^2)	ALLOWABLE BEARING PRESSURE (kN/m^2)*
WS132	3.8	CLAY	50	42.44	N/A	Very high strength	Very Stiff	212.21	436.31
WS133	1	SAND	15	15.12	Medium Dense	N/A	N/A	N/A	151.22
WS133	2	CLAY	12	10.96	N/A	Medium strength	Stiff	54.81	112.69
WS133	3	CLAY	18	15.65	N/A	High strength	Very Stiff	78.27	160.92
WS133	3.9	SAND	50	42.34	Dense	N/A	N/A	N/A	423.40
WS134	1	CLAY	11	11.09	N/A	Medium strength	Stiff	55.45	114.00
WS134	2	CLAY	18	16.44	N/A	High strength	Very Stiff	82.22	169.04
WS134	3	CLAY	50	43.48	N/A	Very high strength	Very Stiff	217.41	447.00
WS135	1	SAND	11	11.09	Medium Dense	N/A	N/A	N/A	110.89
WS135	2	CLAY	21	19.18	N/A	High strength	Very Stiff	95.92	197.21
WS135	3	CLAY	50	43.48	N/A	Very high strength	Very Stiff	217.41	447.00
WS136	1	CLAY	12	12.10	N/A	Medium strength	Stiff	60.49	124.37
WS136	2	CLAY	15	13.70	N/A	Medium strength	Stiff	68.52	140.87



BOREHOLES	DEPTH (m bgl)	MATERIAL FIELD DESCRIPTION	CPT/SPT "N" VALUE	CORRECTED "N" VALUE $(N_1)_{60}$	TERZAGHI & PECK RELATIVE DENSITY (SANDS)	EUROCODE SOIL STRENGTH	CONSISTENCY (BS 5930)	TERZAGHI & PECK APPROXIMATE UNDRAINED SHEAR STRENGTH (kN/m^2)	ALLOWABLE BEARING PRESSURE (kN/m^2)*
WS136	3	CLAY	21	18.26	N/A	High strength	Very Stiff	91.31	187.74
WS136	3.5	CLAY	50	42.78	N/A	Very high strength	Very Stiff	213.92	439.81
WS137	1	MADE GROUND: gravel	6	6.05	Loose	N/A	N/A	N/A	60.48
WS137	2	CLAY	8	7.31	N/A	Low strength	Firm	36.54	75.13
WS137	3	SAND (Weathered Bedrock)	50	43.48	Dense	N/A	N/A	N/A	434.82
WS138	1	CLAY	7	7.06	N/A	Low strength	Firm	35.29	72.55
WS138	2	SAND	10	9.14	Loose	N/A	N/A	N/A	91.35
WS138	3	SAND	17	14.78	Medium Dense	N/A	N/A	N/A	147.84
WS138	4	SAND	50	42.24	Dense	N/A	N/A	N/A	422.42
WS139	1	MADE GROUND: gravel	22	22.18	Medium Dense	N/A	N/A	N/A	221.79
WS139	2	CLAY	13	11.88	N/A	Medium strength	Stiff	59.38	122.09
WS139	3	SAND	50	43.48	Dense	N/A	N/A	N/A	434.82
WS140	1	SAND	5	5.04	Loose	N/A	N/A	N/A	50.40
WS140	2	CLAY	8	7.31	N/A	Low strength	Firm	36.54	75.13

BOREHOLES	DEPTH (m bgl)	MATERIAL FIELD DESCRIPTION	CPT/SPT "N" VALUE	CORRECTED "N" VALUE $(N_1)_{60}$	TERZAGHI & PECK RELATIVE DENSITY (SANDS)	EUROCODE SOIL STRENGTH	CONSISTENCY (BS 5930)	TERZAGHI & PECK APPROXIMATE UNDRAINED SHEAR STRENGTH (kN/m^2)	ALLOWABLE BEARING PRESSURE (kN/m^2)*
WS140	3	CLAY	50	43.48	N/A	Very high strength	Very Stiff	217.41	447.00
WS141	1	CLAY	11	11.09	N/A	Medium strength	Stiff	55.45	114.00
WS141	2	CLAY	27	24.67	N/A	High strength	Very Stiff	123.33	253.56
WS141	3	SAND (Weathered Bedrock)	50	43.48	Dense	N/A	N/A	N/A	434.82
WS142	1	SAND	15	15.12	Medium Dense	N/A	N/A	N/A	151.22
WS142	2	SAND	6	5.48	Loose	N/A	N/A	N/A	54.81
WS142	3	CLAY	50	43.48	N/A	Very high strength	Very Stiff	217.41	447.00
WS143	1	CLAY	12	12.10	N/A	Medium strength	Stiff	60.49	124.37
WS143	2	SAND (Weathered Bedrock)	50	45.68	Dense	N/A	N/A	N/A	456.76
WS144	1	SAND	6	6.05	Loose	N/A	N/A	N/A	60.48
WS144	2	CLAY	15	13.70	N/A	Medium strength	Stiff	68.52	140.87
WS144	3	GRAVEL	50	43.48	Dense	N/A	N/A	N/A	434.82



BOREHOLES	DEPTH (m bgl)	MATERIAL FIELD DESCRIPTION	CPT/SPT "N" VALUE	CORRECTED "N" VALUE $(N_1)_{60}$	TERZAGHI & PECK RELATIVE DENSITY (SANDS)	EUROCODE SOIL STRENGTH	CONSISTENCY (BS 5930)	TERZAGHI & PECK APPROXIMATE UNDRAINED SHEAR STRENGTH (kN/m^2)	ALLOWABLE BEARING PRESSURE (kN/m^2)*
WS145	1	SAND	12	12.10	Medium Dense	N/A	N/A	N/A	120.97
WS145	2	SAND	50	45.68	Dense	N/A	N/A	N/A	456.76
WS147	1	CLAY	14	14.11	N/A	Medium strength	Stiff	70.57	145.09
WS147	2	CLAY	50	45.68	N/A	Very high strength	Very Stiff	228.38	469.56
WS148	1	CLAY	10	10.08	N/A	Medium strength	Stiff	50.41	103.67
WS148	2	SAND	16	14.62	Medium Dense	N/A	N/A	N/A	146.16
WS148	3	SAND	11	9.57	Loose	N/A	N/A	N/A	95.66
WS148	4	SAND	14	11.83	Medium Dense	N/A	N/A	N/A	118.27
WS148	5	SAND	15	12.44	Medium Dense	N/A	N/A	N/A	124.44
WS149A	1	MADE GROUND: Concrete	50	50.41	Very Dense	N/A	N/A	N/A	504.07
WS149B	1	MADE GROUND: Concrete	50	50.41	Very Dense	N/A	N/A	N/A	504.07
WS150	1	SAND	6	6.05	Loose	N/A	N/A	N/A	60.48



BOREHOLES	DEPTH (m bgl)	MATERIAL FIELD DESCRIPTION	CPT/SPT "N" VALUE	CORRECTED "N" VALUE $(N_1)_{60}$	TERZAGHI & PECK RELATIVE DENSITY (SANDS)	EUROCODE SOIL STRENGTH	CONSISTENCY (BS 5930)	TERZAGHI & PECK APPROXIMATE UNDRAINED SHEAR STRENGTH (kN/m^2)	ALLOWABLE BEARING PRESSURE (kN/m^2)*
WS150	2	SAND	17	15.53	Medium Dense	N/A	N/A	N/A	155.30
WS150	3	SAND	21	18.26	Medium Dense	N/A	N/A	N/A	182.62
WS150	4	CLAY	50	42.24	N/A	Very high strength	Very Stiff	211.21	434.25
WS151	1	CLAY	14	14.11	N/A	Medium strength	Stiff	70.57	145.09
WS151	2	SAND (Weathered bedrock)	50	45.68	Dense	N/A	N/A	N/A	456.76
WS152	1	MADE GROUND: sand	6	6.05	Loose	N/A	N/A	N/A	60.48
WS152	2	MADE GROUND: sand	1	0.91	Very Loose	N/A	N/A	N/A	9.13
WS152	3	MADE GROUND: clay	50	43.48	N/A	Very high strength	Very Stiff	217.41	447.00
WS153A	1	MADE GROUND: Concrete	50	50.41	Very Dense	N/A	N/A	N/A	504.07
WS153B	1	MADE GROUND: Concrete	50	50.41	Very Dense	N/A	N/A	N/A	504.07
WS153C	1	MADE GROUND: Concrete	50	50.41	Very Dense	N/A	N/A	N/A	504.07

BOREHOLES	DEPTH (m bgl)	MATERIAL FIELD DESCRIPTION	CPT/SPT "N" VALUE	CORRECTED "N" VALUE $(N_1)_{60}$	TERZAGHI & PECK RELATIVE DENSITY (SANDS)	EUROCODE SOIL STRENGTH	CONSISTENCY (BS 5930)	TERZAGHI & PECK APPROXIMATE UNDRAINED SHEAR STRENGTH (kN/m^2)	ALLOWABLE BEARING PRESSURE (kN/m^2)*
WS155	1	SAND	13	13.11	Medium Dense	N/A	N/A	N/A	131.05
WS155	2	SAND (Weathered bedrock)	50	45.68	Dense	N/A	N/A	N/A	456.76
WS157	1	CLAY	12	12.10	N/A	Medium strength	Stiff	60.49	124.37
WS157	2	SAND (Weathered bedrock)	50	45.68	Dense	N/A	N/A	N/A	456.76
WS159	1	CLAY	11	11.09	N/A	Medium strength	Stiff	55.45	114.00
WS159	2	SAND	50	45.68	Dense	N/A	N/A	N/A	456.76
WS161	1	CLAY	20	20.16	N/A	High strength	Very Stiff	100.81	207.28
WS161	1.7	SAND	50	46.69	Dense	N/A	N/A	N/A	466.86
WS163	1	SAND	17	17.14	Medium Dense	N/A	N/A	N/A	171.38
WS163	2	CLAY	12	10.96	N/A	Medium strength	Stiff	54.81	112.69
WS163	3	CLAY	50	43.48	N/A	Very high strength	Very Stiff	217.41	447.00



BOREHOLES	DEPTH (m bgl)	MATERIAL FIELD DESCRIPTION	CPT/SPT "N" VALUE	CORRECTED "N" VALUE $(N_1)_{60}$	TERZAGHI & PECK RELATIVE DENSITY (SANDS)	EUROCODE SOIL STRENGTH	CONSISTENCY (BS 5930)	TERZAGHI & PECK APPROXIMATE UNDRAINED SHEAR STRENGTH (kN/m^2)	ALLOWABLE BEARING PRESSURE (kN/m^2)*
WS165A	0.3	MADE GROUND: Concrete	50	60.52	Very Dense	N/A	N/A	N/A	605.22
WS167A	0.3	MADE GROUND: Concrete	50	60.52	Very Dense	N/A	N/A	N/A	605.22
WS169	1	CLAY	13	13.11	N/A	Medium strength	Stiff	65.53	134.73
WS169	2	SAND (Weathered bedrock)	50	45.68	Dense	N/A	N/A	N/A	456.76
WS171	1	CLAY	12	12.10	N/A	Medium strength	Stiff	60.49	124.37
WS171	2	SAND	40	36.54	Dense	N/A	N/A	N/A	365.41
WS171	2.6	SAND (Weathered bedrock)	50	44.20	Dense	N/A	N/A	N/A	442.0
CP/RB101	1	MADE GROUND: Sand	2	2.02	Very Loose	N/A	N/A	N/A	20.16
CP/RB101	2	MADE GROUND: Sand	2	1.83	Very Loose	N/A	N/A	N/A	18.27
CP/RB101	3	MADE GROUND: Sand	1	0.87	Very Loose	N/A	N/A	N/A	8.69
CP/RB101	4	MADE GROUND: Sand	2	1.69	Very Loose	N/A	N/A	N/A	16.89

BOREHOLES	DEPTH (m bgl)	MATERIAL FIELD DESCRIPTION	CPT/SPT "N" VALUE	CORRECTED "N" VALUE $(N_1)_{60}$	TERZAGHI & PECK RELATIVE DENSITY (SANDS)	EUROCODE SOIL STRENGTH	CONSISTENCY (BS 5930)	TERZAGHI & PECK APPROXIMATE UNDRAINED SHEAR STRENGTH (kN/m^2)	ALLOWABLE BEARING PRESSURE (kN/m^2)*
CP/RB101	5	MADE GROUND: Sand	4	3.32	Very Loose	N/A	N/A	N/A	33.18
CP/RB101	6	CLAY.	50	40.99	N/A	Very high strength	Very Stiff	204.97	421.42
CP/RB102	1	MADE GROUND: Sand	1	1.01	Very Loose	N/A	N/A	N/A	10.081
CP/RB102	2	MADE GROUND: Sand	1	0.91	Very Loose	N/A	N/A	N/A	9.13
CP/RB102	3	MADE GROUND: Sand	3	2.61	Very Loose	N/A	N/A	N/A	26.08
CP/RB102	4	MADE GROUND: Sand	3	2.53	Very Loose	N/A	N/A	N/A	25.34
CP/RB102	5	SANDSTONE	50	41.48	Dense	N/A	N/A	N/A	414.81
CP/RB103	1	MADE GROUND: Sand	2	2.02	Very Loose	N/A	N/A	N/A	20.16
CP/RB103	2	MADE GROUND: Sand	1	0.91	Very Loose	N/A	N/A	N/A	9.13
CP/RB103	3	MADE GROUND: Sand	4	3.48	Very Loose	N/A	N/A	N/A	34.78
CP/RB103	4	CLAY.	20	16.90	N/A	High strength	Very Stiff	84.49	173.70
CP/RB103	5	SANDSTONE	50	41.48	Dense	N/A	N/A	N/A	414.81



NOTES

* The Allowable Bearing Pressure (ABP) should be considered indicative.

The interpretation of in situ mass undrained shear strength (cu) data from SPT Blow Count (N) results and the influence of the Plasticity Index (PI) was reported in Standard Penetration Test in Insensitive Clays and Soft Rocks. Stroud (1974). The standard penetration test and the engineering properties of glacial materials subsequently. Stroud and Butler (1975) and (1989).

Allowable bearing pressure on sands. Soil Mechanics in Engineering Practice Terzaghi, K. & Peck, R.B. 1996.

8.9. CONSOLIDATION

Two undisturbed samples of CLAY were submitted for oedometer analysis. The results are provided in Table 8.7.

TABLE 8.7 OEDOMETER CONSOLIDATION RESULTS

LOCATION	DEPTH (m)	SAMPLE TYPE	MOISTURE CONTENT (%)	OEDOMETER CONSOLIDATION		
				PRESSURE RANGE (kPa)	Mv (m^2/MN)	Cv (t90 root) (m^2/year)
WS116	0.50-1.00	U100	18	0–15	0.62	1.61
				15–30	0.40	1.19
				30–60	0.33	1.60
				60–120	0.17	1.15
				120–15	0.02	-
WS138	2.00-3.00	U100	12	0 – 55	0.39	1.76
				55 – 110	0.16	2.48
				110 – 220	0.12	2.98
				220 – 440	0.07	3.56
				440 – 55	0.02	-

The results have determined that the clay soil is of very low to high compressibility under loading of 120-440 kN/m2. It should be noted that if this material is excavated for use in a cut/fill operation, then careful consideration should be taken in the stabilisation of this material.

Engineering of this type of material will need to be completed during dry weather periods only.

8.10. UNIAXIAL COMPRESSION TESTS ON ROCK

Uniaxial compression tests were performed on samples of sandstone obtained from the three rotary boreholes advanced on-site. Samples were carried out where single core lengths of >200mm could be obtained. As the sandstone cores had significant fracturing (both naturally and drilling induced), the testing for UCS was limited. It is possible that additional samples may be viable if required.

The results of which are presented in Appendix X and are summarised in Table 8.8.

TABLE 8.8 SUMMARY OF UNIAXIAL COMPRESSION TESTS

LOCATION	DEPTH (m)	TEST TYPE	ORIENTATION	LOAD FAILURE (kN)	UCS - MPa
CP/RB101	6.70 – 6.91	C	Unknown	16.7	2.6
CP/RB101	7.50-7.96	C	Unknown	82.4	13.0
CP/RB101	11.10 – 11.15	C	Unknown	29.4	4.6
CP/RB102	6.10 – 6.40	C	Unknown	78	12.4
CP/RB102	10.40 – 10.60	C	Unknown	34.1	5.5
CP/RB103	6.55 – 6.78	C	Unknown	56.6	8.9
CP/RB103	8.33 – 8.65	C	Unknown	56.6	8.9

The results indicate a strength of between 2.6 and 13.0 (MPa) which equates to 2600–13000 kN/m^2

8.11. POINT LOAD TESTS

Select samples of sandstone rock core were submitted to a geotechnical laboratory for Point Load testing.

The results of this analysis are provided in Table 8.9 & 8.10.

The laboratory analysis sheets are included in Appendix X and the strength criteria are summarised in Table 8.9.

TABLE 8.9 DESCRIPTIVE TERMS OF ROCK STRENGTH

TERM	STRENGTH (MPA)
Extremely Weak	0.6-1.0
Very Weak	1-5
Weak	5-12.5
Moderately Weak	12.5-25
Medium Strong	25-50
Strong	50-100
Very Strong	100-250
Extremely Strong	>250

TABLE 8.10 SUMMARY OF ROCK POINT LOAD TESTING

BORE-HOLE	DEPTH (m)	ORIENTATION	DIAMETER (mm)	D_E (mm)	D_E^2	Load (P) (kN)	I_S (MPA)	CORR FAC (F)	I_{S50} (MPA)	CALCULATED UCS (MPA)
CP/RB101	10.28-10.40	Unknown	90	90	8100	2.6	0.32	1.30	0.42	**10.08**
	11.50-11.65	Unknown	90	90	8100	0.6	0.07	1.30	0.10	**2.40**
CP/RB102	6.66 – 6.77	Unknown	90	90	8100	2.6	0.32	1.30	0.42	**10.08**
	8.25 – 8.40	Unknown	90	90	8100	2.3	0.28	1.30	0.37	**8.88**
	9.38 – 9.50	Unknown	89	89	7921	0.1	0.01	1.30	0.02	**0.48**
	11.00 – 11.10	Unknown	88	88	7744	0.5	0.06	1.29	0.08	**1.92**
CP/RB103	5.13 – 5.31	Unknown	90	90	8100	14.1	1.74	1.30	2.27	**54.48**
	10.20 – 10.40	Unknown	90	90	8100	2.6	0.32	1.30	0.42	**10.08**

In a paper titled "Using The Point Load Test To Determine The Uniaxial Compressive Strength Of Coal Measure Rock", Rusnak and Mark indicate that early studies (Bieniawski, 1975; Broch and Franklin, 1972) conducted on hard, strong rocks, and found that relationship between UCS and the point load strength could be expressed as:

$$UCS = (K)Is50 = 24Is50$$

Where K is the conversion factor and Is_{50} is the corrected point load strength index. The conversion factor appears as a broad range, however, the value of 24 has been identified as an average result of published calculated conversion factors for sandstone stratum globally.

Given the results from the laboratory testing above, it would be appropriate to term the shallow bedrock underlying the site as generally extremely weak to strong and indicates a minimum UCS of 0.48 MPa (CP/RB102) which is considered conservative based on a minimum rock strength required of 2.0 MPa for piling.

8.12. PARTICLE SIZE DISTRIBUTION

Particle Size Distribution Tests have been undertaken on selected samples of granular material via wet sieve to obtain information on the soil fractions. The results are included in Table 8.11. The full results can be found in Appendix X.

TABLE 8.11 SUMMARY OF PARTICLE SIZE DISTRIBUTION TEST RESULTS

LOCATION	DEPTH (m)	SOIL FRACTION (%)			
		COBBLES	GRAVEL	SAND	SILT/CLAY
TP117	1.00 (Made Ground)	0	45	21	34
TP163	1.40 (Natural SAND)	0	0	17	83
TP118	1.00 (Made Ground)	5	53	26	16
TP140	0.50 (Made Ground)	0	37	41	22
TP152	0.50 (Natural SAND)	0	22	76	2
TP1208	1.20 (Natural) SAND	0	1	82	17
TP1119	1.00 (Natural CLAY)	0	15	24	61

8.13. SOIL DENSITY/MOISTURE CONTENT RELATIONSHIP

Dry density / moisture content relationship analysis has been conducted on soils using via utilising proctor compaction tests utilising a 2.5kg. The results of the tests have been summarised in Table 8.12. The full test results can be found in Appendix X.

TABLE 8.12 SUMMARY DRY DENSITY AND MOISTURE CONTENT

LOCATION	LABORATORY DESCRIPTION	TOP DEPTH (m)	METHOD OF COMPACTION	INITIAL MOISTURE CONTENT (%)	OPTIMUM MOISTURE CONTENT (%)	MATERIAL RETAINED ON 37.5 mm SIEVE (%)	MAX DRY DENSITY (mg/m³)	MATERIAL RETAINED ON 20.0 mm TEST SIEVE (%)
TP117	Made Ground	1.00	2.5kg	16.3	21.0	2	1.45	17
TP140	Made Ground	0.50	2.5kg	15.8	19	2	1.53	13
TP152	Brown slightly silty SAND with frequent gravel	0.50	2.5kg	6.6	11	2	1.84	7

The compaction tests have indicated that the materials on site are not wet at the optimum. It should be noted that if this material is excavated for use in a cut/fill operation careful consideration should be taken in the stabilisation of this material / controlling the moisture. Engineering of this type of material will need to be completed during dry weather periods only.

8.14. SOIL INFILTRATION

In-situ BRE 365 Soakaway tests were undertaken over a 48 hour period within trial pits completed as SA101/TP110, SA102/TP122, SA103/TP130, SA104/TP101, SA105/TP151, SA106/TP163, SA107/TP131, SA108/TP1105B, SA109/TP1107, SA110/TP1127 and SA111/TP1102.

The results are presented in Table 8.13 below and the test certificates are included in Appendix IX.

TABLE 8.13 BRE365 SOAKAWAY TESTING RESULTS

LOCATION	DEPTH (m)	MATERIAL	TEST NO.	SOIL INFILTRATION RATE (m/s)
SA101	3.20	Clayey SAND	Test No.1	N/A
SA102	2.60	Gravelly SAND	Test No.1	N/A
SA103	2.23	Gravelly SAND	Test No.1	N/A
SA104	2.60	Slightly gravelly slightly sandy CLAY / Gravelly SAND	Test No.1	N/A
SA105	2.70	Slightly gravelly CLAY / SAND	Test No.1	N/A
SA106	2.40	Very sandy CLAY / Sandy CLAY / slightly gravelly slightly clayey SAND/Slightly sandy CLAY	Test No.1	N/A
SA107	2.50	Slightly gravelly CLAY / Gravelly silty CLAY / Gravelly SAND	Test No.1	N/A
SA108	2.40	Slightly clayey SAND / Sandy CLAY	Test No.1	N/A
SA109	2.20	Slightly clayey SAND / Slightly sandy CLAY	Test No.1	N/A
SA110	2.20	Sandy CLAY / SAND	Test No.1	N/A
SA111	2.50	Gravelly sandy CLAY / Slightly gravelly clayey SAND.	Test No.1	N/A

Soil infiltration was taken over the wetted area from between 75% and 25% of the effective depth. All tests showed drift deposits to have very poor soakage potential as a soil infiltration rate could not be calculated within locations due to the presence of low permeability cohesive drift deposits or clayey SAND.

Therefore, it is considered that soakaway drainage is unlikely to be suitable for the proposed development. However, the application of soakaway drainage will ultimately be dependent on the specific requirements of the development. All soakaways should be designed in accordance with BRE Special Digest 365 – Soakaway Design.

8.15. SOIL PLASTICITY

The liquid and plastic limits of samples of natural in-situ clay are determined using the cone penetrometer method and the rolling thread test. These tests enable the determination of an average plasticity index (PI) for each "type" of clay, although judgement is applied where variable results are reported.

PI can be related to shrinkability (low, medium or high) and then to minimum founding depth.

E3P typically only consider a soil to be shrinkable if the proportion finer than 63 µm is > 35%.

PI results are compared against guidance given in the NHBC standards, Chapter 4.2 (revised January 2014), which advocates the use of modified plasticity index (I'p), defined as:

$$I'p = Ip \times (\% < 425\ \mu m/100)$$

In other words, if PI is 30%, but the soil contains 80% < 425 µm, then I'p = 30 × 80/100 = 24%.

It should be noted that in accordance with the requirements of BS 1377, the % passing the 425 µm sieve is routinely reported by testing labs.

E3P apply engineering judgement where PI results are spread over a range of classifications. Consideration is given to the average values for each particular soil type (differentiate between residual soil and alluvium), the number of results in each class and the actual values.

The Atterberg limits determinations, summarised in Table 8.14, show the clay to be characterised as low plasticity and medium volume change potential clay.

TABLE 8.14 SUMMARY OF PLASTICITY INDEX TEST RESULTS

LOCATION	DEPTH (m)	NATURAL MOISTURE CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	PASSING 425 µm SIEVE (%)	MODIFIED PLASTICITY INDEX	NHBC VOLUME CHANGE POTENTIAL
WS107	1.00	16	12	33	21	100	21	Medium
WS125	2.00	16	12	30	18	100	18	Low
WS127	2.00	24	16	43	27	99	26.73	Medium
WS141	1.00	13	13	39	26	98	25.48	Medium
WS104	1.00	15	12	31	19	100	19	Low
WS112	2.00	17	16	40	24	98	23.52	Medium
WS122	1.00	16	14	39	25	96	24	Medium
WS128	1.00	13	11	25	14	100	14	Low
WS155	1.00	11	11	29	18	100	18	Low
WS163	2.00	11	11	28	17	100	17	Low

The results of the Atterberg limits testing confirmed that the soils would be deemed to be “Low to Medium Volume Change Potential” in accordance with the classification system utilised by the LABC/NHBC industry guidance.

8.16. CALIFORNIA BEARING RATIO

The California bearing ratio (CBR) for the soils were measured using an in-situ TRL probe. The results are summarised in Table 8.15.

The result sheets are included in Appendix VIII and the locations are shown on Drawing 15-280-005 (Appendix III). CBR results have been averaged from the blow counts across the strata tested and any abnormally high blow counts ignored as these are likely to be from larger granular material and so represent anomalies.

TABLE 8.15 SUMMARY OF DCP RESULTS

LOCATION	DEPTH (m)	STRATA	IN-SITU OR LAB TEST	CBR (%)
DCP101	0.61 – 0.83	CLAY	In-Situ	5.35
DCP102	0.18 – 0.51	Made Ground	In-Situ	10.09
DCP103	0.62 – 0.82	Made Ground	In-Situ	7.50
DCP104	0.46 – 0.72	Sandy CLAY	In-Situ	9.73
DCP105	0.22 – 0.39	Made Ground	In-Situ	13.44
DCP106	0.37 - 0.53	Made Ground	In-Situ	6.20
DCP107	0.68 – 0.85	Made Ground / CLAY	In-Situ	10.18
DCP108	0.29 – 0.39	Made Ground	In-Situ	7.92
DCP109	0.63 – 0.73	Made Ground	In-Situ	17.43
DCP110	0.58 - 0.68	Made Ground	In-Situ	4.73
DCP111	0.59 – 0.71	Made Ground	In-Situ	6.40
DCP112	0.44 – 0.69	Made Ground: Sandy CLAY	In-Situ	14.66
DCP113	0.57 – 0.66	Made Ground	In-Situ	7.66
DCP114	0.55 – 0.75	Made Ground	In-Situ	4.99
DCP115	0.37 - 0.82	CLAY	In-Situ	7.75
DCP116	0.28 - 0.43	Made Ground	In-Situ	9.85
DCP117	0.33 – 0.61	Made Ground	In-Situ	11.77
DCP118	0.33 – 0.48	Made Ground	In-Situ	15.12
DCP119	0.41 – 0.75	Made Ground / CLAY	In-Situ	8.65
DCP120	0.66 – 0.76	Made Ground	In-Situ	16.29
DCP121	0.61 – 0.67	Firm sandy CLAY	In-Situ	16.67
DCP122	0.20 – 0.34	Made Ground	In-Situ	8.79
DCP123	0.19 - 0.20	Made Ground	In-Situ	337.57
DCP124	0.33- 0.57	Made Ground	In-Situ	14.06
DCP125	0.21 – 0.28	Made Ground	In-Situ	62.08
DCP126	0.70 – 0.74	CLAY	In-Situ	6.84
DCP127	0.21 – 0.35	CLAY	In-Situ	7.10
DCP128	0.22 - 0.66	CLAY	In-Situ	7.84
DCP129	0.34 – 0.82	Made Ground	In-Situ	5.06
DCP130	0.12 – 0.64	Made Ground	In-Situ	10.10

LOCATION	DEPTH (m)	STRATA	IN-SITU OR LAB TEST	CBR (%)
DCP131	0.00 – 0.13	Made Ground	In-Situ	5.62
DCP132	0.36 – 0.58	Made Ground	In-Situ	11.40
DCP133	0.00 – 0.13	CLAY	In-Situ	7.10
DCP134	0.48 – 0.72	CLAY	In-Situ	9.60
DCP135	0.61 – 0.82	Made Ground / CLAY	In-Situ	3.39
DCP136	0.61 – 0.84	CLAY	In-Situ	17.25
DCP137	0.13 – 0.15	Made Ground	In-Situ	119.71
DCP138	0.47 – 0.86	CLAY	In-Situ	6.27
DCP139	0.24 – 0.33	Made Ground	In-Situ	18.97
DCP140	0.37 – 0.53	Made Ground	In-Situ	6.08
DCP141	0.62 – 0.78	Made Ground	In-Situ	6.41
DCP142	0.55 – 0.74	Made Ground	In-Situ	3.81
DCP143	0.46 – 0.74	Made Ground / CLAY	In-Situ	2.47
DCP144	0.12 – 0.17	Made Ground	In-Situ	96.44
DCP145	0.19 – 0.45	CLAY	In-Situ	7.71
DCP146	0.52 – 0.75	Made Ground	In-Situ	8.52

It should be noted that the reported CBR results were obtained from soils in a highly undisturbed state. If, however, the topsoil and surface cover is removed during periods of wetter climatic condition, the formation will soften, reducing the CBR.

8.17. pH AND SULPHATE

Chemical analyses for pH and soluble sulphate content contained in Appendix VI (summarised in Table 8.16), shows that the soils at the site generally meet Class DS-1, Aggressive Chemical Environment for Concrete Classification (ACEC) AC-1s in accordance with BRE *Special Digest 1* (2005).

Elevated sulphate concentrations meeting Class DS-2, AC-1s were noted within the Made Ground deposits in TP117 at 0.70 m. Elevated sulphate concentrations meeting Class DS-3, AC-2s were noted within the Made Ground deposits in TP118 at 0.50m and TP1101 at 0.90m.

TABLE 8.16 SUMMARY OF pH AND SULPHATE DATA

LOCATION	DEPTH (m)	SO_4 IN 2:1 WATER/SOIL (g/l)	pH VALUE	CLASSIFICATION
WS106	0.50	0.0088	7.4	DS-1,AC-1s
WS110	1.20	0.074	7.0	DS-1,AC-1s
TP118	0.50	2.4	6.9	**DS-3, AC-2s**
WS114	0.50	0.0053	7.5	DS-1,AC-1s
TP132	0.20	0.073	7.3	DS-1,AC-1s
WS124	1.90	0.26	7.4	DS-1,AC-1s
WS130	0.50	0.030	6.7	DS-1,AC-1s

LOCATION	DEPTH (m)	SO_4 IN 2:1 WATER/SOIL (g/l)	pH VALUE	CLASSIFICATION
TP162	0.10	0.030	8.9	DS-1,AC-1s
TP166	0.40	0.058	9.0	DS-1,AC-1s
WS140	0.50	0.027	12	DS-1,AC-1s
WS142	1.60	0.0055	8.1	DS-1,AC-1s
TP107	0.70	0.080	7.2	DS-1,AC-1s
TP117	0.70	0.77	7.4	**DS-2,AC-1s**
WS111	2.50	0.40	8.4	DS-1,AC-1s
TP141	1.00	0.12	7.6	DS-1,AC-1s
TP141	2.00	0.053	7.2	DS-1,AC-1s
TP155	1.00	0.092	7.4	DS-1,AC-1s
TP169	0.80	0.83	6.8	DS-1,AC-1s
WS131	0.10	0.067	6.9	DS-1,AC-1s
TP185	0.70	0.011	7.5	DS-1,AC-1s
TP1101	0.90	1.8	8.2	**DS-3, AC-2s**
TP101	1.30	0.16	8.4	DS-1,AC-1s
WS139	0.10	0.080	9.0	DS-1,AC-1s
WS141	1.80	0.0043	8.1	DS-1,AC-1s
TP1115	1.50	0.080	8.1	DS-1,AC-1s
WS148	0.80	0.016	7.0	DS-1,AC-1s
TP194	0.80	0.18	7.5	DS-1,AC-1s
TP1104	0.50	0.035	8.4	DS-1,AC-1s
TP1118	0.70	0.037	7.7	DS-1,AC-1s
TP1122	0.20	0.032	7.8	DS-1,AC-1s
TP1128	0.50	0.10	7.7	DS-1,AC-1s

9. TIER I QUALITATIVE CONTAMINATED LAND RISK ASSESSMENT

E3P has undertaken a Tier 1 qualitative risk assessment to determine if any potential contaminants within the underlying soils and groundwater pose an unacceptable level of risk to the identified receptors.

9.1. DEVIATING SAMPLES

Deviating samples were to be avoided during the ground investigation by using best practice sampling procedures including use of appropriate sampling containers and adhering to the laboratory holding times for each contaminant analysis undertaken. No deviating samples were identified during the investigation or monitoring of the site.

9.2. HUMAN HEALTH RISK ASSESSMENT

At Tier 1 stage, the long term (chronic) human health toxicity of the soil has been assessed by comparing the on-site concentrations of organic and inorganic compounds with reference values published in LQM/CIEH S4UL (S4UL3267).

Where Tier 1 screening values are not provided by LQM, other screening values have been used and these are referenced in Table 9.1.

The results of this comparison have been summarised within Table 9.1.

TABLE 9.1 SUMMARY OF INORGANIC AND HYDROCARBON TOXICITY ASSESSMENT FOR A RESIDENTIAL END USE

DETERMINANT	UNIT	GAC	N	MC	LOC. OF EX	PATH -WAY	ASSESSMENT
Arsenic	mg/kg	37	51	110 52 41 86 96 47 110 96 120 120 130 110 61	TP118 0.50 m TP132 0.20 m TP140 0.10 m TP117 0.70 m TP121 1.00 m WS111 2.50 m TP141 1.00 m TP155 1.00 m TP169 0.80 m WS131 0.10 m TP1125 0.10 m TP194 0.80 m TP1128 0.50 m	1	Further Action
Cadmium	mg/kg	17	51	13	N/A	1	No Further Action
Chromium (VI)	mg/kg	6.0	51	< 4.0	N/A	1	No Further Action
Lead	mg/kg	200	51	220 270 450 1100 940 410 420 1400 1400 1200 1000	TP118 0.50 m TP140 0.10 m TP117 0.70 m TP121 1.00 m WS111 2.50 m TP141 1.00 m TP155 1.00 m TP169 0.80 m WS131 0.10 m TP1125 0.10 m TP194 0.80 m	1	Further Action
Mercury	mg/kg	1.2	51	2.8 2.0	TP118 0.50 m TP141 1.00 m	4	Further Action
Nickel	mg/kg	130	51	140 210 210 140	TP155 1.00 m TP169 0.80 m WS131 0.10 m TP194 0.80 m	1	Further Action
Selenium	mg/kg	250	51	3.9	N/A	1	No Further Action
Copper	mg/kg	2400	51	2300	N/A	1	No Further Action
Zinc	mg/kg	3700	51	4200	TP1125 0.10 m	1	Further Action
Cyanide – Total	mg/kg	791	51	11	N/A	1	No Further Action
Phenols – Total	mg/kg	120	51	< 1.0	N/A	1	No Further Action
Asbestos	Fibres	NFD	51	0.002% <0.001% 0.005%	TP118 0.50 m TP132 0.20 m TP140 0.10 m	3	Further Action
Naphthalene	mg/kg	2.3	51	4.1	TP1101 0.90m	4	Further Action
Acenaphthylene	mg/kg	170	51	1.2	N/A	2	No Further Action
Acenaphthene	mg/kg	210	51	6.1	N/A	1	No Further Action
Fluorene	mg/kg	170	51	5.1	N/A	1	No Further Action

DETERMINANT	UNIT	GAC	N	MC	LOC. OF EX	PATH -WAY	ASSESSMENT
Phenanthrene	mg/kg	95	51	33	N/A	2	No Further Action
Anthracene	mg/kg	2400	51	6.7	N/A	2	No Further Action
Fluoranthene	mg/kg	280	51	29	N/A	2	No Further Action
Pyrene	mg/kg	620	51	28	N/A	2	No Further Action
Benzo(a)Anthracene	mg/kg	7.2	51	7.7 14 20	TP132 0.20m TP1101 0.90 m TP1125 0.10 m	2	Further Action
Chrysene	mg/kg	15	51	19	TP1125 0.10 m	2	Further Action
Benzo(b)Fluoranthene	mg/kg	2.6	51	6.8 3.8 3.0 2.7 12 33 3.9	TP132 0.20 m TP142 1.00 m TP199 0.10 m WS139 0.10 m TP1101 0.90m TP1125 0.10 m TP184 0.10 m	2	Further Action
Benzo(k)Fluoranthene	mg/kg	77	51	11	N/A	2	No Further Action
Benzo(a)Pyrene	mg/kg	5.7	51	12 30	TP1101 0.90m TP1125 0.10 m	2	Further Action
Indeno(123-cd)Pyrene	mg/kg	27	51	15	N/A	2	No Further Action
Dibenzo(a,h)Anthracene	mg/kg	0.24	51	0.78 0.32 0.45 0.35 0.36 1.5 3.8 0.25 0.51	TP132 0.20 m TP120 0.10 m TP142 1.00 m WS139 0.10 m TP155 1.00 m TP1101 0.90 m TP1125 0.10 m TP1122 0.20m TP184 0.10 m	2	Further Action
Benzo(ghi)Perylene	mg/kg	320	51	17	N/A	2	No Further Action
TPH C5-C6 (aliphatic)*	mg/kg	42	43	< 1.0	N/A	4	No Further Action
TPH C6-C8 (aliphatic)*	mg/kg	100	43	< 0.1	N/A	4	No Further Action
TPH C8-C10 (aliphatic)*	mg/kg	27	43	< 0.1	N/A	4	No Further Action
TPH C10-C12 (aromatic)*	mg/kg	74	43	12	N/A	4	No Further Action
TPH C12-C16 (aromatic)*	mg/kg	140	43	52	N/A	4	No Further Action
TPH C16-C21 (aromatic)*	mg/kg	260	43	110	N/A	1	No Further Action
TPH C21-C35 (aromatic)*	mg/kg	1100	43	370	N/A	1	No Further Action
TPH C5-C6 (aliphatic)	mg/kg	42	8	<0.001	N/A	4	No Further Action
TPH C6-C8 (aliphatic)	mg/kg	100	8	<0.001	N/A	4	No Further Action
TPH C8-C10 (aliphatic)	mg/kg	27	8	<0.001	N/A	4	No Further Action

DETERMINANT	UNIT	GAC	N	MC	LOC. OF EX	PATH -WAY	ASSESSMENT
TPH C10-C12 (aliphatic)	mg/kg	130	8	3.7	N/A	4	No Further Action
TPH C12-C16 (aliphatic)	mg/kg	1100	8	11	N/A	1	No Further Action
TPH C16-C35 (aliphatic)	mg/kg	65000	8	425	N/A	1	No Further Action
TPH C5-C7 (aromatic)	mg/kg	70	8	<0.001	N/A	4	No Further Action
TPH C7-C8 (aromatic)	mg/kg	130	8	<0.001	N/A	4	No Further Action
TPH C8-C10 (aromatic)	mg/kg	34	8	<0.001	N/A	4	No Further Action
TPH C10-C12 (aromatic)	mg/kg	74	8	6.9	N/A	4	No Further Action
TPH C12-C16 (aromatic)	mg/kg	140	8	42	N/A	4	No Further Action
TPH C16-C21 (aromatic)	mg/kg	260	8	180	N/A	1	No Further Action
TPH C21-C35 (aromatic)	mg/kg	1100	8	470	N/A	1	No Further Action

Notes
PL1 = soil ingestion, PL2 = dermal contact and ingestion, PL3 = dust inhalation; PL4 = Vapour/Gas Inhalation; PL5 = Vertical / Lateral Migration; PL6 = Corrosion of concrete; PL7=Tainting of water supply; PL8 = Uptake by plants

Abbreviations: GAC = general assessment criteria, n = number of samples, MC = maximum concentration; Loc of Ex = location of exceedance; NFD = no fibres detected.

* The Tier 1 GAC for the hydrocarbon fraction is derived from the CIEH assessment for petroleum hydrocarbons Criteria Working Group (CWG) for both aliphatic and aromatic compounds. E3P has utilised the Tier 1 values for aliphatic compounds for the volatile and semi volatile fractions (C5-C12) and the Tier 1 values for aromatic compound for the non-volatile fractions (C12-C35). The comparison of a total (aliphatic/aromatic) compounds to an individual fraction is considered to be a conservative approach and satisfactory for the protection of human health.
** Atkins ATRISK
*** USEPA Risk Management Levels

Referring to Table 9.1, the results of this direct comparison indicate that the data exceeds the screening criteria for a residential end use for the following contaminants:

- Arsenic
- Lead
- Mercury
- Nickel
- Zinc
- Naphthalene
- Benzo(a)Anthracene
- Chrysene
- Benzo(b)Fluoranthene;.
- Benzo(a)Pyrene
- Dibenzo(a,h)Anthracene
- Asbestos (Chrysotile, Crocidolite and Amosite)

The following SVOCs above the LOD have been identified:

- WS111 at 2.50m - Dibutyl phthalate and Butyl benzyl phthalate
- TP1101 at 0.90m - 4-Chloroaniline, 2-Methylnaphthalene, Carbazole and Dibenzofuran

Asbestos in the form of loose chrysotile and crocidolite fibres have been identified in the granular Made Ground in TP132 at 0.20 bgl. Chrysotile loose fibrous debris have been identified in the reworked topsoil in TP140 at 0.10m bgl. Loose amosite fibres have been identified in the granular Made Ground in TP118 at 0.50m.

The soil in TP154 was tested for PCBs due to the proximity to a former electricity substation. No PCBs exceeding the laboratory limit of detection were recorded.

The laboratory analysis confirms the assessment within the initial conceptual site model that the main constituents of concern were likely to be asbestos, PAHs and heavy metals.

In relation to these exceedances, the following can be determined:

- The main exposure pathways based on the Tier I exceedances are:
  - Soil ingestion;
  - Vapour inhalation (indoor);
  - Dermal contact and ingestion;
  - Consumption of homegrown vegetables; and
  - Fibre/dust inhalation.
- The exceedances for all determinants are associated with Made Ground deposits with the exception of natural topsoil deposits in WS131 and TP120.

PETROL FILLING STATION

Within the soils analysis no elevated concentrations of TPH or BTEX in the area of the former petrol filling station were identified to date. A hydrocarbon odour was identified within WS142 in this vicinity within SAND deposits underlying Made Ground. The tanks are understood to still be in-situ and the presence of contamination cannot be ruled out at this stage.

Historical site investigation identified hydrocarbon odours and staining in the vicinity of the petrol filling station with TPHs within soil analysis and BTEX, MTBE, TPHs and Phenols identified within groundwater analysis.

The area will be fully remediated with the tanks removed and validated to ensure that no impact poses a risk to future end users or the wider environment.

HUMAN HEALTH RISK ASSESSMENT AND MITIGATION

All of the identified elevated concentrations have primary exposure pathways related to dermal contact and ingestion of soils, inhalation of particulate, vapour inhalation and consumption of homegrown vegetables. Heavy metals and non-volatile PAHs have been identified within the Made Ground deposits across the site, likely related to former deposition and levelling of the site and adjacent landfill. The risk to chronic human health associated with the elevated concentrations of inorganic heavy metals and non-volatile PAH compounds can be mitigated through the installation of a suitable cover system in all proposed private gardens, landscaping and public open space to remove any potential for direct exposure to impacted soils.

The specific design and installation process for the appropriate cover systems will be clearly defined within the site remediation and enabling works strategy; however, industry best practice will require the following minimum depths of certified clean cover:

- Private gardens where homegrown vegetables can be cultivated – 600 mm;
- Landscaped areas within private dwellings – 300 mm;
- Public open space – 300 mm.

Elevated mercury has been identified within TP118 at 0.50m bgl and TP141 1.00 m bgl within Made Ground deposits. This presents a potential volatilisation to indoor air risk and is considered to be localised hotspots within this Made Ground strata. During a phase of remediation and enabling works further speciation testing should be completed to confirm the type of mercury present and whether it presents a vapour risk. Should it be volatile a hotspot removal should be undertaken to delineate the extent of impact and soils should be chemically validated to assess chemical suitability for retention on site in an area of no future sensitivity.

Asbestos in the form of chrysotile, crocidolite and amosite has been identified within shallow Made Ground deposits. Out of 51 samples tested, three samples had a positive identification for asbestos where quantification has confirmed soils to contain between <0.001% and 0.005% by hand picking weight. It is considered that asbestos loose fibres will be present throughout the Made Ground across the site due to the nature of the fill materials on-site. However, levels of asbestos identified above <0.001% are considered to be localised and should undergo a hotspot removal.

Visual signs of ACM were encountered within various exploratory hole locations, likely to be associated with the historical deposition Made Ground materials. During the remediation and enabling works these should be removed from site by a licensed asbestos removal contractor. Impacted soils should be managed according to the asbestos risk mitigation conceptual site model shown in Figure 9.1.

FIGURE 9.1 ASBESTOS RISK MITIGATION CONCEPTUAL SITE MODEL



Notes
ND None Detect
0.001% Soils may contain ≤ 0.001% asbestos using composite testing to ensure there is no potential risk to human health. This value is present within areas where there may be a short term low level exposure of soils containing trace asbestos fibres by construction workers where an appropriate level of asbestos management is employed (dust suppression)
0.1% Soils at a depth of >1.00m bgl may contain <0.1% asbestos using composite testing where they will not be likely to be disturbed in the future and will therefore be in an area of low sensitivity. Risk assessment completed in accordance with Asbestos JIWG risk assessment tools.
Undefined- this will be dependent upon soils encountered during earthworks, which may be placed at these depths to ensure no potential risk to human health.

SVOCs Dibutyl phthalate, Butyl benzyl phthalate, 4-Chloroaniline, Carbazole, 2-Methylnaphthalene and Dibenzofuran have been identified within the analysis of Made Ground deposits within WS111(historical deposition deposits) and TP1101 (Made Ground deposits with noted sulphide odour). These elevated concentrations present a potential volatilisation to indoor air risk. Information on the identified compounds is provided herein to help inform the assessment.

2-Methylnaphthalene

2-methylnaphthalene is a white crystalline solid compound. This determinant is classified as a non-threshold substance, therefore even the smallest amount of exposure is considered to pose a theoretical risk to the critical receptor within the context of the developed CSM.

This compound was detected at a concentration of 2.3 mg/kg in TP1101 at 0.90 m.

The vapour pressure of 2-methylnaphthalene is 0.055 mm Hg @ 25°C which is slightly lower than that of naphthalene ((0.085 mm Hg @ 25°C), it is, therefore, determined that the compound is less volatile than naphthalene. This data is obtained from Pub Chem.

The Tier 1 CIEH / LQM S4UL for naphthalene is 2.3 mg/kg for a residential development scenario, however, this assessment assumes dermal contact, inhalation of particulate and other direct exposure pathways. The developed CSM for the subject site will incorporate a clean cover systems in landscaped areas to ensure no direct exposure pathways.

When considering that 2-Methylnaphthalene has a notably reduced vapour pressure to that of naphthalene, the absence of the compound in the vast majority of samples tested and in due consideration of the maximum concentration of the determinant being only 2.8 mg/kg, the potential for this compound to enter the vapour phase from soil with temperatures ~10 °C is low.

There is no justifiable or peer reviewed toxicological data for an inhalation pathway for 2-methylnaphthalene, therefore is it not possible to develop a robust site-specific risk assessment model given the absence of suitable input parameters.

In light of the above, we must consider the lines of evidence to hand and given that the compound is a non-threshold substance with no peer reviewed, robust or justifiable toxicological data the suggested method to ensure safe regeneration is the adoption of the As Low As Reasonably Possible (ALARP) approach.

In this instance, the methodology for the analytical technique is considered to be the lowest reasonably possible method of determining the presence of the non-threshold substance and mitigating risk to the lowest practicable level.

The US national library for medicine confirms:

If released to soil, 2-methylnaphthalene is expected to have slight to no mobility based upon log Koc values of 3.00-5.96. Volatilization from moist soil surfaces is expected based upon a Henry's Law constant of 5.18X10-4 atm-cu m/mole. However, adsorption to soil is expected to attenuate volatilization. 2-Methylnaphthalene is not expected to volatilize from dry soil surfaces based upon its vapor pressure.

This compound has a very low to no actual volatility, there is no inhalation of dust (indoor or outdoor air) or inhalation of vapour (indoor or outdoor) exposure. The total inhalation background is 1.52%.

As discussed, herein it is highly unlikely that this compound can enter the vapour phase in the soil temperatures furthermore the presence of a passively ventilated sub-floor void with a reasonable volume change potential (24hr) will ensure that in the extremely unlikely event that this compound could volatilise and migrate, the standard mitigation measure would ensure there is absolutely no potential for ingress into the habitable space.

Therefore within the context of the developed site CSM and the lines of evidence approach, it can be determined that the residual compound in this instance is highly unlikely to pose any risk in terms of vapour migration and ingress to the dwelling.

Dibenzofuran

This is a white solid compound generally derived from coal tar. The US EPA has determined a threshold value of 7.8 mg/kg. As such the concentrations of 3.1 mg/kg identified within TP1101 at 0.90 m is not considered to be exceeding.

In addition to the above, the relatively low volatility of this compound within soils with a temperature of ~10oC all but inhibits any volatilisation potential.

The US national library for medicine confirms:

Volatilisation from moist soil surfaces is expected to be an important fate process based upon an estimated Henry's Law constant of 2.1X10-4 atm-cu m/mole. However, adsorption to soil is expected to attenuate volatilisation.

Dibenzofuran is not expected to volatilise from dry soil surfaces (SRC) based upon its vapour pressure

Therefore within the context of the developed site CSM and the lines of evidence approach, it can be determined that the residual compound in this instance is highly unlikely to pose any risk in terms of vapour migration and ingress to the dwelling. There is not considered to be a risk to the future end user.

Carbazole

This compound is detected at a maximum concentration of 2.5 mg/kg in TP1101 at 0.90m.

Carbazole is a non-threshold substance and is a white, crystalline solid. It has a characteristic odour. It is a product of incomplete combustion of organic matter and occurs in petroleum, coal, peat, crude oil and coal tar.

There is no toxicological data available to inform the preparation of a robust site-specific risk based assessment criteria that would model the potential for ingress of vapour to indoor air.

The US national library for medicine confirms:

Carbazole released to air will also be in or on particles that eventually fall to the ground. It is expected to be broken down by sunlight, depending on environmental conditions. It will not move into air from moist soil and water surfaces.

If released to soil, carbazole can have high to no mobility based upon a Koc range of 114-4980, with most values suggesting low mobility to immobility. Volatilisation from moist soil surfaces is not expected to be an important fate process based upon a Henry's Law constant of 1.16X10-7 atm-cu m/mole. Carbazole is not expected to volatilise from dry soil surfaces based upon its vapour pressure.

It is accepted that carbazole is a non-threshold substance, however it will be encapsulated in soils with a temperature in the region of 10oC, furthermore given that it is highly unlikely to move into the ambient air via a vapour phase migratory pathway from a soil or water there cannot be a complete pollutant linkage in this instance.

The recorded concentration is marginally above the limit of detection for the analytical method.

Carbazole can also be banded with dibenzofuran due to the absence of a GAC. Based on the threshold of 7.8mg/kg, the concentrations within TP1101 are not considered to be exceeding and will not present a risk to future end users.

Dibutyl phthalate

E3P have reviewed the CL:AIRE Soil Generic Assessment Criteria for Human Health Risk Assessment (January 2010) in relation to Dibutyl phthalate which has identified a GAC concentration for residential end use with consumption of homegrown produce of 13 mg/kg, and as such the elevated concentration identified within WS111 at 2.50 m, of 79 mg/kg is therefore considered to be elevated. It should be noted that the threshold for residential end use without consumption of homegrown produce is 450 mg/kg, and therefore the materials within WS111 is not considered to be exceeding providing the materials are not utilised within a garden cover system. To ensure no future risk to end users it is recommended that a garden cover system is utilised in areas in which this material is placed.

Butyl benzyl phthalate

The CL:AIRE Soil Generic Assessment Criteria for Human Health Risk Assessment for Butyl benzyl phthalate is 1400 mg/kg. The elevated concentration within WS111 at 2.50m of 2.1 mg/kg is therefore not considered to be elevated and no further works are considered necessary in relation to this determinant.

4-Chloroaniline

GACs are not readily available for 4-Chloroaniline within British soil assessment literature. As such E3P have completed a review of US EPA Regional Screening Levels (RSLs) at target cancer risk of 1E-06 and a target hazard quotient of 0.1 in order to be conservative. For residential soils a threshold value of 2.7 mg/kg has been identified. Within TP1101 at 0.90m, a concentration of 1.6 mg/kg has been identified and is not considered to be exceeding the US EPA threshold and therefore no further works are considered necessary.

Chemical analysis of the natural drift deposits has identified these soils to be acceptable for use as subsoil within the proposed gardens and landscaped areas.

Chemical analysis and visual inspection of the existing topsoil deposits present across the site has determined existing topsoil would not be suitable for re-use within proposed garden and soft landscaped areas.

Localised pollution may be identified however all Made Ground will be lifted, sorted and subject to a process of remediation to prepare the site for the proposed development. As part of this process any unidentified impact will be identified.

9.3. CONTROLLED WATERS RISK ASSESSMENT

E3P has undertaken a controlled waters risk assessment for the site based on the consideration of the conceptual site model and the sensitive receptors which are summarised in Table 9.2.

TABLE 9.2 CONTROLLED WATERS CONCEPTUAL MODEL AND SENSITIVITY PROFILE

DISCUSSION		SENSITIVITY RATING
Contaminant Source		
Made Ground The historical construction and redevelopment activities (construction and demolition of former buildings and possible cut/fill earthworks) on-site may have generated significant amounts of Made Ground that could contain contaminants such as inorganic heavy metals and polycyclic aromatic hydrocarbons (PAHs). The Made Ground has been identified across the majority of the site.		**High**
Adjacent Landfill The presence of the adjacent landfill west of site is a potential source of heavy metals, PAH and hydrocarbon compounds.		**High**
Former Garage The former garage in the north of the site and associated underground fuel tanks are a potential source of hydrocarbon contaminants.		**High**
Pathway		
Vertical Migration The site has been noted to be underlain by low permeability cohesive drift deposits as well as high permeability SAND. Cohesive deposits, albeit present on site, are not present in excess of 5.00mbgl. and sandstone bedrock is present at a relatively shallow depth, as such the CLAY will offer some protection to the underlying aquifer and inhibit lateral migration of any contaminants; however, SAND deposits will facilitate the migration of any contaminants if present.		**High**
Lateral migration Lateral migration of contaminants is considered possible due to the presence of granular drift deposits across the site, however CLAY deposits will provide some protection.		**Medium**
Receptor		
Aquifer Classification in Superficial Drift Deposits	Secondary Undifferentiated Aquifer / Isolated area of Secondary A Aquifer	**Medium**
Aquifer Classification in Bedrock	Principal aquifer	**High**
Groundwater Source Protection Zone or Drinking Water Safeguard Zone	The site is located within Groundwater Source Protection Zone 3 – Total Catchment. The site is not located withing a Drinking Water Safeguard Zone	**Medium**

DISCUSSION		SENSITIVITY RATING
Distance to the Closest Groundwater Abstraction Point	None identified within a 1 km radius. The nearest groundwater abstraction point is located 1056 m east of the site.	**Low**
Is the Site Located Within 50 m of a Surface Watercourse?	The Kirkby Brook is located 52m west from site at its nearest point.	**Medium**
The ICSM developed within the context of the site setting has viable pollutant pathway, which would be the downward migration of potentially mobile phase-soluble contaminants towards the underlying principal aquifer. Kirkby Brook is located circa 52m west of the site but its risk from site is considered to be moderate given the presence of a road between the north-west of the site and the brook, and an increase in elevation to the brook from the south-western sector of the site.		

To ensure a robust appraisal of the identified risk to controlled waters, E3P has identified the sources of potential contamination that represent a risk to controlled waters from the initial CSM, we have then assessed the availability of ground investigation data in the form of analysis of the solid phase (soil) and dissolved phase within the perched groundwater or aquifer. The results of this assessment are presented in Table 9.3.

TABLE 9.3 QUALITATIVE RISK TO CONTROLLED WATERS FROM SOIL ANALYTICAL RESULTS

CONTAMINANT	ASSESSMENT RATING	DISCUSSION
BTEX > 1 mg/kg	The soil data analysis has not identified any detectable concentrations of VOCs above 1mg/kg or TPH C5 to C6 that might otherwise be indicative of VOC impact. Historical investigation within the vicinity of the former petrol filling station identified elevated concentrations of TPHs, BTEX, MTBE and phenols in soils and groundwater.	Further discussion
Total VOC > 1 mg/kg		
Total SVOC > 1 mg/kg	SVOC concentrations have been identified above 1 mg/kg in isolated locations across the site within WS111 at 2.50m and TP1101 at 0.90m.	Further discussion
C5-C10 > 5 mg/kg	All concentrations are below the laboratory LOD.	None
C10-C12 > 10 mg/kg	The maximum concentration identified is 12 mg/kg, majority of locations have concentrations below 10 mg/kg.	Further discussion
C12-C16 > 50 mg/kg	The maximum concentration identified is 52 mg/kg, majority of locations have concentrations below 50 mg/kg.	Further discussion
Phenols > 2 mg/kg	All concentrations are below the laboratory LOD.	None
Naphthalene > 2 mg/kg	A maximum concentration of 4.1 mg/kg has been identified within TP1101 at 0.90m.	Further discussion
Total PAH > 10 mg/kg	Total concentrations of low-solubility PAH compounds greater than 10 mg/kg have been detected throughout the site, with a maximum concentration recorded in TP1125 at 199 mg/kg.	Further discussion
PCB > 1 mg/kg	No elevated concentrations above the laboratory LOD have been identified.	None
Heavy metals > 500 mg/kg	Concentrations of heavy metals above 500 mg/kg have been recorded across the site within Made Ground deposits.	Further discussion

The Tier I assessment has included a comparison of leachate analysis from samples of the Made Ground and groundwater samples to drinking water standards and environmental quality standards (EQS). Two rounds of groundwater monitoring have been completed.

These are presented in Table 9.4 and Table 9.5.

TABLE 9.4 COMPARISON OF LEACHATE ANALYSIS WITH TIER 1 SCREENING LEVELS

DETERMINAND	UNIT	EQS [1, 2, 3] AA	DWS [3,4,5]	NO. OF LEACHATE SAMPLES	MAX CONC. IN LEACHATE	LOCATION OF EXCEEDANCE	ASSESSMENT
Arsenic	µg/l	50	10	6	16 14 19 10	TP118 0.50m (DWS) TP166 0.40m (DWS) TP117 2.40m (DWS) TP101 0.10m (DWS)	**Further Action**
Cadmium	µg/l	0.08-0.25	5	6	0.25	N/A	**Further Action**
Chromium (VI)	µg/l	3.4	–	6	<5.0	N/A	No Further Action
Chromium (III)	µg/l	4.7	50	6	17	TP166 0.40m (EQS)	**Further Action**
Copper	µg/l	1	2000	6	12 6.6 5.8	TP166 0.40m (EQS) TP118 0.50m (EQS) TP1104 0.50m (EQS)	**Further Action**
Total Cyanide	µg/l	1	50	6	<1.0	N/A	No Further Action
Lead	µg/l	1.2	10	6	6.7 2.3 4.2 3.8 1.9 4.2	TP1104 0.50m (EQS) TP118 0.50m(EQS) TP166 0.40m (EQS) TP117 2.40m (EQS) TP101 0.10m (EQS) TP155 1.00m EQS)	**Further Action**
Mercury	µg/l	–	1.0	6	<0.5	N/A	No Further Action
Nickel	µg/l	4	20	6	5.8 5.9 6.7 7.0 9.4 3.7	TP1104 0.50m (EQS) TP118 0.50m (EQS) TP166 0.40m (EQS) TP117 2.40m (EQS) TP101 0.10m (EQS) TP155 1.00m (EQS)	**Further Action**
Selenium	µg/l	–	10	6	8.8	N/A	No Further Action

DETERMINAND	UNIT	EQS [1, 2, 3] AA	DWS [3,4,5]	NO. OF LEACHATE SAMPLES	MAX CONC. IN LEACHATE	LOCATION OF EXCEEDANCE	ASSESSMENT
Zinc	µg/l	10.9	–	6	35 11 13	TP155 1.00m (EQS) TP101 0.10m (EQS) TP1104 0.50m (EQS)	Further Action
pH	6–9			6	9.5	TP166 0.40m (EQS)	Further Action
Naphthalene	µg/l	2	10*	6	2	N/A	No Further Action
Anthracene	µg/l	0.1	10*	6	<0.01	N/A	No Further Action
Benzo[b]fluoranthene	µg/l	0.00017*	10*	6	<0.01	N/A	No Further Action
Benzo[k]fluoranthene	µg/l	0.00017*	10*	6	<0.01	N/A	No Further Action
Benzo(a)pyrene	µg/l	0.00017*	10*	6	<0.01	N/A	No Further Action
Indeno(123-cd)pyrene	µg/l	0.00017*	10*	6	<0.01	N/A	No Further Action
Fluoranthene	µg/l	0.0063	10*	6	<0.01	N/A	No Further Action
Benzo(ghi)perylene	µg/l	1.7–4	10*	6	<0.01	N/A	No Further Action
TPH C5-C6 (benzene)	µg/l	10	1	6	< 1.0	N/A	No Further Action
TPH C6-C8 (toluene)	µg/l	74	700	6	< 1.0	N/A	No Further Action
TPH C8-C10 (ethyl benzene)	µg/l	20	300	6	< 1.0	N/A	No Further Action
TPH C10-C12 (xylene)	µg/l	30	500	6	< 10	N/A	No Further Action
TPH C10-C12 (xylene)	µg/l	30	500	6	< 10	N/A	No Further Action
TPH C12-C16	µg/l	2	90[5]	6	< 10	N/A	No Further Action
TPH C16-C35	µg/l	50#	90[5]	6	< 10	N/A	No Further Action
TPH C5-C6	µg/l	–	15000	6	< 1.0	N/A	No Further Action
TPH C6-C8	µg/l	–	15000	6	< 1.0	N/A	No Further Action

DETERMINAND	UNIT	EQS [1, 2, 3] AA	DWS [3,4,5]	NO. OF LEACHATE SAMPLES	MAX CONC. IN LEACHATE	LOCATION OF EXCEEDANCE	ASSESSMENT
TPH C8-C10	µg/l	–	300	6	< 1.0	N/A	No Further Action
TPH C10-C12	µg/l	–	300	6	< 10	N/A	No Further Action
TPH C12-C16	µg/l	–	300	6	< 10	N/A	No Further Action
TPH C16-C21	µg/l	–	300**	6	< 10	N/A	No Further Action
TPH C21-C35	µg/l	–	300**	6	< 10	N/A	No Further Action
Tetrachloroethylene	µg/l	0.4	10	-	-	-	No Further Action
Trichloroethylene	µg/l	10	10	-	-	-	No Further Action
Trichlorobenzene	µg/l	0.4	–	-	-	-	No Further Action
Trichloromethane	µg/l	2.5	–	-	-	-	No Further Action
Dichloromethane	µg/l	20	200	-	-	-	No Further Action
Carbon Tetrachloride	µg/l	12	3	-	-	-	No Further Action
Vinyl Chloride	µg/l	–	0.3	-	-	-	No Further Action

Notes

Solubility <0.01µg/l
AA – Annual Average
MAC- Maximum Admissible Concentration
* Polyaromatic hydrocarbons (PAH) - Benzo(a)pyrene (BaP), Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(g,h,i)-perylene and Indeno(1,2,3-cd)-pyrene. Benzo(a)pyrene can be considered as a marker for the other PAHs, hence only benzo(a)pyrene needs to be monitored for comparison with the biota EQS or the corresponding AA-EQS in water
** There are no WHO Guideline Values for aliphatic fractions C16-C21 and C21-C35, therefore the guideline value for aliphatic fractions inclusive of C8-C16 (300µg/l) has been applied.

1. The Water Environment (Water Framework Directive) (England and Wales) (Amendment) Regulations (2015)
2. Directive establishing a framework for Community action in the field of water policy (Water Framework Directive)
3. Council Directive on pollution caused by certain dangerous substances discharged into the aquatic environment of the Community (Dangerous Substances Directive) - List II substances
4. Council Directive on the quality of water intended for human consumption (Drinking Water Directive)
5. WHO Guidelines for Drinking Water Quality. Third edition (2004)

TABLE 9.5 COMPARISON OF GROUNDWATER ANALYSIS WITH TIER 1 SCREENING LEVELS

DETERMINAND	UNIT	EQS [1, 2, 3] AA	DWS [3,4,5]	NO. OF SAMPLES	MAXIMUM CONCENTRATION IN GROUNDWATER AND LOCATION OF EXCEEDANCE				ASSESSMENT
					17/02/2022	LOCATION OF EXCEEDANCE	09/03/2022 / 17/03/2022	LOCATION OF EXCEEDANCE	
Arsenic	µg/l	50	10	13	6.36	N/A	2.3	N/A	No Further Action
Cadmium	µg/l	0.08-0.25	5	13	0.50	CP102 (EQS)	0.55	CP102(EQS)	Further Action
Chromium (VI)	µg/l	3.4	–	13	<5.0	N/A	<5.0	N/A	No Further Action
Chromium (III)	µg/l	4.7	50	13	5.2	CP102(EQS)	5.3 7.7 7.5	CP102(EQS) CP101(EQS) WS161(EQS)	Further Action
Copper	µg/l	1	2000	13	6.0 3.5 1.4 4.3 8.8 15 2.4	WS161(EQS) WS142(EQS) WS124(EQS) WS106(EQS) CP103(EQS) CP102(EQS) CP101(EQS)	10 2 16 1.1 1.2	WS142(EQS) WS124(EQS) CP102(EQS) CP101(EQS) WS106(EQS)	Further Action
Total Cyanide	µg/l	1	50	13	2.8 1.9	CP103(EQS) WS161(EQS)	<1.0	N/A	Further Action
Lead	µg/l	1.2	10	13	1.7 1.5	WS142(EQS) CP101(EQS)	0.4	N/A	Further Action
Mercury	µg/l	–	1.0	13	<0.05	N/A	<0.05	N/A	No Further Action
Nickel	µg/l	4	20	13	7.0 8.1 26 22 5.6	WS161(EQS) WS106(EQS) CP103(EQS/DWS) CP102(EQS/DWS) CP101(EQS)	5.3 26 13 13 6	WS142(EQS) CP102(EQS/DWS) CP101(EQS) WS161(EQS) WS106(EQS)	Further Action
Selenium	µg/l	–	10	13	4.4	N/A	4	N/A	No Further Action



DETERMINAND	UNIT	EQS [1, 2, 3] AA	DWS [3,4,5]	NO. OF SAMPLES	MAXIMUM CONCENTRATION IN GROUNDWATER AND LOCATION OF EXCEEDANCE				ASSESSMENT
					17/02/2022	LOCATION OF EXCEEDANCE	09/03/2022 / 17/03/2022	LOCATION OF EXCEEDANCE	
Zinc	µg/l	10.9	–	13	12 650 21 60 1100 19	WS161(EQS) WS124(EQS) WS106(EQS) CP103(EQS) CP102(EQS) CP101(EQS)	150 1200 11	WS124(EQS) CP102(EQS) WS161(EQS)	Further Action
pH	6–9			13	7.1-7.8	N/A	6.8-7.4	N/A	No Further Action
Naphthalene	µg/l	2	10*	13	<0.01	N/A	<0.01	N/A	No Further Action
Anthracene	µg/l	0.1	10*	13	<0.01	N/A	<0.01	N/A	No Further Action
Benzo[b]fluoranthene	µg/l	0.00017*	10*	13	<0.01	N/A	<0.01	N/A	No Further Action
Benzo[k]fluoranthene	µg/l	0.00017*	10*	13	<0.01	N/A	<0.01	N/A	No Further Action
Benzo(a)pyrene	µg/l	0.00017*	10*	13	<0.01	N/A	<0.01	N/A	No Further Action
Indeno(123-cd)pyrene	µg/l	0.00017*	10*	13	<0.01	N/A	<0.01	N/A	No Further Action
Fluoranthene	µg/l	0.0063	10*	13	<0.01	N/A	<0.01	N/A	No Further Action
Benzo(ghi)perylene	µg/l	1.7–4	10*	13	<0.01	N/A	<0.01	N/A	No Further Action
TPH Aromatic									
TPH C5-C6 (benzene)	µg/l	10	1	13	<1.0	N/A	<1.0	N/A	No Further Action
TPH C6-C8 (toluene)	µg/l	74	700	13	<1.0	N/A	<1.0	N/A	No Further Action
TPH C8-C10 (ethyl benzene)	µg/l	20	300	13	<1.0	N/A	<1.0	N/A	No Further Action
TPH C10-C12 (xylene)	µg/l	30	500	13	50	WS142(EQS)	<10	N/A	Further Action
TPH C12-C16	µg/l	2	90[5]	13	<10	N/A	<10	N/A	No Further Action
TPH C16-C35	µg/l	50#	90[5]	13	<10	N/A	<10	N/A	No Further Action

DETERMINAND	UNIT	EQS [1, 2, 3] AA	DWS [3,4,5]	NO. OF SAMPLES	MAXIMUM CONCENTRATION IN GROUNDWATER AND LOCATION OF EXCEEDANCE				ASSESSMENT
					17/02/2022	LOCATION OF EXCEEDANCE	09/03/2022 / 17/03/2022	LOCATION OF EXCEEDANCE	
TPH Aliphatic									
TPH C5-C6	µg/l	–	15000	13	<1.0	N/A	<1.0	N/A	No Further Action
TPH C6-C8	µg/l	–	15000	13	<1.0	N/A	<1.0	N/A	No Further Action
TPH C8-C10	µg/l	–	300	13	<1.0	N/A	<1.0	N/A	No Further Action
TPH C10-C12	µg/l	–	300	13	<10	N/A	<10	N/A	No Further Action
TPH C12-C16	µg/l	–	300	13	<10	N/A	<10	N/A	No Further Action
TPH C16 – C21	µg/l	–	300**	13	<10	N/A	<10	N/A	No Further Action
TPH C21-C35	µg/l	–	300**	13	<10	N/A	<10	N/A	No Further Action
Tetrachloroethylene	µg/l	0.4	10	13	<1.0	N/A	<1.0	N/A	No Further Action
Trichloroethylene	µg/l	10	10	13	<1.0	N/A	<1.0	N/A	No Further Action
Trichlorobenzene	µg/l	0.4	–	13	<1.0	N/A	<1.0	N/A	No Further Action
Trichloromethane	µg/l	2.5	–	13	<1.0	N/A	<1.0	N/A	No Further Action
Dichloromethane	µg/l	20	200	13	<1.0	N/A	<1.0	N/A	No Further Action
Carbon Tetrachloride	µg/l	12	3	13	<1.0	N/A	<1.0	N/A	No Further Action
Vinyl Chloride	µg/l	–	0.3	13	<1.0	N/A	<1.0	N/A	No Further Action

Notes

Solubility <0.01µg/l
AA – Annual Average
MAC- Maximum Admissible Concentration
* Polyaromatic hydrocarbons (PAH) - Benzo(a)pyrene (BaP), Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(g,h,i)-perylene and Indeno(1,2,3-cd)-pyrene. Benzo(a)pyrene can be considered as a marker for the other PAHs, hence only benzo(a)pyrene needs to be monitored for comparison with the biota EQS or the corresponding AA-EQS in water
** There are no WHO Guideline Values for aliphatic fractions C16-C21 and C21-C35, therefore the guideline value for aliphatic fractions inclusive of C8-C16 (300µg/l) has been applied.

6. The Water Environment (Water Framework Directive) (England and Wales) (Amendment) Regulations (2015)
7. Directive establishing a framework for Community action in the field of water policy (Water Framework Directive)
8. Council Directive on pollution caused by certain dangerous substances discharged into the aquatic environment of the Community (Dangerous Substances Directive) - List II substances
9. Council Directive on the quality of water intended for human consumption (Drinking Water Directive)
10. WHO Guidelines for Drinking Water Quality. Third edition (2004)

9.3.1. CONTROLLED WATER RISK ASSESSMENT AND MITIGATION

This comparison indicates that the data exceeds the EQS values for the following inorganic compounds:

- Cadmium (Groundwater)
- Chromium (III) (Leachate and Groundwater)
- Copper (Leachate and Groundwater)
- Total Cyanide (Groundwater)
- Lead (Leachate and Groundwater)
- Nickel (Leachate and Groundwater)
- Zinc (Leachate and Groundwater)
- pH (Leachate)
- TPH Aromatic C10-C12 (Groundwater)

The comparison indicates the data exceeds the DWS values for the following inorganic compounds:

- Arsenic (Leachate)
- Nickel (Groundwater)

Exceedances in heavy metals against EQS and DWS screening values have been identified across the site within groundwater samples and leachate samples.

Arsenic concentrations exceeded the DWS screening value in leachate samples TP118 0.50m, TP166 0.40m, TP117 2.40m and TP101 0.10m. No groundwater or leachate samples were noted to be exceeding the EQS screening criteria.

Concentrations of chromium (III) exceeded the EQS screening value and not the DWS within a leachate sample in TP166 at 0.40m and groundwater samples from CP102 on both monitoring occasions completed and CP101 and WS161 on one monitoring occasion.

Cadmium EQS screening values were exceeded within groundwater samples from CP102 on both monitoring occasions.

Copper concentrations exceeded the EQS screening value but not the DWS screening value in leachate samples TP166 0.40m, TP118 0.50m TP1104 0.50m and groundwater samples WS161, WS142, WS124, WS106, CP101, CP102 and CP103. Groundwater samples from WS142, WS124, CP102, CP101 and WS106 exceeded on both monitoring occasions.

Total cyanide exceeded the EQS screening value within CP103 and WS161 on one occasion,; the DWS was not exceeded.

Lead exceeded the EQS AA screening value but not the DWS in leachate samples TP166 0.40m, TP118 0.50m, TP117 2.40m, TP101 0.10m, TP155 1.00m and TP1104 0.50m along with groundwater sample WS142 and CP101 on one occasion.

Nickel concentrations were noted to exceed the EQS AA and DWS within groundwater samples from CP102 and CP103. With groundwater samples WS161, WS106, CP101 and WS142 exceeding the EQS screening value. Only the EQS screening value was noted to be exceeding within the leachate samples TP166 0.40m, TP118 0.50m, TP1104 0.50m, TP117 2.40m, TP155 1.00m and TP101 0.10m.

Zinc concentrations exceeded the EQS AA screening value in leachate samples TP101 0.10m, TP155 1.00m and TP1104 0.50m and groundwater samples WS161, WS124, WS106, CP101, CP102 and CP103. WS124, CP102 and WS161 were noted to be exceeding on both monitoring visits. A DWS screening value is not available for this determinant.

Leachate sample TP166 at 0.40m exceeded the pH range of 6-9.

The EQS screening value for TPH Aromatic C10-C12 was exceeded within a groundwater sample from WS142 on the first monitoring visit, but was below the limit of detection during the second monitoring visit completed. WS142 was located in close proximity to the former fuel station and underground storage tanks.

Where leachate analysis has been undertaken, this can overstate the risk and is not wholly representative of the site characterisation. As such, reliance should be on the groundwater samples rather than the leachate analysis completed.

In relation to the remaining exceedances within groundwater samples, Table 9.6 provides a summary.

TABLE 9.6 SUMMARY OF ELEVATED CONTAMINANTS IN GROUNDWATER

CONTAMINANT	WS161 (µg/l)	WS142 (µg/l)	WS124 (µg/l)	WS106 (µg/l)	CP101 (µg/l)	CP102 (µg/l)	CP103 (µg/l)
	Contaminant Source						
	Former School Building	Former Fuel Station/ Garage	Made Ground / historical deposition	Made Ground	Made Ground / historical deposition	Made Ground / historical deposition	Made Ground / historical deposition
Cadmium	–	–	–	–	–	0.50 - 0.55	–
Chromium (III)	7.5	–	–	–	7.7	5.2 – 5.3	–
Copper	6.0	3.5 - 10	1.4 – 2.0	1.2 - 4.3	1.1 - 2.4	15 - 16	8.8
Total Cyanide	1.9	–	–	–	–	–	2.8
Lead	–	1.7	–	–	1.5	–	–
Nickel	5.3 – 13	5.3	–	6.0 - 8.1	5.6 - 13	22 - 26	26
Zinc	11 - 12	–	150 - 650	21	19	1100 - 1200	60
TPH Aromatic C10-C12	-	50	-	-	-	-	-

9.3.2. DISCUSSION OF CONTROLLED WATERS RISK ASSESSMENT

Historically, the site has been subject to extensive infilling and a number of industrial and residential uses within different locations across the site including educational buildings located in the southeast and northwest sectors and a garage with associated fuel tanks and residential housing located in the northern sector of the site. A historic landfill is located adjacent to the south-west of the site, with historical deposition of Made Ground appearing to have taken place across the site as shown from the E3P site investigation and historical phases of ground investigation.

Chemical compounds within the Made Ground associated with these land uses may have subsequently leached down into underlying stratum and groundwater both within Made Ground and natural drift deposits.

The site is underlain by mixed geology; with cohesive CLAYs and granular SAND and GRAVEL deposits also present. There is not considered to be greater than 5.00m of CLAY across any part of the site, with deeper cable percussive boreholes identifying a small band of CLAY underlying deep Made Ground deposits which are overlying relatively shallow bedrock.

The granular drift deposits will afford little protection to the underlying Principal Aquifer in the bedrock. Impacted groundwater has the potential to migrate vertically towards the underlying bedrock aquifer.

Elevated heavy metal concentrations have been identified in the soil, leachate and groundwater analysis at the site. However as discussed above reliance should be on groundwater samples rather than leachate analysis as they are considered to overstate the risk.

The main controlled water receptor is considered to be the underlying principal aquifer within the bedrock; the site is also noted to be within a Zone 3 Source Protection Zone. However, the only elevated concentrations of heavy metals exceeding DWS screening values were arsenic in a leachate sample which is considered to overstate the risk, and nickel within CP102 and CP103. In regards to the elevated nickel concentrations, the risk is considered to be low given there is not a complete pollutant linkage given the absence of a groundwater abstraction point within 1 km of the subject site.

Given that areas of the site are underlain by low permeability CLAY, albeit of minimal thicknesses, the migration of contaminants where these deposits are present will be somewhat reduced.

The proposed development will create hardstanding cover across the site, thus reducing the amount of infiltration generated. This will in turn, reduce the number of contaminants present in leachate off the site and reduce the risk further to the underlying aquifer. In addition, in the vicinity of the former Petrol Fuel Station, the area will be remediated, which will include the removal of USTs and validation of surrounding soils, and as such materials will be checked for any TPH impact, and if encountered remediated as necessary to ensure no risk to future end users and controlled waters.

Surface Water Receptor

The closest surface feature Kirkby brook is located 56m west of the site at its nearest point. A comparison of leachate and groundwater samples has been completed against EQS screening values for completeness given the known sensitivity of Kirkby Brook. Given the distance of the brook to the subject site it is not considered to be of significance.

Additionally, Kirkby Brook is at its closest proximity to the subject site in the north-west of the site, and located at a lower elevation to the subject site. However, it should be noted that even though the brook is at a lower elevation which would facilitate the migration of contaminants if present, there is a road between the site and the brook which would intercept any potential run-off.

Site investigation was not possible within the north-west of the site due to its active nature, and therefore the assessment should be confirmed once works have been completed in this area.

From the south-west of the site towards Kirkby Brook, the topography increases from the site to the centre of the off-site recorded landfill and then falls towards the brook. There is not considered to be a complete pollutant pathway from the site to the brook at this part of the site, and the elevation runs against a natural migration pathway. The brook is also at a greater distance from the site at this point, and any potential impact present would be negated given the presence of the landfill.

Based on the above there is not considered to be risk to Kirkby Brook, nor to the underlying Principal Aquifer. During any future remediation and enabling works care should be take to ensure no generation of potential leachate which may migrate to the underlying principal aquifer.

9.4. GROUND GAS

9.4.1. INVESTIGATION RATIONALE

The ICSM has identified that the underlying Made Ground, adjacent landfill and infill materials associated with former ponds and across the site may represent a potential source of ground gas generation. Based on the identification of these sources, E3P has determined that the site represents a high ground gas source generation potential.

Within the context of the proposed residential end use and ground gas generation potential, the gas assessment requires that 24 visits are required over 12 months, with at least two sets of readings at low or falling atmospheric pressure as set out within CIRIA 665 Tables 5.5a and 5.5b.

The spacing requirements for monitoring wells are detailed within CIRIA 665 Table 4.2, which indicates that for moderate gas hazard sites and a high sensitivity development, nominal well spacing should be between 25 m and 50 m.

The spacing requirements for high gas hazard sites (domestic landfill sites) and a high sensitivity development, nominal well spacing should be less than 25 m.

TABLE 9.7 GROUND GAS MONITORING LOCATION RATIONALE

LOCATION	GROUND GAS SOURCE	DEPTH OF MONITORING WELL (m)
WS101	Made Ground.	0.50 – 2.00
WS102	Adjacent Landfill / Made Ground.	1.00 – 3.00
WS103	Natural Strata / Deeper Groundwater Well	2.50 – 3.00
WS105	Made Ground / Natural Strata / Deeper Groundwater Well	0.50 – 2.50
WS106	Adjacent Landfill / Made Ground.	1.00 – 3.00
WS108	Adjacent Landfill / Made Ground.	0.80 – 2.80
WS110	Former Pond / Natural Strata / Deeper Groundwater Well	1.00 – 2.00
WS111	Adjacent Landfill / Made Ground / Historic deposited materials	0.50 – 3.00
WS113	Adjacent Landfill / Natural Strata / Deeper Groundwater Well	1.00 – 2.00
WS114	Natural Strata / Deeper Groundwater Well	1.00 – 2.00
WS115	Natural Strata / Deeper Groundwater Well	1.00 – 2.00
WS117	Natural Strata / Deeper Groundwater Well	1.00 – 2.50
WS118	Natural Strata / Deeper Groundwater Well	1.00 – 2.00
WS119	Made Ground / Natural Strata / Deeper Groundwater Well	0.50 – 3.50
WS120	Natural Strata / Deeper Groundwater Well	1.00 – 2.00

LOCATION	GROUND GAS SOURCE	DEPTH OF MONITORING WELL (m)
WS121	Made Ground / Historic deposited materials	0.50 – 1.50
WS122	Made Ground / Natural Strata / Deeper Groundwater Well.	0.50 – 1.50
WS123	Made Ground / Natural Strata / Deeper Groundwater Well	0.50 – 3.00
WS124	Adjacent Landfill / Made Ground / Historic deposited materials	1.00 – 4.00
WS125	Made Ground / Historic deposited materials	0.50 – 1.00
WS126	Natural Strata / Deeper Groundwater Well.	0.60 – 1.60
WS128	Natural Strata / Deeper Groundwater Well.	1.00 – 3.00
WS129	Natural Strata / Deeper Groundwater Well	1.00 – 3.50
WS130	Natural Strata / Deeper Groundwater Well.	1.00 – 3.00
WS132	Natural Strata / Deeper Groundwater Well.	1.00 – 4.00
WS133	Natural Strata / Deeper Groundwater Well	0.50 – 3.90
WS135	Natural Strata / Deeper Groundwater Well	0.50 – 3.00
WS136	Natural Strata / Deeper Groundwater Well.	0.50 – 3.50
WS137	Natural Strata / Deeper Groundwater Well	2.00 – 3.00
WS138	Natural Strata / Deeper Groundwater Well.	1.00 – 4.00
WS140	Former Garage / Natural Strata / Deeper Groundwater Well.	1.00 – 3.00
WS141	Natural Strata / Deeper Groundwater Well	1.00 – 3.00
WS142	Former Garage / Natural Strata / Deeper Groundwater Well.	1.00 – 3.00
WS144	Natural Strata / Deeper Groundwater Well	1.00 – 3.00
WS147	Natural Strata / Deeper Groundwater Well	1.00 – 2.00
WS148	Natural Strata / Deeper Groundwater Well	1.00 – 4.00
WS149A	Made Ground.	0.50 – 1.00
WS151	Natural Strata / Deeper Groundwater Well	1.00 – 2.00
WS152	Made Ground.	0.50 – 2.50
WS153A	Made Ground.	0.50 – 1.00
WS157	Natural Strata / Deeper Groundwater Well	1.00 – 2.00
WS161	Natural Strata / Deeper Groundwater Well	0.50 – 1.50
WS169	Natural Strata / Deeper Groundwater Well	1.00 – 2.00
WS171	Natural Strata / Deeper Groundwater Well	1.00 – 2.50
CP/RB101	Adjacent Landfill / Made Ground materials / Historic deposited materials	3.00 – 5.00
CP/RB102	Made Ground materials / Historic deposited materials	3.00 – 4.00

LOCATION	GROUND GAS SOURCE	DEPTH OF MONITORING WELL (m)
CP/RB103	Made Ground / Natural Strata / Deeper Groundwater Well	3.00 – 4.00

9.4.2. GROUND GAS RISK ASSESSMENT METHODOLOGY

The potential impact on the development from ground gases has been assessed with reference to standards and guidelines published in:

CIRIA Report 665 – Assessing risks posed by hazardous ground gases to buildings (2007)

BS8485:2015+A1:2019 – Code of Practice for the design of protective measures for methane and carbon dioxide ground gases for new buildings

BS8485 provides guidance on the level of gas protection requirements based upon the characteristic situation (CS) and the proposed development based on building type.

Therefore, in accordance with BS8485, based on the measured flow rates and hazardous gas concentrations, individual hazardous gas flow rates (Q_{hg}) shall be derived for each monitoring point, from which the site characteristic hazardous gas flow rate (Q_{hgs}), and then the Characteristic Situation (CS) can be determined.

The following equation should be utilised:

$$Q_{hg} = q\left(\frac{C_{hg}}{100}\right)$$

Where:
q is the measured flow rate (in litres per hour) of combined gases from the monitoring standpipe
C_{hg} is the measured hazardous gas concentration (in percentage volume/volume).

The subsequent derived gas screening value (GSV) should be the maximum Q_{hg} (flow rate x concentration as a percentage volume) for all the monitoring events.

A 'worst case check' may be carried out using the maximum recorded flow in any hole with the maximum concentration in any hole to present the plausible worst case conditions. Adoption of the worst case Q_{hg} requires thorough justification and reference to the CSM.

The final derived GSV can then be used to characterise the site as summarised in Table 9.8.

TABLE 9.8 SITE CHARACTERISATION BY GSV (BS8485:2015)

CS	HAZARD POTENTIAL	GSV (l/hr) FOR METHANE AND CARBON DIOXIDE	ADDITIONAL FACTORS
CS1	Very Low	< 0.07	Typically <1% methane concentration and <5% carbon dioxide concentration (otherwise consider an increase to CS2)
CS2	Low	< 0.70	Typical measured flow rate <70 l/h (otherwise consider an increase to CS3)
CS3	Moderate	< 3.5	N/A
CS4	Moderate to High	< 15	N/A
CS5	High	< 70	N/A
CS6	Very High	> 70	N/A

Notes
1. The CS is equivalent to the characteristic GSV in CIRIA C665.
2. The worst-case ground gas regime identified on the site, either methane or carbon dioxide, at the worst-case temporal conditions that the site may be expected to encounter should be considered.
3. Gas Screening Value is the Borehole Gas Volume Flow Rate, in litres per hour, multiplied by the concentration in the air stream of the particular gas being considered.
4. The Gas Screening Value thresholds should not generally be exceeded without the completion of a detailed ground gas risk assessment taking into account site-specific conditions.

The thresholds for GSVs based upon NHBC guidance are provided within Table 9.9.

TABLE 9.9 THRESHOLDS FOR GAS SCREENING VALUES (GSV) IN ACCORDANCE WITH NHBC REPORT NO 10627R01 – RESIDENTIAL END USE

NHBC – SUBFLOOR VOID				
CLASSIFICATION	Methane[1]		Carbon Dioxide[1]	
	TYPICAL MAXIMUM CONCENTRATION[3] (%V/V)	GAS SCREENING VALUE [2,4] (l/hr)	TYPICAL MAXIMUM CONCENTRATION[3] (%V/V)	Gas Screening Value[2,4] (l/hr)
Green	< 1	< 0.16	< 5	< 0.78
Amber 1	< 5	< 0.63	< 10	< 1.56
Amber 2	< 5	< 1.56	< 30	< 3.10
Red	> 20	> 1.56	> 30	> 3.10

Notes
1. The worst-case ground gas regime identified on the site, either methane or carbon dioxide, at the worst-case temporal conditions that the site may be expected to encounter will be the decider as to what Traffic Light is allocated;
2. Gas Screening Value is the Borehole Gas Volume Flow Rate, in litres per hour, as defined in Wilson and Card (1999), which is the borehole flow rate multiplied by the concentration in the air stream of the particular gas being considered;
3. The Typical Maximum Concentrations can be exceeded in certain circumstances should the Conceptual Site Model indicate it is safe to do so;
4. The Gas Screening Value thresholds should not generally be exceeded without the completion of a detailed ground gas risk assessment taking into account site-specific conditions.

It should be noted that in the first instance, this assessment has been carried out in accordance with BS8485:2015 and the thresholds given in Table 9.8.

9.4.3. MONITORING METHODOLOGY

Concentrations of methane (CH_4), carbon dioxide (CO_2) and oxygen (O_2) (hydrogen sulphide) were measured using a calibrated infrared gas analyser (GFM435) with gas flow rates measured using an integrated flow meter.

Gas measurements were recorded for a minimum of 500 seconds at each location, at which point the maximum concentration of CH_4 and CO_2, together with the lowest concentration of O_2 were recorded.

The results of the ground gas monitoring are presented in Table 9.10.

In addition to the raw data, the results for each individual standpipe have been assessed with reference to guidance provided in BS8485:2015. Based on the initial peak measured flow rates and hazardous gas concentrations, individual hazardous gas flow rates (Q_{hg}) have been derived for each monitoring point, from which an individual Characteristic Situation (CS) can ultimately be determined.

9.4.4. SUMMARY OF MONTIORING RESULTS

Table 9.10 presents of the ground gas and groundwater monitoring results to date.

TABLE 9.10 SUMMARY OF GROUND GAS MONITORING RESULTS

WELL	DATE	CH4 PEAK (%V/V)	CH4 STEADY (%V/V)	CH4 GSV (l/hr)	CO2 PEAK (%V/V)	CO2 STEADY (%V/V)	CO2 GSV (l/hr)	O2 (%V/V)	ATMOS (mb)	ATMOS. DYNAMIC	PEAK FLOW (l/hr)	STEADY FLOW (l/hr)	RESPONSE ZONE (m bgl)	DEPTH TO BASE (m bgl)	DEPTH TO WATER (m bgl)
WS101	23/02/22	**6.8**	**6.8**	0.0068	**8.5**	**8.5**	0.0085	0.1	1008	Falling	0.1	0.1	0.50 - 2.00	1.75	Dry
	14/03/22	0.1	0.1	0.0001	0.1	0.1	0.0001	0.1	1008	Rising	0.1	0.1		1.75	Dry
	21/03/22	0.1	0.1	0.0001	0.1	0.1	0.0001	18.6	1023	Steady	0.1	0.1		1.85	Dry
	30/03/22	0.1	0.1	0.0001	0.1	0.1	0.0001	19.4	1014	Falling	0.1	0.1		1.86	Dry
	19/04/22	0.1	0.1	0.0001	0.1	0.1	0.0001	19.9	1019	Steady	0.1	0.1		1.85	Dry
	06/05/22	0.1	0.1	0.0001	0.1	0.1	0.0001	18.8	1018	Steady	0.1	0.1		1.86	Dry
	16/05/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20	1012	Steady	0.1	0.1		1.85	Dry
	31/05/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.2	1010	Steady	0.1	0.1		1.85	1.65
	17/06/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.5	1017	Steady	0.1	0.1		1.85	Dry
	06/07/22	0.1	0.1	0.0001	0.1	0.1	0.0001	18.7	1023	Steady	0.1	0.1		1.85	Dry
	01/08/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.7	1022	Falling	0.1	0.1		1.85	Dry
	10/08/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.8	1029	Falling	0.1	0.1		1.85	Dry
	18/08/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.7	1012	Falling	0.1	0.1		1.85	Dry
	05/09/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.6	1011	Steady	0.1	0.1		1.85	Dry
	20/09/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.3	1009	Steady	0.1	0.1		1.85	Dry
	05/10/22	0.1	0.1	0.0001	0.1	0.1	0.0001	18	997	Falling	0.1	0.1		1.79	Dry
	17/10/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.1	1010	Rising	0.1	0.1		1.8	Dry
	04/11/22	0.1	0.1	0.0001	1.8	1.8	0.0018	17.9	1008	Rising	0.1	0.1		1.72	Dry
	14/11/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.1	1005	Falling	0.1	0.1		1.8	Dry
WS102	23/02/22	**3.7**	**3.7**	0.0037	**10.8**	**10.8**	0.0108	1.4	1008	Falling	0.1	0.1	1.00 - 3.00	2.55	Dry
	14/03/22	0.1	0.1	0.0001	0.1	0.1	0.0001	3.1	1008	Rising	0.1	0.1		2.55	Dry
	21/03/22	0.1	0.1	0.0001	0.1	0.1	0.0001	18.9	1022	Steady	0.1	0.1		2.70	Dry
	30/03/22	0.1	0.1	0.0001	0.1	0.1	0.0001	19.5	1013	Falling	0.1	0.1		2.69	Dry
	19/04/22	0.1	0.1	0.0001	0.1	0.1	0.0001	19.9	1018	Steady	0.1	0.1		2.70	Dry

WELL	DATE	CH4 PEAK (%V/V)	CH4 STEADY (%V/V)	CH4 GSV (l/hr)	CO2 PEAK (%V/V)	CO2 STEADY (%V/V)	CO2 GSV (l/hr)	O2 (%V/V)	ATMOS (mb)	ATMOS. DYNAMIC	PEAK FLOW (l/hr)	STEADY FLOW (l/hr)	RESPONSE ZONE (m bgl)	DEPTH TO BASE (m bgl)	DEPTH TO WATER (m bgl)
WS102	06/05/22	0.1	0.1	0.0001	0.1	0.1	0.0001	18.8	1018	Steady	0.1	0.1	1.00 - 3.00	2.69	Dry
	17/05/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20	1015	Steady	0.1	0.1		2.7	Dry
	01/06/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.1	1015	Rising	0.1	0.1		2.7	Dry
	17/06/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.4	1015	Steady	0.1	0.1		2.7	Dry
	06/07/22	0.1	0.1	0.0001	0.1	0.1	0.0001	18.9	1020	Steady	0.1	0.1		2.7	Dry
	02/08/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.7	1010	Falling	0.1	0.1		2.7	Dry
	11/08/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.8	1022	Falling	0.1	0.1		2.7	Dry
	19/08/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.6	1014	Rising	0.1	0.1		2.7	Dry
	06/09/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.6	1017	Falling	0.1	0.1		2.7	Dry
	21/09/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.5	1009	Falling	0.1	0.1		2.75	Dry
	05/10/22	0.1	0.1	0.0001	0.1	0.1	0.0001	18	997	Falling	0.1	0.1		2.7	Dry
	18/10/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20	1003	Rising	0.1	0.1		2.7	Dry
	04/11/22	0.1	0.1	0.0001	0.3	0.2	0.0003	19.9	1006	Rising	0.1	0.1		2.7	Dry
	15/11/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.1	990	Falling	0.1	0.1		2.7	Dry
WS103	Location destroyed														
WS105	23/02/22	0.1	0.1	0.0001	**6.9**	**6.9**	0.0069	4.3	1008	Falling	0.1	0.1	0.50 - 2.50	2.20	1.50
	14/03/22	0.1	0.1	0.0001	0.1	0.1	0.0001	4.3	1008	Rising	0.1	0.1		2.20	1.50
	21/03/22	0.1	0.1	0.0001	0.1	0.1	0.0001	18.8	1023	Steady	0.1	0.1		2.25	2.00
	30/03/22	0.1	0.1	0.0001	0.1	0.1	0.0001	19.5	1013	Falling	0.1	0.1		2.24	Dry
	19/04/22	0.1	0.1	0.0001	0.1	0.1	0.0001	19.9	1018	Steady	0.1	0.1		2.25	2.20
	06/05/22	0.1	0.1	0.0001	0.1	0.1	0.0001	18.8	1018	Steady	0.1	0.1		2.24	Dry
	16/05/22	0.1	0.1	0.0001	0.1	0.1	0.0001	19.9	1012	Steady	0.1	0.1		2.25	2
	01/06/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.1	1016	Rising	0.1	0.1		2.25	1.9
	17/06/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.5	1017	Steady	0.1	0.1		2.25	2
	06/07/22	0.1	0.1	0.0001	0.1	0.1	0.0001	18.7	1022	Steady	0.1	0.1		2.23	Dry
	02/08/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.7	1009	Falling	0.1	0.1		2.25	Dry

WELL	DATE	CH4 PEAK (%V/V)	CH4 STEADY (%V/V)	CH4 GSV (l/hr)	CO2 PEAK (%V/V)	CO2 STEADY (%V/V)	CO2 GSV (l/hr)	O2 (%V/V)	ATMOS (mb)	ATMOS. DYNAMIC	PEAK FLOW (l/hr)	STEADY FLOW (l/hr)	RESPONSE ZONE (m bgl)	DEPTH TO BASE (m bgl)	DEPTH TO WATER (m bgl)
WS105	11/08/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.8	1023	Falling	0.1	0.1	0.50 - 2.50	2.25	Dry
	19/08/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.6	1013	Rising	0.1	0.1		2.25	Dry
	05/09/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.7	1012	Steady	0.1	0.1		2.25	Dry
	20/09/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.7	1008	Steady	0.1	0.1		2.25	Dry
	05/10/22	0.1	0.1	0.0001	0.1	0.1	0.0001	18	997	Falling	0.1	0.1		2.25	Dry
	18/10/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20	1002	Rising	0.1	0.1		2.25	Dry
	04/11/22	0.1	0.1	0.0001	2.5	2.4	0.0025	18	1006	Rising	0.1	0.1		2.2	1.65
	15/11/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.1	991	Falling	0.1	0.1		2.25	Dry
WS106	23/02/22	0.4	0.4	0.0004	**6.2**	**6.2**	0.0062	10.7	1008	Falling	0.1	0.1	1.00 - 3.00	2.80	2.30
	14/03/22	0.4	0.4	0.0004	0.1	0.1	0.0001	20	1019	Rising	0.1	0.1		2.88	2.55
	21/03/22	0.1	0.1	0.0001	0.1	0.1	0.0001	18.9	1023	Steady	0.1	0.1		2.85	2.65
	30/03/22	0.4	0.4	0.0004	0.1	0.1	0.0001	19.6	1013	Falling	0.1	0.1		2.87	2.70
	19/04/22	0.1	0.1	0.0001	0.1	0.1	0.0001	19.9	1019	Steady	0.1	0.1		2.85	Dry
	06/05/22	0.4	0.4	0.0004	0.1	0.1	0.0001	18.8	1018	Steady	0.1	0.1		2.87	Dry
	17/05/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20	1015	Steady	0.1	0.1		2.85	Dry
	01/06/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20	1015	Rising	0.1	0.1		2.85	Dry
	17/06/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.4	1015	Steady	0.1	0.1		2.85	Dry
	06/07/22	0.1	0.1	0.0001	0.1	0.1	0.0001	18.9	1020	Steady	0.1	0.1		2.85	Dry
	02/08/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.7	1010	Falling	0.1	0.1		2.85	Dry
	11/08/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.7	1022	Falling	0.1	0.1		2.85	Dry
	19/08/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.6	1014	Rising	0.1	0.1		2.85	Dry
	06/09/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.7	1017	Falling	0.1	0.1		2.85	Dry
	21/09/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.7	1009	Falling	0.1	0.1		2.9	Dry
	05/10/22	0.1	0.1	0.0001	0.1	0.1	0.0001	18	997	Falling	0.1	0.1		2.87	Dry
	18/10/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20	1003	Rising	0.1	0.1		2.9	Dry
	04/11/22	0.1	0.1	0.0001	**7.7**	**7.6**	0.0077	8.6	1007	Rising	0.1	0.1		2.9	Dry

WELL	DATE	CH4 PEAK (%V/V)	CH4 STEADY (%V/V)	CH4 GSV (l/hr)	CO2 PEAK (%V/V)	CO2 STEADY (%V/V)	CO2 GSV (l/hr)	O2 (%V/V)	ATMOS (mb)	ATMOS. DYNAMIC	PEAK FLOW (l/hr)	STEADY FLOW (l/hr)	RESPONSE ZONE (m bgl)	DEPTH TO BASE (m bgl)	DEPTH TO WATER (m bgl)
WS106	15/11/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.1	990	Falling	0.1	0.1	1.00 - 3.00	2.9	Dry
WS108	23/02/22	46.1	46.1	0.0461	7.8	7.5	0.0078	2.5	1008	Falling	0.1	0.1	0.80 - 2.80	2.60	1.50
	14/03/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20	1019	Rising	0.1	0.1		2.70	2.00
	21/03/22	0.1	0.1	0.0001	0.1	0.1	0.0001	18.9	1023	Steady	0.1	0.1		2.70	2.30
	30/03/22	0.1	0.1	0.0001	0.1	0.1	0.0001	19.6	1013	Falling	0.1	0.1		2.68	2.15
	19/04/22	0.1	0.1	0.0001	0.1	0.1	0.0001	19.9	1019	Steady	0.1	0.1		2.70	2.60
	06/05/22	0.1	0.1	0.0001	0.1	0.1	0.0001	18.8	1018	Steady	0.1	0.1		2.68	2.42
	17/05/22	0.1	0.1	0.0001	0.1	0.1	0.0001	19.9	1015	Steady	0.1	0.1		2.7	2.4
	01/06/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20	1015	Rising	0.1	0.1		2.7	2.4
	17/06/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.3	1015	Steady	0.1	0.1		2.7	Dry
	06/07/22	0.1	0.1	0.0001	0.1	0.1	0.0001	18.8	1022	Steady	0.1	0.1		2.69	2.56
	02/08/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.7	1010	Falling	0.1	0.1		2.7	Dry
	11/08/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.8	1022	Falling	0.1	0.1		2.7	Dry
	19/08/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.6	1014	Rising	0.1	0.1		2.7	Dry
	06/09/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.7	1017	Falling	0.1	0.1		2.7	Dry
	21/09/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.5	1008	Falling	0.1	0.1		2.7	Dry
	05/10/22	0.1	0.1	0.0001	0.1	0.1	0.0001	18	997	Falling	0.1	0.1		2.65	Dry
	18/10/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20	1003	Rising	0.1	0.1		2.65	Dry
	04/11/22	9.6	3.4	0.0096	10.3	6.9	0.0103	14.6	1006	Rising	0.1	0.1		2.65	2.37
	15/11/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.1	990	Falling	0.1	0.1		2.65	Dry
WS110	23/02/22	Location damaged and well repaired for following visit											1.00-2.00		
	14/03/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20	1019	Rising	0.1	0.1		0.95	0.80
	21/03/22	0.1	0.1	0.0001	0.1	0.1	0.0001	19	1023	Steady	0.1	0.1		0.95	Dry
	30/03/22	0.1	0.1	0.0001	0.1	0.1	0.0001	19.5	1014	Falling	0.1	0.1		0.95	Dry
	19/04/22	0.1	0.1	0.0001	0.1	0.1	0.0001	19.9	1019	Steady	0.1	0.1		0.95	Dry

WELL	DATE	CH4 PEAK (%V/V)	CH4 STEADY (%V/V)	CH4 GSV (l/hr)	CO2 PEAK (%V/V)	CO2 STEADY (%V/V)	CO2 GSV (l/hr)	O2 (%V/V)	ATMOS (mb)	ATMOS. DYNAMIC	PEAK FLOW (l/hr)	STEADY FLOW (l/hr)	RESPONSE ZONE (m bgl)	DEPTH TO BASE (m bgl)	DEPTH TO WATER (m bgl)
WS110	06/05/22	0.1	0.1	0.0001	0.1	0.1	0.0001	18.8	1018	Steady	0.1	0.1	1.00-2.00	0.95	Dry
	17/05/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20	1015	Steady	0.1	0.1		0.95	Dry
	01/06/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.1	1016	Rising	0.1	0.1		0.95	Dry
	17/06/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.5	1016	Steady	0.1	0.1		0.95	Dry
	06/07/22	0.1	0.1	0.0001	0.1	0.1	0.0001	18.8	1022	Steady	0.1	0.1		0.94	Dry
	02/08/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.7	1009	Falling	0.1	0.1		0.95	Dry
	11/08/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.7	1022	Falling	0.1	0.1		0.95	Dry
	19/08/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.6	1014	Rising	0.1	0.1		0.95	Dry
	06/09/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.7	1017	Falling	0.1	0.1		0.95	Dry
	21/09/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.6	1007	Falling	0.1	0.1		1.00	dry
	05/10/22	0.1	0.1	0.0001	0.1	0.1	0.0001	18	997	Falling	0.1	0.1		0.95	Dry
	18/10/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20	1003	Rising	0.1	0.1		0.95	Dry
	04/11/22	0.1	0.1	0.0001	1.5	1.2	0.0015	19	1006	Rising	0.1	0.1		0.92	Dry
	15/11/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.1	990	Falling	0.1	0.1		0.95	Dry
WS111	23/02/22	**6.2**	**6.2**	0.0062	**5.3**	**5.3**	0.0053	6.4	1008	Falling	0.1	0.1	0.50-3.00	3.20	2.60
	14/03/22	0.1	0.1	0.0001	0.1	0.1	0.0001	19.9	1019	Rising	0.1	0.1		3.3	3.17
	21/03/22	0.1	0.1	0.0001	0.1	0.1	0.0001	18.9	1023	Steady	0.1	0.1		3.30	Dry
	30/03/22	0.1	0.1	0.0001	0.1	0.1	0.0001	19.5	1013	Falling	0.1	0.1		3.25	Dry
	19/04/22	0.1	0.1	0.0001	0.1	0.1	0.0001	19.9	1018	Steady	0.1	0.1		3.30	Dry
	06/05/22	0.1	0.1	0.0001	0.1	0.1	0.0001	18.8	1018	Steady	0.1	0.1		3.25	Dry
	17/05/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20	1015	Steady	0.1	0.1		3.3	Dry
	01/06/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.2	1016	Rising	0.1	0.1		3.3	3.15
	17/06/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.4	1016	Steady	0.1	0.1		3.3	Dry
	06/07/22	0.1	0.1	0.0001	0.1	0.1	0.0001	18.7	1022	Steady	0.1	0.1		3.27	Dry
	02/08/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.7	1009	Falling	0.1	0.1		3.3	Dry

WELL	DATE	CH4 PEAK (%V/V)	CH4 STEADY (%V/V)	CH4 GSV (l/hr)	CO2 PEAK (%V/V)	CO2 STEADY (%V/V)	CO2 GSV (l/hr)	O2 (%V/V)	ATMOS (mb)	ATMOS. DYNAMIC	PEAK FLOW (l/hr)	STEADY FLOW (l/hr)	RESPONSE ZONE (m bgl)	DEPTH TO BASE (m bgl)	DEPTH TO WATER (m bgl)
WS111	11/08/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.7	1023	Falling	0.1	0.1	0.50-3.00	3.3	Dry
	19/08/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.7	1013	Rising	0.1	0.1		3.3	Dry
	05/09/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.7	1012	Steady	0.1	0.1		3.3	Dry
	21/09/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.5	1009	Falling	0.1	0.1		3.3	Dry
	05/10/22	0.1	0.1	0.0001	0.1	0.1	0.0001	18.1	997	Falling	0.1	0.1		3.24	Dry
	18/10/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20	1002	Rising	0.1	0.1		3.25	Dry
	04/11/22	0.1	0.1	0.0001	0.9	0.9	0.0009	19.2	1006	Rising	0.1	0.1		3.25	Dry
	15/11/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.1	991	Falling	0.1	0.1		3.25	Dry
WS113	23/02/22	0.1	0.1	0.0164	3.1	3.1	0.1984	13.1	1009	Falling	6.4	0.1	1.00 - 2.00	1.70	1.50
	14/03/22	0.1	0.1	0.0001	0.1	0.1	0.0001	13.1	1009	Rising	0.1	0.1		1.85	1.35
	21/03/22	0.1	0.1	0.0001	0.1	0.1	0.0001	18.9	1022	Steady	0.1	0.1		1.85	1.55
	30/03/22	0.1	0.1	0.0001	0.1	0.1	0.0001	19.6	1006	Falling	0.1	0.1		1.87	1.02
	19/04/22	0.1	0.1	0.0001	0.1	0.1	0.0001	19.9	1019	Steady	0.1	0.1		1.85	1.75
	05/05/22	0.1	0.1	0.0001	0.1	0.1	0.0001	18.9	1019	Steady	0.1	0.1		1.87	1.67
	16/05/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20	1012	Steady	0.1	0.1		1.85	1.5
	31/05/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.1	1009	Steady	0.1	0.1		1.85	1.3
	17/06/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.5	1016	Steady	0.1	0.1		1.85	1.65
	05/07/22	0.1	0.1	0.0001	0.1	0.1	0.0001	18.5	1018	Rising	0.1	0.1		1.85	1.6
	01/08/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.6	1020	Falling	0.1	0.1		1.85	1.75
	10/08/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.7	1028	Falling	0.1	0.1		1.85	1.6
	18/08/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.7	1011	Falling	0.1	0.1		1.85	1.75
	01/09/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.7	1022	Falling	0.1	0.1		1.85	Dry
	20/09/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.5	1008	Steady	0.1	0.1		1.85	Dry
	04/10/22	0.1	0.1	0.0001	0.1	0.1	0.0001	18.1	1005	Falling	0.1	0.1		1.85	1.2
	17/10/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.1	1010	Rising	0.1	0.1		1.85	1.6

WELL	DATE	CH4 PEAK (%V/V)	CH4 STEADY (%V/V)	CH4 GSV (l/hr)	CO2 PEAK (%V/V)	CO2 STEADY (%V/V)	CO2 GSV (l/hr)	O2 (%V/V)	ATMOS (mb)	ATMOS. DYNAMIC	PEAK FLOW (l/hr)	STEADY FLOW (l/hr)	RESPONSE ZONE (m bgl)	DEPTH TO BASE (m bgl)	DEPTH TO WATER (m bgl)
WS113	03/11/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.2	994	Falling	0.1	0.1	1.00 - 2.00	1.85	1.24
	14/11/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.1	1005	Falling	0.1	0.1		1.85	1.7
WS114	Monitoring Location Destroyed														
WS115	22/02/22	Monitoring Location Flooded											1.00-2.00	-	-
	15/03/22	0.1	0.1	0.0001	0.1	0.1	0.0001	19.9	1019	Rising	0.1	0.1		1.84	1.13
	21/03/22	0.1	0.1	0.0001	0.1	0.1	0.0001	18.9	1022	Steady	0.1	0.1		1.80	1.35
	30/03/22	0.1	0.1	0.0001	0.1	0.1	0.0001	19.6	1006	Falling	0.1	0.1		1.84	1.28
	19/04/22	0.1	0.1	0.0001	0.1	0.1	0.0001	19.9	1019	Steady	0.1	0.1		1.80	1.65
	05/05/22	0.1	0.1	0.0001	0.1	0.1	0.0001	18.9	1019	Steady	0.1	0.1		1.84	1.62
	16/05/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20	1012	Steady	0.1	0.1		1.8	1.5
	31/05/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.2	1010	Steady	0.1	0.1		1.8	1.45
	17/06/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.5	1016	Steady	0.1	0.1		1.8	1.6
	05/07/22	0.1	0.1	0.0001	0.1	0.1	0.0001	18.5	1019	Rising	0.1	0.1		1.8	1.57
	01/08/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.6	1020	Falling	0.1	0.1		1.8	1.75
	10/08/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.7	1028	Falling	0.1	0.1		1.8	1.65
	18/08/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.8	1012	Falling	0.1	0.1		1.8	1.7
	05/09/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.6	1011	Steady	0.1	0.1		1.8	Dry
	20/09/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.3	1008	Steady	0.1	0.1		1.8	Dry
	04/10/22	0.1	0.1	0.0001	0.1	0.1	0.0001	18.1	1005	Falling	0.1	0.1		1.8	1.36
	17/10/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.1	1010	Rising	0.1	0.1		1.8	1.55
	03/11/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.2	994	Falling	0.1	0.1		1.8	1.18
	14/11/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.1	1005	Falling	0.1	0.1		1.8	1.6
WS117	23/02/22	0.1	0.1	0.0001	4.7	4.6	0.0047	14.3	1007	Falling	0.1	0.1	1.00 - 2.50	2.40	1.20
	14/03/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20	1020	Rising	0.1	0.1		2.48	1.10
	21/03/22	0.1	0.1	0.0001	0.1	0.1	0.0001	18.9	1022	Steady	0.1	0.1		2.45	1.40
	30/03/22	0.1	0.1	0.0001	0.1	0.1	0.0001	19.6	1006	Falling	0.1	0.1		2.49	1.45

WELL	DATE	CH4 PEAK (%V/V)	CH4 STEADY (%V/V)	CH4 GSV (l/hr)	CO2 PEAK (%V/V)	CO2 STEADY (%V/V)	CO2 GSV (l/hr)	O2 (%V/V)	ATMOS (mb)	ATMOS. DYNAMIC	PEAK FLOW (l/hr)	STEADY FLOW (l/hr)	RESPONSE ZONE (m bgl)	DEPTH TO BASE (m bgl)	DEPTH TO WATER (m bgl)
WS117	19/04/22	0.1	0.1	0.0001	0.1	0.1	0.0001	19.9	1019	Steady	0.1	0.1	1.00 - 2.50	2.45	1.95
	05/05/22	0.1	0.1	0.0001	0.1	0.1	0.0001	18.8	1018	Steady	0.1	0.1		2.49	2.22
	16/05/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20	1012	Steady	0.1	0.1		2.45	1.85
	31/05/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.2	1010	Steady	0.1	0.1		2.45	1.85
	17/06/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.5	1016	Steady	0.1	0.1		2.45	2.2
	05/07/22	0.1	0.1	0.0001	0.1	0.1	0.0001	18.8	1020	Rising	0.1	0.1		2.45	2.2
	01/08/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.6	1021	Falling	0.1	0.1		2.45	2.35
	10/08/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.7	1029	Falling	0.1	0.1		2.45	2.3
	18/08/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.8	1012	Falling	0.1	0.1		2.45	2.35
	05/09/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.8	1011	Steady	0.1	0.1		2.45	Dry
	20/09/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.5	1008	Steady	0.1	0.1		2.5	Dry
	04/10/22	0.1	0.1	0.0001	0.1	0.1	0.0001	18.1	1007	Falling	0.1	0.1		2.45	Dry
	17/10/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.1	1010	Rising	0.1	0.1		2.45	Dry
	03/11/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.4	994	Falling	0.1	0.1		2.45	2.35
	14/11/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.1	1005	Falling	0.1	0.1		2.45	Dry
WS118	22/02/22	Monitoring well damaged and repaired for next visit.											1.00-2.00	-	-
	15/03/22	0.1	0.1	0.0001	0.1	0.1	0.0001	19.9	1018	Falling	0.1	0.1		1.91	1.6
	21/03/22	0.1	0.1	0.0001	0.1	0.1	0.0001	18.9	1022	Steady	0.1	0.1		1.90	1.70
	30/03/22	0.1	0.1	0.0001	0.1	0.1	0.0001	19.5	1013	Steady	0.1	0.1		1.91	1.58
	19/04/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20	1018	Steady	0.1	0.1		1.90	Dry
	06/05/22	0.1	0.1	0.0001	0.1	0.1	0.0001	18.8	1018	Steady	0.1	0.1		1.91	1.75
	17/05/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20	1015	Steady	0.1	0.1		1.9	Dry
	01/06/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.1	1016	Rising	0.1	0.1		1.9	1.7
	17/06/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.4	1016	Steady	0.1	0.1		1.9	Dry
	06/07/22	0.1	0.1	0.0001	0.1	0.1	0.0001	18.9	1020	Steady	0.1	0.1		1.9	Dry
	02/08/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.7	1010	Falling	0.1	0.1		1.9	Dry

WELL	DATE	CH4 PEAK (%V/V)	CH4 STEADY (%V/V)	CH4 GSV (l/hr)	CO2 PEAK (%V/V)	CO2 STEADY (%V/V)	CO2 GSV (l/hr)	O2 (%V/V)	ATMOS (mb)	ATMOS. DYNAMIC	PEAK FLOW (l/hr)	STEADY FLOW (l/hr)	RESPONSE ZONE (m bgl)	DEPTH TO BASE (m bgl)	DEPTH TO WATER (m bgl)
WS118	11/08/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.8	1023	Falling	0.1	0.1	1.00-2.00	1.9	Dry
	19/08/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.6	1013	Rising	0.1	0.1		1.9	Dry
	06/09/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.7	1016	Falling	0.1	0.1		1.9	Dry
	21/09/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.5	1009	Falling	0.1	0.1		1.85	Dry
	05/10/22	0.1	0.1	0.0001	0.1	0.1	0.0001	18	987	Falling	0.1	0.1		1.9	Dry
	18/10/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20	1004	Rising	0.1	0.1		1.9	Dry
	04/11/22	0.1	0.1	0.0001	0.3	0.1	0.0003	20.2	1007	Rising	0.1	0.1		1.9	1.58
	15/11/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.1	989	Falling	0.1	0.1		1.9	Dry
WS119	23/02/22	0.1	0.1	0.0001	2.1	2.1	0.0021	18.4	1006	Falling	0.1	0.1	0.50 - 3.50	2.65	0.60
	14/03/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20	1019	Rising	0.1	0.1		2.72	1.00
	21/03/22	0.1	0.1	0.0001	0.1	0.1	0.0001	19	1022	Steady	0.1	0.1		2.70	1.45
	30/03/22	0.1	0.1	0.0001	0.1	0.1	0.0001	19.7	1006	Falling	0.1	0.1		2.70	1.25
	19/04/22	0.1	0.1	0.0001	0.1	0.1	0.0001	19.9	1019	Steady	0.1	0.1		2.70	2.00
	05/05/22	0.1	0.1	0.0001	0.1	0.1	0.0001	18.9	1020	Steady	0.1	0.1		2.7	1.58
	16/05/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20	1012	Steady	0.1	0.1		2.7	1.75
	31/05/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.2	1010	Steady	0.1	0.1		2.7	1.5
	16/06/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.3	1021	Steady	0.1	0.1		2.7	1.95
	05/07/22	0.1	0.1	0.0001	0.1	0.1	0.0001	18.7	1020	Rising	0.1	0.1		2.7	2.05
	01/08/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.7	1021	Falling	0.1	0.1		2.7	2.45
	10/08/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.7	1029	Falling	0.1	0.1		2.7	2.55
	18/08/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.7	1012	Falling	0.1	0.1		2.7	2.55
	01/09/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.7	1023	Falling	0.1	0.1		2.7	Dry
	20/09/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.6	1009	Steady	0.1	0.1		2.7	Dry
	04/10/22	0.1	0.1	0.0001	0.1	0.1	0.0001	18.1	1006	Falling	0.1	0.1		2.7	Dry
	17/10/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.1	1009	Rising	0.1	0.1		2.7	Dry

WELL	DATE	CH4 PEAK (%V/V)	CH4 STEADY (%V/V)	CH4 GSV (l/hr)	CO2 PEAK (%V/V)	CO2 STEADY (%V/V)	CO2 GSV (l/hr)	O2 (%V/V)	ATMOS (mb)	ATMOS. DYNAMIC	PEAK FLOW (l/hr)	STEADY FLOW (l/hr)	RESPONSE ZONE (m bgl)	DEPTH TO BASE (m bgl)	DEPTH TO WATER (m bgl)
WS119	03/11/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.1	995	Falling	0.1	0.1	0.50 - 3.50	2.7	2.6
	14/11/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.1	1004	Falling	0.1	0.1		2.7	Dry
WS120	23/02/22	0.1	0.1	0.0001	0.2	0.1	0.0002	19.1	1008	Falling	0.1	0.1	1.00 - 2.00	1.40	1.20
	14/03/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20	1020	Rising	0.1	0.1		1.50	1.22
	21/03/22	0.1	0.1	0.0001	0.1	0.1	0.0001	18.9	1022	Steady	0.1	0.1		1.50	1.35
	30/03/22	0.1	0.1	0.0001	0.1	0.1	0.0001	19.5	1014	Falling	0.1	0.1		1.51	1.32
	19/04/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20	1019	Steady	0.1	0.1		1.50	1.15
	06/05/22	0.1	0.1	0.0001	0.1	0.1	0.0001	18.8	1018	Steady	0.1	0.1		1.51	1.28
	17/05/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20	1015	Steady	0.1	0.1		1.5	1
	01/06/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.1	1015	Rising	0.1	0.1		1.5	1.1
	17/06/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.5	1016	Steady	0.1	0.1		1.5	1.35
	06/07/22	0.1	0.1	0.0001	0.1	0.1	0.0001	18.9	1020	Steady	0.1	0.1		1.52	1.5
	02/08/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.7	1010	Falling	0.1	0.1		1.55	Dry
	11/08/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.7	1022	Falling	0.1	0.1		1.55	Dry
	19/08/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.7	1014	Rising	0.1	0.1		1.55	Dry
	06/09/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.7	1016	Falling	0.1	0.1		1.55	Dry
	21/09/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.3	1009	Falling	0.1	0.1		1.55	Dry
	05/10/22	0.1	0.1	0.0001	0.1	0.1	0.0001	18	997	Falling	0.1	0.1		1.52	1.16
	18/10/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20	1004	Rising	0.1	0.1		1.55	1.4
	04/11/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20	1007	Rising	0.1	0.1		1.51	1.04
	15/11/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.1	989	Falling	0.1	0.1		1.55	1.4
WS121	23/02/22	0.1	0.1	0.0001	2.2	2.1	0.0022	14.6	1006	Falling	0.1	0.1	0.50 - 1.50	1.2	0.60
	14/03/22	0.1	0.1	0.0001	0.1	0.1	0.0001	19.8	1019	Rising	0.1	0.1		1.28	0.91
	21/03/22	0.1	0.1	0.0001	0.1	0.1	0.0001	18.9	1023	Steady	0.1	0.1		1.25	1.05
	30/03/22	0.1	0.1	0.0001	0.1	0.1	0.0001	19.7	1006	Falling	0.1	0.1		1.28	1.00

WELL	DATE	CH4 PEAK (%V/V)	CH4 STEADY (%V/V)	CH4 GSV (l/hr)	CO2 PEAK (%V/V)	CO2 STEADY (%V/V)	CO2 GSV (l/hr)	O2 (%V/V)	ATMOS (mb)	ATMOS. DYNAMIC	PEAK FLOW (l/hr)	STEADY FLOW (l/hr)	RESPONSE ZONE (m bgl)	DEPTH TO BASE (m bgl)	DEPTH TO WATER (m bgl)
WS121	19/04/22	0.1	0.1	0.0001	0.1	0.1	0.0001	19.9	1019	Steady	0.1	0.1	0.50 - 1.50	1.25	1.20
	05/05/22	0.1	0.1	0.0001	0.1	0.1	0.0001	18.9	1018	Steady	0.1	0.1		1.28	1.2
	16/05/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20	1012	Steady	0.1	0.1		1.25	1.1
	31/05/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.1	1009	Steady	0.1	0.1		1.25	1
	16/06/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.3	1021	Steady	0.1	0.1		1.25	Dry
	05/07/22	0.1	0.1	0.0001	0.1	0.1	0.0001	18.8	1020	Rising	0.1	0.1		1.25	Dry
	01/08/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.6	1021	Falling	0.1	0.1		1.25	Dry
	10/08/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.7	1029	Falling	0.1	0.1		1.25	Dry
	18/08/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.8	1012	Falling	0.1	0.1		1.25	Dry
	01/09/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.7	1023	Falling	0.1	0.1		1.25	Dry
	20/09/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.6	1009	Steady	0.1	0.1		1.25	Dry
	04/10/22	0.1	0.1	0.0001	0.1	0.1	0.0001	18.1	1007	Falling	0.1	0.1		1.25	Dry
	17/10/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.1	1010	Rising	0.1	0.1		1.25	Dry
	03/11/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.3	995	Falling	0.1	0.1		1.25	Dry
	14/11/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.1	1005	Falling	0.1	0.1		1.25	Dry
WS122	Monitoring location destroyed.														
WS123	23/02/22	Monitoring location damaged and repaired for next visit											0.50 – 3.00	-	-
	15/03/22	0.1	0.1	0.0001	0.1	0.1	0.0001	19.6	1019	Falling	0.1	0.1		2.53	1.72
	21/03/22	0.1	0.1	0.0001	0.1	0.1	0.0001	18.9	1023	Steady	0.1	0.1		2.50	1.90
	30/03/22	0.1	0.1	0.0001	0.1	0.1	0.0001	19.6	1005	Steady	0.1	0.1		2.46	1.90
	19/04/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20	1018	Steady	0.1	0.1		2.50	2.25
	05/05/22	0.1	0.1	0.0001	0.1	0.1	0.0001	18.7	1018	Steady	0.1	0.1		2.45	2.3
	16/05/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20	1012	Steady	0.1	0.1		2.5	2.2
	31/05/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.2	1009	Steady	0.1	0.1		2.5	1.95
	16/06/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.3	1021	Steady	0.1	0.1		2.5	2.2

WELL	DATE	CH4 PEAK (%V/V)	CH4 STEADY (%V/V)	CH4 GSV (l/hr)	CO2 PEAK (%V/V)	CO2 STEADY (%V/V)	CO2 GSV (l/hr)	O2 (%V/V)	ATMOS (mb)	ATMOS. DYNAMIC	PEAK FLOW (l/hr)	STEADY FLOW (l/hr)	RESPONSE ZONE (m bgl)	DEPTH TO BASE (m bgl)	DEPTH TO WATER (m bgl)
WS123	05/07/22	0.1	0.1	0.0001	0.1	0.1	0.0001	18.5	1018	Rising	0.1	0.1	0.50 – 3.00	2.5	2.08
	01/08/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.6	1020	Falling	0.1	0.1		2.5	2.35
	10/08/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.7	1028	Falling	0.1	0.1		2.5	2.2
	18/08/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.7	1012	Falling	0.1	0.1		2.5	2.35
	01/09/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.7	1022	Falling	0.1	0.1		2.5	2.45
	20/09/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.4	1009	Steady	0.1	0.1		2.8	dry
	04/10/22	0.1	0.1	0.0001	0.1	0.1	0.0001	18.1	1005	Falling	0.1	0.1		2.5	1.97
	17/10/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.1	1011	Rising	0.1	0.1		2.5	2.25
	03/11/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.3	995	Falling	0.1	0.1		2.5	1.8
	14/11/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.1	1006	Falling	0.1	0.1		2.5	2.3
WS124	23/02/22	**13.7**	**13.7**	0.0137	**5.4**	**5.2**	0.0054	0.1	1009	Falling	0.1	0.1	1.00 - 4.00	3.85	2.40
	14/03/22	0.1	0.1	0.0001	0.1	0.1	0.0001	19.7	1018	Rising	0.1	0.1		3.85	2.42
	21/03/22	0.1	0.1	0.0001	0.1	0.1	0.0001	18.9	1022	Steady	0.1	0.1		3.85	2.65
	30/03/22	0.1	0.1	0.0001	0.1	0.1	0.0001	19.6	1006	Falling	0.1	0.1		3.85	2.40
	19/04/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20	1018	Steady	0.1	0.1		3.85	3.10
	05/05/22	0.1	0.1	0.0001	0.1	0.1	0.0001	18.9	1019	Steady	0.1	0.1		3.84	2.58
	16/05/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20	1012	Steady	0.1	0.1		3.85	2.85
	31/05/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.1	1009	Steady	0.1	0.1		3.85	2.6
	16/06/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.3	1020	Steady	0.1	0.1		3.85	3.05
	05/07/22	0.1	0.1	0.0001	0.1	0.1	0.0001	18.5	1019	Rising	0.1	0.1		3.85	3
	01/08/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.6	1019	Falling	0.1	0.1		3.85	3.45
	10/08/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.6	1027	Falling	0.1	0.1		3.85	3.55
	18/08/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.6	1012	Falling	0.1	0.1		3.85	3.55
	01/09/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.7	1022	Falling	0.1	0.1		3.85	3.7
	20/09/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.6	1008	Steady	0.1	0.1		3.85	Dry

WELL	DATE	CH4 PEAK (%V/V)	CH4 STEADY (%V/V)	CH4 GSV (l/hr)	CO2 PEAK (%V/V)	CO2 STEADY (%V/V)	CO2 GSV (l/hr)	O2 (%V/V)	ATMOS (mb)	ATMOS. DYNAMIC	PEAK FLOW (l/hr)	STEADY FLOW (l/hr)	RESPONSE ZONE (m bgl)	DEPTH TO BASE (m bgl)	DEPTH TO WATER (m bgl)
WS124	04/10/22	0.1	0.1	0.0001	0.1	0.1	0.0001	18.1	1005	Falling	0.1	0.1	1.00 - 4.00	3.85	2.8
	17/10/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.1	1012	Rising	0.1	0.1		3.85	3.2
	03/11/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.3	994	Falling	0.1	0.1		3.85	2.87
	14/11/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.1	1007	Falling	0.1	0.1		3.85	3.4
WS125	23/02/22	0.1	0.1	0.0001	2.1	2.0	0.0021	16.2	1006	Falling	0.1	0.1	0.50 - 1.00	1.00	0.55
	14/03/22	0.1	0.1	0.0001	0.1	0.1	0.0001	19.9	1020	Rising	0.1	0.1		1.05	0.87
	21/03/22	0.1	0.1	0.0001	0.1	0.1	0.0001	18.9	1022	Steady	0.1	0.1		1.05	0.95
	30/03/22	0.1	0.1	0.0001	0.1	0.1	0.0001	19.7	1006	Falling	0.1	0.1		1.07	0.97
	19/04/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20	1019	Steady	0.1	0.1		1.05	Dry
	05/05/22	0.1	0.1	0.0001	0.1	0.1	0.0001	18.8	1019	Steady	0.1	0.1		1.07	Dry
	16/05/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20	1012	Steady	0.1	0.1		1.05	0.9
	31/05/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.2	1010	Steady	0.1	0.1		1.05	0.9
	16/06/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.3	1021	Steady	0.1	0.1		1.05	Dry
	05/07/22	0.1	0.1	0.0001	0.1	0.1	0.0001	18.7	1020	Rising	0.1	0.1		1.05	Dry
	01/08/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.7	1020	Falling	0.1	0.1		1.05	Dry
	10/08/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.7	1028	Falling	0.1	0.1		1.05	Dry
	18/08/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.7	1012	Falling	0.1	0.1		1.05	Dry
	01/09/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.6	1023	Falling	0.1	0.1		1.05	Dry
	20/09/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.4	1008	Steady	0.1	0.1		1.05	Dry
	04/10/22	0.1	0.1	0.0001	0.1	0.1	0.0001	18.1	1007	Falling	0.1	0.1		1.05	Dry
	17/10/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.2	1009	Rising	0.1	0.1		1.05	Dry
	03/11/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.1	995	Falling	0.1	0.1		1.05	Dry
	14/11/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.1	1005	Falling	0.1	0.1		1.05	Dry
WS126	22/02/22	0.4	0.4	0.0004	1.0	1.0	0.0010	18	1008	Rising	0.1	0.1	0.60 - 1.60	1.35	1.15
	14/03/22	0.4	0.4	0.0004	1.0	1.0	0.0010	19.5	1019	Falling	0.1	0.1		1.49	Dry

WELL	DATE	CH4 PEAK (%V/V)	CH4 STEADY (%V/V)	CH4 GSV (l/hr)	CO2 PEAK (%V/V)	CO2 STEADY (%V/V)	CO2 GSV (l/hr)	O2 (%V/V)	ATMOS (mb)	ATMOS. DYNAMIC	PEAK FLOW (l/hr)	STEADY FLOW (l/hr)	RESPONSE ZONE (m bgl)	DEPTH TO BASE (m bgl)	DEPTH TO WATER (m bgl)
WS126	21/03/22	0.4	0.4	0.0004	0.7	0.7	0.0007	18.9	1024	Rising	0.1	0.1	0.60 - 1.60	1.45	Dry
	30/03/22	0.4	0.4	0.0004	0.1	0.1	0.0001	19.7	1006	Steady	0.1	0.1		1.49	Dry
	19/04/22	0.4	0.4	0.0004	0.1	0.1	0.0001	20	1017	Falling	0.1	0.1		1.45	Dry
	05/05/22	0.4	0.4	0.0004	0.1	0.1	0.0001	18.7	1019	Steady	0.1	0.1		1.49	Dry
	16/05/22	0.4	0.4	0.0004	0.1	0.1	0.0001	19.9	1011	Steady	0.1	0.1		1.45	1.3
	31/05/22	0.4	0.4	0.0004	0.1	0.1	0.0001	20.2	1008	Steady	0.1	0.1		1.45	1.15
	15/06/22	0.4	0.4	0.0004	0.1	0.1	0.0001	20.3	1017	Steady	0.1	0.1		1.45	Dry
	05/07/22	0.4	0.4	0.0016	0.1	0.1	0.0004	18.6	1019	Rising	0.4	0.1		1.45	Dry
	01/08/22	0.4	0.4	0.0016	0.1	0.1	0.0004	20.6	1020	Falling	0.4	0.1		1.45	Dry
	10/08/22	0.4	0.4	0.0016	0.1	0.1	0.0004	20.7	1028	Falling	0.4	0.1		1.45	Dry
	18/08/22	0.4	0.4	0.0016	0.1	0.1	0.0004	20.7	1010	Falling	0.4	0.1		1.45	Dry
	01/09/22	0.4	0.4	0.0016	0.1	0.1	0.0004	20.7	1020	Falling	0.4	0.1		1.45	Dry
	20/09/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.6	1008	Steady	0.1	0.1		1.45	Dry
	04/10/22	0.4	0.4	0.0016	0.1	0.1	0.0004	18.1	1006	Falling	0.4	0.1		1.45	Dry
	17/10/22	0.4	0.4	0.0016	0.1	0.1	0.0004	20.1	1013	Rising	0.4	0.1		1.45	Dry
	03/11/22	0.4	0.4	0.0016	3.2	3.2	0.0128	16.8	994	Falling	0.4	0.1		1.45	Dry
	14/11/22	0.4	0.4	0.0016	0.1	0.1	0.0004	20.1	1008	Falling	0.4	0.1		1.45	Dry
WS128	22/02/22	0.1	0.1	0.0001	0.1	0.1	0.0001	19.2	1010	Rising	0.1	0.1	1.00-3.00	2.20	1.20
	14/03/22	0.1	0.1	0.0001	0.1	0.1	0.0001	19.5	1018	Falling	0.1	0.1		2.32	1.58
	21/03/22	0.1	0.1	0.0001	0.1	0.1	0.0001	19	1023	Rising	0.1	0.1		2.30	1.80
	30/03/22	0.1	0.1	0.0001	0.1	0.1	0.0001	19.6	1008	Steady	0.1	0.1		2.32	1.58
	19/04/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20	1017	Falling	0.1	0.1		2.30	2.10
	05/05/22	0.1	0.1	0.0001	0.1	0.1	0.0001	18.6	1019	Steady	0.1	0.1		2.32	1.8
	16/05/22	0.1	0.1	0.0001	0.1	0.1	0.0001	19.9	1011	Steady	0.1	0.1		2.3	1.85
	31/05/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.2	1009	Steady	0.1	0.1		2.3	1.8
	15/06/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.4	1017	Steady	0.1	0.1		2.3	2.1

WELL	DATE	CH4 PEAK (%V/V)	CH4 STEADY (%V/V)	CH4 GSV (l/hr)	CO2 PEAK (%V/V)	CO2 STEADY (%V/V)	CO2 GSV (l/hr)	O2 (%V/V)	ATMOS (mb)	ATMOS. DYNAMIC	PEAK FLOW (l/hr)	STEADY FLOW (l/hr)	RESPONSE ZONE (m bgl)	DEPTH TO BASE (m bgl)	DEPTH TO WATER (m bgl)
WS128	05/07/22	0.1	0.1	0.0001	0.1	0.1	0.0001	18.6	1019	Rising	0.1	0.1	1.00-3.00	2.3	1.85
	01/08/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.6	1018	Falling	0.1	0.1		2.3	2.2
	10/08/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.7	1027	Falling	0.1	0.1		2.3	Dry
	18/08/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.7	1010	Falling	0.1	0.1		2.3	Dry
	01/09/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.7	1020	Falling	0.1	0.1		2.3	Dry
	20/09/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.3	1009	Steady	0.1	0.1		2.3	Dry
	04/10/22	0.1	0.1	0.0001	0.1	0.1	0.0001	18.1	1007	Falling	0.1	0.1		2.3	1.5
	17/10/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.1	1013	Rising	0.1	0.1		2.3	1.85
	03/11/22	0.1	0.1	0.0001	1.5	1.5	0.0015	18.7	995	Falling	0.1	0.1		2.3	1.35
	14/11/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.1	1008	Falling	0.1	0.1		2.3	1.85
WS129	Monitoring Well Destroyed.														
WS130	22/02/22	Monitoring Well Damaged and Repaired for Following Visit											1.00- 3.00	-	-
	15/02/22	0.1	0.1	0.0001	0.1	0.1	0.0001	19.9	1018	Falling	0.1	0.1		2.34	1.63
	21/03/22	0.1	0.1	0.0001	0.1	0.1	0.0001	18.9	1023	Steady	0.1	0.1		2.30	1.95
	30/03/22	0.1	0.1	0.0001	0.1	0.1	0.0001	19.6	1008	Steady	0.1	0.1		2.34	1.70
	19/04/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20	1018	Steady	0.1	0.1		2.30	2.10
	05/05/22	0.1	0.1	0.0001	0.1	0.1	0.0001	18.6	1019	Steady	0.1	0.1		2.34	1.87
	16/05/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20	1011	Steady	0.1	0.1		2.3	2
	31/05/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.2	1009	Steady	0.1	0.1		2.3	1.8
	15/06/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.3	1017	Steady	0.1	0.1		2.3	2
	05/07/22	0.1	0.1	0.0001	0.1	0.1	0.0001	18.6	1020	Rising	0.1	0.1		2.3	2.13
	01/08/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.6	1019	Falling	0.1	0.1		2.3	Dry
	10/08/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.7	1027	Falling	0.1	0.1		2.3	Dry
	18/08/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.7	1010	Falling	0.1	0.1		2.3	Dry
	01/09/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.7	1020	Falling	0.1	0.1		2.3	Dry

WELL	DATE	CH4 PEAK (%V/V)	CH4 STEADY (%V/V)	CH4 GSV (l/hr)	CO2 PEAK (%V/V)	CO2 STEADY (%V/V)	CO2 GSV (l/hr)	O2 (%V/V)	ATMOS (mb)	ATMOS. DYNAMIC	PEAK FLOW (l/hr)	STEADY FLOW (l/hr)	RESPONSE ZONE (m bgl)	DEPTH TO BASE (m bgl)	DEPTH TO WATER (m bgl)
WS130	20/09/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.5	1010	Steady	0.1	0.1	1.00- 3.00	2.3	Dry
	04/10/22	0.1	0.1	0.0001	0.1	0.1	0.0001	18.1	1006	Falling	0.1	0.1		2.3	Dry
	17/10/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.2	1013	Rising	0.1	0.1		2.3	Dry
	03/11/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.2	995	Falling	0.1	0.1		2.3	2.1
	14/11/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.1	1008	Falling	0.1	0.1		2.3	Dry
WS132	22/02/22	0.1	0.1	0.0001	0.4	0.2	0.0004	18.8	1010	Rising	0.1	0.1	1.00 - 4.00	3.80	1.35
	14/03/22	0.1	0.1	0.0001	0.1	0.1	0.0001	19.6	1019	Falling	0.1	0.1		3.91	1.92
	21/03/22	0.1	0.1	0.0001	0.1	0.1	0.0001	18.9	1023	Rising	0.1	0.1		3.90	2.25
	30/03/22	0.1	0.1	0.0001	0.1	0.1	0.0001	19.6	1006	Steady	0.1	0.1		3.90	2.40
	19/04/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20	1018	Falling	0.1	0.1		3.90	2.80
	05/05/22	0.1	0.1	0.0001	0.1	0.1	0.0001	18.7	1019	Steady	0.1	0.1		3.9	2.66
	16/05/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20	1011	Steady	0.1	0.1		3.9	2.5
	31/05/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.2	1008	Steady	0.1	0.1		3.9	2.3
	15/06/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.4	1017	Steady	0.1	0.1		3.9	2.3
	05/07/22	0.1	0.1	0.0001	0.1	0.1	0.0001	18.6	1020	Rising	0.1	0.1		3.9	3.02
	01/08/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.6	1019	Falling	0.1	0.1		3.9	3.5
	10/08/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.7	1027	Falling	0.1	0.1		3.9	3.65
	18/08/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.7	1010	Falling	0.1	0.1		3.9	3.75
	01/09/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.7	1021	Falling	0.1	0.1		3.9	3.8
	20/09/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.5	1007	Steady	0.1	0.1		3.9	Dry
	04/10/22	0.1	0.1	0.0001	0.1	0.1	0.0001	18.1	1006	Falling	0.1	0.1		3.9	3.02
	17/10/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.1	1012	Rising	0.1	0.1		3.9	3.45
	03/11/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.3	994	Falling	0.1	0.1		3.88	2
	14/11/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.1	1007	Falling	0.1	0.1		3.9	3.7
WS133	23/02/22	0.1	0.1	0.0001	2.3	2.2	0.0023	13.4	1007	Falling	0.1	0.1	0.50 - 3.90	1.55	1.40

WELL	DATE	CH4 PEAK (%V/V)	CH4 STEADY (%V/V)	CH4 GSV (l/hr)	CO2 PEAK (%V/V)	CO2 STEADY (%V/V)	CO2 GSV (l/hr)	O2 (%V/V)	ATMOS (mb)	ATMOS. DYNAMIC	PEAK FLOW (l/hr)	STEADY FLOW (l/hr)	RESPONSE ZONE (m bgl)	DEPTH TO BASE (m bgl)	DEPTH TO WATER (m bgl)
WS133	14/03/22	0.1	0.1	0.0001	0.1	0.1	0.0001	19.7	1019	Rising	0.1	0.1	0.50 – 3.90	1.65	0.92
	21/03/22	0.1	0.1	0.0001	0.1	0.1	0.0001	18.9	1023	Steady	0.1	0.1		1.65	1.00
	30/03/22	0.1	0.1	0.0001	0.1	0.1	0.0001	19.6	1005	Falling	0.1	0.1		1.68	1.55
	19/04/22	0.1	0.1	0.0001	0.1	0.1	0.0001	19.9	1018	Steady	0.1	0.1		1.65	1.55
	05/05/22	0.1	0.1	0.0001	0.1	0.1	0.0001	18.8	1018	Steady	0.1	0.1		1.65	Dry
	16/05/22	0.1	0.1	0.0001	0.1	0.1	0.0001	19.9	1012	Steady	0.1	0.1		1.65	1.25
	31/05/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.1	1009	Steady	0.1	0.1		1.65	1.35
	16/06/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.3	1021	Steady	0.1	0.1		1.65	Dry
	05/07/22	0.1	0.1	0.0001	0.1	0.1	0.0001	18.5	1018	Rising	0.1	0.1		1.65	Dry
	01/08/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.6	1020	Falling	0.1	0.1		1.65	Dry
	10/08/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.7	1028	Falling	0.1	0.1		1.65	Dry
	18/08/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.7	1011	Falling	0.1	0.1		1.65	Dry
	01/09/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.7	1021	Falling	0.1	0.1		1.65	Dry
	20/09/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.6	1009	Steady	0.1	0.1		1.6	Dry
	04/10/22	0.1	0.1	0.0001	0.1	0.1	0.0001	18.1	1006	Falling	0.1	0.1		1.65	1.43
	17/10/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.1	1011	Rising	0.1	0.1		1.65	1.55
	03/11/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.2	994	Falling	0.1	0.1		1.65	1
	14/11/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.1	1006	Falling	0.1	0.1		1.65	Dry
WS135	22/02/22	Monitoring Well Flooded											0.50 - 3.00	-	-
	15/03/22	0.1	0.1	0.0001	0.1	0.1	0.0001	19.7	1019	Falling	0.1	0.1		1.45	0.55
	21/03/22	0.1	0.1	0.0001	0.1	0.1	0.0001	18.9	1023	Steady	0.1	0.1		1.45	0.75
	30/03/22	0.1	0.1	0.0001	0.1	0.1	0.0001	19.7	1005	Steady	0.1	0.1		1.4	0.80
	19/04/22	0.1	0.1	0.0001	0.1	0.1	0.0001	19.9	1019	Steady	0.1	0.1		1.45	1.10
	05/05/22	0.1	0.1	0.0001	0.1	0.1	0.0001	18.8	1018	Steady	0.1	0.1		1.35	1
	16/05/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20	1012	Steady	0.1	0.1		1.45	0.85
	31/05/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.2	1008	Steady	0.1	0.1		1.45	0.7

WELL	DATE	CH4 PEAK (%V/V)	CH4 STEADY (%V/V)	CH4 GSV (l/hr)	CO2 PEAK (%V/V)	CO2 STEADY (%V/V)	CO2 GSV (l/hr)	O2 (%V/V)	ATMOS (mb)	ATMOS. DYNAMIC	PEAK FLOW (l/hr)	STEADY FLOW (l/hr)	RESPONSE ZONE (m bgl)	DEPTH TO BASE (m bgl)	DEPTH TO WATER (m bgl)
WS135	16/06/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.3	1020	Steady	0.1	0.1	0.50 - 3.00	1.45	1.05
	05/07/22	0.1	0.1	0.0001	0.1	0.1	0.0001	18.5	1018	Rising	0.1	0.1		1.3	Dry
	01/08/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.6	1019	Falling	0.1	0.1		1.3	Dry
	10/08/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.7	1027	Falling	0.1	0.1		1.3	Dry
	18/08/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.7	1011	Falling	0.1	0.1		1.3	Dry
	01/09/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.7	1021	Falling	0.1	0.1		1.3	Dry
	20/09/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.2	1009	Steady	0.1	0.1		1.3	dry
	04/10/22	0.1	0.1	0.0001	0.1	0.1	0.0001	18.1	1006	Falling	0.1	0.1		1.3	Dry
	17/10/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.1	1011	Rising	0.1	0.1		1.3	Dry
	03/11/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.3	995	Falling	0.1	0.1		1.3	Dry
	14/11/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.1	1006	Falling	0.1	0.1		1.3	Dry
WS136	22/02/22	Monitoring Well Flooded.											0.50 - 3.50	-	-
	15/03/22	0.1	0.1	0.0001	0.1	0.1	0.0001	19.7	1020	Falling	0.1	0.1		3.15	1.60
	21/03/22	0.1	0.1	0.0001	0.1	0.1	0.0001	18.9	1022	Steady	0.1	0.1		3.15	1.60
	30/03/22	0.1	0.1	0.0001	0.1	0.1	0.0001	19.6	1006	Steady	0.1	0.1		3.19	1.90
	19/04/22	0.1	0.1	0.0001	0.1	0.1	0.0001	19.9	1019	Steady	0.1	0.1		3.15	2.40
	05/05/22	0.1	0.1	0.0001	0.1	0.1	0.0001	18.7	1018	Steady	0.1	0.1		3.17	2.7
	16/05/22	0.1	0.1	0.0001	0.1	0.1	0.0001	19.9	1011	Steady	0.1	0.1		3.15	2.15
	31/05/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.2	1008	Steady	0.1	0.1		3.15	1.9
	15/06/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.3	1017	Steady	0.1	0.1		3.15	2.5
	05/07/22	0.1	0.1	0.0001	0.1	0.1	0.0001	18.6	1020	Rising	0.1	0.1		3.15	2.98
	01/08/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.6	1019	Falling	0.1	0.1		3.15	Dry
	10/08/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.7	1027	Falling	0.1	0.1		3.15	Dry
	18/08/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.7	1011	Falling	0.1	0.1		3.15	Dry
	01/09/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.7	1021	Falling	0.1	0.1		3.15	Dry
	20/09/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.3	1009	Steady	0.1	0.1		3.15	Dry

WELL	DATE	CH4 PEAK (%V/V)	CH4 STEADY (%V/V)	CH4 GSV (l/hr)	CO2 PEAK (%V/V)	CO2 STEADY (%V/V)	CO2 GSV (l/hr)	O2 (%V/V)	ATMOS (mb)	ATMOS. DYNAMIC	PEAK FLOW (l/hr)	STEADY FLOW (l/hr)	RESPONSE ZONE (m bgl)	DEPTH TO BASE (m bgl)	DEPTH TO WATER (m bgl)
WS136	04/10/22	0.1	0.1	0.0001	0.1	0.1	0.0001	18.1	1006	Falling	0.1	0.1	0.50 - 3.50	3.15	2.75
	17/10/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.1	1013	Rising	0.1	0.1		3.15	2.95
	03/11/22	0.1	0.1	0.0001	0.8	0.5	0.0008	19.8	995	Falling	0.1	0.1		3.15	1.02
	14/11/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.1	1008	Falling	0.1	0.1		3.15	3
WS137	23/02/22	0.1	0.1	0.0001	1.6	1.3	0.0016	16.5	1012	Falling	0.1	0.1	2.00 - 3.00	2.30	2.10
	14/03/22	0.1	0.1	0.0001	0.1	0.1	0.0001	19.7	1018	Rising	0.1	0.1		2.30	2.08
	21/03/22	0.1	0.1	0.0001	0.1	0.1	0.0001	18.9	1022	Steady	0.1	0.1		2.30	2.20
	30/03/22	0.1	0.1	0.0001	0.1	0.1	0.0001	19.6	1006	Falling	0.1	0.1		2.32	2.10
	19/04/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20	1018	Steady	0.1	0.1		2.30	2.20
	05/05/22	0.1	0.1	0.0001	0.1	0.1	0.0001	18.8	1018	Steady	0.1	0.1		2.3	2.12
	16/05/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20	1012	Steady	0.1	0.1		2.3	2
	31/05/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.1	1010	Steady	0.1	0.1		2.3	2.15
	16/06/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.3	1020	Steady	0.1	0.1		2.3	2.25
	05/07/22	0.1	0.1	0.0001	0.1	0.1	0.0001	18.5	1019	Rising	0.1	0.1		2.2	Dry
	01/08/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.6	1019	Falling	0.1	0.1		2.2	Dry
	10/08/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.7	1027	Falling	0.1	0.1		2.2	Dry
	18/08/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.7	1011	Falling	0.1	0.1		2.2	Dry
	01/09/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.7	1022	Falling	0.1	0.1		2.2	Dry
	20/09/22	Unable to access location												-	-
	04/10/22	0.1	0.1	0.0001	0.1	0.1	0.0001	18.1	1006	Falling	0.1	0.1		2.18	2.02
	17/10/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.1	1012	Rising	0.1	0.1		2.2	2.05
	03/11/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.2	994	Falling	0.1	0.1		2.18	1.83
	14/11/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.1	1007	Falling	0.1	0.1		2.2	2.1
WS138	22/02/22	0.1	0.1	0.0253	1.4	1.4	0.3542	15.7	1006	Rising	25.3	0.1	1.00 - 4.00	2.20	1.20
	14/03/22	0.1	0.1	0.0001	0.1	0.1	0.0001	19.7	1019	Falling	0.1	0.1		2.30	1.05
	21/03/22	0.1	0.1	0.0001	0.1	0.1	0.0001	18.9	1024	Rising	0.1	0.1		2.30	1.40

WELL	DATE	CH4 PEAK (%V/V)	CH4 STEADY (%V/V)	CH4 GSV (l/hr)	CO2 PEAK (%V/V)	CO2 STEADY (%V/V)	CO2 GSV (l/hr)	O2 (%V/V)	ATMOS (mb)	ATMOS. DYNAMIC	PEAK FLOW (l/hr)	STEADY FLOW (l/hr)	RESPONSE ZONE (m bgl)	DEPTH TO BASE (m bgl)	DEPTH TO WATER (m bgl)
WS138	30/03/22	0.1	0.1	0.0001	0.1	0.1	0.0001	19.7	1006	Steady	0.1	0.1	1.00 - 4.00	2.32	1.11
	19/04/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20	1017	Falling	0.1	0.1		2.30	1.85
	05/05/22	0.1	0.1	0.0001	0.1	0.1	0.0001	18.7	1018	Steady	0.1	0.1		2.32	1.15
	16/05/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20	1011	Steady	0.1	0.1		2.3	1.5
	31/05/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.2	1008	Steady	0.1	0.1		2.3	1.7
	15/06/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.4	1017	Steady	0.1	0.1		2.3	2.1
	05/07/22	0.1	0.1	0.0001	0.1	0.1	0.0001	18.6	1019	Rising	0.1	0.1		2.3	2
	01/08/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.6	1018	Falling	0.1	0.1		2.3	Dry
	10/08/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.7	1026	Falling	0.1	0.1		2.3	Dry
	18/08/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.8	1010	Falling	0.1	0.1		2.3	Dry
	01/09/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.7	1020	Falling	0.1	0.1		2.3	Dry
	20/09/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.6	1006	Steady	0.1	0.1		2.3	Dry
	04/10/22	0.1	0.1	0.0001	0.1	0.1	0.0001	18.1	1006	Falling	0.1	0.1		2.3	Dry
	17/10/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.1	1013	Rising	0.1	0.1		2.3	Dry
	03/11/22	0.1	0.1	0.0001	0.3	0.2	0.0003	20	995	Falling	0.1	0.1		2.3	2
	14/11/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.1	1008	Falling	0.1	0.1		2.3	Dry
WS140	22/02/22	0.1	0.1	0.0001	0.3	0.3	0.0003	18.6	1006	Rising	0.1	0.1	1.00 - 3.00	2.85	2.05
	14/03/22	0.1	0.1	0.0001	0.1	0.1	0.0001	19.4	1019	Falling	0.1	0.1		2.95	2.53
	21/03/22	0.1	0.1	-0.0003	0.1	0.1	-0.0003	18.9	1024	Rising	-0.3	0.1		2.95	2.70
	30/03/22	0.1	0.1	0.0001	0.1	0.1	0.0001	19.6	1006	Steady	0.1	0.1		2.98	2.57
	19/04/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.1	1017	Falling	0.1	0.1		2.95	2.85
	05/05/22	0.1	0.1	0.0001	0.1	0.1	0.0001	18.7	1018	Steady	0.1	0.1		2.98	2.78
	16/05/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20	1011	Steady	0.1	0.1		2.95	2.5
	31/05/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.2	1008	Steady	0.1	0.1		2.95	2.7
	15/06/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.4	1017	Steady	0.1	0.1		2.95	Dry
	05/07/22	0.1	0.1	0.0001	0.1	0.1	0.0001	18.6	1018	Rising	0.1	0.1		2.98	2.92

WELL	DATE	CH4 PEAK (%V/V)	CH4 STEADY (%V/V)	CH4 GSV (l/hr)	CO2 PEAK (%V/V)	CO2 STEADY (%V/V)	CO2 GSV (l/hr)	O2 (%V/V)	ATMOS (mb)	ATMOS. DYNAMIC	PEAK FLOW (l/hr)	STEADY FLOW (l/hr)	RESPONSE ZONE (m bgl)	DEPTH TO BASE (m bgl)	DEPTH TO WATER (m bgl)
WS140	01/08/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.6	1018	Falling	0.1	0.1	1.00 - 3.00	2.9	2.8
	10/08/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.7	1026	Falling	0.1	0.1		2.9	2.75
	18/08/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.7	1010	Falling	0.1	0.1		2.9	2.7
	01/09/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.7	1020	Falling	0.1	0.1		2.9	2.8
	20/09/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.5	1006	Steady	0.1	0.1		2.8	Dry
	04/10/22	0.1	0.1	0.0001	0.1	0.1	0.0001	18.1	1006	Falling	0.1	0.1		2.97	2.87
	17/10/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.1	1013	Rising	0.1	0.1		3	Dry
	03/11/22	0.1	0.1	0.0001	0.8	0.8	0.0008	16	994	Falling	0.1	0.1		2.98	2.69
	14/11/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.1	1008	Falling	0.1	0.1		3	Dry
WS141	22/02/22	Monitoring Well Damaged, Repaired for Following Visit.											1.00 - 3.00	-	-
	15/03/22	0.1	0.1	0.0001	0.1	0.1	0.0001	19.9	1018	Falling	0.1	0.1		2.96	1.58
	21/03/22	0.1	0.1	0.0001	0.1	0.1	0.0001	19.9	1022	Steady	0.1	0.1		2.95	1.90
	30/03/22	0.1	0.1	0.0001	0.1	0.1	0.0001	19.6	1006	Steady	0.1	0.1		2.95	1.90
	19/04/22	0.1	0.1	0.0001	0.1	0.1	0.0001	19.9	1019	Steady	0.1	0.1		2.95	2.35
	05/05/22	0.1	0.1	0.0001	0.1	0.1	0.0001	18.8	1018	Steady	0.1	0.1		2.95	2.55
	16/05/22	0.1	0.1	0.0001	0.1	0.1	0.0001	19.9	1012	Steady	0.1	0.1		2.95	2.2
	31/05/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.2	1009	Steady	0.1	0.1		2.95	2.4
	16/06/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.2	1020	Steady	0.1	0.1		2.95	2.4
	05/07/22	0.1	0.1	0.0001	0.1	0.1	0.0001	18.5	1019	Rising	0.1	0.1		2.95	2.52
	01/08/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.6	1018	Falling	0.1	0.1		2.95	2.75
	10/08/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.7	1027	Falling	0.1	0.1		2.95	2.6
	18/08/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.7	1010	Falling	0.1	0.1		2.95	2.75
	01/09/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.7	1020	Falling	0.1	0.1		2.95	2.8
	20/09/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.3	1007	Steady	0.1	0.1		2.85	dry
	04/10/22	0.1	0.1	0.0001	0.1	0.1	0.0001	18.1	1006	Falling	0.1	0.1		2.95	2.62
	17/10/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.2	1013	Rising	0.1	0.1		2.95	2.8

WELL	DATE	CH4 PEAK (%V/V)	CH4 STEADY (%V/V)	CH4 GSV (l/hr)	CO2 PEAK (%V/V)	CO2 STEADY (%V/V)	CO2 GSV (l/hr)	O2 (%V/V)	ATMOS (mb)	ATMOS. DYNAMIC	PEAK FLOW (l/hr)	STEADY FLOW (l/hr)	RESPONSE ZONE (m bgl)	DEPTH TO BASE (m bgl)	DEPTH TO WATER (m bgl)
WS141	03/11/22	0.1	0.1	0.0001	2.4	2.4	0.0024	18.4	994	Falling	0.1	0.1	1.00 - 3.00	2.95	1.92
	14/11/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.1	1008	Falling	0.1	0.1		2.95	2.9
WS142	22/02/22	0.1	0.1	0.0001	0.1	0.1	0.0001	19.2	1007	Rising	0.1	0.1	1.00 - 3.00	2.30	1.30
	14/03/22	0.1	0.1	0.0001	0.1	0.1	0.0001	19.5	1019	Falling	0.1	0.1		2.40	1.67
	21/03/22	0.1	0.1	0.0001	0.1	0.1	0.0001	18.8	1024	Rising	0.1	0.1		2.40	1.90
	30/03/22	0.1	0.1	0.0001	0.1	0.1	0.0001	19.7	1006	Steady	0.1	0.1		2.41	1.81
	19/04/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20	1017	Falling	0.1	0.1		2.40	2.25
	05/05/22	0.1	0.1	0.0001	0.1	0.1	0.0001	18.7	1019	Steady	0.1	0.1		2.41	1.94
	16/05/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20	1011	Steady	0.1	0.1		2.4	2
	31/05/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.2	1008	Steady	0.1	0.1		2.4	1.8
	15/06/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.4	1017	Steady	0.1	0.1		2.4	2.1
	05/07/22	0.1	0.1	0.0001	0.1	0.1	0.0001	18.6	1019	Rising	0.1	0.1		2.4	1.98
	01/08/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.6	1018	Falling	0.1	0.1		2.4	2.25
	10/08/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.7	1027	Falling	0.1	0.1		2.4	2.1
	18/08/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.8	1010	Falling	0.1	0.1		2.4	2.2
	01/09/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.7	1020	Falling	0.1	0.1		2.4	2.3
	20/09/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.5	1008	Steady	0.1	0.1		2.4	Dry
	04/10/22	0.1	0.1	0.0001	0.1	0.1	0.0001	18.1	1006	Falling	0.1	0.1		2.4	1.75
	17/10/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.1	1013	Rising	0.1	0.1		2.4	2.05
	03/11/22	0.1	0.1	0.0001	1.1	1	0.0011	19.2	994	Falling	0.1	0.1		2.41	1.75
	14/11/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.1	1008	Falling	0.1	0.1		2.4	2.2
WS144	22/02/22	Unable to access location											1.00 - 3.00	-	-
	14/03/22	0.1	0.1	0.0001	0.1	0.1	0.0001	19.9	1020	Steady	0.1	0.1		2.82	2.09
	21/03/22	0.1	0.1	0.0001	0.1	0.1	0.0001	18.9	1021	Falling	0.1	0.1		2.80	2.25
	30/03/22	0.1	0.1	0.0001	0.1	0.1	0.0001	19.7	1006	Steady	0.1	0.1		2.82	2.18
	19/04/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20	1019	Steady	0.1	0.1		2.80	2.60

WELL	DATE	CH4 PEAK (%V/V)	CH4 STEADY (%V/V)	CH4 GSV (l/hr)	CO2 PEAK (%V/V)	CO2 STEADY (%V/V)	CO2 GSV (l/hr)	O2 (%V/V)	ATMOS (mb)	ATMOS. DYNAMIC	PEAK FLOW (l/hr)	STEADY FLOW (l/hr)	RESPONSE ZONE (m bgl)	DEPTH TO BASE (m bgl)	DEPTH TO WATER (m bgl)
WS144	05/05/22	0.1	0.1	0.0001	0.1	0.1	0.0001	18.9	1019	Steady	0.1	0.1	1.00 - 3.00	2.82	2.28
	16/05/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20	1010	Steady	0.1	0.1		2.8	2.35
	31/05/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.1	1008	Steady	0.1	0.1		2.8	2.1
	16/06/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.3	1020	Steady	0.1	0.1		2.8	2.65
	05/07/22	0.1	0.1	0.0001	0.1	0.1	0.0001	18.7	1020	Rising	0.1	0.1		2.8	2.37
	01/08/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.7	1021	Falling	0.1	0.1		2.8	2.7
	10/08/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.7	1030	Falling	0.1	0.1		2.8	2.7
	18/08/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.7	1013	Falling	0.1	0.1		2.8	2.7
	01/09/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.7	1023	Falling	0.1	0.1		2.8	2.7
	20/09/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.3	1008	Steady	0.1	0.1		2.8	Dry
	04/10/22	0.1	0.1	0.0001	0.1	0.1	0.0001	18.1	1007	Falling	0.1	0.1		2.8	2.12
	17/10/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.1	1009	Rising	0.1	0.1		2.8	2.5
	03/11/22	0.1	0.1	0.0001	0.8	0.8	0.0008	19.6	995	Falling	0.1	0.1		2.8	1.98
	14/11/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.1	1004	Falling	0.1	0.1		2.8	2.65
WS147	23/02/22	0.1	0.1	0.0033	0.1	0.1	0.0033	18.1	1009	Falling	3.3	0.1	1.00 - 2.00	1.50	1.35
	14/03/22	0.1	0.1	0.0001	0.1	0.1	0.0001	19.8	1018	Rising	0.1	0.1		1.60	1.28
	21/03/22	0.1	0.1	0.0001	0.1	0.1	0.0001	18.8	1022	Steady	0.1	0.1		1.60	1.40
	30/03/22	0.1	0.1	0.0001	0.1	0.1	0.0001	19.6	1006	Falling	0.1	0.1		1.61	1.07
	19/04/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20	1018	Steady	0.1	0.1		1.60	1.25
	05/05/22	0.1	0.1	0.0001	0.1	0.1	0.0001	18.8	1018	Steady	0.1	0.1		1.61	1.26
	16/05/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20	1012	Steady	0.1	0.1		1.6	1.2
	31/05/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.1	1010	Steady	0.1	0.1		1.6	1.35
	16/06/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.4	1020	Steady	0.1	0.1		1.6	Dry
	05/07/22	0.1	0.1	0.0001	0.1	0.1	0.0001	18.5	1020	Rising	0.1	0.1		1.6	1.35
	01/08/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.6	1019	Falling	0.1	0.1		1.6	1.1
	10/08/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.6	1028	Falling	0.1	0.1		1.6	1.1

WELL	DATE	CH4 PEAK (%V/V)	CH4 STEADY (%V/V)	CH4 GSV (l/hr)	CO2 PEAK (%V/V)	CO2 STEADY (%V/V)	CO2 GSV (l/hr)	O2 (%V/V)	ATMOS (mb)	ATMOS. DYNAMIC	PEAK FLOW (l/hr)	STEADY FLOW (l/hr)	RESPONSE ZONE (m bgl)	DEPTH TO BASE (m bgl)	DEPTH TO WATER (m bgl)
WS147	18/08/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.7	1011	Falling	0.1	0.1	1.00 - 2.00	1.6	1.25
	01/09/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.7	1022	Falling	0.1	0.1		1.6	1.45
	20/09/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.3	1008	Steady	0.1	0.1		1.6	Dry
	04/10/22	0.1	0.1	0.0001	0.1	0.1	0.0001	18.1	1005	Falling	0.1	0.1		1.6	1.31
	17/10/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.1	1012	Rising	0.1	0.1		1.6	1.45
	03/11/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.4	994	Falling	0.1	0.1		1.6	1.25
	14/11/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.1	1007	Falling	0.1	0.1		1.6	1.05
WS148	Unable to be located – Assumed Destroyed.														
WS149A	23/02/22	0.1	0.1	0.0001	0.1	0.1	0.0001	19.4	1008	Falling	0.1	0.1	0.50 - 1.00	0.70	Dry
	14/03/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20	1019	Rising	0.1	0.1		0.80	Dry
	21/03/22	0.1	0.1	0.0001	0.1	0.1	0.0001	19.7	1007	Steady	0.1	0.1		0.80	Dry
	30/03/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20	1007	Falling	0.1	0.1		0.80	Dry
	19/04/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20	1020	Steady	0.1	0.1		0.80	Dry
	05/05/22	0.1	0.1	0.0001	0.1	0.1	0.0001	19	1018	Steady	0.1	0.1		0.8	Dry
	17/05/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20	1016	Steady	0.1	0.1		0.8	Dry
	01/06/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.1	1015	Rising	0.1	0.1		0.8	Dry
	17/06/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.5	1015	Steady	0.1	0.1		0.8	Dry
	05/07/22	0.1	0.1	0.0001	0.1	0.1	0.0001	18.7	1022	Rising	0.1	0.1		0.8	Dry
	02/08/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.7	1011	Falling	0.1	0.1		0.8	Dry
	11/08/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.8	1021	Falling	0.1	0.1		0.8	Dry
	19/08/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.6	1015	Rising	0.1	0.1		0.8	Dry
	06/09/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.7	1016	Falling	0.1	0.1		0.8	Dry
	21/09/22	Unable to Access Location												-	-
	04/10/22	0.1	0.1	0.0001	0.1	0.1	0.0001	18.1	1006	Falling	0.1	0.1		0.8	Dry
	18/10/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.1	1004	Rising	0.1	0.1		0.8	Dry
	03/11/22	0.1	0.1	0.0001	0.8	0.8	0.0008	19.1	995	Falling	0.1	0.1		0.8	Dry

WELL	DATE	CH4 PEAK (%V/V)	CH4 STEADY (%V/V)	CH4 GSV (l/hr)	CO2 PEAK (%V/V)	CO2 STEADY (%V/V)	CO2 GSV (l/hr)	O2 (%V/V)	ATMOS (mb)	ATMOS. DYNAMIC	PEAK FLOW (l/hr)	STEADY FLOW (l/hr)	RESPONSE ZONE (m bgl)	DEPTH TO BASE (m bgl)	DEPTH TO WATER (m bgl)
WS149A	15/11/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.1	989	Falling	0.1	0.1	0.50 - 1.00	0.8	Dry
WS151	24/02/22	0.1	0.1	0.0001	0.8	0.7	0.0008	17.8	999	Rising	0.1	0.1	1.00 - 2.00	1.85	1.25
	14/03/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20	1020	Steady	0.1	0.1		1.95	1.62
	21/03/22	0.1	0.1	0.0001	0.1	0.1	0.0001	19	1021	Falling	0.1	0.1		1.95	1.85
	30/03/22	0.1	0.1	0.0001	0.1	0.1	0.0001	19.7	1006	Steady	0.1	0.1		1.95	1.57
	19/04/22	0.1	0.1	0.0001	0.1	0.1	0.0001	19.9	1020	Steady	0.1	0.1		1.95	1.80
	05/05/22	0.1	0.1	0.0001	0.1	0.1	0.0001	19.1	1018	Steady	0.1	0.1		1.95	1.63
	17/05/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20	1016	Steady	0.1	0.1		1.95	1.7
	01/06/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20	1015	Rising	0.1	0.1		1.95	1.8
	17/06/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.5	1015	Steady	0.1	0.1		1.95	1.45
	05/07/22	0.1	0.1	0.0001	0.1	0.1	0.0001	18.9	1020	Rising	0.1	0.1		1.95	1.68
	02/08/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.7	1011	Falling	0.1	0.1		1.95	1.75
	11/08/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.8	1021	Falling	0.1	0.1		1.95	1.1
	19/08/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.7	1015	Rising	0.1	0.1		1.95	1.35
	06/09/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.7	1015	Falling	0.1	0.1		1.95	1.65
	21/09/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.3	1008	Falling	0.1	0.1		1.95	dry
	04/10/22	0.1	0.1	0.0001	0.1	0.1	0.0001	18.2	1005	Falling	0.1	0.1		1.95	1.41
	18/10/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.1	1004	Rising	0.1	0.1		1.95	1.65
	03/11/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.3	994	Falling	0.1	0.1		1.95	1.16
	15/11/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.1	989	Falling	0.1	0.1		1.95	1.7
WS152	22/02/22	Unable to Access Location											0.50- 2.50	-	-
	14/03/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20	1020	Steady	0.1	0.1		2.70	1.41
	21/03/22	0.1	0.1	0.0001	0.1	0.1	0.0001	18.8	1021	Falling	0.1	0.1		2.70	1.75
	30/03/22	0.1	0.1	0.0001	0.1	0.1	0.0001	19.7	1006	Steady	0.1	0.1		2.70	1.58
	19/04/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20	1019	Steady	0.1	0.1		2.70	2.20
	05/05/22	0.1	0.1	0.0001	0.1	0.1	0.0001	19	1019	Steady	0.1	0.1		2.7	1.99

WELL	DATE	CH4 PEAK (%V/V)	CH4 STEADY (%V/V)	CH4 GSV (l/hr)	CO2 PEAK (%V/V)	CO2 STEADY (%V/V)	CO2 GSV (l/hr)	O2 (%V/V)	ATMOS (mb)	ATMOS. DYNAMIC	PEAK FLOW (l/hr)	STEADY FLOW (l/hr)	RESPONSE ZONE (m bgl)	DEPTH TO BASE (m bgl)	DEPTH TO WATER (m bgl)
WS152	16/05/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20	1010	Steady	0.1	0.1	0.50- 2.50	2.7	2.05
	31/05/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.1	1008	Steady	0.1	0.1		2.7	1.75
	16/06/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.3	1020	Steady	0.1	0.1		2.7	2.2
	05/07/22	0.1	0.1	0.0001	0.1	0.1	0.0001	18.7	1020	Rising	0.1	0.1		2.7	2.32
	01/08/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.7	1021	Falling	0.1	0.1		2.7	2.6
	10/08/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.7	1030	Falling	0.1	0.1		2.7	2.5
	18/08/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.7	1013	Falling	0.1	0.1		2.7	2.35
	01/09/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.7	1023	Falling	0.1	0.1		2.7	2.55
	20/09/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.5	1008	Steady	0.1	0.1		2.7	Dry
	04/10/22	0.1	0.1	0.0001	0.1	0.1	0.0001	18.1	1007	Falling	0.1	0.1		2.7	2.08
	17/10/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.1	1009	Rising	0.1	0.1		2.7	2.4
	03/11/22	0.8	0.8	0.0008	4.8	4.8	0.0048	6.7	995	Falling	0.1	0.1		2.7	1.55
	14/11/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.1	1004	Falling	0.1	0.1		2.7	2.5
WS153A	22/02/22	0.1	0.1	0.0001	0.7	0.7	0.0007	18.9	999	Rising	0.1	0.1	0.50 - 1.00	0.80	0.50
	14/03/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20	1019	Falling	0.1	0.1		0.90	0.82
	21/03/22	0.1	0.1	0.0001	0.1	0.1	0.0001	19	1021	Rising	0.1	0.1		0.90	Dry
	30/03/22	0.1	0.1	0.0001	0.1	0.1	0.0001	19.7	1006	Steady	0.1	0.1		0.90	Dry
	19/04/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20	1020	Falling	0.1	0.1		0.90	Dry
	05/05/22	0.1	0.1	0.0001	0.1	0.1	0.0001	19.1	1018	Steady	0.1	0.1		0.9	Dry
	17/05/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20	1016	Steady	0.1	0.1		0.9	Dry
	01/06/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20	1014	Rising	0.1	0.1		0.9	0.7
	17/06/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.4	1015	Steady	0.1	0.1		0.9	Dry
	05/07/22	0.1	0.1	0.0001	0.1	0.1	0.0001	18.9	1020	Rising	0.1	0.1		0.9	Dry
	02/08/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.8	1011	Falling	0.1	0.1		0.9	Dry
	11/08/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.8	1021	Falling	0.1	0.1		0.9	Dry
	19/08/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.7	1015	Rising	0.1	0.1		0.9	Dry

WELL	DATE	CH4 PEAK (%V/V)	CH4 STEADY (%V/V)	CH4 GSV (l/hr)	CO2 PEAK (%V/V)	CO2 STEADY (%V/V)	CO2 GSV (l/hr)	O2 (%V/V)	ATMOS (mb)	ATMOS. DYNAMIC	PEAK FLOW (l/hr)	STEADY FLOW (l/hr)	RESPONSE ZONE (m bgl)	DEPTH TO BASE (m bgl)	DEPTH TO WATER (m bgl)
WS153A	06/09/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.7	1015	Falling	0.1	0.1	0.50 - 1.00	0.9	Dry
	21/09/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.5	1008	Falling	0.1	0		0.9	Dry
	04/10/22	0.1	0.1	0.0001	0.1	0.1	0.0001	18.2	1006	Falling	0.1	0.1		0.9	Dry
	18/10/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.1	1005	Rising	0.1	0.1		0.9	Dry
	03/11/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.2	995	Falling	0.1	0.1		0.9	0.85
	15/11/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.1	988	Falling	0.1	0.1		0.9	Dry
WS157	Monitoring Well Flooded												1.00 - 2.00	-	-
	14/03/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20	1020	Falling	0.1	0.1		1.93	1.45
	21/03/22	0.1	0.1	0.0001	0.1	0.1	0.0001	19	1021	Rising	0.1	0.1		1.90	1.50
	30/03/22	0.1	0.1	0.0001	0.1	0.1	0.0001	19.7	1006	Steady	0.1	0.1		1.93	1.02
	19/04/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20	1020	Falling	0.1	0.1		1.90	1.80
	05/05/22	0.1	0.1	0.0001	0.1	0.1	0.0001	19.1	1018	Steady	0.1	0.1		1.93	1.15
	17/05/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20	1016	Steady	0.1	0.1		1.9	1.6
	01/06/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.1	1014	Rising	0.1	0.1		1.9	1.4
	17/06/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.4	1015	Steady	0.1	0.1		1.9	1.75
	05/07/22	0.1	0.1	0.0001	0.1	0.1	0.0001	18.8	1020	Rising	0.1	0.1		1.92	1.43
	02/08/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.7	1011	Falling	0.1	0.1		1.95	1.75
	11/08/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.8	1021	Falling	0.1	0.1		1.95	Dry
	19/08/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.7	1015	Rising	0.1	0.1		1.95	Dry
	06/09/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.7	1015	Falling	0.1	0.1		1.95	Dry
	21/09/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.7	1009	Falling	0.1	0.1		1.95	Dry
	04/10/22	0.1	0.1	0.0001	0.1	0.1	0.0001	18.2	1006	Falling	0.1	0.1		1.95	1.08
	18/10/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.1	1005	Rising	0.1	0.1		1.95	1.4
	03/11/22	0.1	0.1	0.0001	0.2	0.1	0.0002	20.3	994	Falling	0.1	0.1		1.95	1.6
	15/11/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.1	988	Falling	0.1	0.1		1.95	1.35
WS161	24/02/22	0.1	0.1	0.0001	0.5	0.5	0.0005	18.7	999	Rising	0.1	0.1	0.50 - 1.50	1.35	0.65

WELL	DATE	CH4 PEAK (%V/V)	CH4 STEADY (%V/V)	CH4 GSV (l/hr)	CO2 PEAK (%V/V)	CO2 STEADY (%V/V)	CO2 GSV (l/hr)	O2 (%V/V)	ATMOS (mb)	ATMOS. DYNAMIC	PEAK FLOW (l/hr)	STEADY FLOW (l/hr)	RESPONSE ZONE (m bgl)	DEPTH TO BASE (m bgl)	DEPTH TO WATER (m bgl)
WS161	14/03/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20	1020	Steady	0.1	0.1	0.50 - 1.50	1.44	0.58
	21/03/22	0.1	0.1	0.0001	0.1	0.1	0.0001	18.9	1021	Falling	0.1	0.1		1.40	0.80
	30/03/22	0.1	0.1	0.0001	0.1	0.1	0.0001	19.6	1006	Steady	0.1	0.1		1.44	0.88
	19/04/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20	1020	Steady	0.1	0.1		1.40	1.15
	05/05/22	0.1	0.1	0.0001	0.1	0.1	0.0001	19.1	1018	Steady	0.1	0.1		1.44	1.28
	17/05/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20	1016	Steady	0.1	0.1		1.4	1.05
	01/06/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20	1014	Rising	0.1	0.1		1.4	0.9
	17/06/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.4	1015	Steady	0.1	0.1		1.4	1.25
	05/07/22	0.1	0.1	0.0001	0.1	0.1	0.0001	18.8	1021	Rising	0.1	0.1		1.4	Dry
	02/08/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.8	1011	Falling	0.1	0.1		1.4	Dry
	11/08/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.8	1021	Falling	0.1	0.1		1.4	Dry
	19/08/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.6	1015	Rising	0.1	0.1		1.4	Dry
	06/09/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.7	1015	Falling	0.1	0.1		1.4	Dry
	21/09/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.3	1008	Falling	0.1	0.1		1.5	dry
	04/10/22	0.1	0.1	0.0001	0.1	0.1	0.0001	18.1	1006	Falling	0.1	0.1		1.4	1.2
	18/10/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20	1005	Rising	0.1	0.1		1.4	Dry
	03/11/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.1	994	Falling	0.1	0.1		1.4	1.25
	15/11/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.1	988	Falling	0.1	0.1		1.4	Dry
WS169	24/02/22	0.1	0.1	0.0001	0.1	0.1	0.0001	19	998	Rising	0.1	0.1	1.00 - 2.00	1.85	1.75
	14/03/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20	1020	Steady	0.1	0.1		1.92	1.63
	21/03/22	0.1	0.1	0.0001	0.1	0.1	0.0001	19	1021	Falling	0.1	0.1		1.90	1.75
	30/03/22	0.1	0.1	0.0001	0.1	0.1	0.0001	19.6	1006	Steady	0.1	0.1		1.93	1.40
	19/04/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20	1020	Steady	0.1	0.1		1.90	1.70
	05/05/22	0.1	0.1	0.0001	0.1	0.1	0.0001	19.1	1018	Steady	0.1	0.1		1.93	1.57
	17/05/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20	1016	Steady	0.1	0.1		1.9	1.5
	01/06/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20	1014	Rising	0.1	0.1		1.9	1.45

WELL	DATE	CH4 PEAK (%V/V)	CH4 STEADY (%V/V)	CH4 GSV (l/hr)	CO2 PEAK (%V/V)	CO2 STEADY (%V/V)	CO2 GSV (l/hr)	O2 (%V/V)	ATMOS (mb)	ATMOS. DYNAMIC	PEAK FLOW (l/hr)	STEADY FLOW (l/hr)	RESPONSE ZONE (m bgl)	DEPTH TO BASE (m bgl)	DEPTH TO WATER (m bgl)
WS169	17/06/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.4	1015	Steady	0.1	0.1	1.00 - 2.00	1.9	1.8
	05/07/22	0.1	0.1	0.0001	0.1	0.1	0.0001	18.7	1021	Rising	0.1	0.1		1.9	1.76
	02/08/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.7	1011	Falling	0.1	0.1		1.9	Dry
	11/08/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.8	1021	Falling	0.1	0.1		1.9	Dry
	19/08/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.7	1015	Rising	0.1	0.1		1.9	Dry
	06/09/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.7	1015	Falling	0.1	0.1		1.9	Dry
	21/09/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.2	1008	Falling	0.1	0.1		1.9	Dry
	04/10/22	0.1	0.1	0.0001	0.1	0.1	0.0001	18.1	1006	Falling	0.1	0.1		1.9	1.13
	18/10/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20	1004	Rising	0.1	0.1		1.9	1.5
	03/11/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.1	994	Falling	0.1	0.1		1.93	1.62
	15/11/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.1	989	Falling	0.1	0.1		1.9	1.4
WS171	23/02/22	0.1	0.1	0.0001	1.3	1.3	0.0013	17.3	1007	Falling	0.1	0.1	1.00- 2.50	2.30	1.20
	14/03/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20	1019	Rising	0.1	0.1		2.40	Dry
	21/03/22	0.1	0.1	0.0001	0.1	0.1	0.0001	19	1022	Steady	0.1	0.1		2.40	Dry
	30/03/22	0.1	0.1	0.0001	0.1	0.1	0.0001	19.6	1006	Falling	0.1	0.1		2.40	Dry
	19/04/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20	1019	Steady	0.1	0.1		2.40	Dry
	05/05/22	0.1	0.1	0.0001	0.1	0.1	0.0001	18.9	1018	Steady	0.1	0.1		2.4	Dry
	16/05/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20	1012	Steady	0.1	0.1		2.4	Dry
	31/05/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.1	1010	Steady	0.1	0.1		2.4	2.2
	17/06/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.4	1016	Steady	0.1	0.1		2.4	Dry
	05/07/22	0.1	0.1	0.0001	0.1	0.1	0.0001	18.8	1020	Rising	0.1	0.1		2.4	Dry
	01/08/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.6	1022	Falling	0.1	0.1		2.4	Dry
	10/08/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.6	1029	Falling	0.1	0.1		2.4	Dry
	18/08/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.7	1012	Falling	0.1	0.1		2.4	Dry
	05/09/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.7	1011	Steady	0.1	0.1		2.4	Dry
	20/09/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.5	1010	Steady	0.1	0.1		2.4	Dry

WELL	DATE	CH4 PEAK (%V/V)	CH4 STEADY (%V/V)	CH4 GSV (l/hr)	CO2 PEAK (%V/V)	CO2 STEADY (%V/V)	CO2 GSV (l/hr)	O2 (%V/V)	ATMOS (mb)	ATMOS. DYNAMIC	PEAK FLOW (l/hr)	STEADY FLOW (l/hr)	RESPONSE ZONE (m bgl)	DEPTH TO BASE (m bgl)	DEPTH TO WATER (m bgl)
WS171	04/10/22	0.1	0.1	0.0001	0.1	0.1	0.0001	18.1	1007	Falling	0.1	0.1	1.00- 2.50	2.4	Dry
	17/10/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.1	1010	Rising	0.1	0.1		2.4	Dry
	03/11/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.3	995	Falling	0.1	0.1		2.4	Dry
	14/11/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.1	1005	Falling	0.1	0.1		2.4	Dry
CP/RB101	23/02/22	**4.4**	**4.4**	0.0044	**9.5**	**9.5**	0.0095	0.2	1008	Falling	0.1	0.1	3.00- 5.00	4.50	3.30
	14/03/22	0.1	0.1	0.0001	0.1	0.1	0.0001	19.9	1019	Rising	0.1	0.1		4.55	3.25
	21/03/22	0.1	0.1	0.0001	0.1	0.1	0.0001	19	1023	Steady	0.1	0.1		4.55	3.60
	30/03/22	0.1	0.1	0.0001	0.1	0.1	0.0001	19.5	1013	Falling	0.1	0.1		4.55	4.40
	19/04/22	0.1	0.1	0.0001	0.1	0.1	0.0001	19.9	1018	Steady	0.1	0.1		4.55	4.00
	06/05/22	0.1	0.1	0.0001	0.1	0.1	0.0001	18.8	1018	Steady	0.1	0.1		4.55	Dry
	17/05/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20	1015	Steady	0.1	0.1		4.55	3.75
	01/06/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.1	1016	Rising	0.1	0.1		4.55	3.5
	17/06/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.5	1016	Steady	0.1	0.1		4.55	3.95
	06/07/22	0.1	0.1	0.0001	0.1	0.1	0.0001	18.7	1022	Steady	0.1	0.1		4.55	Dry
	02/08/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.7	1009	Falling	0.1	0.1		4.55	Dry
	11/08/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.8	1023	Falling	0.1	0.1		4.55	Dry
	19/08/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.6	1013	Rising	0.1	0.1		4.55	Dry
	05/09/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.7	1012	Steady	0.1	0.1		4.55	Dry
	21/09/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.7	1009	Falling	0.1	0.1		4.5	Dry
	05/10/22	0.1	0.1	0.0001	0.1	0.1	0.0001	18	997	Falling	0.1	0.1		4.51	Dry
	18/10/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.1	1002	Rising	0.1	0.1		4.55	Dry
	04/11/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.1	1006	Rising	0.1	0.1		4.5	4.23
	15/11/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.1	991	Falling	0.1	0.1		4.55	Dry
CP/RB102	23/02/22	0.1	0.1	0.0001	4.1	2.6	0.0041	15.8	1011	Falling	0.1	0.1	3.00- 4.00	3.70	3.30
	14/03/22	0.1	0.1	0.0001	0.1	0.1	0.0001	19.5	1020	Rising	0.1	0.1		3.70	3.05
	21/03/22	0.1	0.1	0.0001	0.1	0.1	0.0001	18.9	1024	Steady	0.1	0.1		3.70	3.25

WELL	DATE	CH4 PEAK (%V/V)	CH4 STEADY (%V/V)	CH4 GSV (l/hr)	CO2 PEAK (%V/V)	CO2 STEADY (%V/V)	CO2 GSV (l/hr)	O2 (%V/V)	ATMOS (mb)	ATMOS. DYNAMIC	PEAK FLOW (l/hr)	STEADY FLOW (l/hr)	RESPONSE ZONE (m bgl)	DEPTH TO BASE (m bgl)	DEPTH TO WATER (m bgl)
CP/RB102	30/03/22	0.1	0.1	0.0001	0.1	0.1	0.0001	19.6	1006	Falling	0.1	0.1	3.00- 4.00	3.70	3.10
	19/04/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20	1018	Steady	0.1	0.1		3.70	3.55
	05/05/22	0.1	0.1	0.0001	0.1	0.1	0.0001	18.7	1018	Steady	0.1	0.1		3.7	3.16
	16/05/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20	1012	Steady	0.1	0.1		3.7	3.35
	31/05/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.1	1009	Steady	0.1	0.1		3.7	3.1
	16/06/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.3	1021	Steady	0.1	0.1		3.7	3.45
	05/07/22	0.1	0.1	0.0001	0.1	0.1	0.0001	18.5	1019	Rising	0.1	0.1		3.7	3.1
	01/08/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.6	1019	Falling	0.1	0.1		3.7	3.45
	10/08/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.7	1027	Falling	0.1	0.1		3.7	3.5
	18/08/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.7	1011	Falling	0.1	0.1		3.7	3.4
	01/09/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.7	1021	Falling	0.1	0.1		3.7	3.5
	20/09/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.5	1010	Steady	0.1	0.1		3.7	Dry
	04/10/22	0.1	0.1	0.0001	0.1	0.1	0.0001	18.1	1006	Falling	0.1	0.1		3.7	3.45
	17/10/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.1	1011	Rising	0.1	0.1		3.7	3.6
	03/11/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.3	995	Falling	0.1	0.1		3.7	3.06
	14/11/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.1	1006	Falling	0.1	0.1		3.7	Dry
CP/RB103	23/02/22	0.3	0.3	0.0003	6	6	0.0060	0.2	1008	Falling	0.1	0.1	3.00- 4.00	3.35	3.10
	14/03/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.1	1019	Rising	0.1	0.1		3.40	3.30
	21/03/22	0.1	0.1	0.0001	0.1	0.1	0.0001	18.9	1021	Steady	0.1	0.1		3.40	Dry
	30/03/22	0.1	0.1	0.0001	0.1	0.1	0.0001	19.7	1007	Falling	0.1	0.1		3.40	Dry
	19/04/22	0.1	0.1	0.0001	0.1	0.1	0.0001	19.9	1019	Steady	0.1	0.1		3.40	Dry
	05/05/22	0.1	0.1	0.0001	0.1	0.1	0.0001	19	1019	Steady	0.1	0.1		3.4	Dry
	16/05/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20	1012	Steady	0.1	0.1		3.4	3.15
	01/06/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.1	1016	Rising	0.1	0.1		3.4	3.2
	17/06/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.5	1017	Steady	0.1	0.1		3.4	Dry
	05/07/22	0.1	0.1	0.0001	0.1	0.1	0.0001	18.8	1020	Rising	0.1	0.1		3.4	Dry

WELL	DATE	CH4 PEAK (%V/V)	CH4 STEADY (%V/V)	CH4 GSV (l/hr)	CO2 PEAK (%V/V)	CO2 STEADY (%V/V)	CO2 GSV (l/hr)	O2 (%V/V)	ATMOS (mb)	ATMOS. DYNAMIC	PEAK FLOW (l/hr)	STEADY FLOW (l/hr)	RESPONSE ZONE (m bgl)	DEPTH TO BASE (m bgl)	DEPTH TO WATER (m bgl)
CP/RB103	02/08/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.7	1009	Falling	0.1	0.1	3.00- 4.00	3.4	Dry
	11/08/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.8	1023	Falling	0.1	0.1		3.4	Dry
	19/08/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.6	1013	Rising	0.1	0.1		3.4	Dry
	05/09/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.7	1012	Steady	0.1	0.1		3.4	Dry
	21/09/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.5	1009	Falling	0.1	0.1		3.4	dry
	05/10/22	0.1	0.1	0.0001	0.1	0.1	0.0001	18	997	Falling	0.1	0.1		3.4	Dry
	18/10/22	0.1`	0.1	0.0001	0.1	0.1	0.0001	20	1002	Rising	0.1	0.1		3.4	Dry
	04/11/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.1	1007	Rising	0.1	0.1		3.4	3.1
	15/11/22	0.1	0.1	0.0001	0.1	0.1	0.0001	20.1	991	Falling	0.1	0.1		3.4	Dry

9.4.5. GROUNDWATER

The groundwater level within several of the monitoring wells was recorded to be above the top of the response zone (flooded) on a number of occasions, as summarised in Table 9.11, thus rendering some of the monitoring data unreliable. Therefore, each time a flooded well was encountered, the well was bailed and left to re-equilibrate. Wells were re-monitored after a period of 20–30 minutes.

Table 9.11 FLOODED MONITORING WELL DATA

Well	Visit 1	Visit 2	Visit 3	Visit 4	Visit 5	Visit 6	Visit 7	Visit 8	Visit 9	Visit 10	Visit 11
WS113	Y	Y	Y	-	-	-	-	-	-	-	-
WS120	Y	Y	Y	Y	-	-	-	-	-	-	-
WS133	Y	-	-	-	-	-	-	-	-	-	-
WS137	Y	Y	Y	Y	Y	Y	Y	Y	Y	-	-
WS147	Y	Y	Y	-	-	Y	-	-	-	Y	-
WS151	Y	Y	Y	Y	Y	Y	Y	Y	-	Y	Y
WS157	Y	Y	Y	-	Y	-	-	-	-	-	-
WS169	Y	Y	Y	-	-	-	-	-	-	-	-
CP/RB103	Y	-	Y	-	-	-	-	-	-	-	-

WELL	VISIT 12	VISIT 13	VISIT 14	VISIT 15	VISIT 16	VISIT 17	VISIT 18	VISIT 19
WS113	-	-	-	-	-	-	Y	-
WS120	-	-	-	-	Y	Y	Y	Y
WS133	-	-	-	-	-	-	-	-
WS137	-	-	-	-	Y	Y	Y	Y
WS147	-	-	-	-	Y	Y	Y	-
WS151	-	-	-	-	Y	Y	Y	Y
WS157	-	-	-	-	-	-	Y	-
WS169	-	-	-	-	-	-	Y	-
CP/RB103	-	-	-	-	-	-	-	-

A number of wells were flooded above the monitoring well equipment, and when bailed the monitoring well recharged or became flooded with surface water. These occasions have not been including in the ground gas assessment and occurred at the following locations and visits:

- WS115 – Visit 1
- WS135 - Visit 1
- WS136 – Visit 1
- WS 137 – Visit 18
- WS157 – Visit 1

Within remaining monitoring wells, a number of the wells were noted to be dry on a number of occasions, and the groundwater levels fluctuated over the monitoring period, with a general decrease in levels identified over the monitoring period or levels remained at a similar level.

9.4.6. BAROMETRIC PRESSURE

Monitoring has been undertaken during periods of steady, falling and rising pressure events throughout the monitoring completed to date. All monitoring locations have been monitored during each of these conditions.

Throughout the monitoring completed to date, atmospheric pressure has been relatively high, above 1000 mb, generally between 1005 mb and 1020 mb for the majority of visits. Low pressure events have occurred on a number of visits with the lowest pressure occurring on 05/10/22 at 987 mb. The highest pressure recorded occurred on 10/08/22 at 1030 mb.

It is therefore considered that the visits have been undertaken over representative conditions, however further visits are to be completed which will capture further atmospheric events.

9.4.7. GAS FLOW

During the monitoring a positive flow was noted in almost all monitoring wells. The measure of positive flow is considered to be the result of groundwater fluctuations. A negative peak flow of -0.3 l/hr was identified within WS140 on the 21st March 2022 however this then became a steady flow of 0.1 l/hr.

To date gas flows have generally been at the limit of detection (LOD) of the gas analyser at 0.1 l/hr, however within WS113 and WS138 during the first visit a peak flow of 6.4 l/hr and 25.3 l/hr respectively were identified, where the steady flow reduced to 0.1 l/hr. Within WS147 on the first visit the peak flow was 3.3 l/hr, reducing to a steady flow of 0.1 l/hr. Within WS126 on a number of monitoring visits the peak flow was 0.40 l/hr with a steady flow recorded at 0.1 l/hr.

9.4.8. GAS CONCENTRATIONS

Methane has been recorded within all monitoring wells at concentrations between 0.1 % v/v (LOD) and a maximum concentration of 46.1 % v/v (WS108). Elevated concentrations of methane were noted during the following monitoring visits and locations and are associated with Made Ground deposits and historical deposited materials:

- WS101 – Visit 1 - 6.8 % v/v (both peak and steady concentrations).
- WS102 – Visit 1 - 3.7 % v/v (both peak and steady concentrations).
- WS108 – Visit 1 - 46.1 % v/v (both peak and steady concentrations).
- WS108 – Visit 18 – 9.6 % v/v peak concentration, reducing to 3.4 % v/v steady concentration.
- WS111 – Visit 1 - 6.2 % v/v (both peak and steady concentrations).
- WS124 – Visit 1 - 13.7 % v/v (both peak and steady concentrations).
- CP/RB101 – Visit 1 - 4.4 % v/v (both peak and steady concentrations).

No other elevated methane concentrations were detected in subsequent monitoring visits.

Carbon dioxide concentrations were recorded within all the monitoring wells at concentrations ranging from 0.1% v/v (LOD) to 10.8% v/v (WS102). As with the methane concentrations highlighted above, elevated concentrations of carbon dioxide were identified during the 1st and 18th monitoring visits and are associated with Made Ground and historically deposited materials. The locations of exceedances are summarised below:

- WS101 – Visit 1 - 8.5 % v/v (both peak and steady concentrations).
- WS102 – Visit 1 - 10.8 % v/v (both peak and steady concentrations).
- WS105 – Visit 1 - 6.9 % v/v (both peak and steady concentrations).
- WS106 – Visit 1 – 6.2 % v/v (both peak and steady concentrations).
- WS106 – Visit 18 - 7.7 % v/v peak concentration, falling to a steady concentration of 7.6 % v/v.
- WS108 – Visit 1 – 7.8 % v/v peak concentration, falling to a steady concentration of 7.5 % v/v.
- WS108 – Visit 18 - 10.3 % v/v peak concentration, falling to a steady concentration of 6.9 % v/v.
- WS111 – Visit 1 - 5.3 % v/v (both peak and steady concentrations).
- WS124 – Visit 1 - 5.4 % v/v peak concentration, falling to a steady concentration of 5.2 % v/v.
- CP/RB101 – Visit 1 - 9.5 % v/v (both peak and steady concentrations).
- CP/RB103 – Visit 1 - 6.0 % v/v (both peak and steady concentrations).

The maximum carbon dioxide and methane levels were also associated with low oxygen concentrations.

9.5. CONCLUSION

The determined Characteristic Situation for each standpipe is presented in Table 9.12. This indicates that based on the peak flow rates the majority of the monitoring visits classify as Characteristic Situation (CS)1 – Very Low Gas Risk with areas of the site characterised as CS2 and CS3 considered to be associated with Made Ground and historically deposited materials.

TABLE 9.12 GAS RISK PROFILE AND LOCATION

LOCATION	MAX CH_4 (% v/v)	GSV (l/hr)	MAX CO_2 (% v/v)	GSV (l/hr)	CHARACTERISTIC SITUATION	NHBC TRAFFIC LIGHT
WS101	6.8	0.0068	8.5	0.0085	CS2	Amber 2
WS102	3.7	0.0037	10.8	0.0108	CS2	Amber 2
WS105	0.1	0.0001	6.9	0.0069	CS2	Amber 1
WS106	0.4	0.0004	7.7	0.0077	CS2	Amber 1
WS108	46.1	0.0461	10.3	0.0103	CS2	**Red**
WS110	0.1	0.0001	1.5	0.0015	CS1	Green
WS111	6.2	0.0062	5.3	0.0053	CS2	Amber 2
WS113	0.1	0.0164	3.1	0.1984	CS2	Green
WS115	0.1	0.0001	0.1	0.1	CS1	Green
WS117	0.1	0.0001	4.7	0.0047	CS1	Green

LOCATION	MAX CH_4 (% v/v)	GSV (l/hr)	MAX CO_2 (% v/v)	GSV (l/hr)	CHARACTERISTIC SITUATION	NHBC TRAFFIC LIGHT
WS118	0.1	0.0001	0.3	0.0003	CS1	Green
WS119	0.1	0.0001	2.1	0.0021	CS1	Green
WS120	0.1	0.0001	0.2	0.0002	CS1	Green
WS121	0.1	0.0001	2.2	0.0022	CS1	Green
WS123	0.1	0.0001	0.1	0.0001	CS1	Green
WS124	13.7	0.0137	5.4	0.0054	CS2	Amber 2
WS125	0.1	0.0001	2.1	0.0021	CS1	Green
WS126	0.4	0.0016	1.0	0.0010	CS1	Green
WS128	0.1	0.0001	1.5	0.0015	CS1	Green
WS130	0.1	0.0001	0.1	0.0001	CS1	Green
WS132	0.1	0.0001	0.4	0.0004	CS1	Green
WS133	0.1	0.0001	2.3	0.0023	CS1	Green
WS135	0.1	0.0001	0.1	0.0001	CS1	Green
WS136	0.1	0.0001	0.8	0.0008	CS1	Green
WS137	0.1	0.0001	1.6	0.0016	CS1	Green
WS138	0.1	0.0253	1.4	0.3542	CS2	Green
WS140	0.1	-0.0003	0.8	0.0008	CS1	Green
WS141	0.1	0.0001	2.4	0.0024	CS1	Green
WS142	0.1	0.0001	1.1	0.0011	CS1	Green
WS144	0.1	0.0001	0.8	0.0008	CS1	Green
WS147	0.1	0.0033	0.1	0.0033	CS1	Green
WS149A	0.1	0.0001	0.8	0.0008	CS1	Green
WS151	0.1	0.0001	0.8	0.0008	CS1	Green
WS152	0.8	0.0008	4.8	0.0048	CS1	Green
WS153A	0.1	0.0001	0.7	0.0007	CS1	Green
WS157	0.1	0.0001	0.2	0.0002	CS1	Green
WS161	0.1	0.0001	0.5	0.0005	CS1	Green
WS169	0.1	0.0001	0.1	0.0001	CS1	Green
WS171	0.1	0.0001	1.3	0.0013	CS1	Green
CP/RB101	4.4	0.0044	9.5	0.0095	CS2	Amber 1
CP/RB102	0.1	0.0001	4.1	0.0041	CS1	Green
CP/RB103	0.3	0.0003	6.0	0.0060	CS2	Amber 1

E3P has assessed the previous variables and come to the following conclusions based on preliminary ground gas monitoring:

- Ground gas monitoring thus far suggests that the site can be predominantly classified as CS1, and in these areas it is considered that gas protection measures will not be required.

- However, areas of the site have been classified as CS2 / Amber 1 or CS2 / Amber 2 associated with Made Ground and historically deposited materials based on elevated concentrations predominately detected on the 1st and 18th visits monitoring visit where lower atmospheric pressures which were falling or rising were noted.

- The site is predominantly underlain by glacial till of SAND and CLAY at depths of 0.10 m bgl to 6.10 m bgl.

- Made Ground has been encountered across the site, with deeper deposits within the southern half of the site associated with former infilling.

- WS108 has been noted to be classified as CS2 or Red in line with NHBC guidance. This was only noted on the first monitoring visit. On one further occasion it was noted to be of a CS2 / Amber 2 classification and on all other monitoring visits gas levels were recorded as <0.1 % v/v (Green). The final ground gas regime will be confirmed within WS108 following the completion of all 24 visits.

- Minor ground gas flows have been identified within the monitoring to date, with the exception of higher flows during the first monitoring visit which may be due to pressurisation of the monitoring well from the collection of groundwater causing a piston effect along with the build up of gas since the installation of the monitoring well.

- There is not considered to be a significant migration of ground gases from the neighbouring landfill, and locations on the south-western boundary where elevated ground gases have been identified are likely due to the Made Ground on-site rather than migration from off-site however this will require confirmation following remediation works to determine if there is an off-site source migrating onto site through the completion of post-remediation ground gas monitoring.

- It is considered by E3P that the site can be classified as CS1 in areas in which Made Ground is not present, and therefore no gas protection measures are required. Within areas of Made Ground precautionary CS2 measures should be allowed for until the complete ground gas monitoring programme has been completed.

It is recommended that the full ground gas assessment and recommended protection measures (if applicable) are agreed with the local authority prior to their adoption on site. Furthermore, all protection measures adopted should be validated by a suitably qualified engineer.

9.6. RESIDENTIAL BUILDING GAS RISK MITIGATION

British Standard BS8485 (2015)+A1(2019) provides two types of residential property that require assessment. These building types are:

- **Type A Building** – Private ownership with no building management controls on alterations to the internal structure, the use of rooms, the ventilation of rooms or the structural fabric of the building. Some small rooms are present. Probably conventional building construction (rather than civil engineering). Examples include private housing and some retail premises.

- **Type B Building** – Private or commercial property with central building management control of any alterations to the building or its uses but limited or no central building management control of the maintenance of the building, including the gas protection measures. Multiple occupancy. Small- to medium-sized rooms with passive ventilation of rooms and other internal spaces throughout ground floor and basement areas. May be conventional building or civil engineering construction. Examples include managed apartments, multiple occupancy offices, some retail premises and parts of some public buildings (such as schools, hospitals, leisure centres) and parts of hotels.

Based on the ground gas risk assessment and the proposed Type A Building, it is envisaged that a point score of 3.5 will be required for affected properties, as summarised in Table 9.13.

TABLE 9.13 BS 8485 (2015) POINTS REQUIRED FOR TYPE A AND TYPE B BUILDINGS

CHARACTERISTIC SITUATION	NHBC TRAFFIC LIGHT SYSTEM	MINIMUM GAS PROTECTION SCORE (POINTS)	
		HIGH SENSITIVITY	
		TYPE A BUILDING	TYPE B BUILDING
1	Green	0	0
2	Amber 1	3.5	3.5
3	Amber 2	4.5	4
4	Red	6.5	5.5
5	N/A	N/A	6.5
6	N/A	N/A	N/A

Residential buildings should not be built on CS4 or higher sites unless the type of construction or site circumstances allow additional levels of protection to be incorporated, for example, high-performance ventilation or pathway intervention measures, and an associated sustainable system of management of maintenance of the gas control system such as in institutional and/or fully serviced contractual situations.

The requisite 3.5 or 4.5 points must be achieved by installation of a suitable combination of measures detailed in Table 9.14.

TABLE 9.14 SUMMARY OF GROUND GAS MITIGATION MEASURES – BS8485 (2015)+A1(2019)

GAS PROTECTION SCORES FOR THE STRUCTURAL BARRIER	SCORE[A]
Floor and Substructure Design	
Precast Suspended Segmental Subfloor (Beam and Block)	0
Cast In-Situ Ground-Bearing Floor Slab (With Only Nominal Mesh Reinforcement)	0.5
Cast In-Situ Monolithic Reinforced Ground-Bearing Raft or Reinforced Cast In-Situ Suspended Floor Slab With Minimal Penetrations	1 or 1.5[B]
Basement Floor and Walls Conforming to BS 8102:2009, Grade 2 Waterproofing[C]	2
Basement Floor and Walls Conforming to BS 8102:2009, Grade 3 Waterproofing[C]	2.5

A) The scores are conditional on breaches of floor slabs, etc. being effectively sealed.
B) To achieve a score of 1.5 the raft or suspended slab should be well reinforced to control cracking and have minimal penetrations cast in (see **A.2.2.2**).
C) The score is conditional on the waterproofing not being based on the use of a geosynthetic clay liner waterproofing product (see **C.3,** Note 4).

PROTECTION ELEMENT SYSTEM		SCORE	COMMENTS
Gas protection scores for ventilation protection measures			
(a) Pressure Relief Pathway – Usually formed of low fines gravel or with a thin geocomposite blanket or strips terminating in a gravel trench external to the building.		0.5	Whenever possible a pressure relief pathway (as a minimum) should be installed in all gas protection measures systems. If the layer has a low permeability and/or is not terminated in a venting trench (or similar), then the score is 0.
(b) Passive Subfloor Dispersal Layer – Media used to provide the dispersal layer are: • Clear void; • Polystyrene void former blanket; • Geocomposite void former blanket; • No-fines gravel layer with gas drains; and • No-fines gravel layer.	Very good performance	2.5	The ventilation effectiveness of different media depends on a number of different factors including the transmissivity of the medium, the width of the building, the side ventilation spacing and type and the thickness of the layer. The selected score should be assigned taking into account the recommendations in Annex B of BS 8485 (2015). Passive ventilation should be designed to meet at least "good performance".
	Good performance	1.5	
(c) Active Dispersal Layer – Usually comprising fans with active abstraction (suction) from a subfloor dilution layer with roof-level vents. The dilution layer may comprise a clear void or be formed of geocomposite or polystyrene void formers.		1.5 to 2.5	This system relies on continued serviceability of the pumps, therefore alarm and response systems should be in place. There should be robust management systems in place to ensure the continued maintenance of the system, including pumps and vents. Active ventilation should always be designed to meet at least "good performance".

(d) Active Positive Pressurisation – Provided by the creation of a blanket of external fresh air beneath the building floor slab by pumps supplying air to points across the central footprint of the building into a permeable layer, usually formed of a thin geocomposite blanket.	1.5 to 2.5	This system relies on continued operation of the pumps, therefore alarm and response systems should be in place. The score assigned should be based on the efficient "coverage" of the building footprint and the redundancy of the system. Active ventilation should always be designed to meet at least "good performance".
(e) Ventilated Car Park – Floor slab of occupied part of the building under consideration is underlain by a basement or undercroft car park.	4	Assumes that the car park is vented to deal with car exhaust fumes, designed to Buildings Regulations 2000, Approved Document F [9].
PROTECTION ELEMENT SYSTEM	**SCORE**	**COMMENTS**
Gas Protection Score for the Gas-Resistant Membrane		
Gas-resistant membrane meeting all of the following criteria: • Sufficiently impervious to the gases with a methane gas transmission rate < 40.0 ml/day/m^2/atm (average) for sheet and joints (tested in accordance with BS ISO 15105-1 manometric method); • Sufficiently durable to remain serviceable for the anticipated life of the building and duration of gas emissions; • Sufficiently strong to withstand in-service stresses (e.g. settlement if placed below a floor slab); • Sufficiently strong to withstand the installation process and following trades until covered (e.g. penetration from steel fibres in fibre-reinforced concrete, penetration of reinforcement ties, tearing due to working above it, dropping tools); • Capable, after installation, of providing a complete barrier to the entry of the relevant gas; and • Verified in accordance with CIRIA C735.	2	The performance of membranes is heavily dependent on the quality and design of the installation, resistance to damage after installation and integrity of joints. For example, a minimum 0.4 mm thickness (equivalent to 370 g/m^2 for polyethylene) reinforced membrane (virgin polymer) meets the performance criteria opposite. If a membrane is installed that does not meet all the criteria opposite, then the score is 0.
This table should be read in conjunction with the notes presented in BS 8485 (2015)+A1 (2019)		

9.6.1. NHBC

The NHBC Traffic Light guidance can still be used where the development proposals are based on the 'typical house' used in the modelling for the traffic light classification system.

A typical house is defined as a house (up to three storeys) with <100m2 footprint and minimum 150mm depth clear ventilated void achieving sub-slab ventilation of one complete air exchange per day.

NHBC expectations for verification to satisfy the Traffic Light gas regime classifications are as detailed in Table 9.15.

TABLE 9.15 TYPICAL NHBC EXPECTATION AND VERIFICATION REQUIREMENTS

GAS REGIME	MINIMUM GAS PROTECTION EXPECTATIONS	VERIFICATION OR INFORMATION REQUIREMENTS
Green	N/A – but need to comply with BR211 radon requirements, where applicable	
Amber 1	Ventilation – subfloor venting to achieve at least one air exchange per day (minimum 150mm void height; 1500 mm2 /m air vent opening or 500mm2 /m2 floor area spaced at not more than 2m centres on at least two opposing sides). Membrane – must be suitable for purpose. Membrane installation/design - to achieve complete integrity across entire building footprint. Penetrations and joints sealed.	Construction drawings – showing position of membrane; sealing details and ventilation points to be provided. Membrane specification – technical data sheet(s) for gas membrane (including gas permeability data) to be provided. Installation – photographic evidence of installed membrane may be requested.
Amber 2	Ventilation – subfloor venting to achieve at least one air exchange per day. Membrane – must be suitable for purpose (criterion detailed in BS8485 clause 7.2.4). Membrane installation and design to achieve complete integrity across entire building footprint. Penetrations and joints sealed. Installer – installers must be experienced and appropriately trained and/or qualified.	Construction drawings showing position of membrane, sealing details and ventilation points to be provided. Membrane specification – technical data sheet(s) for gas membrane (including gas permeability data) to be provided. Installation – third-party verification report with supporting evidence to be included (i.e. photographic evidence and certificates of conformity, observations relating to sealing, location of ventilators and standards of installation). Integrity testing – may be requested; testing plan to be agreed in advance.
Red	Standard residential housing is not generally acceptable without further ground gas risk assessment and/or possible remedial mitigation measures to reduce or remove the source of the ground gases.	

9.7. POTABLE WATER SUPPLY

This section provides a summary of the site investigation data with reference to the selection of potable water supply pipework. The assessment is made with reference to the UK Water Industry Research (UKWIR) publication "*Guidance on the selection of Water Supply Pipes to be used in Brownfield Sites*"

TABLE 9.16 PIPELINE SELECTION PE THRESHOLD CONCENTRATIONS

Contaminant Group	PE-threshold (mg/kg)	Concentrations at Current pipeline depth (mg/kg)
Total VOC	0.5	<LOD
Total BTEX And MTBE	0.1	<LOD
Total SVOCs (Excluding PAH and those substances marked with an *)	2	9.5
EC5-EC10 Aliphatic and Aromatic Hydrocarbons	2	<1.2
EC10-EC16- Aliphatic and Aromatic Hydrocarbons	10	59.9
EC16-EC40 Aliphatic and Aromatic Hydrocarbons	500	917
Phenols (From SVOC Analysis)*	2	N/A
Cresols and Chlorinated Phenols (From SVOC Analysis)	2	NA
Ethers*	0.5	NA
Nitrobenzene*	0.5	NA
Ketones*	0.5	NA
Aldehydes*	0.5	NA
Amines	Fail	NA
Other Consideration		
Are there any exceedances of the PE threshold outside of the pipeline depth?	Yes – exceedances of TPH compounds and SVOCs have been noted outside of pipeline depth.	
Is free product present in soil and groundwater?	None identified.	
Could hydrocarbon impact at greater depth than current pipeline depth be mobilised by rising groundwater levels?	Heavy end hydrocarbon impact have been identified within Made Ground. Perched water has been identified within Made Ground deposits at pipeline depth and monitoring has shown levels to fluctuate which may cause the mobilisation of determinants.	
Will soils impacted with above determinands likely be utilised elsewhere on site?	The site is expected to undergo a site wide turnover with materials likely to be reused on site.	
Will soils be imported to site as part of any future earth works	Site levels will likely undergo some cut/fill works as part of a phase of enabling works. The importation of materials may affect the WIR Risk Assessment which should be updated after completion.	

Notes - Pipe line depth normally between 0.75m–1.35m

Based on the assessment of current site conditions it is likely that barrier pipe will be required at the proposed development. A UKWIR Risk Assessment should be completed to fully inform the pipeline selection. Post-remediation an updated assessment should be completed as conditions may be different to those on site currently.

9.8. CONCEPTUAL SITE MODEL

Following the completion of the intrusive site investigation, chemical analysis and risk assessment, the conceptual model shown in Table 9.17 has been prepared for the site.

TABLE 9.17 CONCEPTUAL MODEL

POLLUTANT LINKAGE	CONTAMINANT (SOURCE)	PATHWAY	RECEPTOR	PROBABILITY	CURRENT RISK	RESIDUAL RISK AFTER MITIGATION
PL1 PL2	Heavy Metals, non-volatile PAH (Made Ground)	Dermal contact. Dermal contact and ingestion.	Future site users. Off-site receptors.	Likely	High	LOW
Assessment: Elevated concentrations of heavy metals (Lead, Arsenic, Nickel and Zinc) and non-volatile PAHs have been identified throughout Made Ground deposits between depths of 0.10m and 2.50m. These elevated levels have a dermal contact and ingestion pathway to future site users and construction workers when coming into direct contact with impacted soils. **Recommendation:** In order to remove the pathway of direct contact for future site users, a suitable clean cover system to garden and landscaped areas, designed in accordance with best practice will prevent exposure. Construction works should be completed with PPE and provision of welfare to ensure exposure and direct contact with impacted materials is at a minimum.						
PL3	ACM in Made Ground	Inhalation of dust.	Future site users. Buildings. Off-site land users.	Likely	High	LOW
Assessment: Asbestos in the form of loose chrysotile, amosite and crocidolite fibres and fibrous debris has been identified in the granular Made Ground in TP132 at 0.20 bgl, TP140 at 0.10m bgl and TP118 at 0.50m, quantified between <0.001% and 0.005%.						

POLLUTANT LINKAGE	CONTAMINANT (SOURCE)	PATHWAY	RECEPTOR	PROBABILITY	CURRENT RISK	RESIDUAL RISK AFTER MITIGATION
Recommendation: As only trace fibres have been encountered, impacted soils and Made Ground will need to be placed in accordance with the asbestos conceptual site model with a suitable cover system placed in all garden and landscaped areas to prevent exposure to future site users. A hotspot removal should be completed in areas in which asbestos quantification is greater than 0.001%. Risks from ACM can be mitigated through the development of a detailed enabling works strategy following guidance and protocol specified within the Control of Asbestos Regulations (2012) and industry best practice as detailed in CIRIA733 (Asbestos in Soil and Made Ground: A guide to understanding risk). Construction works must be completed with appropriate PPE/RPE and the provision of adequate welfare facilities for site workers.						
PL4	Volatile Contaminants such as Mercury, SVOCs. Naphthalene (Made Ground)	Inhalation of vapours. Migration through permeable strata and preferential pathways.	Future site users. Off-site receptors.	Likely	Moderate	**LOW**
Assessment: Elevated concentrations of Mercury have been identified across the site within TP118 at 0.50m bgl and TP141 at 0.10m bgl. Elevated naphthalene concentrations have been identified within TP1101 at 0.90m, and elevated Dibutyl phthalate has been identified within WS111 at 2.50m. **Recommendation:** During a process of cut/fill enabling works, a hotspot removal should be undertaken where these soils may be chemically validated to assess chemical suitability for retention on site in an area of no future sensitivity. In regards to the mercury, further testing should be completed to confirm the type of mercury present and whether it presents a vapour risk. Should it be volatile a hotspot removal should be undertaken.						

POLLUTANT LINKAGE	CONTAMINANT (SOURCE)	PATHWAY	RECEPTOR	PROBABILITY	CURRENT RISK	RESIDUAL RISK AFTER MITIGATION
PL5	Methane, carbon dioxide (Made Ground)	Inhalation of gas. Migration through permeable strata and preferential pathways. Explosion in confined spaces.	Future site users. Buildings. Off-site land users.	Low likelihood	Moderate	LOW
Assessment: Preliminary ground gas monitoring has characterised the site as CS1 with areas of Made Ground and historically deposited material adhering to a CS2 /Amber 1 / Amber 2 classification. It is recommended an allowance of CS2 protection measures are allowed for until the complete ground gas monitoring regime has been completed. **Recommendation:** Full ground gas protection measures to be confirmed following completion of monitoring regime.						

POLLUTANT LINKAGE	CONTAMINANT (SOURCE)	PATHWAY	RECEPTOR	PROBABILITY	CURRENT RISK	RESIDUAL RISK AFTER MITIGATION
PL6	Mobile contaminants such as metals, PAHs, hydrocarbons, volatile compounds (Made Ground)	Surface runoff. Migration through permeable strata and preferential pathways. Perched waters migration.	Groundwater (Principal aquifer).	Likely	Moderate	LOW
Assessment: Likely probability as significant sources of mobile contamination have been identified. Leakages/spillages of mobile contamination are considered possible within the vicinity of the previous Petrol Filling Station although no elevated concentrations of TPHs, SVOCs or VOCs have been identified within soil or leachate analysis however elevated TPH Aromatic C10-C12 concentrations against the EQS screening have been detected; the DWS screening value was not exceeded. Cohesive material across the site may present some mitigation against the downward migration into the underlying bedrock aquifer. The risk to the underlying bedrock aquifer is considered to be low given the minimal exceedances within analysis against DWS screening concentrations. Furthermore, there is not considered to be a complete pollutant linkage given the absence of a groundwater abstraction point within 1 km of the site. The site is however located within a Zone 3 Source Protection Zone, and care should be taken during remediation and enabling works to ensure no creation of leachate which could pose a risk to the underlying bedrock aquifer. **Recommendation:** No further works considered necessary.						
PL7	Sulphate (potential ash within Made Ground)	Sulphate attack on concrete.	Building structure.	Likely	Moderate/Low	LOW
Assessment: The soils generally meet class DS-1, AC-1s. Elevated sulphate concentrations meeting Class DS-2, AC-1s were noted within the Made Ground deposits in TP117 at 0.70. Elevated sulphate concentrations meeting Class DS-3, AC-2s were noted within the Made Ground deposits in TP118 at 0.50m and TP1101 at 0.90m. **Recommendation:** Concrete should be designed in accordance with the chemical testing results.						



POLLUTANT LINKAGE	CONTAMINANT (SOURCE)	PATHWAY	RECEPTOR	PROBABILITY	CURRENT RISK	RESIDUAL RISK AFTER MITIGATION
PL8	Organic contaminants such as hydrocarbons, solvents (Made Ground)	Ingestion of tainted water supply.	Future site users. Water pipes.	Likely	Moderate	LOW
Assessment: Likely probability as contamination anticipated at pipeline depth across the site (0.75–1.35 m) is considered possible due to the previous site uses. Elevated concentrations have been identified in testing completed to date so likely requirement for the use of barrier pipe. **Recommendation:** Based on the assessment of current site conditions, it is likely that barrier pipe will be required. This will need to be confirmed with a UKWIR risk assessment post remediation.						
PL9	Phytotoxic contaminants (Made Ground)	Direct Contact (plant uptake).	Flora.	Likely	Low	LOW
Assessment: Contamination has been encountered within Made Ground across the site which may be taken up by flora in soft landscaping. **Recommendation:** Installation of a clean cover system within gardens and any areas of soft landscaping to prevent plant uptake of contaminants.						

Main exposure pathways:
PL1 = soil ingestion, PL2 = dermal contact and ingestion, PL3 = dust inhalation; PL4 = Vapour/Gas Inhalation; PL5 = Vertical / Lateral Migration; PL6 = Corrosion of concrete; PL7=Tainting of water supply; PL8 = Uptake by plant.

10. GEOTECHNICAL ASSESSMENT

10.1. PROPOSED DEVELOPMENT

Barrett and David Wilson Homes intend to construct a low-rise residential development of circa 730 plots with associated gardens, estate roads and infrastructure. A final proposed layout is still pending however Drawing 15-280-002 (Appendix III) identifies the current indicative proposed development layout.

10.2. SUMMARY OF GROUND CONDITIONS

Made Ground

- Made Ground deposits were encountered within the majority of exploratory hole locations to depths of between 0.00m and 5.50 bgl. The depth of Made Ground was not proven in 20 locations due to either underground obstructions, collapse of the trial pit, or the ingress of water.

- Made Ground deposits generally comprised a reworked topsoil of dark grey slightly gravelly clayey fine to coarse SAND or gravelly sandy to very sandy CLAY with frequent rootlets with gravel of brick, mudstone, sandstone and ceramic. TP164 was overlain by asphalt and concrete associated with the former garage / petrol station, with TP168 overlain by ceramic tiles overlying concrete indicative of the former residential dwellings in this area of the site. Furthermore, WS150, TP188 and TP196 in the north-east of the site was overlain by asphalt, with WS144, WS146, WS148, TP190, TP192 and TP194 overlain by concrete with rebar. TP197 and WS147 in the north-west of the site was overlain by asphalt and concrete.

- Underlying the reworked topsoil or hardstanding, deeper Made Ground deposits comprised of reworked brown very sandy gravelly clays or gravelly sands.

- Within TP160 the exploratory hole location was dug down the side of a former foundation which showed the slab to be 1.10m thick and the foundation going down to 2.80mbgl.

- Within the vicinity of the 1950s-1960s historical deposition to create a level platform within the central and northern sectors of the site, Made Ground deposits comprised a clayey very gravelly fine to coarse ashy sand with gravel of ash, glass, ceramic, textiles, clinker, wood, timber, brick, metal, mudstone and cardboard.

- Within the north-western sector of the site, there is considered to have been further level raising in order to construct the college; further investigation is required when access is available. However, where investigation has been able to be completed, Made Ground deposits in this area comprised the reworked topsoil or concrete deposits as described above, underlain with either the ash fill described above in the southern area of this sector, or a gravelly sand with gravel of brick or sandy gravel with gravel of sandstone, ash, concrete, mudstone and occasional glass and ceramic.

Drift

- Drift deposits were encountered within the majority of exploratory locations with the exception from locations where the full depth of Made Ground could not be proven. The drift deposits are varied, generally comprising a soft to very stiff, medium to very high strength, slightly gravelly sandy brown CLAY with gravel of sandstone and mudstone or a slightly gravelly to gravelly slightly, slightly clayey to very clayey fine to medium SAND with gravel of sandstone and mudstone.

Solid

- The solid bedrock geology was first encountered between 4.70 mbgl and 6.10mbgl. and comprised of SANDSTONE.
- A number of window sample probeholes terminated on or within weathered sandstone bedrock which was recovered as gravelly SANDs from 1.20mbgl. to in excess of 5.45mbgl.

Groundwater

- Groundwater was encountered as perched water, strikes and seepages at depths of between 0.40mbgl. and 4.00mbgl.
- True groundwater is considered to be between 1.40m and 4.00mbgl. within the natural drift deposits.

10.3. SITE PREPARATION

The site should be cleared and any vegetation below areas of proposed development stripped in accordance with Series 200 of the *Manual of Contract Documents for Highway Works (MCHW)*. This should include the following:

- Roots present below the footprint of proposed structures and infrastructure should be grubbed out and the resulting void infilled with suitable compacted engineered fill.
- Removal of all concrete and asphalt hardstanding.
- Redundant services should be sealed off and grubbed out and replaced with suitable compacted engineered fill.
- Buried structures and old foundations have been encountered on site. These should be excavated from below the proposed development footprint with the resulting void backfilled.
- The areas of historical material deposition will be subject to a process or remediation and ground engineering to construct a development platform.

10.4. FOUNDATION CONDITIONS AND ASSESSMENT OF POTENTIAL BEARING CAPACITIES

In due consideration of the identified ground conditions, in-situ and laboratory geotechnical testing, E3P has undertaken an assessment of the net safe allowable bearing pressure (ABP) within the underlying natural stratum to assist in the detailed design of foundations and infrastructure and determine the target founding stratum. The results of this assessment are summarised in Table 10.1.



TABLE 10.1 SUMMARY OF ABP

GRANULAR SOILS			
Description	**Depth (Range m bgl)**	**Relative Density**	**Allowable Bearing Pressure (kN/m^2)**
SAND	1.00-4.45	Loose	42-95
SAND	1.00-5.45	Medium Dense	100-252
SAND	1.70-4.00	Dense	365-466
SAND (Weathered Bedrock)	4.00-4.45	Medium Dense	185
SAND (Weathered Bedrock)	2.00-4.80	Dense	416-456
SANDSTONE	5.00-5.45	Dense	414
Clayey SAND	2.00	Dense	456.76
GRAVEL	3.00	Dense	434.82
COHESIVE SOILS			
Description	**Depth (range m bgl)**	**Undrained Shear Strength (Cu) (kN/m^2)**	**Allowable Bearing Pressure (kN/m^2)**
Very soft extremely low strength CLAY (1 location – WS103)	3.00-3.45	4.35	8.94
Soft very low strength CLAY (1 location – WS105)	2.00-2.45	18.27	37.56
Firm Low Strength CLAY	1.00-2.45	30-36	62-75
Stiff medium strength CLAY	1.00-3.45	40-73	82-150
Very stiff high strength CLAY	1.00-4.00	75-123	155-253
Very stiff very high strength CLAY	2.00-6.00	204-228	421-469

Based on the assessment of the relative undrained shear strength, relative in-situ densities and corresponding safe net allowable bearing pressure, the suitable target founding stratum has been identified as the underlying stiff to very stiff glacial clays and medium dense to dense sands.

However, given topographical variances on the site, and underground obstructions present on site, prior to the detailed design of suitable foundations solutions, a programme of remediation and enabling works will be required to remove the extensive buried obstructions and cut/fill the site to provide suitable development platform levels.

A site wide process of remediation and enabling works will be required, to lift, sort and process the Made Ground in order to remove unacceptable material (timber, glass, plastic wood and organic materials) and process relict obstructions within the former development areas to create a suitable redevelopment platform.

Within the historical deposited materials areas, pockets of Made Ground which are found to contain any putrescible content which will degrade and induce consolidation and potential subsidence at the surface will be unsuitable for retention and reuse within the context of a residential development and will therefore require removal as it is not possible to model or predict the potential for future consolidation, therefore such material cannot remain beneath areas of adopted highway, drives, garden or service infrastructure. It is likely that due to the gas generation potential of this material it will not be suitable beneath plots in the event a plot structure was piled.

It is anticipated that on completion of the proposed site remediation the ground will generally comprise circa 0.50 to <5.00m of Made Ground overlying CLAY or Granular soils or weathered bedrock.

Therefore, upon completion of these enabling works, it is likely that the most cost effective option for the majority of the site would be a combination of shallow strip foundations, mass trench foundations and to re-engineer the Made Ground using vibro stone columns (VSCs) to support a doubly reinforced shallow strip spread foundation.

Localised areas of the site have been noted to have soft low strength CLAYs: TP116, TP129, TP131, TP133, TP141, TP146, TP157, TP163, TP171, TP185, TP197, TP1103, TP1116, TP1123, WS103 and WS105. Where the Cu is <30kPa, the use of VSC will not be permitted as the materials would provide limited lateral support for the construction of VSC. As such, there will be a requirement to utilise a driven piled foundation; alternatively the materials may be removed and replaced with suitable granular fill to allow the use of VSC. Driven piled foundations may be required in areas of infilled ponds should these remain.

To determine if VSC is viable at the subject site, E3P has completed a Ground Improvement Design Risk Matrix that is summarised in Table 10.2.

TABLE 10.2 GROUND IMPROVEMENT DESIGN RISK MATRIX

RISK ITEM	COMMENT	PASS/FAIL
Soft clays with an undrained shear strength less than 30 kN/m^2	CLAY soils are generally firm to stiff with Cu > 40 kN. Isolated areas of softer clay soils were encountered with a Cu < 30 kN/m^2; however, it is considered that these will either be piled or soft material excavated and replaced with granular materials.	**PASS**
Ground with peat layers close to foundation level or the base of the stone column, or where intermediate layers of peat are thicker than 200 mm, either as a single layer or the sum of the thicknesses of individual layers throughout the length of the stone column	None identified.	**PASS**

RISK ITEM	COMMENT	PASS/FAIL
Voided filled ground, e.g. old water tanks, pottery, glass bottles, concrete rubble or brick fill of unsuitable grading	Made Ground beneath the western and central sectors will require processing to render the site suitable for VSC. The existing buildings substructure will also require excavation and processing into a graded aggregate suitable for vibro treatment.	**PASS – on completion of enabling works**
Loose or non-engineered fill not previously subject to rising or fluctuating water levels saturation	None identified.	**PASS**
Filled ground still settling or expected to settle under its own weight or due to the effects of surcharging/upfilling where there is a high organic content or where decay is continuing	None identified.	**PASS**
Fill, containing degradable material where organic material forms more than 15% of fill by volume	None identified.	**PASS**
Clays with a plasticity index greater than 40%	None identified.	**PASS**
Highly sensitive soils liable to collapse or remoulding	None identified.	**PASS**
Cohesive soils with trees in influencing distance	Plots within tree influence will require modelling and will either be subject to a piled or mass trench-fill solution.	**PASS**
Overall Risk Rating and Suitability for Vibratory Ground Improvement		**PASS**

Foundation depths should take account of the presence of existing and proposed trees, with foundations deepened locally to mitigate the potential for volumetric instability attributed to fluctuations in moisture content, in accordance with the requirements of NHBC standards.

It is recommended that at working drawing stage a foundation schedule is prepared for the development, taking account of the physical change of natural clay soils and the current/proposed locations of trees.

At this time it is not possible to accurately define the foundation types due to the absence of a detailed tree survey and final development levels; however, based on our extensive experience of similar sites, we would anticipate that the final foundation solution would be a combination of the following:

- Shallow strip foundations bearing on firm to very stiff gravelly CLAY or SANDs at circa 1 m bgl; and
- Trench fill to support reinforced strip foundations in areas of variable ground and/or potential tree influence.
- Re-engineer of Made Ground for use of VSC to support a doubly reinforced shallow strip

foundation.

- Driven piled foundation in areas of former ponds should they retain and areas of soft CLAYs.

A depth to founding and conceptual foundation zoning plan is included as Drawing 15-280-008 and 15-280-009 in Appendix III.

It is recommended that, at working drawing stage, a foundation schedule is prepared for the development taking account of the physical change of natural clay soils and the current/proposed locations of trees.

10.5. GROUND FLOOR SLABS

Current building control regulations require that where infilled ground is present to depths in excess of 600 mm, or where the substratum is variable in terms of the structure and settlement potential, or where clay soils are present within the influence of existing or proposed trees, a suspended floor slab is required.

In this instance, it is considered that for the majority of substructures, the underlying stratum would have in excess of 600 mm of infill and, as such, a suspended floor slab will be required.

Where a cast in-situ suspended slab is utilised with no subfloor void, appropriate compressible material (heave precautions) will be required in the construction of the substructure.

10.6. HEAVE PRECAUTIONS

The site has been proven to be underlain by clay soils, which are susceptible to volumetric instability due to fluctuations in moisture content, particularly within influencing distance of trees as per the NHBC/LABC conjectured zones of influence.

The site has been noted to be underlain by low to medium volume change potential clays. A conservative approach should be followed and the site should be deemed to be of medium volume change potential therefore heave precautions are required to the internal face of the external load-bearing walls (within tree influence).

If a ground beam is to be constructed within the zone of tree influence, heave precautions are required to the underside of this and edge beams.

If the ground floor slab is to be constructed with a beam and block floor, a minimum subfloor void of 250 mm is required within any structures located in the zone of conjectured tree influence.

If the ground floor slab is constructed with a cast in-situ suspended floor slab, then heave precautions that can tolerate 50 mm of clay swelling are required within any part of the floor slab to be located within the zone of influence of a tree.

A summary of heave precautions is presented in Table 10.3.

TABLE 10.3 SUMMARY OF HEAVE PRECAUTIONS

		MINIMUM VOID DIMENSION FOR FOUNDATIONS, GROUND BEAMS AND SUSPENDED IN-SITU CONCRETE GROUND FLOORS		MINIMUM VOID DIMENSIONS UNDER PRECAST CONCRETE AND SUSPENDED TIMBER FLOORS
Plasticity Index of Soil	**Required Foundation Depth (m)**	**Thickness of Void Former Against Side of Foundation or Ground Beam (mm)**	**Thickness of Void Former on Underside of Edge Beam and Floor Slab (mm)**	**Void Dimension (mm)**
High Plasticity (> 40)	> 2.5	Engineer Design		Engineer Design
	2.0–2.5	35	150	300
	1.5–2.0	25	75	
Moderate Plasticity (20–40)	> 2.5	Engineer Design		Engineer Design
	2.0–2.5	25	100	250
	1.5–2.0	25	50	
Low Plasticity (< 20)	2.0–2.5	N/A	50	200
	> 2.0	No Special Precautions		

10.7. HIGHWAYS CONSTRUCTION

A programme of remediation and enabling works will be required to remediate the proposed road due to the presence of variable Made Ground with extensive obstructions and potentially deleterious / putrescible material represents a risk associated with long term total and differential settlement, it will therefore be necessary to lift and sort all Made Ground, remove unsuitable materials prior to replacement and subsequent engineering to a geotechnical design standard in accordance with in accordance with the requirements of the Manual of Contract Documents for Highway Works Volume 1 Specification For Highway Works (Series 600-Earthworks) for a method compaction.

Compressible Made Ground represents a significant risk associated with consolidation inducing unacceptable total and differential settlement to roads and infrastructure. This material, if encountered, will require removal in its entirety from beneath all proposed roads, private drives and external hardstanding within the development area.

10.8. DRAINAGE

Eleven BRE365 Soakaway tests have been completed within granular and cohesive deposits across the site. The results for all soakaways indicate poor permeability as an infiltration rate could not be calculated.

However, the application of soakaway drainage will ultimately be dependent on the specific requirements of the development. All soakaways should be designed in accordance with BRE Special Digest 365 – Soakaway Design. Infiltration drainage should not be used within areas of deep Made Ground.

10.9. CONCRETE DURABILITY

Chemical analyses for pH and soluble sulphate content contained in Appendix VI (summarised in Table 8.16), shows that the soils at the site generally meet Class DS-1, Aggressive Chemical Environment for Concrete Classification (ACEC) AC-1s in accordance with BRE *Special Digest 1* (2005).

Elevated sulphate concentrations meeting Class DS-2, AC-1s were noted within the Made Ground deposits in TP117 at 0.70 m. Elevated sulphate concentrations meeting Class DS-3, AC-2s were noted within the Made Ground deposits in TP118 at 0.50m and TP1101 at 0.90m.

10.10. EXCAVATIONS

Trial pits were generally stable in both granular Made Ground and natural strata however instability of trial pits and window sample probeholes was noted within some SAND deposits and areas of deeper Made Ground. It is considered that near-surface excavations will be feasible.

Site observations indicated that excavations should be feasible in the near surface with normal plant; however, obstructions were identified in the near surface, including former foundations and former floor slabs. It is anticipated that any obstructions will be grubbed out during the reduced-level dig for the substructure works.

However, due to the depth and variability of the Made Ground and likelihood of trench collapse, it is considered that all excavations are supported or battered back in accordance with guidance contained in CIRIA R97.

If local pumping of groundwater is required during the advancement of excavations for the proposed foundations then consideration should be given to the potential for dewatering gravels in the surrounding areas that may cause structural damage to building substructures in close proximity to the site.

TABLE 10.4 CIVIL ENGINEERING EXCAVATION RISK MATRIX

RISK ITEM	PRESENT	COMMENT
Running Sands	Yes	Running sand has been identified in TP1116 present at 1.70m bgl.
Minor Water Ingress	Yes	Minor water ingress will require localised dewatering/sump pumping during the construction of site drainage infrastructure. Ingress of water into foundation excavation will potentially flood foundation excavations, limiting the viability of spread foundations to be constructed.
Shallow Bedrock	No	Shallow bedrock has been encountered within window sample probeholes. The presence of bedrock will impede excavation for drainage infrastructure using traditional excavation plant and equipment.

10.11. SLOPE STABILITY

The north-western boundary of the site significantly slopes down to Valley Road . As and when detailed topographic information is available and in due consideration of the proposed development design, structural and infrastructure loading, a detailed slope stability model may be required. This model will seek to determine the potential for newly imposed loadings to generate a risk of instability or failure within the off-site embankment and the need for any mitigation measures such as piled foundations to transfer loadings below the base of the slope.

10.12. CONSTRUCTION ACTIVITY AND INSPECTION

The following activities and inspections should be incorporated in to the site works:

- Due to the variability of the soils at the site, it is recommended that sufficient allowance is made for the inspection of formations and subformations to foundations and pavement construction.
- Excavations where access is required should be subject to a risk assessment from a competent person and, where appropriate, mitigation measures such as benching back the sides or use of support systems in accordance with CIRIA R97 should be utilised.
- It is considered that dewatering may be required, especially following periods of heavy rainfall. Removal of surface water and water within trenches should be possible with conventional sump pumping. Discharge of any water should be agreed with the relevant regulatory body and be undertaken under a trade effluent discharge, where required. Measures to remove silt and suspended solids may be required and consideration should be given to provision of space for settling tanks or an attenuation pond.
- Where access to confined spaces is required, appropriate mitigation measures should be addressed within the construction stage health and safety plan. Particular account should be taken of the gas results.
- The presence of potential contamination and mitigation measures should be addressed as part of the construction stage health and safety plan and should include measures to design out the risks, reduce their impact and, finally, to include the use of personnel protective equipment (PPE).

10.13. GEOTECHNICAL RISK REGISTER

POTENTIAL ABNORMAL CONSTRAINT	LOCATION ON SITE	ESTIMATED AREA OF SITE AT RISK (%)	ASSESSMENT AND MITIGATION
Remediation of contaminated soils	On site	TBC	Made Ground will require processing to remove any deleterious materials considered to be unsuitable for re-use as part of the proposed development. Chemical analysis has identified a number of hotspots across the site which will require delineation, removal and consideration as to whether the materials can remain on site in an area of low sensitivity or will require removal from the site. The resulting void from the hotspot removals will require backfilling and should significant backfill be needed deeper or specialist foundations may be required in those areas.
Bedrock	On-site	N/A	Shallow weathered bedrock has ben identified from circa 1.50mbgl. within areas of the site with window sample probeholes noted to refuse from circa. 2.00mbgl on weathered bedrock. Deeper cable percussive boreholes noted bedrock at 4.70m bgl within CP/RB103.
Obstructions	N/A	N/A	Underground obstructions have been noted in the north and south-east of the site associated with former development. These will require removal in their entirety in order to provide a development platform.
Artificially levelled and filled platforms	N/A	N/A	The site is considered to have undergone phases of cut/fill works previously in order to create the current platform; additionally Made Ground materials have been noted to be present across the site which is indicative of former infilling works.
Retaining walls	N/A	N/A	No retaining walls have been observed on site.

POTENTIAL ABNORMAL CONSTRAINT	LOCATION ON SITE	ESTIMATED AREA OF SITE AT RISK (%)	ASSESSMENT AND MITIGATION
Trench collapse	All	On-site	Trial pits were generally stable in both granular Made Ground and natural strata however instability of trial pits and window sample probeholes was noted within some SAND deposits and areas of deeper Made Ground. It is anticipated that trench collapse is likely therefore mitigation measures such as benching back the sides or use of support systems in accordance with CIRIA R97 should be utilised.
Mature trees	On site	TBC	Arboriculture survey required to determine areas of potential tree influence. Mature trees and hedgerows are present along the site boundary, with trees in the centre of the site.
Volume change potential clay	On site	80	Cohesive soils have been identified on site which have been proven to be of medium volume change potential.
Peat	N/A	N/A	Not encountered.
Running sands	On site	N/A	Running sand has been identified in TP1116 present at 1.70m bgl . Data searches indicate low risk.
Ground dissolution	N/A	N/A	Data searches indicate no hazard.
Concrete design	On site	100	The soils generally meet class DS-1, AC-1s. Elevated sulphate concentrations meeting Class DS-2, AC-1s were noted within the Made Ground deposits in TP117 at 0.70 m. Elevated sulphate concentrations meeting Class DS-3, AC-2s were noted within the Made Ground deposits in TP118 at 0.50m and TP1101 at 0.90m.
Low-permeability ground	On site	100	Permeability tests completed on site have indicated soakaways unlikely to be suitable.
Services/sensitive structures	On-site	20	A review of online services has identified a number of services within the site boundary. Piling may not be possible within close proximity to any sensitive infrastructure. It is considered likely service infrastructure currently within the site boundary will be terminated and removed as part of enabling works.



POTENTIAL ABNORMAL CONSTRAINT	LOCATION ON SITE	ESTIMATED AREA OF SITE AT RISK (%)	ASSESSMENT AND MITIGATION
Abnormal foundation solutions	All	All	Ground investigation has indicated that a combination of shallow strip, mass trench, VSC and driven piled foundation solutions are likely on site.
Surface water features	N/A	N/A	None identified
Current ponds to be filled	N/A	N/A	None identified
Historically infilled pond	On-site	1	Historic pond located within the south west and north-east of the site will require delineation.
Slope	On site	10	A slope is present to the north-west of the site towards Valley Road which will require consideration.

10.14. FURTHER WORKS

Based on the findings of the intrusive site investigation, the following additional works are recommended to be completed in due course:

- Supplementary ground investigation within area inaccessible at time of site investigation;
- Further investigation and validation of tanks associated with former petrol filling station;
- Post demolition sampling for PCBs in the vicinity of the former substations;
- Plot-specific foundation schedule (upon receipt of the final development levels);
- Arboriculture survey;
- CL:AIRE DoW CoP Materials management plan;
- Pre-commencement geotechnical materials testing to confirm earthworks design;
- Geotechnical earthworks strategy (infrastructure);
- Remediation and enabling works strategy;
- Full three-dimensional earthworks cut/fill model;
- Settlement Analysis for earthworks design; and,
- Build Phase Mitigation Plan and design of specialist ground gas mitigation measures.

11. CONCLUSIONS AND RECOMMENDATIONS

11.1. CONTAMINATED LAND ASSESSMENT

Human Health	Elevated concentrations of heavy metals, mercury, non-volatile PAHs, naphthalene, asbestos and SVOCs have been identified within the soil analysis completed to date. Heavy metals and non-volatile PAHs are considered to pose a risk to future end users through dermal contact and ingestion. The risk can be mitigated through the installation of a cover system within garden and landscaping areas. Mercury, naphthalene and Dibutyl phthalate have been noted to be elevated in isolated locations across the site, and present a vapour risk to future end-users. It is recommended that a hotspot removal is completed and the materials either placed in an area of low sensitivity or removed from the site. Within the soils analysis no elevated concentrations of TPH or BTEX in the area of the former petrol filling station were identified to date. A hydrocarbon odour was identified within WS142 in this vicinity within SAND deposits underlying Made Ground. The tanks are understood to still be in-situ and the presence of contamination cannot be ruled out at this stage. Asbestos, quantified between <0.001% and 0.005% has been identified within three locations at the site. As only trace fibres have been encountered, impacted soils and Made Ground will need to be placed in accordance with the asbestos conceptual site model with a suitable cover system placed in all garden and landscaped areas to prevent exposure to future site users. A hotspot removal should be completed in areas in which asbestos quantification is greater than 0.001%.
Controlled Waters	The assessment prepared in consideration of the developed CSM has not identified any potentially complete pollutant linkage or risk to controlled waters. Elevated TPHs against EQS screening values were identified in groundwater samples from WS142 in close proximity to the former petrol filling station, however concentrations did not exceed the DWS screening value in relation to the underlying principal aquifer which is considered to be the primary receptor in this instance.
Ground Gas	Preliminary ground gas monitoring has characterised the site as CS1 with areas of Made Ground material adhering to a CS2 / Amber 1 / Amber 2 classification. It is recommended an allowance of CS2 protection measures are allowed for until the ground gas monitoring regime has been completed.
Potable Water	This will need to be confirmed following the completion of a UKWIR risk assessment. Post-remediation and enabling works ground conditions may be different from those identified during this site investigation however it is anticipated that barrier pipe would be required.

11.2. GEOTECHNICAL ASSESSMENT

A site wide process of remediation and enabling works will be required, to lift, sort and process the Made Ground in order to remove unsuitable material (timber, glass, plastic wood and organic materials) and process extensive relict obstructions within the vicinity of historic buildings to create a suitable redevelopment platform.

It is anticipated that on completion of the proposed site remediation the ground will generally comprise circa 0.50 to <5.00m of Made Ground clay deposits or granular soils and areas of weathered bedrock.

It is anticipated that the proposed development can be constructed on a combination of shallow strip, mass trench and the re-engineer of Made Ground for the use of vibro stone columns to support a doubly reinforced shallow strip foundation. A driven piled foundation solution may be required in areas of soft clays and in the vicinity of former ponds.

Foundation depths should take account of the presence of existing and proposed trees, with foundations deepened locally to mitigate the potential for volumetric instability attributed to fluctuations in moisture content, in accordance with the requirements of NHBC standards.

It is recommended that at working drawing stage a foundation schedule is prepared for the development, taking account of the physical change of natural clay soils and the current/proposed locations of trees.

END OF REPORT

APPENDIX I
LIMITATIONS

1. This report and its findings should be considered in relation to the terms of reference and objectives agreed between E3P and the client as indicated in Section 1.3.

2. For the work, reliance has been placed on publicly available data obtained from the sources identified. The information is not necessarily exhaustive and further information relevant to the site may be available from other sources. When using the information it has been assumed it is correct. No attempt has been made to verify the information.

3. This report has been produced in accordance with current UK policy and legislative requirements for land and groundwater contamination which are enforced by the local authority and the Environment Agency. Liabilities associated with land contamination are complex and requires advice from legal professionals.

4. During the site walkover, reasonable effort has been made to obtain an overview of the site conditions. However, during the site walkover, no attempt has been made to enter areas of the site that are unsafe or present a risk to health and safety, are locked, barricaded, overgrown, or the location of the area has not been made known or accessible.

5. Access considerations, the presence of services and the activities being carried out on the site limited the locations where sampling locations could be installed and the techniques that could be used.

6. Site sensitivity assessments have been made based on available information at the time of writing and are ultimately for the decision of the regulatory authorities.

7. Where mention has been made to the identification of Japanese Knotweed and other invasive plant species and asbestos or asbestos-containing materials, this is for indicative purposes only and do not constitute or replace full and proper surveys.

8. The executive summary, conclusions and recommendations sections of the report provide an overview and guidance only and should not be specifically relied upon without considering the context of the report in full.

9. E3P cannot be held responsible for any use of the report or its contents for any purpose other than that for which it was prepared. The copyright in this report and other plans and documents prepared by E3P is owned by them and no such plans or documents may be reproduced, published or adapted without written consent. Complete copies of this may, however, be made and distributed by the client as is expected in dealing with matters related to its commission. Should the client pass copies of the report to other parties for information, the whole report should be copied, but no professional liability or warranties shall be extended to other parties by E3P in this connection without their explicit written agreement there to by E3P.

10. New information, revised practices or changes in legislation may necessitate the re-interpretation of the report, in whole or in part.

APPENDIX II
GLOSSARY

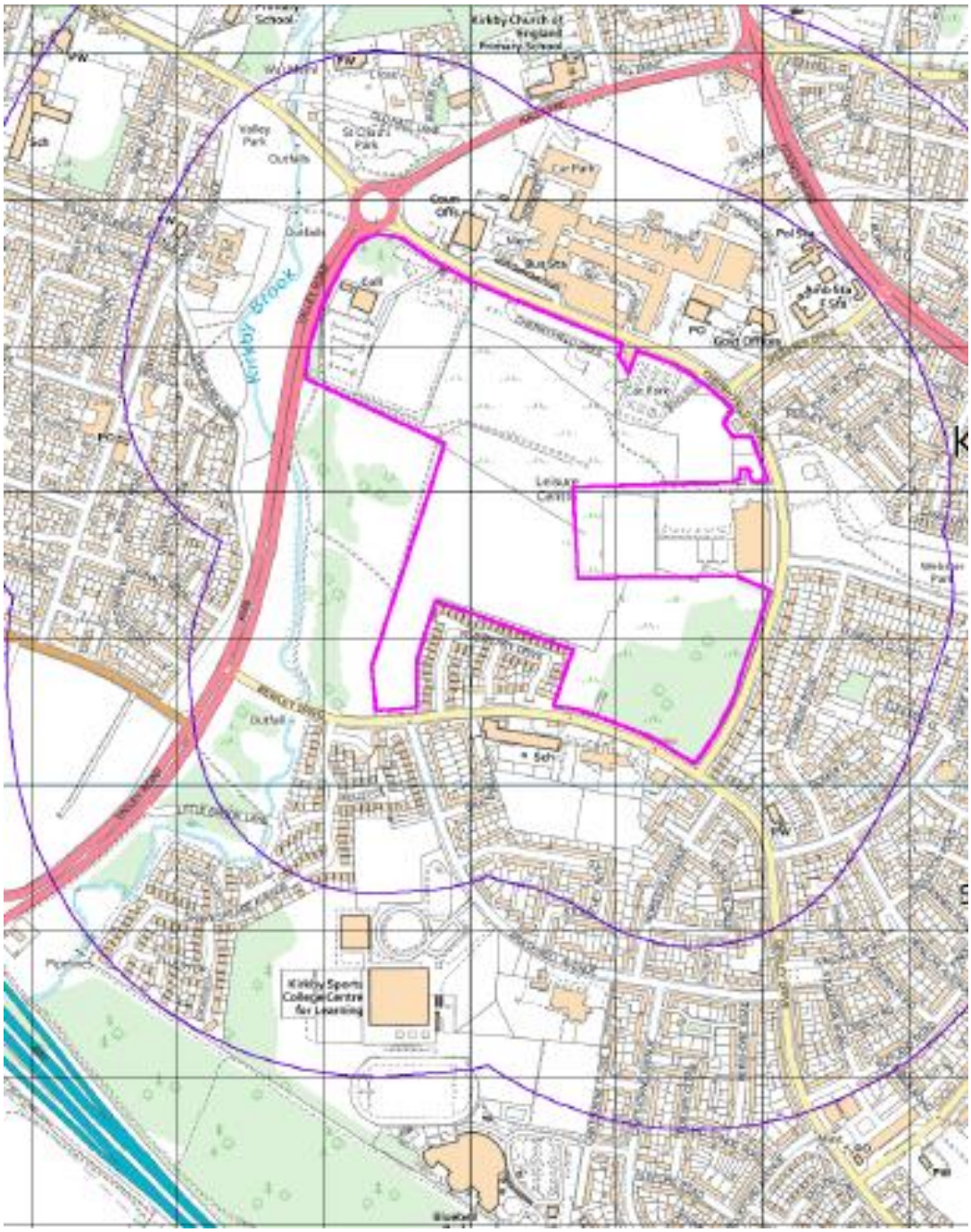
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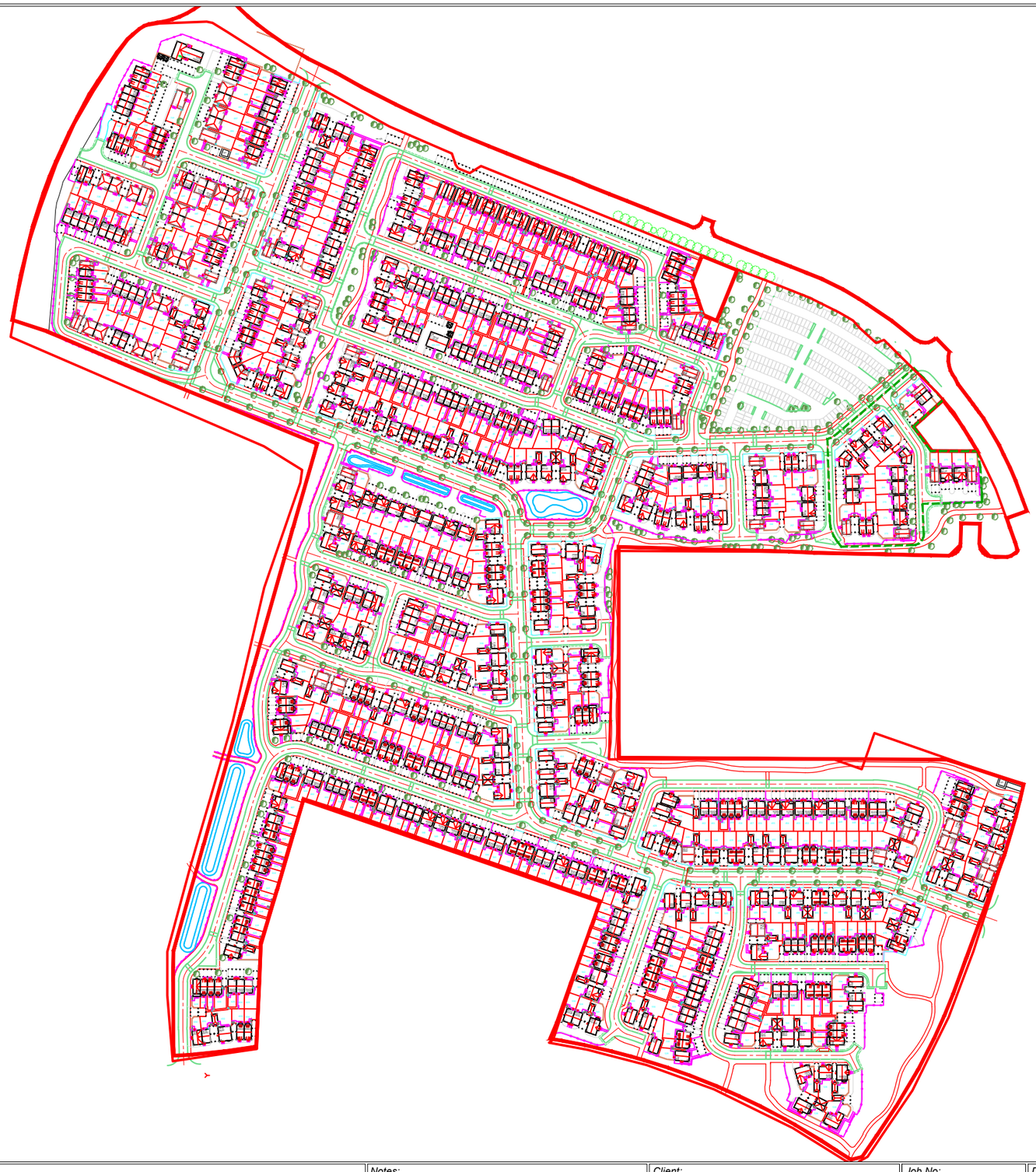
ACM	Asbestos-containing material	**MMP**	Materials management plan
ADS	Acoustic design statement	**ND**	Not detected
AST	Above-ground storage tank	**NDP**	Nuclear density probe
BGS	British Geological Survey	**NMP**	Noise management plan
BSI	British Standards Institute	**NPSE**	Noise policy statement for England
BTEX	Benzene, toluene, ethylbenzene, xylenes	**NR**	Not recorded
CA	Coal Authority	**PAH**	Polycyclic aromatic hydrocarbon
CBR	California bearing ratio	**PCB**	Polychlorinated biphenyl
CIEH	Chartered Institute of Environmental Health	**PI**	Plasticity index
CIRIA	Construction Industry Research Association	**PID**	Photo ionisation detector
CLEA	Contaminated land exposure assessment	**POS**	Public open space
CML	Council of Mortgage Lenders	**PPE**	Personnel protective equipment
CoC	Contaminants of concern	**ProPG**	Professional practice guidance
CSM	Conceptual site model	**QA**	Quality assurance
DNAPL	Dense non-aqueous phase liquid (chlorinated solvents, PCB)	**SGV**	Soil guideline value
DWS	Drinking water standard	**SPH**	Separate-phase hydrocarbon
EA	Environment Agency	**SPT**	Standard penetration test
EQS	Environmental quality standard	**SVOC**	Semi-volatile organic compound
FFL	Finished floor level	**TPH**	Total and speciated petroleum hydrocarbon
GAC	General assessment criteria	**TPH CWG**	Total Petroleum Hydrocarbon (Criteria Working Group)
GL	Ground level	**UKWIR**	United Kingdom Water Infrastructure Risk
GSV	Gas screening value	**UST**	Underground storage tank
HCV	Health criteria value	**VCC**	Vibro-concrete column
ICSM	Initial conceptual site model	**VOC**	Volatile organic compound
LEL	Lower explosive limit	**VRSC**	Vibro-replacement stone columns
LMRL	Lower method reporting limit	**VSC**	Vibro-stone columns
LNAPL	Light non-aqueous phase liquid (petrol, diesel, kerosene)	**WHO**	World Health Organisation
MCV	Moisture condition value	**WRAP**	Waste and Resources Action Programme

MIBK	Methyl isobutyl ketone	**WTE**	Water table elevation
m	Metres	**ppm**	Parts per million
km	Kilometres	**mg/m^3**	Milligram per metre cubed
% v/v	Percent volume in air	**m bgl bgl**	Metres below ground level
mb	Millibars (atmospheric pressure)	**m bcl**	Metre below cover level
l/hr	Litres per hour	**mAOD**	Metres above ordnance datum (sea level)
µg/l	Micrograms per litre (parts per billion)	**kN/m^2**	Kilonewtons per metre squared
ppb	Parts per billion	**µm**	Micrometre
mg/kg	Milligrams per kilogram (parts per million)	**SSRT**	Site Specific Remediation Target
PSD	Particle Size Distribution	**DD**	Dry Density
CL:AIRE	Contaminated Land: Applications in Real Environments	**Mc**	Moisture Content
ρ	Bulk Density	**GPR**	Ground Penetrating Radar
NDP	Nuclear Density Probe	**FFL**	Finished Floor Level
LEL	Lower Explosive Limit	**UKWIR**	UK Water Industry Research
CIRIA	Construction Industry Research and Information Association	**LOD**	Limit of Detection

APPENDIX III
DRAWINGS

DRAWING 15-280-001 – SITE LOCATION PLAN





Notes:				
P1	REVB	14.12.2022	LM	BH
P1	REVA	20.04.2022	LM	BH
Phase	Issue	Date	Drawn	Checked

Client:	Job No:	Date:
DWH	15-280	14.12.2022
	Drawing No:	Scale:
	002	NTS @ A3

Job Title:	Drawing Title:
Cherryfield Drive, Kirkby	Proposed Development Plan

e3p

Environmental Engineering Partnership Ltd
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Website: www.e3p.co.uk

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Historical Features

- Former Residential Buildings
- Former School / College Buildings
- Former Buildings
- Former Tennis Courts
- Former Running Track
- Former Footpath
- Former Car Park
- Former Woodland
- Former Pond
- Former Garage / Petrol Filling Station
- Substations
- Former Track
- Former Embankment
- Former Tennis Courts
- Former Gravel Pit

Notes:

Phase	Issue	Date	Drawn	Checked
P1	REVD	25.04.2022	LM	RH
P1	REVC	22.04.2022	LM	RH
P1	REVB	07.12.2021	LM	RH
P1	REVA	02.12.2021	LM	JB

Client: DWH

Job No: 15-280

Date: 25.04.2022

Drawing No: 003

Scale: 1:1000 @ A3

Job Title: Cherryfield Drive, Kirkby

Drawing Title: Historical Features Plan

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Historical Features

- Overgrown Vegetation
- Short grass
- Trees
- Dense Trees (Recently Removed)
- Dense Trees
- Road
- Car Parks
- Hardstanding
- Knowsley Community College
- Seven Underground Storage Tanks
- Covid-19 walkthrough testing site
- Gas Substation Buildings
- Bollards
- Electrical Substations
- Fly Tipped Material
- Brambles
- Former Housing Slabs
- Wooden Fence
- Pallisade Fencing
- Footapth
- Metal Fencing
- Gate
- Locked Gate
- Slope

Notes:

Phase	Issue	Date	Drawn	Checked
P1	REVC	25.04.2022	LM	BH
P1	REVB	21.04.2022	LM	BH
P1	REVA	20.04.2022	LM	BH

Client: DWH

Job No: 15-280

Date: 25.04.2022

Drawing No: 004

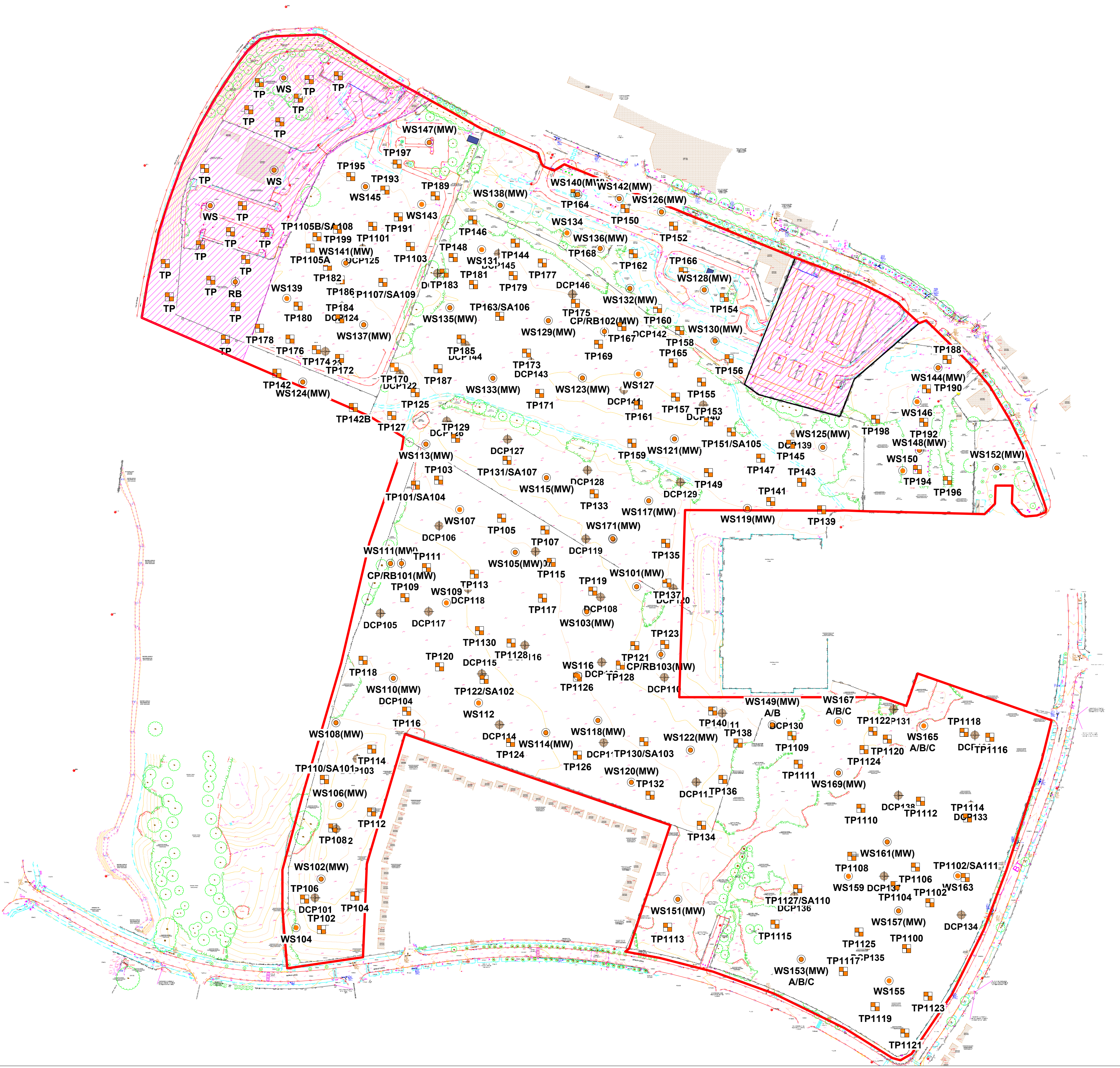
Scale: 1:1000 @ A3

Job Title: Cherryfield Drive, Kirkby

Drawing Title: Site Features Plan

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Location Symbols

WS101	Approximate Window Sample Probehole Location
TP101	Approximate Trial Pit Location
RB101	Approximate Rotary Borehole Location
▨	Uninvestigated Area

Notes:

Phase	Issue	Date	Drawn	Checked
P1	REVK	25.04.2022	LM	RH
P1	REVJ	22.04.2022	LM	RH
P1	REVI	20.04.2022	LM	JB
P1	REVH	04.03.2022	LM	NG
P1	REVG	24.02.2022	LM	NG
P1	REVF	03.02.2022	LM	JB
P1	REVE	28.01.2022	LM	NG
P1	REVD	26.01.2022	LM	NG
P1	REVC	19.01.2022	LM	NG
P1	REVB	07.01.2022	EB	EB
P1	REVA	07.12.2021	LM	JB

Client:

DWH

Job Title:

Cherryfield Drive, Kirkby

Job No:

15-280

Date:

25.04.2022

Drawing No:

005

Scale:

NTS@ A3

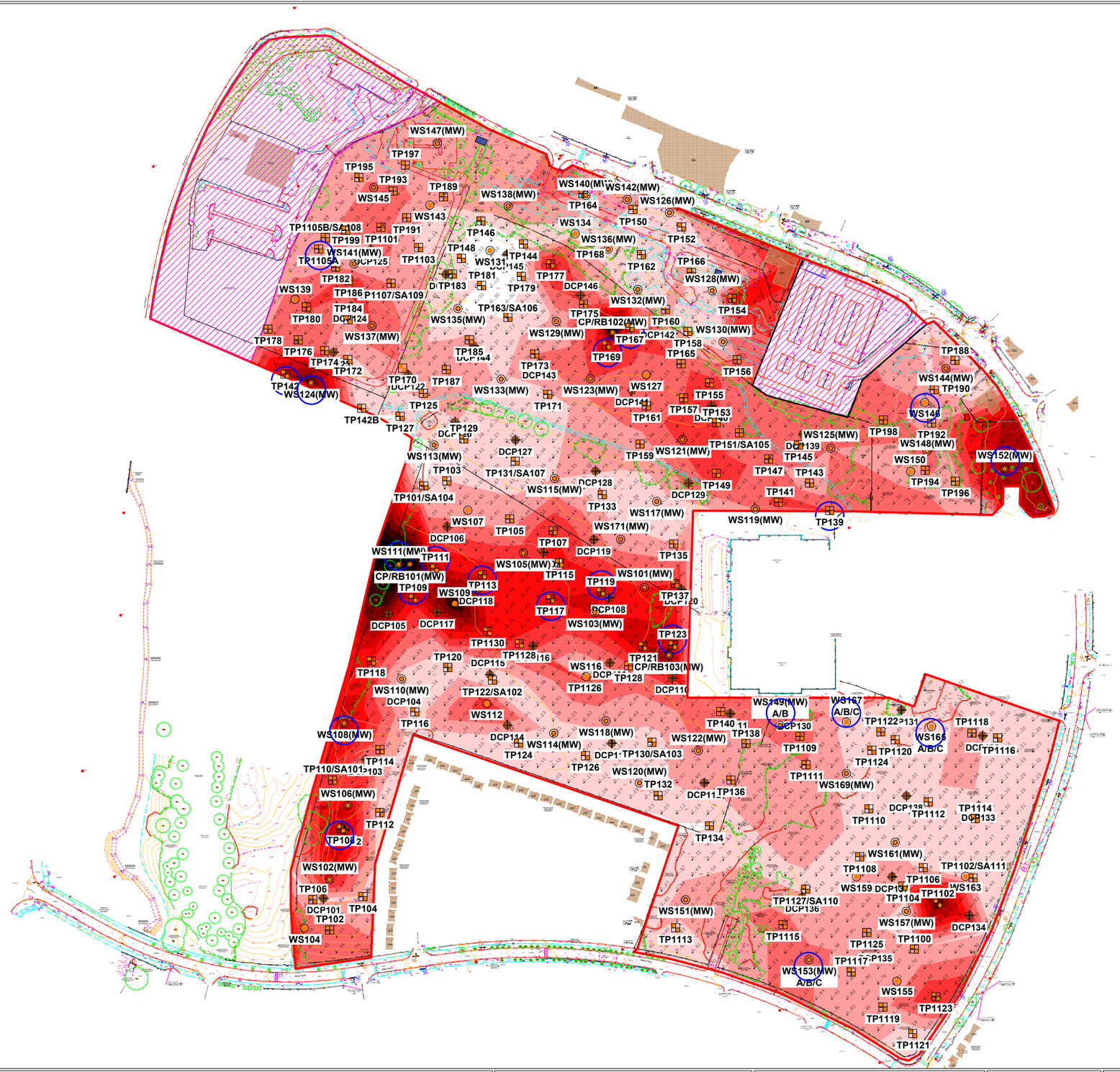
Drawing Title:

Exploratory Hole
Location Plan

e3p

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Location Symbols

- Approximate Window Sample Probehole Location
- Approximate Trial Pit Location
- Approximate Rotary Borehole Location
- Uninvestigated Area
- Full extent not Proven

Made Ground Depth (m)

- Depth of Made Ground 0.00
- Depth of Made Ground 0.01 - 0.49m
- Depth of Made Ground 0.50 - 0.99m
- Depth of Made Ground 1.00 - 1.49m
- Depth of Made Ground 1.50 - 1.99m
- Depth of Made Ground 2.00 - 2.49m
- Depth of Made Ground 2.50 - 2.99m
- Depth of Made Ground 3.00 - 3.49m
- Depth of Made Ground 3.50 - 3.99m
- Depth of Made Ground 4.00 - 4.49m
- Depth of Made Ground 4.50 - 4.99m
- Depth of Made Ground >5.00m

Notes:

Phase	Issue	Date	Drawn	Checked
P1	REVB	25.04.2022	LM	BH
P1	REVA	27.01.2022	LM	NG

Client: DWH

Job No: 15-280

Date: 25.04.2022

Drawing No: 006

Scale: NTS @ A3

Job Title: Cherryfield Drive, Kirkby

Drawing Title: Depth of Made Ground Plan

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Location Symbols

- Approximate Window Sample Probehole Location
- Approximate Trial Pit Location
- Approximate Rotary Borehole Location
- Uninvestigated Area

Natural Topsoil Depth (m)

- Depth of Natural Topsoil 0.00
- Depth of Natural Topsoil 0.01 - 0.09m
- Depth of Natural Topsoil 0.10 - 0.19m
- Depth of Natural Topsoil 0.20 - 0.29m
- Depth of Natural Topsoil 0.30 - 0.39m
- Depth of Natural Topsoil >0.40

Notes:

Phase	Issue	Date	Drawn	Checked
P1	REVB	25.04.2022	LM	JB
P1	REVA	31.01.2022	LM	NG

Client: DWH

Job No: 15-280

Date: 25.04.2022

Drawing No: 007

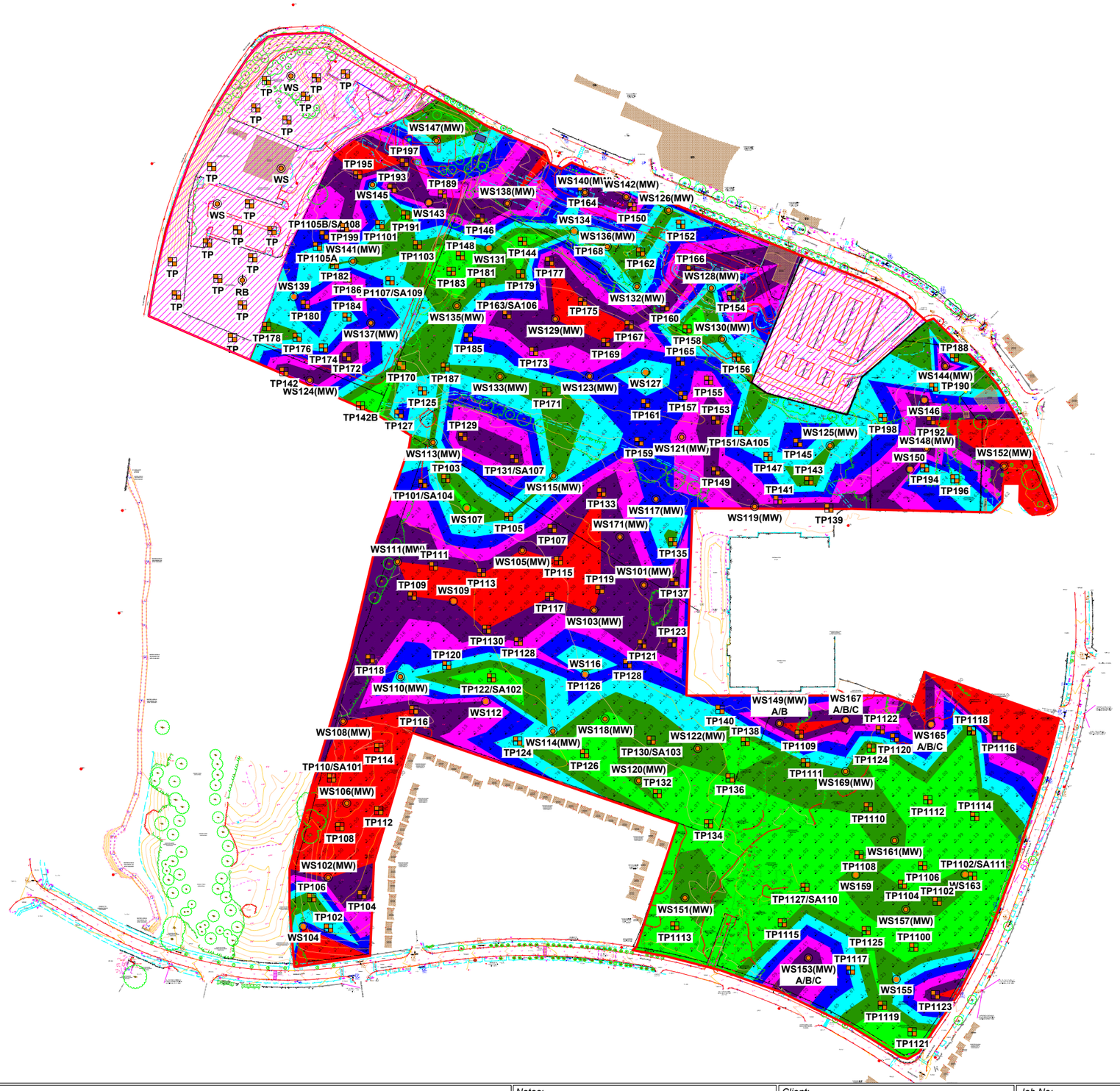
Scale: NTS @ A3

Job Title: Cherryfield Drive, Kirkby

Drawing Title: Depth of Natural Topsoil Plan

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Location Symbols

- Approximate Window Sample Probehole Location
- Approximate Trial Pit Location
- Approximate Rotary Borehole Location
- Uninvestigated Area

Shallow Spread Footings

- Depth to Founding Strata 0.00 - 1.24m
- Depth to Founding Strata 1.25 - 1.49m

Mass Trench Fill Footings

- Depth to Founding Strata 1.50 - 1.74m
- Depth to Founding Strata 1.75 - 1.99m
- Depth to Founding Strata 2.00 - 2.24m

Engineered Footings

- Depth to Founding Strata 2.25 - 2.49m
- Depth to Founding Strata >2.50m

Notes:

Phase	Issue	Date	Drawn	Checked
P1	REVB	25.04.2022	LM	BH
P1	REVA	21.04.2022	LM	BH

Client: DWH

Job No: 15-280

Date: 25.04.2022

Drawing No: 008

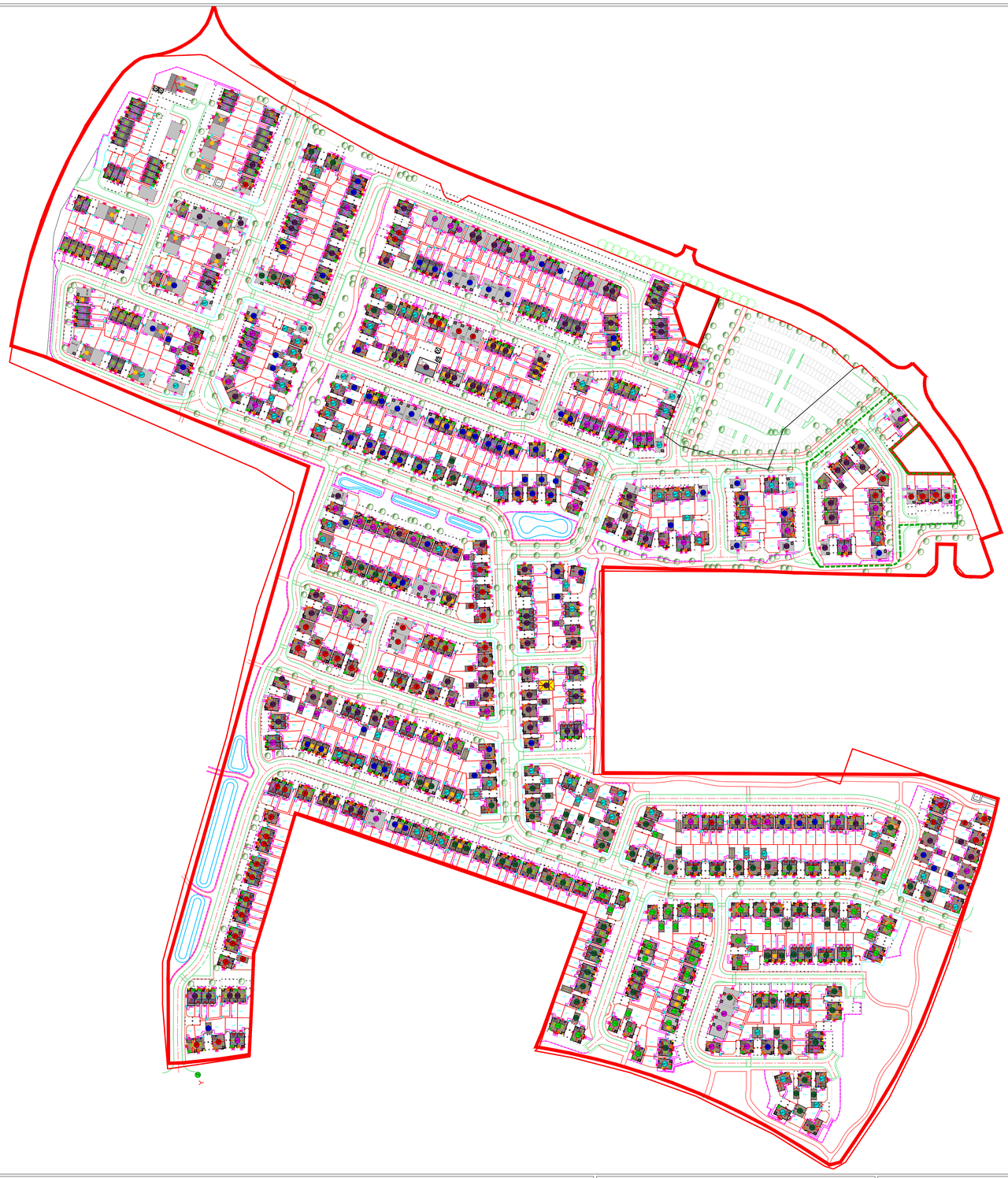
Scale: NTS @ A3

Job Title: Cherryfield Drive, Kirkby

Drawing Title: Depth to Founding Strata Plan

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Summary of Heave Precaution Requirements

Volume Change Potential	*Required Foundation Depth (m)*	*Minimum Void Dimensions for Foundations, Ground Beams & Suspended In-Situ Concrete Ground Floors*		*Minimum Void Dimensions Under Pre-Cast Concrete & Suspended Timber Floors*
		Thickness of Void Former Against Side of Foundation of Ground Beam (mm)	*Thickness of Void Former on Underside of Edge Beam & Floor Slab (mm)*	*Void Dimension (mm)*
Low Volume Change Potential (<20%)	>2.00	No Special Precautions		200
	2.00-2.50	-	50	
Medium Volume Change Potential (20-40%)	1.50-2.00	25	50	250
	2.00-2.50	25	100	
	>2.50	Engineer Design		Engineer Design
High Volume Change Potential (>40%)	1.50-2.00	25	75	300
	2.00-2.50	35	150	
	>2.50	Engineer Design		Engineer Design

Minimum Width of Strip Footings

Type of Ground (Including Engineered Fill)		*Condition of Ground*	*Total Load of Load-Bearing Walling more than (kN/linear metre)*					
			20	30	40	50	60	70
			Minimum Width of Strip Foundation (mm)					
Gravel	Sand	Medium Dense to Dense	250	300	400	500	600	650
Clay	Sandy Clay	Stiff	250	300	400	500	600	650
Clay	Sandy Clay	Firm	300	350	450	600	750	850

Items Considered

Bearing Capacity	TBC
Trees	TBC
Historical	TBC
Groundwater Table	TBC
FFL	TBC
Contamination	TBC
Remediation	TBC
Volume Change Potential	TBC
Root Protection Areas	TBC

Residual Risks

Foreseeable Risks That Cannot be Avoided	*Applicable (Y/N)*	*Action to Reduce Risk*	Justification for Design Decision
Deep Excavations	Y	Identify locations on drawing and depths on schedule	Lesser risk than other alternatives
Trench Collapse	Y	Risk highlighted on drawing	Lesser risk than other alternatives
Use of Working Platform for Pile/Vibro Operations	Y	Compliance with working platform directive required	Pile/Vibro foundation less risky than other alternatives

Anticipated Foundation Types

- TS — Traditional Strip Foundations
  Minimum depth 900mm below proposed Final Finished Level.
  Maximum safe bearing pressure limited to 150kN/m2.
- MT — Mass Trench Fill Foundations
  Minimum depth 1250mm below proposed Final Finished Level.
  Maximum safe bearing pressure limited to 150kN/m2.
- V — Vibro Stone Ground Compaction
  In accordance with NHBC Chapter 4.2
- P — Piled Foundations
  Where the maximum foundation depth exceeds 2.50m a piled foundation option rather than a trench fill / deep reinforced strip foundations may be adopted. Column or line loads supported by ground beams.
- R — Raft Foundations
  Maximum safe bearing pressure limited to 50kN/m2 on approved engineered granular fill. Raft foundations to be designed by a structural engineer in accordance with Chapter 4.5 of NHBC 2013. Raft foundations are considered suitable to mitigate against potential influence of clay heave / desiccation in accordance with Section 4.2, sub section D7E.
- TB — Traditional Strip / Trench Block Foundations
  Traditional strip founded at 450mm below current level with build up in Trench Block and subsequent backfill to development level.
- Colours on Plot Corners to be Used When Referring to Foundation Schedule.
  (Pending Final Layout & Levels)

Depth to Target Founding Strata

- Footings 0.75 - 0.90m Deep — From Final Finished Level. In accordance with NHBC Chapter 4.2
- Footings 0.90 - 1.25m Deep — From Final Finished Level. In accordance with NHBC Chapter 4.2
- Footings 1.25 - 1.50m Deep — From Final Finished Level. In accordance with NHBC Chapter 4.2
- Footings 1.50 - 1.75m Deep — From Final Finished Level. In accordance with NHBC Chapter 4.2
- Footings 1.75 - 2.00m Deep — From Final Finished Level. In accordance with NHBC Chapter 4.2
- Footings 2.00 - 2.25m Deep — From Final Finished Level. In accordance with NHBC Chapter 4.2
- Footings 2.25 - 2.50m Deep — From Final Finished Level. In accordance with NHBC Chapter 4.2

Engineered Foundation Solutions

- Footings >2.50m Deep — From Final Finished Level. In accordance with NHBC Chapter 4.2
- Vibro
- Low Volume Change Potential Clay — Heave precautions required to underside of cast in-situ floor slab (with no sub-floor void) within conjected zone of tree influence. Heave precautions not required to foundation.

Tree Influence (Retained / Removed)

- 0.90 - 1.25m
- 1.25 - 1.50m
- 1.50 - 1.75m
- 1.75 - 2.00m
- 2.00 - 2.25m
- 2.25 - 2.50m
- >2.50m

Notes:

Client: DWH

Job No: 15-280

Date: 14.12.2022

Drawing No: 009

Scale: NTS@ A1

Phase	Issue	Date	Drawn	Checked
P1	REVB	14.12.2022	EB	BH
P1	REVA	25.04.2022	LM	BH

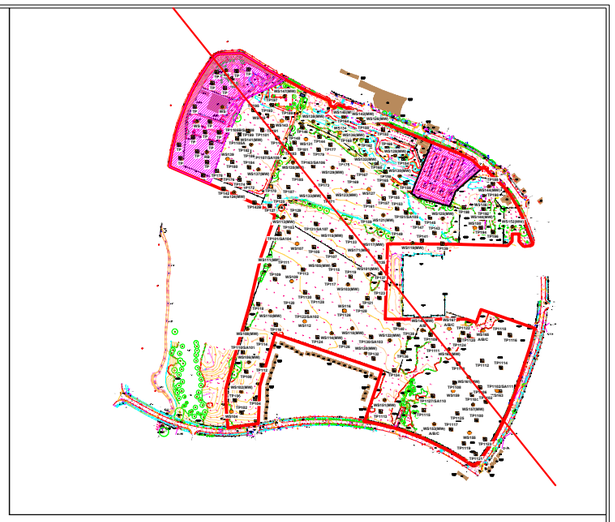
Job Title: Cherryfield Drive, Kirkby

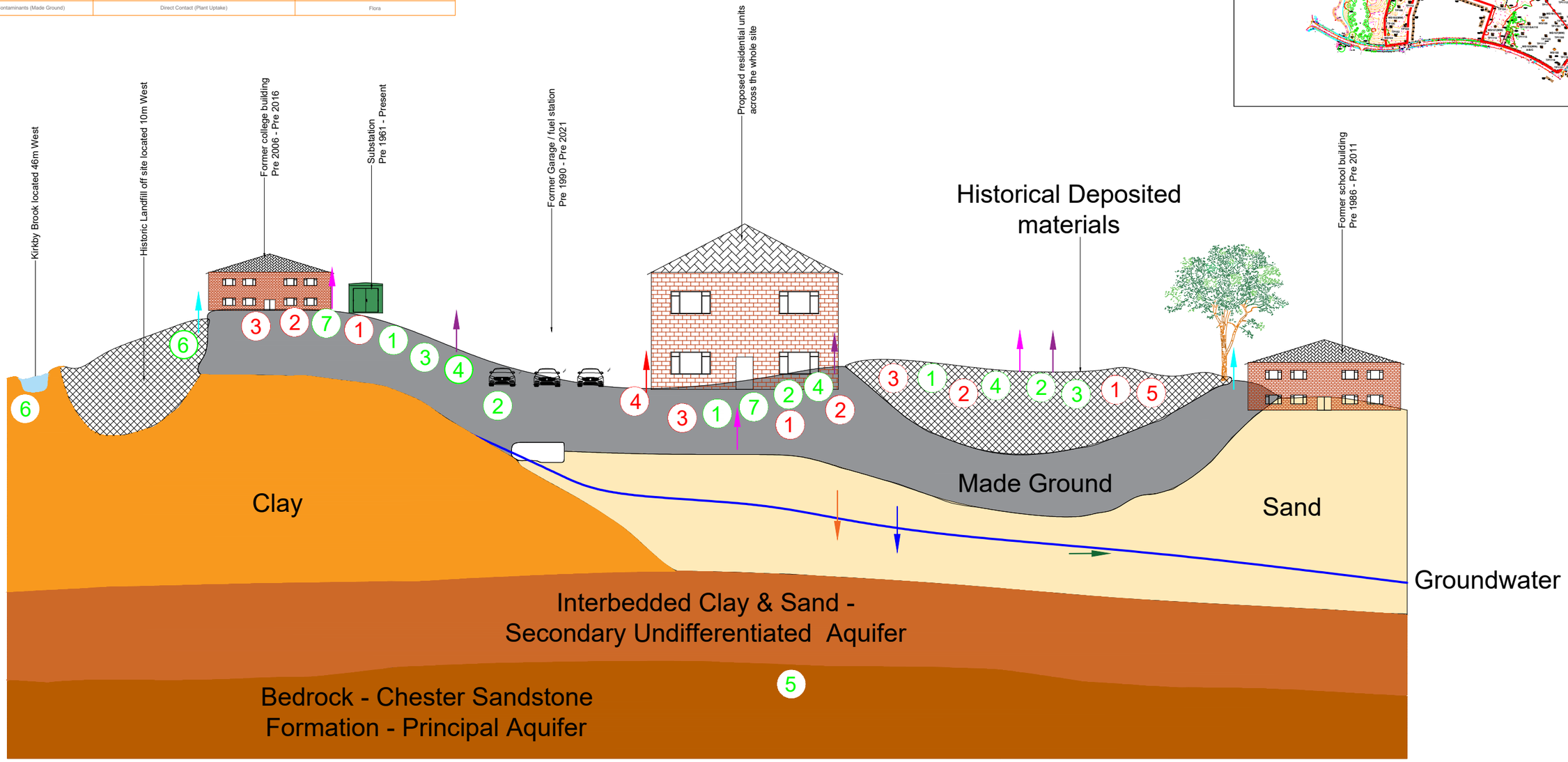
Drawing Title: Concept Foundation Zoning Plan

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Polutant Linkage	Contaminant (Source)	Pathway	Receptor
PL1 PL2	Heavy Metals, Non Volatile PAH (Made Ground)	Dermal Contact	Future Site Users
		Dermal Contact and Ingestion	Off-site Receptors
PL3	ACM in Made Ground	Inhalation of Dust	Future Site and Off-site Users
			Buildings
PL4	Volatile Contaminants such as Mercury (Made Ground)	Inhalation of Vapours	Future Site Users
		Migration through permeable strata and preferential pathways	Off-site Receptors
PL5	Methane, Carbon Dioxide (Made Ground)	Inhalation of Gas	Future Site Users
		Migration through permeable strata and preferential pathways	Buildings
		Explosion in Confined Spaces	Off-site Land Users
PL6	Mobile contaminants such as metals, PAHs, hydrocarbons, volatile compounds (Made Ground)	Surface Runoff	Groundwater (Principal Aquifer)
		Migration through permeable strata and preferential pathways	
		Perched waters migration	
PL7	Sulphate (potential ash within Made Ground)	Sulphate attack on concrete	Building Structure
PL8	Organic contaminants such as hydrocarbons, solvents (Made Ground)	Ingestion of tainted water supply	Future Site Users
			Water Pipes
PL9	Phytotoxic Contaminants (Made Ground)	Direct Contact (Plant Uptake)	Flora





Geology Key
- Made Ground
- Clay
- Sand
- Interbedded Clay & Sand
- Bedrock
- Suspected Landfill
- Groundwater

Sources
1. Heavy Metals, Non volatile PAH (MG)
2. Asbestos (MG)
3. Volatile Contaminants (MG)
4. Sulphates (MG)
5. Methane, Carbon dioxide (MG)

Receptors
1. Future End Users
2. Construction Works
3. Vegetation & Landscaping
4. Buildings
5. Principal Aquifer
6. Off Site Receptors
7. Water Pipes

Pathways
- Inhalation / Accumulation
- Dermal Contact / Ingestion
- Plant Uptake
- Tainted Water Supply
- Vertical Migration
- Horizontal Migration
- Sulphate Attack on Concrete

Notes:

Phase	Issue	Date	Drawn	Checked
P1	REVB	25.04.2022	LM	JB
P1	REVA	16.03.2022	EB	NG

Client: DWH

Job Title: Cherryfield Drive, Kirkby

Job No: 15-280

Date: 25.04.2022

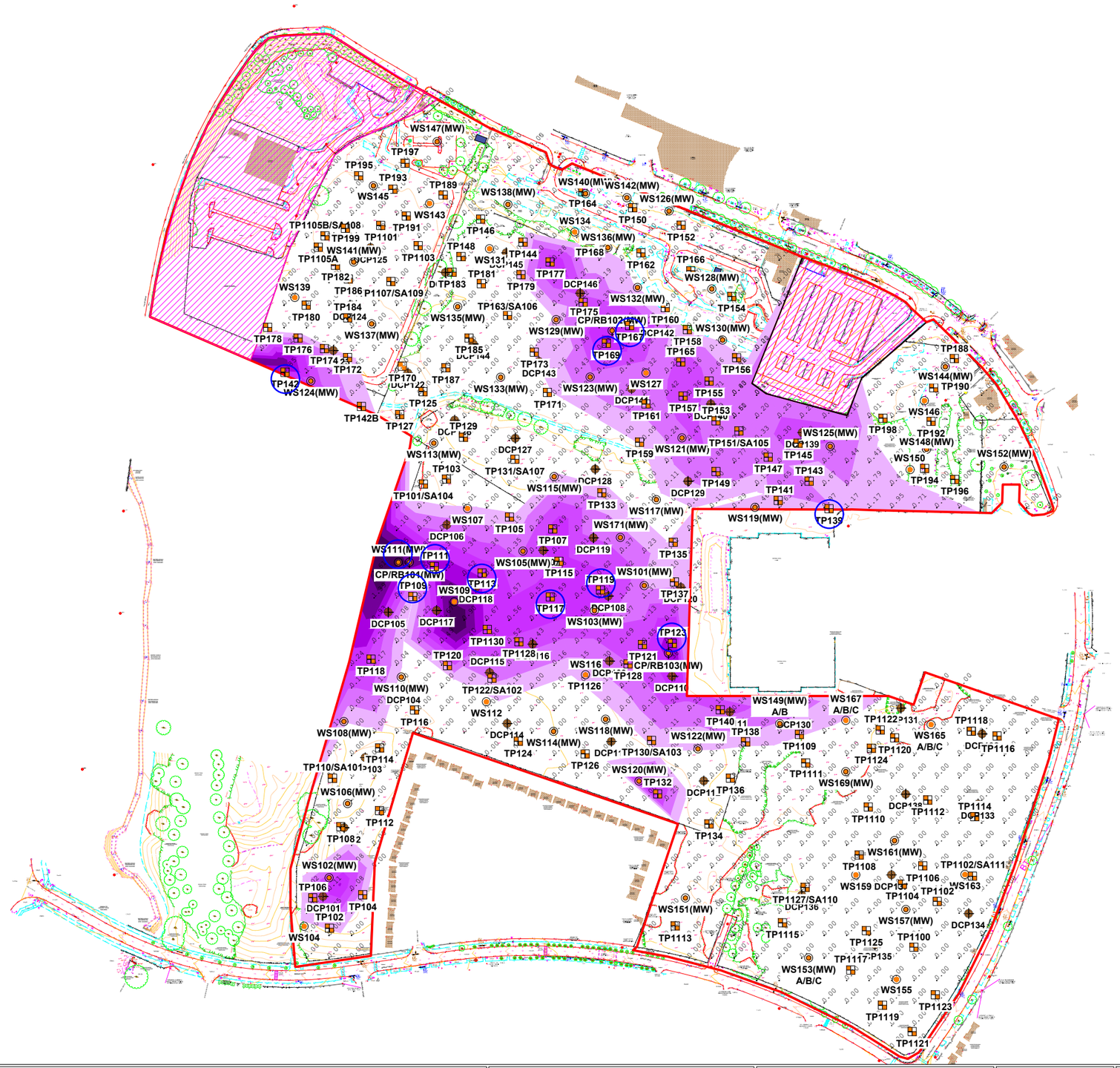
Drawing No: 010

Scale: NTS@ A3

Drawing Title: Conceptual Site Model

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Location Symbols

- Approximate Window Sample Probehole Location
- Approximate Trial Pit Location
- Approximate Rotary Borehole Location
- Uninvestigated Area
- Full extent not Proven

Landfill Thickness (m)

- Thickness of Landfill 0.00
- Thickness of Landfill 0.01 - 0.49m
- Thickness of Landfill 0.50 - 0.99m
- Thickness of Landfill 1.00 - 1.49m
- Thickness of Landfill 1.50 - 1.99m
- Thickness of Landfill 2.00 - 2.49m
- Thickness of Landfill 2.50 - 2.99m
- Thickness of Landfill >3.00

Landfill Depth (m)

0.00 Depth of Landfill

Notes:

Phase	Issue	Date	Drawn	Checked
P1	REVD	25.04.2022	LM	BH
P1	REVC	03.02.2022	LM	JB
P1	REVB	31.01.2022	LM	NG
P1	REVA	28.01.2022	LM	NG

Client: DWH

Job No: 15-280

Date: 25.04.2022

Drawing No: 023

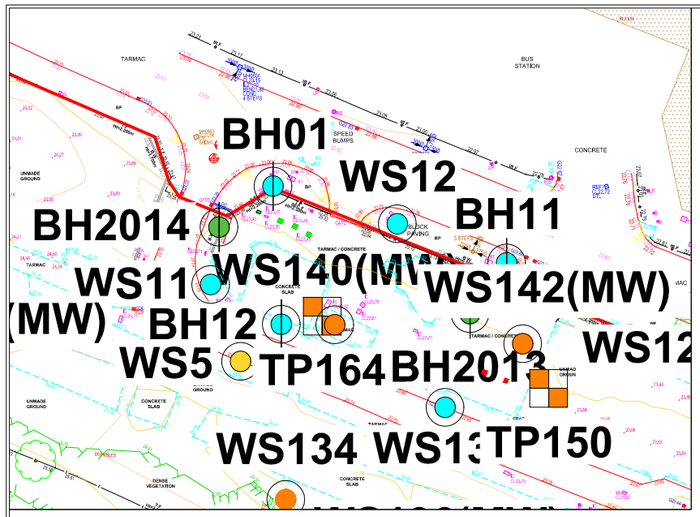
Scale: NTS@ A3

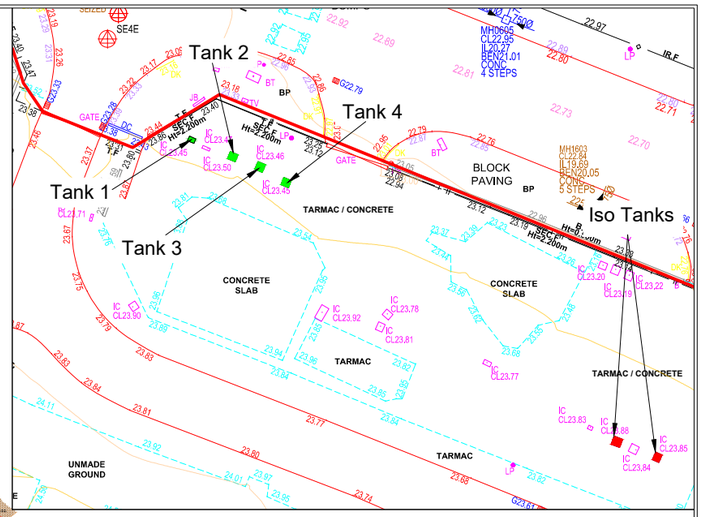
Job Title: Cherryfield Drive, Kirkby

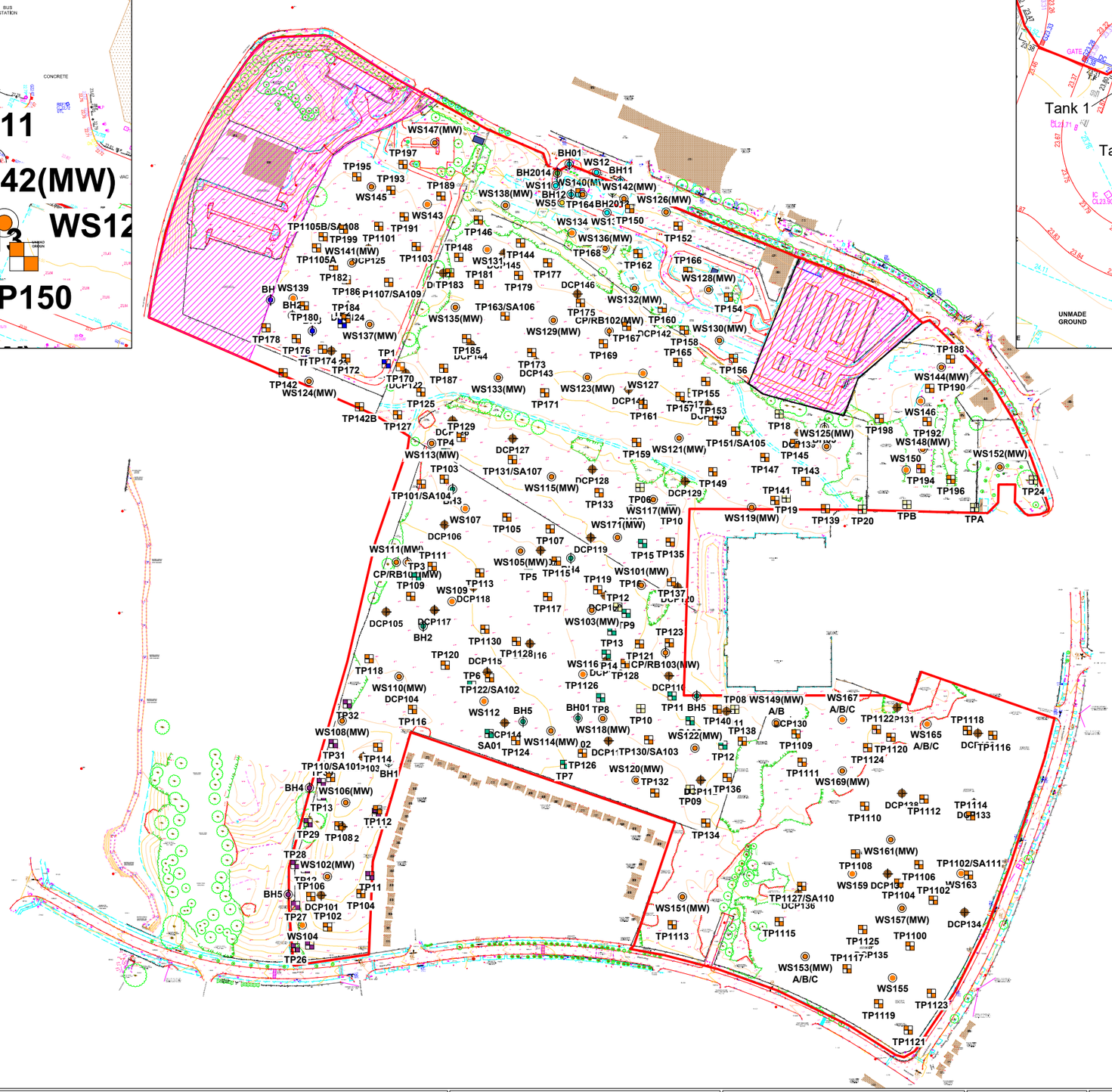
Drawing Title: Depth and Thickness of Historically Deposited Made Ground Materials Plan

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Location Symbols

- Approximate Window Sample Probehole Location
- Approximate Trial Pit Location
- Approximate Rotary Borehole Location
- Approximate Trial Pit Location (Knowsley Community College 1995)
- Approximate Rotary Borehole Location (Knowsley Community College 1997)
- Approximate Trial Pit Location (Cooper Associates 1998-2002)
- Approximate Rotary Borehole Location (Cooper Associates 1998-2002)
- Approximate Trial Pit Location (Waterman 2002-2004 (no logs available))
- Approximate Window Sample Probehole Location (Waterman 2002-2004 (no logs available))
- Approximate Rotary Borehole Location (Abatec 2006)
- Approximate Trial Pit Location (Abatec 2006)
- Approximate Rotary Borehole Location (Atkins Rotary holes)
- Approximate Window Sample Probehole Location (Atkins Rotary holes)
- Approximate Window Sample Probehole Location (Clancy Consulting)
- Approximate Rotary Borehole Location (Baro Happold Boreholes)

Tanks

- Tanks
- Iso Tank

Notes:

P1	REVA	25.04.2022	LM	BH
Phase	Issue	Date	Drawn	Checked

Client: DWH

Job No: 15-280

Date: 25.04.2022

Drawing No: 031

Scale: NTS@ A3

Job Title: Cherryfield Drive, Kirkby

Drawing Title: Garage and Petrol Filling Station Area Plan

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APPENDIX IV
PHOTOGRAPHS

PLATE 1 – OVERGROWN GRASSLAND



PLATE 2 – MAINTAINED GRASSLAND IN SOUTH OF SITE



PLATE 3 – FUEL TANKS



PLATE 4 – GAS GOVERNOR IN SOUTH OF SITE



PLATE 5 – VAPOUR ISOLATION TANKS



PLATE 6 – NORTH EASTERN PARCEL



PLATE 7 – NORTHERN SECTOR OF SITE



PLATE 8 – OVERGROWN GRASSLAND IN NORTH OF SITE



PLATE 9 – ELECTRICITY SUBSTATION



PLATE 10 – RECENTLY CLEARED TREES IN SOUTH-EAST OF SITE



APPENDIX V
E3P EXPLORATORY HOLE LOGS

Trial Pit Log

TrialPit No TP101/ SA104
Sheet 1 of 1

Project Name: Cherryfields	Project No. 15280	Co-ords: 340963.09 - 398432.88 Level: 23.95	Date 10/01/2022
Location: Kirkby	Dimensions (m): Depth 2.60	2.00 × 0.60	Scale 1:30
Client: BDW Trading			Logged J.Beer

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
	0.10	ES		0.30	23.65		Brown slightly sandy CLAY with rootlets and roots. (TOPSOIL).
	1.50	HVP	90	2.00	21.95		Stiff high strength reddish brown slightly gravelly slightly sandy CLAY. Gravel is fine sub angular to sub rounded of mudstone and sandstone.
▼ 2.60				2.60	21.35		Red gravelly fine to medium SAND. Gravel is fine to coarse sub angular to sub rounded of mudstone and sandstone. (Weathered bedrock).
							End of Pit at 2.60m

1
2
3
4

Trial Pit Photographs



TP101



TP101 SPOIL

Remarks: 1. Complete. 2. Slow water seepage at 2.60 m bgl. 3. Soakaway test complete.

Stability: Stable

Trial Pit Log

			TrialPit No TP102 Sheet 1 of 1
Project Name: Cherryfields	Project No. 15280	Co-ords: 340896.26 - 398117.23 Level: 21.80	Date 10/01/2022
Location: Kirkby		Dimensions (m): 3.20 x 1.20 Depth 3.10	Scale 1:30
Client: BDW Trading			Logged N.Gregory

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
	0.20	ES		0.20	21.60		MADE GROUND: Dark grey very clayey fine to medium sand with frequent rootlets. (Topsoil)
				0.50	21.30		MADE GROUND: Brown slightly gravelly clay. Gravel is fine to coarse, angular to subrounded of brick.
							MADE GROUND: Dark grey slightly gravelly sandy clay. Gravel is fine to coarse angular to subrounded of brick.
				1.30	20.50		Red very clayey fine to medium SAND.
				3.10	18.70		End of Pit at 3.10m

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Trial Pit Photographs



TP102



TP102 SPOIL

Remarks: 1. Complete

Stability: Unstable

Trial Pit Log

			TrialPit No TP103 Sheet 1 of 1
Project Name: Cherryfields	Project No. 15280	Co-ords: 340979.52 - 398436.42 Level: 24.10	Date 10/01/2022
Location: Kirkby		Dimensions (m): 2.00 x 0.60 Depth 2.60	Scale 1:30
Client: BDW Trading			Logged J.Beer

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
	0.10	ES		0.20	23.90		MADE GROUND: Reddish brown slightly gravelly sandy clay with rootlets. Gravel is fine sub angular to sub rounded of sandstone and mudstone. (Topsoil).
	0.40	ES		0.50	23.60		MADE GROUND: Reddish brown gravelly sandy clay. Gravel is fine to medium angular to sub rounded of mudstone, sandstone, brick and ceramic.
	0.60	HVP	53	0.80	23.30		Firm medium strength light brown slightly sandy gravelly CLAY. Gravel is fine to medium sub angular to sub rounded of mudstone.
	1.00	HVP	76				Stiff high strength circa. 1.50 m becomes firm medium strength reddish brown slightly gravelly CLAY. Gravel is fine sub angular to sub rounded of mudstone.
	1.50	HVP	65	1.80	22.30		Red slightly gravelly fine to medium SAND. Gravel is fine to medium sub angular to sub rounded of sandstone. (Weathered bedrock).
▼ 2.60				2.60	21.50		End of Pit at 2.60m

1 2 3 4

Trial Pit Photographs



TP103



TP103 SPOIL

Remarks: 1. Complete. 2. Slow water seepage at 2.60 m bgl.

Stability: Stable

Trial Pit Log

TrialPit No: TP104
Sheet 1 of 1

Project Name: Cherryfields	Project No. 15280	Co-ords: 340919.97 - 398140.99 Level: 22.23	Date 10/01/2022
Location: Kirkby		Dimensions (m): 3.60 x 0.60 Depth 2.80	Scale 1:30
Client: BDW Trading			Logged N.Gregory

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
0.40				0.40	21.83		MADE GROUND: Dark grey gravelly clayey fine to medium sand with frequent rootlets. Gravel is fine to coarse angular to subrounded of brick. (Topsoil)
	0.60	HVP	61				Firm medium strength brown slightly gravelly sandy CLAY. Gravel is fine to coarse angular to subrounded of sandstone.
	0.80	HVP	54				
	1.00	ES					
	1.00	HVP	71				
				1.30	20.93		Reddish brown slightly gravelly very clayey fine to medium SAND. Gravel is fine to coarse, subrounded to rounded of sandstone. (Weathered bedrock).
				2.80	19.43		End of Pit at 2.80m

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Trial Pit Photographs



TP104



TP104 SPOIL

Remarks: 1. Complete. 2. Water seepage at 0.40 m bgl. (Water Strike).

Stability: Stable

Trial Pit Log

TrialPit No: TP105
Sheet 1 of 1

Project Name: Cherryfields	Project No. 15280	Co-ords: 341024.19 - 398409.39 Level: 24.17	Date 10/01/2022
Location: Kirkby		Dimensions (m): 2.00 x 0.60 Depth 2.40	Scale 1:30
Client: BDW Trading			Logged J.Beer

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
				0.30	23.87		MADE GROUND: Brown sandy clay with rootlets. (Topsoil).
	0.50	ES					
				0.70	23.47		MADE GROUND: Dark brown sandy gravelly clay. Gravel is fine to coarse angular to sub rounded of mudstone, sandstone, brick, ceramic, glass and clinker.
	0.80 0.80	B HVP	89				Stiff high strength light brown mottled orange slightly sandy slightly gravelly CLAY. Gravel is fine to medium sub angular to sub rounded of mudstone.
				1.00	23.17		Firm medium strength red mottled white slightly sandy slightly gravelly CLAY. Gravel is fine to medium sub angular to sub rounded of mudstone.
	1.50	HVP	55				
				1.80	22.37		Red fine to medium SAND.
				2.40	21.77		End of Pit at 2.40m

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Trial Pit Photographs



TP105



TP105 SPOIL

Remarks: 1. Complete.

Stability: Stable

Trial Pit Log

TrialPit No: TP106
Sheet 1 of 1

Project Name: Cherryfields	Project No. 15280	Co-ords: 340884.33 - 398138.87 Level: 21.75	Date 10/01/2022
Location: Kirkby		Dimensions (m): 3.50 x 0.60 Depth 3.20	Scale 1:30
Client: BDW Trading			Logged N.Gregory

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
	0.20	ES		0.40	21.35		MADE GROUND: Brown gravelly clayey fine to medium sand with frequent rootlets. Gravel is fine to coarse, angular to subrounded of brick. (Topsoil)
	0.80	HVP	52				Firm medium strength dark grey slightly gravelly sandy CLAY. Gravel is fine subrounded to rounded of sandstone.
	1.20	HVP	60				
1.40	1.40	HVP	66	1.40	20.35		Reddish brown slightly clayey silty fine to medium SAND.
				3.20	18.55		End of Pit at 3.20m

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Trial Pit Photographs



TP106



TP106 SPOIL

Remarks: 1. Complete. 2. Slow water ingress at 1.40 m bgl.

Stability: Stable

Trial Pit Log

TrialPit No: TP107
Sheet 1 of 1

Project Name: Cherryfields	Project No. 15280	Co-ords: 341055.02 - 398400.99 Level: 24.33	Date 10/01/2022
Location: Kirkby		Dimensions (m): 2.00 x 0.60 Depth 2.10	Scale 1:30
Client: BDW Trading			Logged J.Beer

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
	0.10	ES		0.20	24.13		MADE GROUND: Brown clayey fine to medium sand with rootlets. (Topsoil).
				0.60	23.73		MADE GROUND: Dark brown sandy very gravelly clay. Gravel is fine to coarse angular to sub rounded of mudstone, sandstone, brick, ceramic, glass and clinker.
	0.70	ES		0.80	23.53		MADE GROUND: Firm black slightly gravelly clay. Gravel is fine sub angular to sub rounded of mudstone, ash and brick with slight hydrocarbon odour at 0.70 m bgl.
	1.50 1.50	B HVP	58	1.70	22.63		MADE GROUND: Firm medium strength red mottled white slightly sandy slightly gravelly CLAY. Gravel is fine to medium sub angular to sub rounded of mudstone.
▼ 2.00				2.00	22.33		MADE GROUND: Red fine to medium SAND.
				2.10	22.23		Red fine to medium SAND. (Weathered bedrock). End of Pit at 2.10m

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Trial Pit Photographs



TP107



TP107 SPOIL

Remarks: 1. Complete. 2. Slight hydrocarbon odour at 0.70 m bgl. 3. Water strike at 2.00 m bgl.

Stability: Stable

Trial Pit Log

			TrialPit No TP108 Sheet 1 of 1
Project Name: Cherryfields	Project No. 15280	Co-ords: 340904.31 - 398189.33 Level: 23.93	Date 10/01/2022
Location: Kirkby		Dimensions (m): 3.50 x 0.70 Depth 3.20	Scale 1:30
Client: BDW Trading			Logged N.Gregory

Water Strike	Samples & In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
	Depth	Type	Results				
				0.35	23.58		MADE GROUND: Brown slightly gravelly sandy clay with frequent rootlets. Gravel is fine to coarse, angular to subrounded of brick. (Topsoil)
	0.50	ES					MADE GROUND: Dark grey to brown gravelly sandy clay. Gravel is fine to coarse angular to subrounded of brick, clinker, glass bottles, metal, pipe, ash and wood.
	0.80	ES					
				3.20	20.72		End of Pit at 3.20m

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Trial Pit Photographs



TP108



TP108 SPOIL

Remarks: 1. Complete

Stability: Unstable

Trial Pit Log

TrialPit No: TP109
Sheet 1 of 1

Project Name: Cherryfields	Project No. 15280	Co-ords: 340955.56 - 398352.97 Level: 23.29	Date 10/01/2022
Location: Kirkby		Dimensions (m): 2.00 x 0.60 Depth 2.30	Scale 1:30
Client: BDW Trading			Logged J.Beer

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
				0.20	23.09		MADE GROUND: Brown sandy clay with rootlets. (Topsoil).
				0.50	22.79		MADE GROUND: Light brown slightly sandy gravelly clay. Gravel is fine to medium sub angular to sub rounded of mudstone, brick and glass.
	0.80	ES					MADE GROUND: Black clayey very gravelly fine to coarse sand with cobbles. Gravel is fine to coarse angular to sub rounded of mudstone, sandstone, brick, ash, glass, ceramic, textiles and clinker. Cobbles are sub angular of brick.
	1.50	B					
▼ 2.30				2.30	20.99		End of Pit at 2.30m

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Trial Pit Photographs



TP109



TP109 SPOIL

Remarks: 1. Complete. 2. Water strike at 2.30 m bgl.

Stability: Stable

Trial Pit Log

			TrialPit No TP110/ SA101 Sheet 1 of 1
Project Name: Cherryfields	Project No. 15280	Co-ords: 340898.40 - 398223.79 Level: 22.87	Date 10/01/2022
Location: Kirkby		Dimensions (m): 2.50 × 0.70 Depth 3.20	Scale 1:30
Client: BDW Trading			Logged N.Gregory

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
	0.20	ES		0.30	22.57		MADE GROUND: Dark grey slightly clayey fine to medium sand with frequent rootlets. (Topsoil)
							MADE GROUND: Dark grey slightly gravelly sandy clay with pipe, brick, and metal.
▼ 1.80				1.50	21.37		Red slightly clayey fine to medium SAND. (Weathered bedrock).
				3.20	19.67		End of Pit at 3.20m

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Trial Pit Photographs



TP110



TP110 SPOIL

Remarks: 1. Complete. 2. Slow water ingress at 1.80 m bgl. 3. Soakaway test complete.

Stability: Stable

Trial Pit Log

			TrialPit No TP111 Sheet 1 of 1
Project Name: Cherryfields	Project No. 15280	Co-ords: 340970.87 - 398374.27 Level: 23.40	Date 10/01/2022
Location: Kirkby		Dimensions (m): 2.00 x 0.60 Depth 2.60	Scale 1:30
Client: BDW Trading			Logged J.Beer

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
	0.10	ES		0.20	23.20		MADE GROUND: Brown sandy clay with rootlets. (Topsoil).
				0.40	23.00		MADE GROUND: Soft light brown slightly sandy gravelly clay. Gravel is fine to medium angular to sub rounded of mudstone and brick.
2.40	2.40	ES					MADE GROUND: Black slightly clayey very gravelly fine to medium sand with cobbles. Gravel is fine to coarse angular to sub rounded of mudstone, sandstone, brick, ash, ceramic, glass, plastic and textile.
				2.60	20.80		End of Pit at 2.60m

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Trial Pit Photographs



TP111



TP111 SPOIL

Remarks: 1. Terminated due to instability. 2. Fast water ingress at 2.40 m bgl.

Stability: Unstable

Trial Pit Log

			TrialPit No TP112 Sheet 1 of 1
Project Name: Cherryfields	Project No. 15280	Co-ords: 340931.90 - 398200.78 Level: 23.02	Date 10/01/2022
Location: Kirkby		Dimensions (m): 2.90 × 0.70 Depth 2.80	Scale 1:30
Client: BDW Trading			Logged N.Gregory

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
	0.20	ES		0.25	22.77		MADE GROUND: Dark grey slightly gravelly clayey medium to coarse sand with frequent rootlets. Gravel is fine to coarse, angular to subrounded of brick. (Topsoil)
							Reddish brown slightly clayey silty fine to medium SAND.
				2.80	20.22		End of Pit at 2.80m

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Trial Pit Photographs



TP112



TP112 SPOIL

Remarks: 1. Complete on weathered bedrock at 2.80m bgl.

Stability: Stable

Trial Pit Log

			TrialPit No TP113 Sheet 1 of 1
Project Name: Cherryfields	Project No. 15280	Co-ords: 341004.81 - 398369.65 Level: 23.52	Date 10/01/2022
Location: Kirkby		Dimensions (m): 2.00 x 0.60 Depth 2.40	Scale 1:30
Client: BDW Trading			Logged J.Beer

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
	0.10	ES		0.20	23.32		MADE GROUND: Brown sandy clay with rootlets. (Topsoil).
				0.50	23.02		MADE GROUND: Light brown gravelly clayey fine to medium sand. Gravel is fine to coarse angular to sub rounded of mudstone, sandstone and brick.
	0.80	ES					MADE GROUND: Black clayey very sandy gravel with cobbles. Gravel is fine to coarse angular to sub rounded of mudstone, sandstone, ash, brick, glass, ceramic, plastic and textiles. Cobbles are sub angular to sub rounded of brick and glass.
▼ 1.80	1.80	ES					
				2.40	21.12		End of Pit at 2.40m

1 2 3 4

Trial Pit Photographs



TP113



TP113 SPOIL

Remarks: 1. Terminated due to instability. 2. Fast water ingress at 1.80 m bgl. (Strike)

Stability: Unstable

Trial Pit Log

			TrialPit No TP114 Sheet 1 of 1
Project Name: Cherryfields	Project No. 15280	Co-ords: 340932.02 - 398245.37 Level: 24.14	Date 10/01/2022
Location: Kirkby		Dimensions (m): 3.60 x 0.70 Depth 2.90	Scale 1:30
Client: BDW Trading			Logged N.Gregory

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
				0.35	23.79		MADE GROUND: Dark grey slightly gravelly clayey fine to medium sand with frequent rootlets. Gravel is fine to coarse, angular to subrounded of brick. (Topsoil)
	0.60	ES					MADE GROUND: Firm medium strength brown slightly gravelly slightly sandy clay. Gravel is fine to coarse, angular to subrounded of brick.
				1.10	23.04		Brown slightly gravelly clayey fine to medium SAND. Gravel is fine to coarse, subrounded to rounded of sandstone.
▼ 2.80				2.90	21.24		End of Pit at 2.90m

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Trial Pit Photographs



TP114



TP114 SPOIL

Remarks: 1. Complete. 2. Slow water ingress at 2.80 m bgl.

Stability: Stable

Trial Pit Log

			TrialPit No TP115 Sheet 1 of 1
Project Name: Cherryfields	Project No. 15280	Co-ords: 341059.47 - 398378.02 Level: 24.18	Date 10/01/2022
Location: Kirkby		Dimensions (m): 2.00 x 0.60 Depth 2.80	Scale 1:30
Client: BDW Trading			Logged J.Beer

Water Strike	Samples & In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
	Depth	Type	Results				
	0.10	ES					MADE GROUND: Brown sandy clay with rootlets. (Topsoil).
				0.30	23.88		MADE GROUND: Light brown very sandy very gravelly clay. Gravel is fine to medium sub angular to sub rounded of mudstone, sandstone and brick.
				0.60	23.58		MADE GROUND: Black clayey sandy gravel. Gravel is fine to coarse angular to sub rounded of mudstone, ash, sandstone, brick, ceramic, glass, metal, plastic and textiles.
	2.20	HVP	72	2.20	21.98		Firm medium strength red slightly gravelly CLAY. Gravel is fine sub angular to sub rounded of mudstone.
				2.50	21.68		Red fine to medium SAND. (Weathered bedrock).
				2.80	21.38		End of Pit at 2.80m

1 2 3 4

Trial Pit Photographs



TP115



TP115 SPOIL

Remarks: 1. Complete.

Stability: Stable

Trial Pit Log

TrialPit No: TP116
Sheet 1 of 1

Project Name: Cherryfields	Project No. 15280	Co-ords: 340956.81 - 398272.26 Level: 23.03	Date 10/01/2022
Location: Kirkby		Dimensions (m): 2.50 x 0.80 Depth 1.80	Scale 1:30
Client: BDW Trading			Logged N.Gregory

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
	0.25	HVP	23	0.25	22.78		MADE GROUND: Dark grey gravelly clayey fine to medium sand with frequent rootlets. Gravel is fine to coarse, angular to subrounded of clinker and textiles. (Topsoil)
0.40	0.45 0.50 0.60	HVP D ES	30	0.70	22.33		Soft low strength brown slightly sandy CLAY.
				1.80	21.23		Reddish brown slightly clayey gravelly fine to medium SAND. Gravel is fine to coarse, subrounded to rounded of sandstone.
							End of Pit at 1.80m

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Trial Pit Photographs



TP116



TP116 SPOIL

Remarks: 1. Complete. 2. Fast water ingress at 0.40 m bgl. (Water strike).

Stability: Unstable

Trial Pit Log

			TrialPit No TP117 Sheet 1 of 1
Project Name: Cherryfields	Project No. 15280	Co-ords: 341053.21 - 398352.63 Level: 23.94	Date 10/01/2022
Location: Kirkby		Dimensions (m): 2.00 x 0.60 Depth 2.50	Scale 1:30
Client: BDW Trading			Logged J.Beer

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
				0.30	23.64		MADE GROUND: Brown sandy clay with rootlets. (Topsoil).
				0.60	23.34		MADE GROUND: Reddish light brown gravelly very sandy clay. Gravel is fine to coarse sub angular to sub rounded of mudstone and sandstone.
	0.70	ES					MADE GROUND: Brownish black clayey sandy gravel with cobbles. Gravel is fine to coarse angular to sub rounded of mudstone, ash, sandstone, brick, ceramic, glass, cardboard and plastic.
	1.00	B					
2.40	2.40	ES		2.50	21.44		End of Pit at 2.50m

1 2 3 4

Trial Pit Photographs



TP117



TP117 SPOIL

Remarks: 1. Terminated due to instability. 2. Fast water ingress at 2.40 m bgl. (Water strike).

Stability: Unstable

Trial Pit Log

			TrialPit No TP118 Sheet 1 of 1
Project Name: Cherryfields	Project No. 15280	Co-ords: 340925.81 - 398308.40 Level: 22.96	Date 10/01/2022
Location: Kirkby		Dimensions (m): 2.70 × 0.80 Depth 2.60	Scale 1:30
Client: BDW Trading			Logged N.Gregory

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
				0.25	22.71		MADE GROUND: Dark grey slightly gravelly sandy clay with frequent rootlets. Gravel is fine to coarse, angular to subrounded of brick. (Topsoil)
	0.50	ES					MADE GROUND: Black clayey sandy gravel (ashy). Gravel is fine to coarse angular to subrounded of brick, clinker, glass bottles, ash, metal, pipe, wood.
	1.00	B					
▼ 2.00				2.00	20.96		Firm, medium strength reddish brown sandy CLAY.
	2.30	HVP	54				
				2.60	20.36		End of Pit at 2.60m

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Trial Pit Photographs



TP118



TP118 SPOIL

Remarks: 1. Complete. 2. Water strike at 2.00 m bgl.

Stability: Slightly unstable

Trial Pit Log

TrialPit No: TP119
Sheet 1 of 1

Project Name: Cherryfields	Project No. 15280	Co-ords: 341088.95 - 398357.62 Level: 24.26	Date 10/01/2022
Location: Kirkby	Dimensions (m): Depth 2.50	2.00 × 0.60	Scale 1:30
Client: BDW Trading			Logged J.Beer

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
	0.10	ES		0.20	24.06		MADE GROUND: Brown very sandy clay with rootlets. (Topsoil).
				0.70	23.56		MADE GROUND: Brown clayey gravelly fine to medium sand. Gravel is fine to coarse sub angular to sub rounded of mudstone, sandstone and brick.
▼ 2.40				2.50	21.76		MADE GROUND: Brownish black clayey very gravelly fine to coarse sand with cobbles. Gravel is fine to coarse angular to sub rounded of mudstone, ash, sandstone, brick, glass, ceramic, plastic, textiles, timber and paper. Cobbles are sub angular to sub rounded of brick and glass.
							End of Pit at 2.50m

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Trial Pit Photographs



TP119



TP119 SPOIL

Remarks: 1. Terminated due to instability and water ingress. 2. Water strike at 2.40 m bgl.

Stability: Unstable

Trial Pit Log

TrialPit No: TP120
Sheet 1 of 1

Project Name: Cherryfields	Project No. 15280	Co-ords: 340980.18 - 398303.79 Level: 23.30	Date 10/01/2022
Location: Kirkby		Dimensions (m): 2.60 × 0.70 Depth 3.10	Scale 1:30
Client: BDW Trading			Logged N.Gregory

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
	0.10	ES		0.15	23.15		Dark grey sandy CLAY with frequent rootlets. (TOPSOIL)
	0.30	HVP	68				Firm medium strength dark grey sandy CLAY
				0.50	22.80		Reddish brown slightly gravelly clayey fine to medium SAND. Gravel is fine to coarse, angular to subrounded of sandstone.
▼ 2.00							
				3.10	20.20		End of Pit at 3.10m

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Trial Pit Photographs



TP120 SPOIL

Remarks: 1. Complete. 2. Fast water ingress at 2.00 m bgl (water strike).

Stability: Unstable

Trial Pit Log

			TrialPit No TP121 Sheet 1 of 1
Project Name: Cherryfields	Project No. 15280	Co-ords: 341118.82 - 398318.90 Level: 24.49	Date 10/01/2022
Location: Kirkby		Dimensions (m): 2.00 x 0.60 Depth 2.90	Scale 1:30
Client: BDW Trading			Logged J.Beer

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
				0.20	24.29		MADE GROUND: Brown very sandy clay with rootlets. (Topsoil).
				0.80	23.69		MADE GROUND: Brown gravelly clayey fine to medium sand. Gravel is fine to coarse sub angular to sub rounded of mudstone, sandstone and brick.
	1.00	ES					MADE GROUND: Blackish brown clayey sandy gravel with cobbles. Gravel is fine to coarse angular to sub rounded of mudstone, sandstone, ash, brick, ceramic, glass and textiles. Cobbles are angular to sub angular of brick and glass.
				2.30	22.19		MADE GROUND: Dark brown gravelly clay. Gravel is fine to medium angular to sub rounded of mudstone, sandstone, brick and ceramic.
				2.90	21.59		End of Pit at 2.90m

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Trial Pit Photographs



TP121



TP121 SPOIL

Remarks: 1. Complete.

Stability: Stable

Trial Pit Log

TrialPit No TP122/ SA102
Sheet 1 of 1

Project Name: Cherryfields	Project No. 15280	Co-ords: 341011.86 - 398294.89 Level: 23.31	Date 10/01/2022
Location: Kirkby		Dimensions (m): 2.60 x 0.80 Depth 2.60	Scale 1:30
Client: BDW Trading			Logged N.Gregory

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
	0.20	ES		0.30	23.01		Dark grey sandy CLAY with frequent rootlets. (TOPSOIL)
	0.50	HVP	70				Firm medium strength dark greyish brown slightly sandy CLAY.
	1.00	HVP	65	1.20	22.11		Reddish brown slightly clayey gravelly fine to medium SAND. Gravel is fine to coarse, subrounded to rounded of sandstone.
				2.60	20.71		End of Pit at 2.60m

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Trial Pit Photographs



TP122



TP122 SPOIL

Remarks: 1. Complete. 2. Soakaway test complete.

Stability: Stable

Trial Pit Log

			TrialPit No TP123 Sheet 1 of 1
Project Name: Cherryfields	Project No. 15280	Co-ords: 341140.09 - 398319.79 Level: 25.12	Date 10/01/2022
Location: Kirkby		Dimensions (m): 2.00 x 0.60 Depth 2.80	Scale 1:30
Client: BDW Trading			Logged J.Beer

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
	0.10	ES		0.30	24.82		MADE GROUND: Brown sandy clay with rootlets and rare roots. (Topsoil).
	2.00	ES					MADE GROUND: Reddish black clayey gravelly fine to medium sand with cobbles. Gravel is fine to coarse angular to sub rounded of mudstone, sandstone, brick, ash, ceramic, glass, timber, plastic. Cobbles are angular to sub angular of sandstone, brick and glass.
2.40	2.40	ES					
				2.80	22.32		End of Pit at 2.80m

1 2 3 4

Trial Pit Photographs



TP123



TP123 SPOIL

Remarks: 1. Terminated due to instability and water ingress. 2. Fast water ingress at 2.40 m bgl (water strike).

Stability: Unstable

Trial Pit Log

TrialPit No: TP124
Sheet 1 of 1

Project Name: Cherryfields	Project No. 15280	Co-ords: 341030.51 - 398250.10 Level: 23.25	Date 11/01/2022
Location: Kirkby		Dimensions (m): 2.20 x 0.80 Depth 2.30	Scale 1:30
Client: BDW Trading			Logged N.Gregory

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
				0.20	23.05		MADE GROUND: Dark grey sandy clay with frequent rootlets with plastic drainage pipes (Topsoil)
	0.40 0.50	HVP ES	64				Firm medium strength brown slightly sandy gravelly CLAY. Gravel is fine to coarse, angular to subrounded of sandstone.
0.65	0.70	HVP	58	0.70	22.55		Reddish brown slightly clayey gravelly fine to medium SAND. Gravel is fine to coarse, subrounded to rounded of sandstone.
				2.30	20.95		End of Pit at 2.30m

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Trial Pit Photographs



TP124



TP124 SPOIL

Remarks: 1. Complete on bedrock 2.30 m bgl. 2. Very slow water ingress at 0.65 m bgl (seepage).

Stability: Stable

Trial Pit Log

TrialPit No: TP125
Sheet 1 of 1

Project Name: Cherryfields	Project No. 15280	Co-ords: 340962.85 - 398498.57 Level: 26.19	Date 11/01/2022
Location: Kirkby		Dimensions (m): 2.00 x 0.60 Depth 2.50	Scale 1:30
Client: BDW Trading			Logged J.Beer

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
	0.10	ES		0.30	25.88		MADE GROUND: Dark brown slightly gravelly slightly sandy clay with rootlets. Gravel is fine sub angular to sub rounded of mudstone. (Topsoil).
				0.60	25.58		MADE GROUND: Brown gravelly sandy clay. Gravel is fine to coarse angular to sub rounded of mudstone, sandstone and brick.
				1.80	24.38		Reddish grey very silty sandy CLAY.
				2.50	23.68		Reddish grey slightly clayey fine to medium SAND. (Weathered bedrock).
							End of Pit at 2.50m

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Trial Pit Photographs



TP125



TP125 SPOIL

Remarks: 1. Complete. 2. Unable to complete hand shear vain tests due to high sand content in CLAY.

Stability: Stable

Trial Pit Log

TrialPit No: TP126
Sheet 1 of 1

Project Name: Cherryfields	Project No. 15280	Co-ords: 341078.00 - 398241.13 Level: 23.70	Date 11/01/2022
Location: Kirkby	Dimensions (m): Depth 1.35	2.70 × 0.70	Scale 1:30
Client: BDW Trading			Logged N.Gregory

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
	0.10	ES		0.30	23.40		MADE GROUND: Dark grey slightly gravelly clayey fine to medium sand with frequent rootlets. Gravel is fine to coarse, angular to subrounded of brick. (Topsoil)
	0.50	HVP	70				Firm medium strength brown slightly gravelly sandy CLAY. Gravel is fine to coarse, subrounded to rounded of sandstone.
	1.00	HVP	73	1.35	22.35		End of Pit at 1.35m

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Trial Pit Photographs



TP126



TP126 SPOIL

Remarks: 1. Complete on bedrock at 1.35 m bgl.

Stability: Stable

Trial Pit Log

TrialPit No: TP127
Sheet 1 of 1

Project Name: Cherryfields	Project No. 15280	Co-ords: 340946.23 - 398482.26 Level: 25.87	Date 11/01/2022
Location: Kirkby	Dimensions (m): Depth 2.40	2.00 × 0.60	Scale 1:30
Client: BDW Trading			Logged J.Beer

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
				0.10	25.77		Brown sandy CLAY with rootlets. (TOPSOIL).
	0.50 0.50	B ES					Red gravelly sandy CLAY with rare cobbles. Gravel is fine to coarse angular to sub rounded of mudstone and sandstone. Cobbles are sub angular of sandstone.
				0.70	25.17		Greyish dark brown gravelly clayey fine to medium SAND. Gravel is fine to coarse sub angular to sub rounded of mudstone and sandstone.
	1.50	HVP	83	1.40	24.47		Stiff high strength greyish brown slightly gravelly CLAY. Gravel is fine sub angular to sub rounded of mudstone.
				2.40	23.47		End of Pit at 2.40m

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Trial Pit Photographs



TP127



TP127 SPOIL

Remarks: 1. Complete.

Stability: Stable

Trial Pit Log

TrialPit No: TP128
Sheet 1 of 1

Project Name: Cherryfields	Project No. 15280	Co-ords: 341108.53 - 398304.99 Level: 24.25	Date 11/01/2022
Location: Kirkby		Dimensions (m): 2.80 × 0.70 Depth 2.50	Scale 1:30
Client: BDW Trading			Logged N.Gregory

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
				0.30	23.95		MADE GROUND: Dark grey slightly gravelly clayey fine to medium sand with frequent rootlets. Gravel is fine to coarse, angular to subrounded of brick. (Topsoil)
	0.70	ES					MADE GROUND: Black clayey gravelly fine to medium sand with cobbles. Gravel is fine to coarse angular to subrounded of brick, glass, ash and clinker. Cobbles are angular to sub angular of brick, glass, bottles, metal, pipe and wood.
	0.80	B					
1.40	1.40	HVP	73	1.40	22.85		Firm medium strength reddish brown slightly sandy CLAY. Circa 2.00 m bgl becomes stiff high strength circa 2.30 m bgl becomes firm medium strength circa 2.50 m bgl becomes stiff high strength.
	2.00	HVP	91				
	2.30	HVP	74				
	2.50	HVP	104	2.50	21.75		End of Pit at 2.50m

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Trial Pit Photographs



TP128



TP128 SPOIL

Remarks: 1. Complete. 2. Rapid water ingress at 0.65 m bgl (water strike).

Stability: Unstable

Trial Pit Log

TrialPit No: TP129
Sheet 1 of 1

Project Name: Cherryfields	Project No. 15280	Co-ords: 340991.57 - 398466.18 Level: 24.62	Date 11/01/2022
Location: Kirkby		Dimensions (m): 2.00 x 0.60 Depth 2.50	Scale 1:30
Client: BDW Trading			Logged J.Beer

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
	0.10	ES		0.10	24.52		MADE GROUND: Brown slightly gravelly sandy clay with rootlets. Gravel is fine to medium sub angular to sub rounded of mudstone and sandstone. (Topsoil).
				0.30	24.32		MADE GROUND: Brown gravelly sandy clay. Gravel is fine to coarse sub angular to sub rounded of mudstone, sandstone and brick.
				0.60	24.02		Yellowish white mottled red slightly gravelly fine to medium SAND. Gravel is fine sub rounded of sandstone.
	0.80	HVP	61				Firm medium strength reddish brown slightly gravelly CLAY. Gravel is fine to medium sub angular to sub rounded of mudstone and sandstone. Becoming soft low strength at 1.50 m bgl.
▼ 1.50	1.50	HVP	29				
				2.10	22.52		Red fine to medium SAND. (Weathered bedrock).
				2.50	22.12		End of Pit at 2.50m

Trial Pit Photographs



TP129



TP129 SPOIL

Remarks: 1. Complete. 2. Slow water seepage at 1.50 m bgl.

Stability: Stable

Trial Pit Log

			TrialPit No TP130/ SA103 Sheet 1 of 1
Project Name: Cherryfields	Project No. 15280	Co-ords: 341125.30 - 398250.68 Level: 24.19	Date 11/01/2022
Location: Kirkby		Dimensions (m): 2.50 x 0.70 Depth 2.23	Scale 1:30
Client: BDW Trading			Logged N.Gregory

Water Strike	Samples & In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
	Depth	Type	Results				
				0.08	24.11		MADE GROUND: Dark grey slightly gravelly clayey coarse sand with frequent rootlets. Gravel is fine, angular to subrounded of brick. (Topsoil)
	0.20	ES		0.25	23.94		MADE GROUND: Black sandy gravel. Gravel is fine to coarse sub rounded of clinker and brick.
	0.50	HVP	64				Firm medium strength reddish brown slightly sandy CLAY.
▼ 0.80				0.80	23.39		Reddish brown clayey gravelly fine to medium SAND. Gravel is fine to coarse, subrounded to rounded of sandstone. (Lens of CLAY between 1.00m - 1.10m bgl)
	1.00	D					
				2.23	21.96		End of Pit at 2.23m

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Trial Pit Photographs



TP130



TP130 SPOIL

Remarks: 1. Complete on bedrock at 2.23 m bgl. 2. Very slow water ingress at 0.80 m bgl (seepage). 3. Soakaway test complete.

Stability: Stable

Trial Pit Log

TrialPit No TP131/ SA107
Sheet 1 of 1

Project Name: Cherryfields	Project No. 15280	Co-ords: 341028.12 - 398450.45 Level: 24.61	Date 11/01/2022
Location: Kirkby		Dimensions (m): 2.00 × 0.60 Depth 2.50	Scale 1:30
Client: BDW Trading			Logged J.Beer

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
				0.20	24.41		MADE GROUND: Brown slightly gravelly sandy clay with rootlets. Gravel is fine to medium sub angular to sub rounded of mudstone and sandstone. (Topsoil).
	0.50	HVP	111	0.70	23.91		Stiff high strength reddish brown mottled grey slightly gravelly CLAY. Gravel is fine to medium sub angular to sub rounded of mudstone and sandstone.
	0.80	ES					Soft low strength red slightly gravelly silty CLAY. Gravel is fine to coarse angular to sub rounded of mudstone and sandstone.
	1.00	B					
	1.00	HVP	28	2.10	22.51		Red slightly gravelly fine to medium SAND. Gravel is fine to medium sub angular to sub rounded of sandstone and mudstone. (Weathered bedrock).
				2.50	22.11		End of Pit at 2.50m

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Trial Pit Photographs



TP131



TP131 SPOIL

Remarks: 1. Complete. 2. Soakaway test completed.

Stability: Stable

Trial Pit Log

TrialPit No: TP132
Sheet 1 of 1

Project Name: Cherryfields	Project No. 15280	Co-ords: 341129.64 - 398212.68 Level: 23.73	Date 11/01/2022
Location: Kirkby		Dimensions (m): 2.70 x 0.80 Depth 2.45	Scale 1:30
Client: BDW Trading			Logged N.Gregory

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
				0.05	23.68		MADE GROUND: Dark grey sandy clay with frequent rootlets. (Topsoil)
	0.20	ES		0.30	23.43		MADE GROUND: Black gravel. Gravel is fine to coarse angular to subrounded of brick, ash and clinker
	0.50	HVP	83				Stiff high strength brown slightly sandy CLAY (becoming more sandy at 0.60m bgl). Circa 1.00 m bgl becomes firm medium strength circa 1.20 m bgl becomes stiff high strength.
	1.00	HVP	70				
	1.20	HVP	100	1.20	22.53		Reddish brown slightly clayey gravelly fine to medium SAND. Gravel is fine to coarse, subrounded to rounded of sandstone.
				2.45	21.28		End of Pit at 2.45m

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Trial Pit Photographs



TP132



TP132 SPOIL

Remarks: 1. Complete.

Stability: Stable

Trial Pit Log

TrialPit No: TP133
Sheet 1 of 1

Project Name: Cherryfields	Project No. 15280	Co-ords: 341089.98 - 398426.67 Level: 24.76	Date 11/01/2022
Location: Kirkby		Dimensions (m): 2.00 x 0.60 Depth 2.40	Scale 1:30
Client: BDW Trading			Logged J.Beer

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
	0.10	ES		0.20	24.56		MADE GROUND: Brown sandy clay with rootlets. (Topsoil).
	0.40	HVP	107	0.60	24.16		Stiff high strength greyish red slightly gravelly slightly sandy CLAY. Gravel is fine to medium sub angular to sub rounded of mudstone and sandstone.
	1.00	HVP	34	1.40	23.36		Soft low strength red slightly gravelly silty CLAY. Gravel is fine to coarse angular to sub rounded of mudstone and sandstone.
				2.40	22.36		Brownish red slightly gravelly very sandy CLAY. Gravel is fine to medium sub angular to sub rounded of mudstone and sandstone.
							End of Pit at 2.40m

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Trial Pit Photographs



TP133



TP133 SPOIL

Remarks: 1. Complete. 2. Unable to complete hand shear vain tests due to high sand content in CLAY.

Stability: Stable

Trial Pit Log

TrialPit No: TP134
Sheet 1 of 1

Project Name: Cherryfields	Project No. 15280	Co-ords: 341166.11 - 398191.28 Level: 24.39	Date 11/01/2022
Location: Kirkby		Dimensions (m): 2.80 × 0.70 Depth 2.30	Scale 1:30
Client: BDW Trading			Logged N.Gregory

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
				0.40	23.99		Dark grey sandy CLAY with frequent rootlets. (TOPSOIL).
							Light brown sandy CLAY.
	0.70	HVP	54	0.70	23.69		Firm medium strength dark grey slightly gravelly sandy CLAY. Gravel is fine subrounded of sandstone. Circa 0.90 m bgl becomes stiff high strength.
	0.90	HVP	76				
	1.00	ES					
	1.10	HVP	90				
	1.30	HVP	85	1.30	23.09		Reddish brown slightly clayey gravelly fine to medium SAND. Gravel is fine to coarse, subrounded to rounded of sandstone.
▼ 2.00							
				2.30	22.09		End of Pit at 2.30m

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Trial Pit Photographs



TP134



TP134 SPOIL

Remarks: 1. Complete on bedrock at 2.30 m bgl. 2. Slow water ingress at 2.00 m bgl (seepage).

Stability: Stable

Trial Pit Log

TrialPit No: TP135
Sheet 1 of 1

Project Name: Cherryfields	Project No. 15280	Co-ords: 341140.71 - 398391.58 Level: 24.84	Date 11/01/2022
Location: Kirkby		Dimensions (m): 2.00 x 0.60 Depth 2.70	Scale 1:30
Client: BDW Trading			Logged J.Beer

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
				0.20	24.64		MADE GROUND: Brown sandy clay with rootlets. (Topsoil).
	0.40	ES		0.50	24.34		MADE GROUND: Brown gravelly sandy clay. Gravel is fine to coarse angular to sub rounded of mudstone, sandstone and brick.
	0.70	HVP	112				Stiff high strength red mottled grey gravelly CLAY. Gravel is fine to medium sub angular to sub rounded of mudstone.
	0.80	B		0.90	23.94		
	1.20	HVP	52				Firm medium strength red slightly gravelly silty CLAY. Gravel is fine to medium sub angular to sub rounded of mudstone.
▼ 1.40				2.20	22.64		Brownish red gravelly sandy CLAY. Gravel is fine to coarse sub angular to sub rounded of mudstone and sandstone.
				2.70	22.14		End of Pit at 2.70m

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Trial Pit Photographs



TP135



TP135 SPOIL

Remarks: 1. Complete. 2. Slow water seepage at 1.40 m bgl. 3. Unable to complete HSV test 2.20-2.70 m bgl due to high sand content in clay.

Stability: Stable

Trial Pit Log

TrialPit No: TP136
Sheet 1 of 1

Project Name: Cherryfields	Project No. 15280	Co-ords: 341181.35 - 398223.79 Level: 24.74	Date 11/01/2022
Location: Kirkby		Dimensions (m): Depth 2.00, 2.80 × 0.70	Scale 1:30
Client: BDW Trading			Logged N.Gregory

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
	0.10	ES		0.15	24.59		MADE GROUND: Dark grey sandy clay with frequent rootlets. (Topsoil)
							MADE GROUND: Slightly gravelly sandy clay with occasional cobbles. Gravel is fine to coarse angular to subrounded of brick. Cobbles are sub angular of brick.
0.80				0.80	23.94		
	0.90	HVP	96				Stiff, high strength light brown slightly sandy CLAY.
	1.00	HVP	105				
	1.50	HVP	107				
	2.00	HVP	89	2.00	22.74		End of Pit at 2.00m

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Trial Pit Photographs



TP136



TP136 SPOIL

Remarks: 1. Complete. 2. Very slow water ingress at 0.80 m bgl (seepage).

Stability: Stable

Trial Pit Log

TrialPit No: TP137
Sheet 1 of 1

Project Name: Cherryfields	Project No. 15280	Co-ords: 341141.61 - 398363.34 Level: 25.25	Date 11/01/2022
Location: Kirkby		Dimensions (m): 2.00 x 0.60 Depth 2.50	Scale 1:30
Client: BDW Trading			Logged J.Beer

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
	0.10	ES		0.30	24.95		MADE GROUND: Brown gravelly sandy clay with rootlets. Gravel is fine to coarse angular to sub rounded of mudstone, sandstone, brick and glass. (Topsoil).
				0.80	24.45		MADE GROUND: Dark brownish black clayey very gravelly fine to medium sand. Gravel is fine to coarse angular to sub angular of mudstone, sandstone, brick, ash, ceramic, glass and textiles.
				1.50	23.75		MADE GROUND: Brownish red sandy very gravelly clay with cobbles. Gravel is fine to coarse angular to sub rounded of brick, mudstone, sandstone, glass, ceramic. Cobbles are angular to sub angular of sandstone, brick and glass.
				1.60	23.65		MADE GROUND: Concrete.
				2.00	23.25		MADE GROUND: Brown clayey very gravelly fine to medium sand with cobbles. Gravel is fine to coarse angular to sub rounded of mudstone, sandstone, brick, ceramic and timber. Cobbles are angular to sub angular of brick and timber.
2.30	2.30	ES		2.50	22.75		Brown gravelly sandy CLAY. Gravel is fine to medium sub angular to sub rounded of mudstone and sandstone.
							End of Pit at 2.50m

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Trial Pit Photographs



TP137



TP137 SPOIL

Remarks: 1. Complete. 2. Slow water seepage at 2.30 m bgl.

Stability: Stable

Trial Pit Log

TrialPit No: TP138
Sheet 1 of 1

Project Name: Cherryfields	Project No. 15280	Co-ords: 341192.11 - 398249.66 Level: 24.77	Date 11/01/2022
Location: Kirkby		Dimensions (m): 2.70 x 0.70 Depth 3.10	Scale 1:30
Client: BDW Trading			Logged N.Gregory

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
				0.25	24.52		MADE GROUND: Dark grey sandy clay with frequent rootlets. (Topsoil)
				0.60	24.17		MADE GROUND: Brown slightly gravelly sandy clay. Gravel is fine to coarse, angular to subrounded of brick.
	0.80	D					Firm medium strength reddish brown slightly gravelly sandy CLAY. Gravel is fine to coarse subrounded to rounded of sandstone.
	0.80	HVP	58				
	1.00	ES					
	1.20	HVP	72				
	1.50	HVP	66				
	2.00	HVP	60				
				3.10	21.67		End of Pit at 3.10m

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Trial Pit Photographs



TP138



TP138 SPOIL

Remarks: 1. Complete on bedrock at 3.10 m bgl.

Stability: Stable

Trial Pit Log

TrialPit No: TP139
Sheet 1 of 1

Project Name: Cherryfields	Project No. 15280	Co-ords: 341251.48 - 398414.20 Level: 26.07	Date 11/01/2022
Location: Kirkby		Dimensions (m): 2.00 × 0.60 Depth 1.50	Scale 1:30
Client: BDW Trading			Logged J.Beer

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
				0.15	25.92		MADE GROUND: Brown gravelly sandy clay with rootlets. Gravel is fine to coarse angular to sub rounded of mudstone, sandstone and brick. (Topsoil).
				0.50	25.57		MADE GROUND: Brown slightly sandy gravelly clay. Gravel is fine to coarse angular to sub rounded of mudstone, sandstone and brick.
							MADE GROUND: Black slightly clayey gravelly fine to medium sand. Gravel is angular to sub rounded of mudstone, sandstone, brick, ash, glass, textiles, ceramic and wood.
▼ 1.30	1.30	ES		1.20	24.87		MADE GROUND: Greyish black slightly sandy gravel. Gravel is fine to coarse angular to sub rounded of mudstone, sandstone, ash, glass and ceramic. Slight hydrocarbon odour.
				1.50	24.57		End of Pit at 1.50m

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Trial Pit Photographs



TP139



TP139 SPOIL

Remarks: 1. Terminated due to land drain. 2. Land drain encountered at 1.30 m bgl.

Stability: Stable

Trial Pit Log

TrialPit No: TP140
Sheet 1 of 1

Project Name: Cherryfields	Project No. 15280	Co-ords: 341174.18 - 398272.47 Level: 24.70	Date 11/01/2022
Location: Kirkby		Dimensions (m): 2.70 × 0.70 Depth 2.80	Scale 1:30
Client: BDW Trading			Logged N.Gregory

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
	0.10	ES		0.15	24.55		MADE GROUND: Dark grey slightly gravelly clayey coarse sand with frequent rootlets. Gravel is fine, angular to subrounded of brick. (Topsoil)
	0.50	B					MADE GROUND: Dark grey clayey very gravelly fine to medium sand with cobbles. Gravel is fine to coarse angular to subrounded of brick, glass, ash and clinker. Cobbles are angular to sub angular of glass, bottles, brick, metal, pipe and wood.
▼ 1.20	1.30	HVP	86	1.30	23.40		Stiff high strength reddish brown sandy CLAY. Circa 2.00 m bgl becomes firm medium strength
	1.60	HVP	84				
	1.80	HVP	81				
	2.00	HVP	70				
				2.80	21.90		End of Pit at 2.80m

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Trial Pit Photographs



TP140



TP140 SPOIL

Remarks: 1. Complete. 2. Slow water ingress at 1.2 m bgl (seepage).

Stability: Stable

Trial Pit Log

TrialPit No: TP141
Sheet 1 of 1

Project Name: Cherryfields	Project No. 15280	Co-ords: 341215.28 - 398421.21 Level: 26.01	Date 11/01/2022
Location: Kirkby		Dimensions (m): 2.00 x 0.60 Depth 2.40	Scale 1:30
Client: BDW Trading			Logged J.Beer

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
	0.10	ES		0.15	25.86		MADE GROUND: Brown sandy clay with rootlets. (Topsoil).
				0.70	25.31		MADE GROUND: Brown gravelly sandy clay. Gravel is fine to coarse sub angular to sub rounded of mudstone, sandstone and brick.
1.00	1.00	ES					MADE GROUND: Brownish black slightly clayey sandy gravel. Gravel is fine to coarse angular to sub rounded of mudstone, sandstone, brick, ash, glass and ceramic.
	2.00	ES		1.80	24.21		Soft greyish brown silty CLAY.
				2.40	23.61		End of Pit at 2.40m

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Trial Pit Photographs



TP141



TP141 SPOIL

Remarks: 1. Complete. 2. Water strike at 1.00 m bgl (perched water within Made Ground).

Stability: Stable

Trial Pit Log

			TrialPit No TP142 Sheet 1 of 1
Project Name: Cherryfields	Project No. 15280	Co-ords: 340864.60 - 398512.30 Level: 25.84	Date 11/01/2022
Location: Kirkby		Dimensions (m): 2.90 x 0.80 Depth 3.30	Scale 1:30
Client: BDW Trading			Logged N.Gregory

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
				0.20	25.64		MADE GROUND: Dark grey sandy with clay frequent rootlets. (Topsoil)
0.40				0.40	25.44		MADE GROUND: Firm, medium strength reddish brown slightly gravelly sandy clay. Gravel is fine to coarse, angular to subrounded of brick.
	1.00	ES					MADE GROUND: Black slightly clayey gravelly fine to medium sand. Gravel is fine to coarse, angular to subrounded of brick and ash.
				3.30	22.54		End of Pit at 3.30m

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Trial Pit Photographs



TP142



TP142 SPOIL

Remarks: 1. Complete. 2. Perched water at 0.4 m bgl.

Stability: Slightly unstable

Trial Pit Log

			TrialPit No TP142B Sheet 1 of 1
Project Name: Cherryfields	Project No. 15280	Co-ords: 340918.97 - 398488.00 Level: 26.00	Date 11/01/2022
Location: Kirkby		Dimensions (m): 2.70 x 0.70 Depth 3.10	Scale 1:30
Client: BDW Trading			Logged N.Gregory

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
	0.10	ES		0.20	25.80		Dark grey sandy CLAY with frequent rootlets. (TOPSOIL).
	0.50	HVP	66	0.45	25.55		Reddish brown sandy CLAY.
	1.00	HVP	74				Firm medium strength grey to brown slightly gravelly very sandy CLAY. Gravel is fine to coarse, subrounded to rounded of sandstone (Lens of fine to medium SAND between 2.85-3.00m bgl). Circa 3.00 m bgl becomes stiff high strength.
	2.00	HVP	64				
	2.50	HVP	74				
	3.00	HVP	99	3.10	22.90		End of Pit at 3.10m

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Trial Pit Photographs



TP142B



TP142B SPOIL

Remarks: 1. Complete.

Stability: Unstable

Trial Pit Log

TrialPit No: TP143
Sheet 1 of 1

Project Name: Cherryfields	Project No. 15280	Co-ords: 341237.29 - 398434.90 Level: 26.16	Date 11/01/2022
Location: Kirkby		Dimensions (m): 2.00 x 0.60 Depth 2.90	Scale 1:30
Client: BDW Trading			Logged J.Beer

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
	0.10	ES		0.30	25.86		MADE GROUND: Brown clayey fine to medium sand with rootlets. (Topsoil).
				0.60	25.56		MADE GROUND: Black slightly clayey sandy gravel. Gravel is fine to coarse angular to sub rounded of mudstone, sandstone, glass, ash, brick, ceramic and plastic.
	0.80	HVP	113				Stiff high strength greyish red gravelly CLAY. Gravel is fine to coarse sub angular to sub rounded of mudstone and sandstone.
				1.50	24.66		Stiff greyish red silty CLAY.
2.00							
				2.50	23.66		Reddish brown slightly clayey fine to medium SAND. (Weathered bedrock).
				2.90	23.26		End of Pit at 2.90m

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Trial Pit Photographs



TP143



TP143 SPOIL

Remarks: 1. Complete. 2. Slow water seepage at 2.00 m bgl. 3. Unable to complete HSV tests in clay 1.50 to 2.50.

Stability: Stable

Trial Pit Log

TrialPit No: TP144
Sheet 1 of 1

Project Name: Cherryfields	Project No. 15280	Co-ords: 341033.90 - 398604.73 Level: 25.76	Date 11/01/2022
Location: Kirkby		Dimensions (m): 2.90 x 0.70 Depth 2.00	Scale 1:30
Client: BDW Trading			Logged N.Gregory

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
				0.20	25.56		Dark grey sandy CLAY with frequent rootlets. (TOPSOIL).
	0.40	HVP	52				Firm medium strength brown very sandy CLAY.
	0.60	HVP	56				
	1.00	ES					
▼ 1.20	1.00	HVP	58	1.20	24.56		Brown very clayey fine to medium SAND. (Lens of CLAY between 1.80-1.90m bg.)
				2.00	23.76		End of Pit at 2.00m

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Trial Pit Photographs



TP144



TP144 SPOIL

Remarks: 1. Complete. 2. Slow water ingress at 1.20 m bgl.

Stability: Stable

Trial Pit Log

			TrialPit No TP145 Sheet 1 of 1
Project Name: Cherryfields	Project No. 15280	Co-ords: 341229.44 - 398461.90 Level: 26.15	Date 11/01/2022
Location: Kirkby		Dimensions (m): 2.00 × 0.60 Depth 3.10	Scale 1:30
Client: BDW Trading			Logged J.Beer

Water Strike	Samples & In Situ Testing Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
				0.30	25.85		MADE GROUND: Brown slightly clayey slightly gravelly fine to medium sand with rootlets. Gravel is fine to medium sub angular to sub rounded of mudstone and sandstone. (Topsoil).
0.60	0.80	ES					MADE GROUND: Black slightly clayey sandy gravel with cobbles. Gravel is fine to coarse angular to sub rounded of mudstone, sandstone, brick, glass, ceramic, timber and ash. Cobbles are sub angular of brick, glass and timber.
				1.50	24.65		Stiff high strength reddish grey gravelly CLAY. Gravel is fine to coarse sub angular to sub rounded of mudstone and sandstone.
	1.80	HVP	109				
				3.10	23.05		End of Pit at 3.10m

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Trial Pit Photographs



TP145



TP145 SPOIL

Remarks: 1. Complete. 2. Water ingress at 0.60 m bgl.

Stability: Stable

Trial Pit Log

TrialPit No: TP146
Sheet 1 of 1

Project Name: Cherryfields	Project No. 15280	Co-ords: 341003.77 - 398621.18 Level: 25.97	Date 11/01/2022
Location: Kirkby		Dimensions (m): 2.90 x 0.70 Depth 2.40	Scale 1:30
Client: BDW Trading			Logged N.Gregory

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
	0.10	ES					Dark grey sandy CLAY with frequent rootlets. (TOPSOIL).
	0.20	HVP	39	0.20	25.77		Soft low strength brown very sandy CLAY. Circa 0.40 m bgl becomes firm medium strength circa 0.60 m bgl becomes soft low strength.
	0.40	HVP	52				
	0.50	D					
	0.60	HVP	39	0.60	25.37		Brown slightly gravelly very clayey fine to medium SAND. Gravel is fine to coarse, subrounded to rounded sandstone. (Lens of CLAY between 2.20-2.40m bgl).
1.40							
				2.40	23.57		End of Pit at 2.40m

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Trial Pit Photographs



TP146



TP146 SPOIL

Remarks: 1. Complete. 2. Very slow water ingress at 0.80 m bgl (seepage).

Stability: Stable

Trial Pit Log

			TrialPit No TP147 Sheet 1 of 1
Project Name: Cherryfields	Project No. 15280	Co-ords: 341208.26 - 398451.97 Level: 26.35	Date 11/01/2022
Location: Kirkby		Dimensions (m): 2.00 x 0.60 Depth 2.70	Scale 1:30
Client: BDW Trading			Logged J.Beer

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
	0.10	ES		0.20	26.15		MADE GROUND: Brown sandy clay with rootlets. (Topsoil).
				0.50	25.85		MADE GROUND: Brown gravelly clayey fine to medium sand. Gravel is fine to coarse angular to sub rounded of mudstone, sandstone and brick.
				1.20	25.15		MADE GROUND: Black slightly clayey sandy gravel. Gravel is fine to coarse angular to sub rounded of mudstone, sandstone, brick, ash, ceramic and glass.
	1.50	HVP	128	2.70	23.65		Stiff high strength light brownish red gravelly CLAY. Gravel is fine to coarse sub angular to sub rounded of mudstone and sandstone.
							End of Pit at 2.70m

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Trial Pit Photographs



TP147



TP147 SPOIL

Remarks: 1. Complete.

Stability: Stable

Trial Pit Log

TrialPit No TP148
Sheet 1 of 1

Project Name: Cherryfields	Project No. 15280	Co-ords: 340989.83 - 398594.54 Level: 26.31	Date 11/01/2022
Location: Kirkby		Dimensions (m): 2.70 × 0.70 Depth 2.80	Scale 1:30
Client: BDW Trading			Logged N.Gregory

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
				0.10	26.21		Dark grey sandy CLAY with frequent rootlets. (TOPSOIL).
				0.35	25.96		Brown clayey fine to medium SAND.
0.50	0.50	HVP	78				Stiff high strength brown slightly gravelly sandy CLAY. Gravel is fine to coarse subrounded to rounded of sandstone.
	1.00	ES					
	1.00	HVP	81				
	1.30	HVP	85	1.30	25.01		Brown slightly clayey gravelly fine to medium SAND. Gravel is fine to coarse subrounded to rounded of sandstone.
	1.40	B					
				2.80	23.51		End of Pit at 2.80m

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Trial Pit Photographs



TP148



TP148 SPOIL

Remarks: 1. Complete. 2. Fast water ingress at 0.50 m bgl (water strike).

Stability: Stable

Trial Pit Log

TrialPit No: TP149
Sheet 1 of 1

Project Name: Cherryfields	Project No. 15280	Co-ords: 341171.10 - 398441.75 Level: 26.17	Date 11/01/2022
Location: Kirkby		Dimensions (m): 2.00 x 0.60 Depth 2.50	Scale 1:30
Client: BDW Trading			Logged J.Beer

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
				0.20	25.97		MADE GROUND: Brown clayey fine to medium sand with rootlets. (Topsoil).
				1.00	25.17		MADE GROUND: Brown gravelly clayey fine to medium sand. Gravel is fine to coarse of mudstone, sandstone and brick.
1.20	1.20	ES					MADE GROUND: Black slightly clayey sandy gravel with cobbles. Gravel is fine to coarse angular to sub rounded of mudstone, sandstone, brick, glass, ceramic, ash, textiles and timber. Cobbles are angular to sub angular of brick and glass.
	2.00 2.00	ES HVP	71	1.90	24.27		Firm medium strength light brown to red slightly gravelly silty CLAY. Gravel is fine to coarse sub angular to sub rounded of mudstone and sandstone.
				2.50	23.67		End of Pit at 2.50m

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Trial Pit Photographs



TP149



TP149 SPOIL

Remarks: 1. Complete. 2. Water strike at 1.20 m bgl. Fast ingress.

Stability: Stable

Trial Pit Log

TrialPit No: TP150
Sheet 1 of 1

Project Name: Cherryfields	Project No. 15280	Co-ords: 341111.79 - 398629.32 Level: 23.68	Date 12/01/2022
Location: Kirkby		Dimensions (m): 2.70 x 0.70 Depth 2.80	Scale 1:30
Client: BDW Trading			Logged N.Gregory

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
	0.20	ES		0.25	23.43		MADE GROUND: Dark grey slightly clayey gravelly sand with frequent rootlets. Gravel is fine to coarse, angular to subrounded of brick. (Topsoil)
				0.30	23.38		Reddish brown gravelly fine to medium SAND. Gravel is fine to medium sub rounded of mudstone and sandstone.
							Greyish dark brown slightly gravelly clayey fine to medium SAND. Gravel is fine to medium sub rounded of mudstone and sandstone.
				1.50	22.18		Stiff high strength brown sandy CLAY.
	1.60	HVP	108				
	1.70	HVP	116				
				1.80	21.88		Brown slightly gravelly fine to medium SAND.
				2.80	20.88		End of Pit at 2.80m

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Trial Pit Photographs



TP150



TP150 SPOIL

Remarks: 1. Complete.

Stability: Stable

Trial Pit Log

TrialPit No TP151/ SA105
Sheet 1 of 1

Project Name: Cherryfields	Project No. 15280	Co-ords: 341187.38 - 398470.60 Level: 26.45	Date 11/01/2022
Location: Kirkby		Dimensions (m): 2.00 × 0.60 Depth 2.70	Scale 1:30
Client: BDW Trading			Logged J.Beer

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
	0.10	ES		0.20	26.25		MADE GROUND: Brown slightly gravelly very sandy clay with rootlets. Gravel is fine to medium sub angular to sub rounded of mudstone and sandstone. (Topsoil).
				1.00	25.45		MADE GROUND: Blackish brown slightly clayey gravelly fine to medium sand. Gravel is fine to coarse angular to sub rounded of mudstone, ash, sandstone, brick, glass and metal.
	1.20	HVP	60				Firm medium strength reddish grey slightly gravelly CLAY. Gravel is fine to medium sub angular to sub rounded of mudstone and sandstone.
				2.20	24.25		Reddish grey fine to coarse SAND. (Weathered bedrock).
				2.70	23.75		End of Pit at 2.70m

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Trial Pit Photographs



TP151



TP151 SPOIL

Remarks: 1. Complete. 2. Soakaway test complete.

Stability: Stable

Trial Pit Log

TrialPit No: TP152
Sheet 1 of 1

Project Name: Cherryfields	Project No. 15280	Co-ords: 341145.86 - 398616.37 Level: 23.87	Date 12/01/2022
Location: Kirkby		Dimensions (m): 2.50 x 0.80 Depth 3.00	Scale 1:30
Client: BDW Trading			Logged N.Gregory

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
				0.25	23.62		MADE GROUND: Dark grey slightly clayey very gravelly fine to medium sand with cobbles. Gravel is fine to coarse, angular to subrounded of brick. Cobbles are sub angular of brick.
	0.50	B					Brown gravelly fine to medium SAND with frequent and occasional cobbles. Gravel is fine to coarse, subrounded to rounded of sandstone. Cobbles are sub rounded of sandstone.
	0.80	ES					
				2.10	21.77		Reddish brown clayey gravelly fine to medium SAND. Gravel is fine to coarse, subrounded to rounded of sandstone.
▼ 2.40				2.40	21.47		Firm medium strength light brown sandy CLAY.
				2.60	21.27		Reddish brown clayey gravelly fine to medium SAND. Gravel is fine to coarse, subrounded to rounded of sandstone.
				3.00	20.87		End of Pit at 3.00m

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Trial Pit Photographs



TP152



TP152 SPOIL

Remarks: 1. Complete. 2. Slow water ingress at 2.40 m bgl (seepage).

Stability: Stable

Trial Pit Log

TrialPit No: TP153
Sheet 1 of 1

Project Name: Cherryfields	Project No. 15280	Co-ords: 341171.08 - 398477.80 Level: 26.36	Date 12/01/2022
Location: Kirkby		Dimensions (m): 2.00 x 0.60 Depth 2.70	Scale 1:30
Client: BDW Trading			Logged J.Beer

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
	0.10	ES		0.20	26.16		MADE GROUND: Dark brown slightly gravelly clayey fine to medium sand with rootlets. (Topsoil).
▼ 0.50				0.80	25.56		MADE GROUND: Dark brown slightly clayey gravelly fine to medium sand. Gravel is fine to coarse sub angular to sub rounded of mudstone, sandstone and brick.
				1.50	24.86		MADE GROUND: Brownish black slightly clayey sandy gravel with cobbles. Gravel is fine to coarse angular to sub rounded of mudstone, sandstone, ash, brick, glass, plastic, metal and ceramic. Cobbles are angular to sub angular brick and glass.
	2.00	HVP	29	2.70	23.66		Reddish grey slightly gravelly CLAY. Gravel is fine to medium sub angular to sub rounded of mudstone. Slight organic odour.
							End of Pit at 2.70m

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Trial Pit Photographs



TP153



TP153 SPOIL

Remarks: 1. Complete. 2. Water strike at 0.50 m bgl. Fast ingress.

Stability: Unstable

Trial Pit Log

TrialPit No: TP154
Sheet 1 of 1

Project Name: Cherryfields	Project No. 15280	Co-ords: 341182.27 - 398566.21 Level: 25.03	Date 12/01/2022
Location: Kirkby		Dimensions (m): 2.60 × 0.70 Depth 3.40	Scale 1:30
Client: BDW Trading			Logged N.Gregory

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
				0.20	24.83		MADE GROUND: Dark grey slightly clayey gravelly fine to medium sand with frequent rootlets. Gravel is fine to coarse, angular to subrounded of brick.
				0.50	24.53		MADE GROUND: Grey gravel. Gravel is fine sub rounded to rounded of limestone (sub-base).
	0.70	ES					MADE GROUND: Brown gravelly clayey fine to medium sand. Gravel is fine to coarse, angular to rounded of brick glass, bottles metal and sandstone.
				2.40	22.63		Brown slightly gravelly clayey fine to medium SAND. Gravel is fine to coarse, subrounded to rounded of sandstone.
2.90 ▼	3.00	HVP	69	3.00	22.03		Firm medium strength greyish brown sandy CLAY
	3.20	HVP	70				
				3.40	21.63		End of Pit at 3.40m

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Trial Pit Photographs



TP154



TP154 SPOIL

Remarks: 1. Complete. 2. Slow water ingress at 2.90 m bgl (seepage).

Stability: Stable

Trial Pit Log

TrialPit No: TP155
Sheet 1 of 1

Project Name: Cherryfields	Project No. 15280	Co-ords: 341166.12 - 398506.04 Level: 26.15	Date 12/01/2022
Location: Kirkby		Dimensions (m): 2.00 x 0.60 Depth 2.50	Scale 1:30
Client: BDW Trading			Logged J.Beer

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
				0.20	25.95		MADE GROUND: Dark brown slightly gravelly clayey fine to medium sand with rootlets. Gravel is fine to medium sub angular to sub rounded of mudstone and sandstone. (Topsoil).
							MADE GROUND: Dark brown slightly clayey gravelly fine to medium sand. Gravel is fine to coarse sub angular to sub rounded of mudstone, sandstone and brick.
0.80				0.80	25.35		
	1.00	ES					MADE GROUND: Brownish black slightly clayey sandy gravel. Gravel is fine to coarse angular to sub rounded of mudstone, sandstone, brick, ash, glass, ceramic, plastic and metal.
	1.70	HVP	103	1.70	24.45		Stiff high strength reddish brown slightly gravelly CLAY. Gravel is fine to medium sub angular to sub rounded of mudstone and sandstone.
	2.10	HVP	119				
				2.50	23.65		End of Pit at 2.50m

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Trial Pit Photographs



TP155



TP155 SPOIL

Remarks: 1. Terminated due to instability. 2. Fast water strike at 0.80 m bgl.

Stability: Unstable

Trial Pit Log

			TrialPit No TP156 Sheet 1 of 1
Project Name: Cherryfields	Project No. 15280	Co-ords: 341185.77 - 398522.59 Level: 25.46	Date 12/01/2022
Location: Kirkby		Dimensions (m): 2.80 x 0.70 Depth 2.70	Scale 1:30
Client: BDW Trading			Logged N.Gregory

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
	0.10	ES		0.30	25.16		MADE GROUND: Dark grey gravelly fine to medium sand with frequent rootlets. Gravel is fine, angular to subrounded of brick. (Topsoil)
				1.00	24.46		MADE GROUND: Dark grey slightly clayey gravelly fine to medium sand. Gravel is fine to coarse, angular to rounded of brick, glass, bottles, pipe and metal
	1.30	HVP	103				Stiff high strength light brown slightly sandy CLAY.
	1.80	HVP	115				
	2.20	HVP	103				
▼ 2.70				2.70	22.76		End of Pit at 2.70m

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Trial Pit Photographs



TP156



TP156 SPOIL

Remarks: 1. Complete. 2. Very slow water ingress at 2.70 m bgl (seepage).

Stability: Stable

Trial Pit Log

TrialPit No: TP157
Sheet 1 of 1

Project Name: Cherryfields	Project No. 15280	Co-ords: 341147.77 - 398495.38 Level: 26.42	Date 12/01/2022
Location: Kirkby		Dimensions (m): 2.00 x 0.60 Depth 2.50	Scale 1:30
Client: BDW Trading			Logged J.Beer

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
				0.30	26.12		MADE GROUND: Dark brown gravelly clayey fine to medium sand with rootlets. Gravel is fine to medium angular to sub rounded of mudstone, sandstone and brick. (Topsoil).
							MADE GROUND: Brownish black slightly clayey sandy gravel with cobbles. Gravel is fine to coarse angular to sub angular of mudstone, sandstone, brick, ash, glass, ceramic and plastic. Cobbles are angular to sub angular of glass and brick.
	1.70 1.70	ES HVP	73	1.50	24.92		Firm medium strength grey slightly gravelly CLAY. Gravel is fine to medium sub angular to sub rounded of mudstone and sandstone.
				2.10	24.32		Soft reddish grey slightly gravelly sandy CLAY. Gravel is fine to medium sub angular to sub rounded of mudstone and sandstone.
				2.50	23.92		End of Pit at 2.50m

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Trial Pit Photographs



TP157



TP157 SPOIL

Remarks: 1. Complete. 2. Unable to complete hand shear vain tests due to high sand content in CLAY 2.10-2.50 m bgl.

Stability: Stable

Trial Pit Log

			TrialPit No TP158 Sheet 1 of 1
Project Name: Cherryfields	Project No. 15280	Co-ords: 341149.17 - 398545.99 Level: 25.06	Date 12/01/2022
Location: Kirkby		Dimensions (m): 2.80 x 0.70 Depth 2.90	Scale 1:30
Client: BDW Trading			Logged N.Gregory

Water Strike	Samples & In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
	Depth	Type	Results				
				0.30	24.76		MADE GROUND: Dark grey gravelly clayey fine to medium sand with frequent rootlets. Gravel is fine to coarse, angular to subrounded of brick. (Topsoil)
	0.50 0.60	HVP ES	86				Stiff high strength brown slightly sandy CLAY.
	1.00	HVP	99				
	1.50	HVP	82				
	2.00	HVP	79				
				2.10	22.96		Stiff high strength brown slightly gravelly sandy CLAY.
	2.50	HVP	100				
				2.90	22.16		End of Pit at 2.90m

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Trial Pit Photographs



TP158



TP158 SPOIL

Remarks: 1. Complete.

Stability: Stable

Trial Pit Log

TrialPit No: TP159
Sheet 1 of 1

Project Name: Cherryfields	Project No. 15280	Co-ords: 341116.73 - 398462.62 Level: 26.20	Date 12/01/2022
Location: Kirkby		Dimensions (m): 2.00 x 0.60 Depth 2.50	Scale 1:30
Client: BDW Trading			Logged J.Beer

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
	0.10	ES					MADE GROUND: Brown slightly gravelly clayey fine to medium sand with rootlets. Gravel is fine to coarse angular to sub rounded of mudstone, sandstone and ceramic. (Topsoil).
				0.80	25.40		Greyish light brown very sandy CLAY.
	1.50 1.50	B HVP	122	1.40	24.80		Stiff high strength grey mottled orange slightly sandy CLAY with sand lenses.
				2.50	23.70		End of Pit at 2.50m

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Trial Pit Photographs



TP159



TP159 SPOIL

Remarks: 1. Complete.

Stability: Stable

Trial Pit Log

			TrialPit No TP160 Sheet 1 of 1
Project Name: Cherryfields	Project No. 15280	Co-ords: 341134.97 - 398558.27 Level: 24.87	Date 12/01/2022
Location: Kirkby		Dimensions (m): 2.80 x 0.80 Depth 2.90	Scale 1:30
Client: BDW Trading			Logged N.Gregory

Water Strike	Samples & In Situ Testing Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
	0.30	ES		0.40	24.46		MADE GROUND: Dark grey gravelly fine to medium sand. Gravel is fine to coarse, angular to rounded of brick, glass, bottles, metal and concrete. (Topsoil).
▼ 0.50				0.60	24.26		MADE GROUND: Grey gravel. Gravel is fine angular to subrounded gravel of limestone.
	0.80	HVP	53				Firm, medium strength brown slightly sandy CLAY.
	1.50	HVP	54				
	2.00	HVP	63				
				2.90	21.96		End of Pit at 2.90m

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Trial Pit Photographs



TP160



TP160 SPOIL

Remarks: 1. Complete. 2. Rapid water ingress at 0.50 m bgl (perched water within Made Ground).

Stability: Stable

Trial Pit Log

TrialPit No: TP161
Sheet 1 of 1

Project Name: Cherryfields	Project No. 15280	Co-ords: 341121.34 - 398489.77 Level: 26.59	Date 12/01/2022
Location: Kirkby		Dimensions (m): 2.00 x 0.60 Depth 3.00	Scale 1:30
Client: BDW Trading			Logged J.Beer

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
				0.60	25.98		MADE GROUND: Dark brown slightly clayey gravelly fine to medium sand with rootlets. Gravel is fine to coarse angular to sub rounded of mudstone, sandstone, brick and ceramic. (Topsoil).
	0.80	ES					MADE GROUND: Brownish black sandy gravel with cobbles. Gravel is fine to coarse angular to sub rounded of mudstone, sandstone, brick, glass, ash, ceramic, timber. Cobbles are angular to sub angular of brick and glass.
▼ 1.50	1.40	HVP	138	1.40	25.18		Stiff high strength grey mottled orange sandy CLAY. Becoming firm medium strength at 2.00 m bgl.
	2.00	HVP	69	2.20	24.38		Grey mottled orange very clayey fine to medium SAND.
				2.80	23.78		Light brown slightly clayey fine to medium SAND.
				3.00	23.58		End of Pit at 3.00m

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Trial Pit Photographs



TP161



TP161 SPOIL

Remarks: 1. Complete. 2. Slow water seepage at 1.50 m bgl.

Stability: Stable

Trial Pit Log

			TrialPit No TP162 Sheet 1 of 1
Project Name: Cherryfields	Project No. 15280	Co-ords: 341117.71 - 398597.19 Level: 24.46	Date 12/01/2022
Location: Kirkby		Dimensions (m): 2.80 x 0.70 Depth 2.50	Scale 1:30
Client: BDW Trading			Logged N.Gregory

Water Strike	Samples & In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
	Depth	Type	Results				
	0.10	ES					MADE GROUND: Dark brown gravelly clayey fine to medium sand with frequent rootlets and cobbles. Gravel is fine to coarse, angular to rounded of brick and concrete. Cobbles are sub angular of brick and concrete. (Topsoil).
	0.50	HVP	85	0.30	24.16		Stiff medium strength brown slightly sandy gravelly CLAY. Gravel is fine to coarse, subrounded to rounded of sandstone.
	1.20	HVP	75	0.90	23.56		Stiff medium strength reddish brown slightly sandy CLAY.
				2.50	21.96		End of Pit at 2.50m

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Trial Pit Photographs



TP162



TP162 SPOIL

Remarks: 1. Complete.

Stability: Stable

Trial Pit Log

TrialPit No TP163/ SA106
Sheet 1 of 1

Project Name: Cherryfields	Project No. 15280	Co-ords: 341022.86 - 398552.70 Level: 26.18	Date 12/01/2022
Location: Kirkby		Dimensions (m): 2.00 × 0.60 Depth 2.40	Scale 1:30
Client: BDW Trading			Logged J.Beer

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
	0.10	ES					Brown clayey fine to medium SAND with rootlets. (TOPSOIL).
				0.50	25.68		Brown very sandy CLAY.
	1.10	HVP	84	1.10	25.08		Stiff high strength brownish red mottled grey sandy CLAY.
	1.40	B		1.40	24.78		Orangish light brown slightly gravelly slightly clayey fine to medium SAND. Gravel is fine to medium sub angular to sub rounded of mudstone and sandstone.
	2.00	HVP	31	2.00	24.18		Soft low strength grey mottled orange slightly sandy CLAY with black fine to medium sand lenses.
	2.40	HVP	35	2.40	23.78		End of Pit at 2.40m

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Trial Pit Photographs



TP163



TP163 SPOIL

Remarks: 1. Complete. 2. Slow water seepage at 2 m bgl. 3. Soakaway test completed.

Stability: Stable

Trial Pit Log

TrialPit No: TP164
Sheet 1 of 1

Project Name: Cherryfields	Project No. 15280	Co-ords: 341076.36 - 398640.61 Level: 23.94	Date 12/01/2022
Location: Kirkby		Dimensions (m): 2.70 x 0.70 Depth 2.90	Scale 1:30
Client: BDW Trading			Logged N.Gregory

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
				0.05	23.89		MADE GROUND: Asphalt
							MADE GROUND: Concrete
				0.20	23.74		
	0.30	ES		0.30	23.64		MADE GROUND: Orange gravel. Gravel is fine to coarse angular to subrounded gravel of brick. Brown fine to medium SAND.
				1.30	22.64		Firm medium strength reddish brown sandy CLAY.
	1.50	HVP	46				
	2.20	HVP	63				
				2.90	21.04		End of Pit at 2.90m

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Trial Pit Photographs



TP164



TP164 SPOIL

Remarks: 1. Complete.

Stability: Stable

Trial Pit Log

TrialPit No: TP165
Sheet 1 of 1

Project Name: Cherryfields	Project No. 15280	Co-ords: 341146.03 - 398519.63 Level: 26.08	Date 12/01/2022
Location: Kirkby		Dimensions (m): 2.00 x 0.60 Depth 2.40	Scale 1:30
Client: BDW Trading			Logged J.Beer

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
	0.50	ES		0.30	25.78		MADE GROUND: Brown slightly gravelly slightly clayey fine to medium sand with rootlets. Gravel is fine to coarse angular to sub rounded of mudstone, sandstone and brick. (Topsoil).
							MADE GROUND: Black slightly clayey sandy gravel with cobbles. Gravel is fine to coarse of mudstone, sandstone, brick, glass, ash, ceramic, plastic and metal. Cobbles are angular to sub angular of glass and brick.
	1.40	HVP	75	1.40	24.68		Firm medium strength reddish grey sandy CLAY. Becoming stiff high strength at 1.80 m bgl.
	1.80	HVP	106				
	2.30	HVP	104				
				2.40	23.68		End of Pit at 2.40m

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Trial Pit Photographs



TP165



TP165 spoil

Remarks: 1. Complete. 2. Slow water ingress at 1.50 m bgl.

Stability: Stable

Trial Pit Log

TrialPit No: TP166
Sheet 1 of 1

Project Name: Cherryfields	Project No. 15280	Co-ords: 341153.22 - 398584.42 Level: 24.67	Date 12/01/2022
Location: Kirkby	Dimensions (m): Depth 0.60	2.80 / 0.80	Scale 1:30
Client: BDW Trading			Logged N.Gregory

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
	0.40	ES		0.20	24.47		MADE GROUND: Brown gravel with cobbles. Gravel is fine to coarse angular to subrounded of brick and concrete, rebar and plastic. Cobbles are sub angular of concrete. (Topsoil).
				0.60	24.07		MADE GROUND: Dark brown sandy gravel. Gravel is fine to coarse angular to subrounded of brick and concrete.
							End of Pit at 0.60m

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Remarks: 1. Terminated due to obstruction.

Stability: Stable

Trial Pit Log

TrialPit No: TP167
Sheet 1 of 1

Project Name: Cherryfields	Project No. 15280	Co-ords: 341109.65 - 398545.48 Level: 25.88	Date 12/01/2022
Location: Kirkby	Dimensions (m): Depth 2.00	2.50 × 0.50	Scale 1:30
Client: BDW Trading			Logged J.Beer

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
	0.10	ES		0.40	25.48		MADE GROUND: Dark brown slightly clayey gravelly fine to medium sand with rootlets. Gravel is fine to coarse sub angular to sub rounded of mudstone, sandstone and brick. (Topsoil).
	0.80	B					MADE GROUND: Brownish black sandy gravel with cobbles. Gravel is fine to coarse angular to sub rounded of mudstone, sandstone, brick, ash, ceramic, glass, plastic and metal. Cobbles are angular to sub rounded of brick, glass and ceramic.
▼ 1.50	1.50	ES		2.00	23.88		End of Pit at 2.00m

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Trial Pit Photographs



TP167



TP167 SPOIL

Remarks: 1. Terminated due to instability. 2. Slow water ingress at 1.50 m bgl (perched water in Made Ground).

Stability: Unstable

Trial Pit Log

TrialPit No: TP168
Sheet 1 of 1

Project Name: Cherryfields	Project No. 15280	Co-ords: 341081.40 - 398606.07 Level: 24.60	Date 13/01/2022
Location: Kirkby		Dimensions (m): 2.80 x 0.90 Depth 3.00	Scale 1:30
Client: BDW Trading			Logged N.Gregory

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
				0.03	24.57		MADE GROUND: Ceramic tiles. Recovered as gravel. Gravel is fine to coarse angular of ceramic.
				0.15	24.45		MADE GROUND: Concrete
				0.30	24.30		MADE GROUND: Reddish brown gravelly fine to coarse sand. Gravel is fine to coarse, angular to subrounded of brick.
	0.50	ES					Brown slightly clayey gravelly medium SAND. Gravel is fine to coarse, subrounded to rounded of sandstone.
	1.00	HVP	84	1.00	23.60		Stiff, high strength brown sandy CLAY.
	1.50	HVP	85				
	2.00	HVP	96				
	2.50	HVP	92				
	3.00	HVP	90	3.00	21.60		End of Pit at 3.00m

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Trial Pit Photographs



TP168



TP168 SPOIL

Remarks: 1. Complete.

Stability: Stable

Trial Pit Log

TrialPit No: TP169
Sheet 1 of 1

Project Name: Cherryfields	Project No. 15280	Co-ords: 341093.04 - 398532.93 Level: 26.19	Date 12/01/2022
Location: Kirkby		Dimensions (m): 2.00 x 0.60 Depth 2.40	Scale 1:30
Client: BDW Trading			Logged J.Beer

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
				0.30	25.89		MADE GROUND: Brown slightly clayey gravelly fine to medium sand with rootlets. Gravel is fine to coarse angular to sub rounded of mudstone, sandstone and brick. (Topsoil).
	0.80	ES					MADE GROUND: Brownish black sandy gravel. Gravel is fine to coarse angular to sub rounded of mudstone, sandstone, brick, ash, ceramic, glass, plastic and metal.
▼ 1.80							
				2.40	23.79		End of Pit at 2.40m

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Trial Pit Photographs



TP169



TP169 SPOIL

Remarks: 1. Terminated due to instability. 2. Fast water ingress at 1.50 m bgl (water strike).

Stability: Unstable

Trial Pit Log

			TrialPit No TP170 Sheet 1 of 1
Project Name: Cherryfields	Project No. 15280	Co-ords: 340948.07 - 398516.59 Level: 25.90	Date 13/01/2022
Location: Kirkby		Dimensions (m): 2.80 x 0.80 Depth 2.50	Scale 1:30
Client: BDW Trading			Logged N.Gregory

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
				0.20	25.70		MADE GROUND: Dark brown slightly clayey sandy gravel with frequent rootlets. Gravel is fine to coarse, subangular to subrounded of sandstone and brick. (Topsoil)
	0.50	ES					MADE GROUND: Dark brown slightly clayey gravelly fine to medium sand. Gravel is fine to coarse, angular to subrounded of brick, sandstone, glass, bottles, ash, metal, pipe, clinker and wood.
▼ 0.90	1.00	HVP	55	0.90	25.00		Firm medium strength reddish brown slightly sandy CLAY.
				2.50	23.40		End of Pit at 2.50m

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Trial Pit Photographs



TP170



TP170 SPOIL

Remarks: 1. Complete. 2. Slow water ingress at 0.90 m bgl (seepage).

Stability: Unstable

Trial Pit Log

TrialPit No: TP171
Sheet 1 of 1

Project Name: Cherryfields	Project No. 15280	Co-ords: 341051.15 - 398497.94 Level: 26.42	Date 12/01/2022
Location: Kirkby		Dimensions (m): Depth 2.50, 2.00 x 0.60	Scale 1:30
Client: BDW Trading			Logged J.Beer

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
	0.10	ES		0.40	26.02		MADE GROUND: Brown slightly gravelly fine to medium sand with rootlets. Gravel is fine to coarse angular to sub rounded of mudstone, sandstone and brick. (Topsoil).
	0.60	HVP	24				Soft low strength brown very sandy CLAY.
	0.80	HVP	93	0.80	25.62		Stiff high strength grey mottled red sandy CLAY. Becoming firm medium strength 1.80 m bgl.
	1.80	HVP	64				
	2.00	B					
				2.50	23.92		End of Pit at 2.50m

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Trial Pit Photographs



TP171



TP171 SPOIL

Remarks: 1. Complete.

Stability: Stable

Trial Pit Log

			TrialPit No TP172 Sheet 1 of 1
Project Name: Cherryfields	Project No. 15280	Co-ords: 340909.17 - 398522.81 Level: 25.76	Date 13/01/2022
Location: Kirkby		Dimensions (m): 3.00 x 0.80 Depth 0.40	Scale 1:30
Client: BDW Trading			Logged N.Gregory

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
	0.10	ES		0.30	25.46		MADE GROUND: Dark brown clayey sandy gravel with frequent rootlets. Gravel is fine to coarse, angular to subrounded of brick, sandstone, glass, bottles, metal, pipe, clinker and wood. (Topsoil)
				0.40	25.36		MADE GROUND: Concrete
							End of Pit at 0.40m

Trial Pit Photographs



TP172



TP172 SPOIL

Remarks: 1. Terminated due to concrete obstruction.

Stability: Stable

Trial Pit Log

			TrialPit No TP173 Sheet 1 of 1
Project Name: Cherryfields	Project No. 15280	Co-ords: 341041.96 - 398526.66 Level: 26.35	Date 12/01/2022
Location: Kirkby		Dimensions (m): 2.00 x 0.60 Depth 2.00	Scale 1:30
Client: BDW Trading			Logged J.Beer

Water Strike	Samples & In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
	Depth	Type	Results				
	0.50	HVP	62	0.50	25.85		MADE GROUND: Dark brown slightly clayey gravelly fine to medium sand with rootlets. Gravel is fine to coarse angular to sub rounded of mudstone, sandstone, brick, ceramic and glass. (Topsoil).
	0.80	ES		1.00	25.35		MADE GROUND: Firm brownish red slightly gravelly sandy clay. Gravel is fine to medium sub angular to sub rounded of mudstone and sandstone. Lens of made ground at 1.00 m bgl.
	1.80	HVP	48	2.00	24.35		Firm medium strength brownish red slightly gravelly sandy clay. Gravel is fine to medium sub angular to sub rounded of mudstone and sandstone.
							End of Pit at 2.00m

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Trial Pit Photographs



TP173



TP173 SPOIL

Remarks: 1. Complete.

Stability: Stable

Trial Pit Log

TrialPit No: TP174
Sheet 1 of 1

Project Name: Cherryfields	Project No. 15280	Co-ords: 340892.68 - 398529.05 Level: 25.87	Date 13/01/2022
Location: Kirkby		Dimensions (m): 3.00 x 0.80 Depth 2.50	Scale 1:30
Client: BDW Trading			Logged N.Gregory

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
				0.50	25.37		MADE GROUND: Dark brown clayey gravelly medium to coarse sand with frequent rootlets. Gravel is fine to coarse angular to subrounded of brick, sandstone, glass, bottles, metal, pipe, clinker, ash and wood. (Topsoil)
				0.70	25.17		MADE GROUND: Concrete Slab
▼ 0.90	0.90	ES		1.00	24.87		MADE GROUND: Dark brown slightly clayey gravelly fine to medium sand. Gravel is fine to coarse, angular to subrounded of brick, sandstone, glass, bottles, ash, metal, pipe, clinker and wood.
	1.20	HVP	103				Stiff, high strength brown sandy CLAY.
				2.50	23.37		End of Pit at 2.50m

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Trial Pit Photographs



TP174



TP174 SPOIL

Remarks: 1. Complete. 2. Slow water ingress at 0.90 m bgl (seepage).

Stability: Stable

Trial Pit Log

			TrialPit No TP175 Sheet 1 of 1
Project Name: Cherryfields	Project No. 15280	Co-ords: 341076.62 - 398561.97 Level: 26.13	Date 12/01/2022
Location: Kirkby		Dimensions (m): 2.00 x 0.60 Depth 1.40	Scale 1:30
Client: BDW Trading			Logged J.Beer

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
	0.10	ES		0.30	25.83		MADE GROUND: Brown slightly clayey gravelly fine to medium sand with rootlets. Gravel is fine to coarse angular to sub rounded of mudstone, sandstone, brick and glass.
							MADE GROUND: Brownish black slightly clayey sandy gravel with cobbles. Gravel is fine to coarse angular to sub rounded of mudstone, sandstone, brick, ash, glass, ceramic and plastic. Cobbles are angular to sub angular of brick and glass.
				1.30	24.83		MADE GROUND: Concrete.
				1.40	24.73		End of Pit at 1.40m

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Trial Pit Photographs



TP175



TP175 SPOIL

Remarks: 1. Terminated due to concrete obstruction.

Stability: Stable

Trial Pit Log

TrialPit No: TP176
Sheet 1 of 1

Project Name: Cherryfields	Project No. 15280	Co-ords: 340873.94 - 398536.63 Level: 25.93	Date 13/01/2022
Location: Kirkby		Dimensions (m): 3.20 x 0.80 Depth 2.50	Scale 1:30
Client: BDW Trading			Logged N.Gregory

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
	0.10	ES		0.20	25.72		MADE GROUND: Dark brown slightly clayey gravelly sand with frequent rootlets. Gravel is fine to coarse, subangular to subrounded of brick. (Topsoil)
				0.50	25.42		MADE GROUND: Dark brown slightly clayey sandy gravel. Gravel is fine to coarse, angular to subrounded of brick, sandstone, glass, bottles, ash, metal, pipe, clinker and wood.
				0.70	25.22		MADE GROUND: Concrete Slab
				1.00	24.92		MADE GROUND: Dark brown slightly clayey sandy gravel. Gravel is fine to coarse, angular to subrounded of brick, sandstone, glass, bottles, ash, metal, pipe, clinker and wood.
	1.50	HVP	94				Stiff high strength dark brown sandy CLAY.
				2.50	23.42		End of Pit at 2.50m

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Trial Pit Photographs



TP176



TP176 SPOIL

Remarks: 1. Complete.

Stability: Stable

Trial Pit Log

TrialPit No: TP177
Sheet 1 of 1

Project Name: Cherryfields	Project No. 15280	Co-ords: 341053.18 - 398590.61 Level: 25.80	Date 12/01/2022
Location: Kirkby	Dimensions (m): Depth 2.60	2.00 × 0.60	Scale 1:30
Client: BDW Trading			Logged J.Beer

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
				0.30	25.50		MADE GROUND: Brown slightly clayey gravelly fine to medium sand with rootlets. Gravel is fine to coarse angular to sub rounded of mudstone, sandstone and brick. (Topsoil).
							MADE GROUND: Blackish brown sandy gravel. Gravel is fine to coarse angular to sub rounded of mudstone, sandstone, brick, ash, ceramic, glass and plastic.
▼ 2.00	2.00	ES					
	2.20	ES		2.20	23.60		Firm medium strength dark brown very sandy CLAY.
	2.30	HVP	46				
				2.60	23.20		End of Pit at 2.60m

1 2 3 4

Trial Pit Photographs



TP177



TP177 SPOIL

Remarks: 1. Complete. 2. Slow water seepage at 2.00 m bgl.

Stability: Stable

Trial Pit Log

TrialPit No: TP178
Sheet 1 of 1

Project Name: Cherryfields	Project No. 15280	Co-ords: 340852.41 - 398544.25 Level: 25.81	Date 13/01/2022
Location: Kirkby	Dimensions (m): Depth 2.50	2.90 × 0.80	Scale 1:30
Client: BDW Trading			Logged N.Gregory

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
				0.20	25.61		MADE GROUND: Dark brown slightly gravelly clayey fine to medium sand with frequent rootlets. Gravel is fine to coarse, angular to rounded of brick. (Topsoil)
	0.60	ES					MADE GROUND: Dark brown slightly sandy clayey gravel. Gravel is of fine to coarse angular to subrounded of brick, glass, brick, metal, pipe, wood and concrete.
▼ 1.20	1.20	HVP	99	1.00	24.81		Stiff, high strength dark brown slightly sandy CLAY
				2.50	23.31		End of Pit at 2.50m

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Trial Pit Photographs



TP178



TP178 SPOIL

Remarks: 1. Complete. 2. Slow water ingress at 1.20 m bgl (seepage).

Stability: Stable

Trial Pit Log

TrialPit No: TP179
Sheet 1 of 1

Project Name: Cherryfields	Project No. 15280	Co-ords: 341032.49 - 398581.67 Level: 26.24	Date 12/01/2022
Location: Kirkby		Dimensions (m): 2.00 x 0.60 Depth 2.20	Scale 1:30
Client: BDW Trading			Logged J.Beer

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
	0.10	ES		0.20	26.04		Brown sandy CLAY with rootlets. (TOPSOIL).
	0.80	HVP	82	0.80	25.44		Greyish red clayey fine to medium SAND.
1.60	1.40	HVP	196				Stiff high strength brownish red sandy CLAY. Circa 1.40 m bgl becomes very stiff very high strength. Circa 1.80 m bgl becomes stiff high strength.
	1.80	HVP	85				
				2.20	24.04		End of Pit at 2.20m

1 2 3 4

Trial Pit Photographs



TP179



TP179 SPOIL

Remarks: 1. Complete. 2. Slow water seepage at 1.60 m bgl.

Stability: Stable

Trial Pit Log

			TrialPit No TP180 Sheet 1 of 1
Project Name: Cherryfields	Project No. 15280	Co-ords: 340879.73 - 398560.00 Level: 26.02	Date 13/01/2022
Location: Kirkby		Dimensions (m): 3.20 x 0.80 Depth 1.80	Scale 1:30
Client: BDW Trading			Logged N.Gregory

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
				0.50	25.52		MADE GROUND: Dark brown slightly clayey gravelly fine to coarse sand with frequent rootlets. Gravel is of fine to coarse, angular to subrounded of brick, concrete, glass, bottles, ash, metal, polystyrene, pipe, clinker and wood.
							MADE GROUND: Brown clayey gravel. Gravel is of fine to coarse, angular to subrounded of brick, glass, bottles, ash, metal, pipe, clinker and wood.
	1.50	ES		1.60	24.42		
▼ 1.70	1.70	HVP	96				Stiff, high strength reddish brown slightly sandy CLAY.
				1.80	24.22		End of Pit at 1.80m

1 2 3 4

Trial Pit Photographs



TP180



TP180 SPOIL

Remarks: 1. Terminated due to water at 1.70 m bgl. 2. Water strike at 1.70 m bgl (seepage).

Stability: Stable

Trial Pit Log

TrialPit No: TP181
Sheet 1 of 1

Project Name: Cherryfields	Project No. 15280	Co-ords: 341004.21 - 398575.26 Level: 26.44	Date 12/01/2022
Location: Kirkby		Dimensions (m): 2.00 x 0.60 Depth 2.10	Scale 1:30
Client: BDW Trading			Logged J.Beer

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
				0.30	26.14		Brown sandy CLAY with rootlets. (TOPSOIL).
	0.50	HVP	51				Firm medium strength greyish red very sandy CLAY.
	1.00	HVP	136	0.90	25.54		Stiff high strength reddish brown slightly sandy CLAY. Becoming firm medium strength at 2.00 m bgl.
	1.20	ES					
	1.50	HVP	103				
▼ 1.80							
	2.00	HVP	57				
				2.10	24.34		End of Pit at 2.10m

Trial Pit Photographs



TP181



TP181 SPOIL

Remarks: 1. Complete. 2. Slow water seepage at 1.80 m bgl.

Stability: Stable

Trial Pit Log

			TrialPit No TP182 Sheet 1 of 1
Project Name: Cherryfields	Project No. 15280	Co-ords: 340900.53 - 398588.36 Level: 26.10	Date 13/01/2022
Location: Kirkby		Dimensions (m): 3.00 x 0.80 Depth 2.10	Scale 1:30
Client: BDW Trading			Logged N.Gregory

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
	0.30	ES					MADE GROUND: Dark brown slightly clayey gravelly sand with frequent rootlets. Gravel is of fine to coarse angular to subrounded of brick, concrete, glass, bottles, ash, metal, polystyrene, pipe, clinker and wood.
				0.60	25.50		MADE GROUND: Brown gravelly fine to medium SAND. Gravel is fine to coarse, subrounded to rounded of brick.
▼ 1.00				1.00	25.10		Stiff high strength reddish brown slightly sandy CLAY.
	1.20	HVP	95				
				2.10	24.00		End of Pit at 2.10m

1 2 3 4

Trial Pit Photographs



TP182



TP182 SPOIL

Remarks: 1. Complete. 2. Slow water ingress at 1.00 m bgl (seepage).

Stability: Stable

Trial Pit Log

TrialPit No: TP183
Sheet 1 of 1

Project Name: Cherryfields	Project No. 15280	Co-ords: 340983.39 - 398583.46 Level: 26.32	Date 13/01/2022
Location: Kirkby		Dimensions (m): 2.50 x 0.50 Depth 2.10	Scale 1:30
Client: BDW Trading			Logged J.Beer

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
	0.10	ES		0.30	26.02		MADE GROUND: Brown gravelly clayey fine to medium sand with rootlets. Gravel is fine to medium sub angular to sub rounded of mudstone, sandstone and brick. (Topsoil).
	0.40	HVP	112				Stiff high strength brownish grey slightly gravelly sandy CLAY. Gravel is fine to medium sub angular to sub rounded of mudstone and sandstone. Becoming firm medium strength at 0.90 m bgl.
	0.90	HVP	57				
1.40 ▼				1.30	25.02		Firm very sandy CLAY with lenses of fine to medium sand.
				2.10	24.22		End of Pit at 2.10m

1 2 3 4

Trial Pit Photographs



TP183



TP183 SPOIL

Remarks: 1. Complete. 2. Slow water seepage at 1.40 m bgl.

Stability: Stable

Trial Pit Log

TrialPit No: TP184
Sheet 1 of 1

Project Name: Cherryfields	Project No. 15280	Co-ords: 340909.33 - 398550.94 Level: 26.04	Date 13/01/2022
Location: Kirkby		Dimensions (m): 2.70 x 0.70 Depth 1.80	Scale 1:30
Client: BDW Trading			Logged N.Gregory

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
	0.50	ES		0.60	25.44		MADE GROUND: Dark brown slightly clayey gravelly fine to coarse sand with frequent rootlets. Gravel is of fine to coarse, angular to subrounded of brick and concrete. (Topsoil)
▼ 0.80				0.80	25.24		MADE GROUND: Grey gravel. Gravel is fine to coarse subrounded to rounded of concrete. (Concrete foundation slab between 0.70-0.80m bgl.)
	1.00	B		1.10	24.94		Reddish brown sandy CLAY.
	1.40	HVP	105				Stiff high strength dark brown slightly sandy CLAY.
				1.80	24.24		End of Pit at 1.80m

Trial Pit Photographs



TP184



TP184 SPOIL

Remarks: 1. Complete. 2. Slow water ingress at 0.80 m bgl (seepage). 3. Concrete foundation encountered 0.70-0.80 m bgl.

Stability: Stable

Trial Pit Log

TrialPit No: TP185
Sheet 1 of 1

Project Name: Cherryfields	Project No. 15280	Co-ords: 340995.46 - 398536.66 Level: 26.34	Date 13/01/2022
Location: Kirkby		Dimensions (m): 2.00 x 0.60 Depth 2.50	Scale 1:30
Client: BDW Trading			Logged J.Beer

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
				0.20	26.14		MADE GROUND: Dark brown gravelly clayey fine to medium sand with rootlets. Gravel is fine to medium angular to sub rounded of mudstone, sandstone and brick. (Topsoil).
				0.60	25.74		MADE GROUND: Black sandy gravel. Gravel is fine to coarse angular to sub rounded of mudstone, sandstone, brick, ash, glass and ceramic.
▼ 0.70	0.70	ES		1.00	25.34		Very soft brownish grey slightly gravelly very sandy CLAY. Gravel is fine to medium sub angular to sub rounded of mudstone and sandstone.
				1.50	24.84		Brownish grey clayey fine to medium SAND.
	1.80	HVP	43	2.50	23.84		Firm medium strength very sandy CLAY.
							End of Pit at 2.50m

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Trial Pit Photographs



TP185



TP185 SPOIL

Remarks: 1. Complete. 2. Water strike at 0.70 m bgl. Fast ingress. 3. Unable to complete HSV test 0.60-1.00 and 1.80-2.50 m bgl due to high sand content in clay.

Stability: Unstable

Trial Pit Log

TrialPit No: TP186
Sheet 1 of 1

Project Name: Cherryfields	Project No. 15280	Co-ords: 340909.64 - 398578.62 Level: 26.07	Date 13/01/2022
Location: Kirkby		Dimensions (m): 2.50 x 1.00 Depth 2.00	Scale 1:30
Client: BDW Trading			Logged N.Gregory

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
				0.20	25.87		MADE GROUND: Dark brown slightly clayey gravelly fine to coarse sand with frequent rootlets. Gravel is of fine to coarse, angular to subrounded of brick and concrete.
	0.60	ES					MADE GROUND: Dark brown slightly clayey gravelly fine to coarse sand with frequent rootlets. Gravel is of fine to coarse, angular to subrounded of brick, concrete glass, bottles, ash, metal, polystyrene, pipe, clinker and wood.
				1.20	24.87		MADE GROUND: Stiff reddish brown slightly sandy CLAY. Field drain encountered at 1.80 m bgl.
	1.40	HVP	94				
▼ 1.80	1.80	HVP	99	1.80	24.27		Stiff high strength reddish brown slightly sandy CLAY.
				2.00	24.07		End of Pit at 2.00m

Trial Pit Photographs



TP186



TP186 SPOIL

Remarks: 1. Complete. 2. Slow water ingress at 1.80 m bgl due to field drain encountered at 1.80 m bgl.

Stability: Stable

Trial Pit Log

TrialPit No: TP187
Sheet 1 of 1

Project Name: Cherryfields	Project No. 15280	Co-ords: 340979.08 - 398515.47 Level: 26.10	Date 13/01/2022
Location: Kirkby		Dimensions (m): 2.00 x 0.60 Depth 2.80	Scale 1:30
Client: BDW Trading			Logged J.Beer

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
	0.10	ES		0.30	25.80		MADE GROUND: Dark brown very gravelly fine to medium sand with rootlets. Gravel is fine to coarse angular to sub rounded of mudstone, sandstone, brick and ceramic. (Topsoil).
							MADE GROUND: Brownish black sandy gravel. Gravel is fine to coarse angular to sub rounded of mudstone, sandstone, brick, ash, ceramic and glass.
	1.00	HVP	76	1.00	25.10		Stiff high strength brown slightly gravelly sandy CLAY with lens of fine to coarse sand at 1.00 m bgl. Gravel is fine to coarse sub angular to sub rounded of mudstone and sandstone.
▼ 1.40							
	1.80	HVP	75	1.80	24.30		Stiff high strength greyish red slightly sandy CLAY. Circa 2.10 m bgl becomes firm medium strength.
	2.10	HVP	62				
				2.80	23.30		End of Pit at 2.80m

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Trial Pit Photographs



TP187



TP187 SPOIL

Remarks: 1. Complete. 2. Slow water seepage at 1.40 m bgl.

Stability: Stable

Trial Pit Log

TrialPit No: TP188
Sheet 1 of 1

Project Name: Cherryfields	Project No. 15280	Co-ords: 341340.61 - 398522.08 Level: 25.70	Date 24/01/2022
Location: Kirkby		Dimensions (m): 2.80 x 0.65 Depth 3.45	Scale 1:30
Client: BDW Trading			Logged N.Gregory

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
				0.05	25.65		MADE GROUND: Asphalt
	0.20	ES		0.30	25.40		MADE GROUND: Brown very sandy gravel. Gravel is fine to coarse angular to subrounded of sandstone and brick.
				0.85	24.85		Light brownish grey slightly gravelly fine to medium SAND. Gravel is fine to coarse, angular to subrounded of sandstone.
	1.00	HVP	81				Stiff high strength brown slightly gravelly sandy CLAY. Circa 1.50 m bgl becomes firm medium strength.
	1.50	HVP	72				
	2.00	HVP	72				
	2.50	HVP	69				
▼ 3.00				2.90	22.80		Brown slightly gravelly fine to medium SAND. Gravel is fine to medium, angular to rounded of sandstone.
				3.45	22.25		End of Pit at 3.45m

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Trial Pit Photographs



TP188



TP188 SPOIL

Remarks: 1. Complete. 2. Slow water ingress at 3.00 m bgl.

Stability: Stable

Trial Pit Log

TrialPit No: TP189
Sheet 1 of 1

Project Name: Cherryfields	Project No. 15280	Co-ords: 340977.10 - 398638.28 Level: 26.10	Date 13/01/2022
Location: Kirkby		Dimensions (m): 2.00 x 0.60 Depth 2.30	Scale 1:30
Client: BDW Trading			Logged J.Beer

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
	0.10	ES		0.30	25.80		MADE GROUND: Brown gravelly fine to medium sand with rootlets. Gravel is fine to coarse angular to sub rounded of mudstone, sandstone and brick. (Topsoil).
				1.00	25.10		MADE GROUND: Brown very gravelly fine to medium sand with cobbles. Gravel is fine to coarse angular to sub rounded of mudstone, sandstone, brick and glass. Cobbles are sub angular to sub rounded of brick.
	1.80	B		2.30	23.80		Greyish brown slightly gravelly slightly clayey fine to medium SAND. Gravel is fine to coarse sub angular to sub rounded of mudstone and sandstone.
							End of Pit at 2.30m

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Trial Pit Photographs



TP189



TP189 SPOIL

Remarks: 1. Complete.

Stability: Stable

Trial Pit Log

TrialPit No: TP190
Sheet 1 of 1

Project Name: Cherryfields	Project No. 15280	Co-ords: 341325.85 - 398501.25 Level: 25.94	Date 24/01/2022
Location: Kirkby		Dimensions (m): 2.20 x 0.60 Depth 3.20	Scale 1:30
Client: BDW Trading			Logged N.Gregory

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
				0.15	25.78		MADE GROUND: Concrete with rebar.
	0.30	ES		0.50	25.44		MADE GROUND: Dark brownish black very gravelly fine to medium sand. Gravel is fine to coarse, angular to subrounded of brick, sandstone, glass, bottles, metal, pipe, ash, clinker and wood.
				1.10	24.84		Dark brown slightly gravelly fine to medium SAND.
	1.50	HVP	74				Firm medium strength brown slightly gravelly sandy CLAY. Gravel is fine to medium sub rounded of mudstone. Circa 2.00 m bgl becomes stiff high strength.
	2.00	HVP	76				
	2.50	HVP	82				
				3.20	22.74		End of Pit at 3.20m

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Trial Pit Photographs



TP190 SPOIL

Remarks: 1. Complete.

Stability: Stable

Trial Pit Log

TrialPit No: TP191
Sheet 1 of 1

Project Name: Cherryfields	Project No. 15280	Co-ords: 340950.91 - 398623.41 Level: 26.33	Date 13/01/2022
Location: Kirkby		Dimensions (m): 2.00 x 0.60 Depth 2.10	Scale 1:30
Client: BDW Trading			Logged J.Beer

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
				0.30	26.02		MADE GROUND: Brown gravelly fine to medium sand with rootlets. Gravel is fine to coarse angular to sub rounded of mudstone, sandstone and brick. (Topsoil).
0.80	0.70 0.70	ES HVP	73	0.70	25.62		MADE GROUND: Brown very gravelly fine to medium sand with cobbles. Gravel is fine to coarse angular to sub rounded of mudstone, sandstone, brick and glass. Cobbles are sub angular to sub rounded of brick.
	1.30	HVP	84				Firm medium strength brown slightly gravelly sandy CLAY. Gravel is fine to coarse sub angular to sub rounded of mudstone and sandstone. Becoming stiff high strength at 1.30 m bgl.
	2.00	HVP	75	2.10	24.22		End of Pit at 2.10m

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Trial Pit Photographs



TP191



TP191 SPOIL

Remarks: 1. Complete. 2. Slow water seepage at 0.8 m bgl.

Stability: Stable

Trial Pit Log

TrialPit No: TP192 East
Sheet 1 of 1

Project Name: Cherryfields	Project No. 15280	Co-ords: 341323.97 - 398477.53 Level: 25.88	Date 24/01/2022
Location: Kirkby	Dimensions (m): Depth 0.80	2.50 / 0.60	Scale 1:30
Client: BDW Trading			Logged N.Gregory

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
				0.20	25.68		MADE GROUND: Concrete
				0.21	25.67		MADE GROUND: Geomembrane
	0.50	ES					MADE GROUND: Reddish brown sandy gravel with frequent cobbles. Gravel is fine to coarse angular to subrounded of brick. Cobbles are sub angular of brick.
				0.60	25.28		MADE GROUND: Concrete with rebar.
				0.80	25.08		End of Pit at 0.80m

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Remarks: 1. Terminated due to refusal on concrete obstruction at 0.80 m bgl.

Stability: Stable

Trial Pit Log

TrialPit No TP192 West
Sheet 1 of 1

Project Name: Cherryfields	Project No. 15280	Co-ords: 341323.97 - 398477.53 Level: 25.88	Date 24/01/2022
Location: Kirkby	Dimensions (m): Depth 0.80	2.50 / 0.60	Scale 1:30
Client: BDW Trading			Logged N.Gregory

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
				0.20	25.68		MADE GROUND: Concrete
				0.21	25.67		MADE GROUND: Geomembrane
				0.60	25.28		MADE GROUND: Reddish brown sandy gravel with frequent cobbles. Gravel is fine to coarse angular to subrounded of brick. Cobbles are sub angular of brick.
				0.80	25.08		MADE GROUND: Brownish black gravelly fine to medium sand. Gravel is fine to coarse sub angular to sub rounded of brick.
							End of Pit at 0.80m

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Remarks: 1. Terminated due to refusal on concrete obstruction at 0.80 m bgl.

Stability: Stable

Trial Pit Log

TrialPit No: TP193
Sheet 1 of 1

Project Name: Cherryfields	Project No. 15280	Co-ords: 340938.23 - 398639.36 Level: 26.15	Date 13/01/2022
Location: Kirkby		Dimensions (m): 2.00 x 0.60 Depth 1.50	Scale 1:30
Client: BDW Trading			Logged J.Beer

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
	0.50 0.50	B ES		0.25	25.90		MADE GROUND: Brown gravelly fine to medium sand with rootlets. Gravel is fine to coarse angular to sub rounded of mudstone, sandstone and brick. (Topsoil).
							MADE GROUND: Brown very gravelly fine to medium sand with cobbles. Gravel is fine to coarse angular to sub rounded of mudstone, sandstone, brick and glass. Cobbles are sub angular to sub rounded of brick.
▼ 1.00				1.00	25.15		MADE GROUND: Brown sandy gravel with frequent cobbles. Gravel is fine to coarse sub angular to sub rounded of mudstone and sandstone. Cobbles are sub angular to sub rounded of sandstone and brick.
				1.50	24.65		End of Pit at 1.50m

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Trial Pit Photographs



TP193



TP193 SPOIL

Remarks: 1. Terminated due to instability and fast water ingress 2. Water strike at 1.00 m bgl (perched water within Made Ground).

Stability: Unstable

Trial Pit Log

TrialPit No: TP194
Sheet 1 of 1

Project Name: Cherryfields	Project No. 15280	Co-ords: 341319.50 - 398443.95 Level: 25.97	Date 24/01/2022
Location: Kirkby		Dimensions (m): 2.80 x 0.60, Depth 3.30	Scale 1:30
Client: BDW Trading			Logged N.Gregory

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
				0.15	25.82		MADE GROUND: Concrete
				0.16	25.81		MADE GROUND: Geomembrane
							MADE GROUND: Reddish black very sandy gravel. Gravel is fine to coarse angular to subrounded of brick, clinker, glass, metal, ash and pipe.
				0.60	25.37		MADE GROUND: Black very sandy gravel. Gravel is fine to coarse angular to subrounded of brick, clinker, glass, bottles, metal, ash, pipe and concrete
	0.80	ES					
				1.10	24.87		Stiff high strength slightly gravelly sandy CLAY. Gravel is fine to medium sub angular to sub rounded of sandstone. Circa 2.20 m bgl becomes firm medium strength.
	1.30	HVP	84				
	1.80	HVP	82				
	2.20	HVP	72				
	2.80	HVP	53				
	3.20	HVP	53				
				3.30	22.67		End of Pit at 3.30m

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Trial Pit Photographs



TP194 SPOIL

Remarks: 1. Complete.

Stability: Stable

Trial Pit Log

TrialPit No: TP195
Sheet 1 of 1

Project Name: Cherryfields	Project No. 15280	Co-ords: 340917.03 - 398651.92 Level: 26.09	Date 13/01/2022
Location: Kirkby	Dimensions (m): Depth 0.80	2.00 × 0.60	Scale 1:30
Client: BDW Trading			Logged J.Beer

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
	0.10	ES		0.30	25.79		MADE GROUND: Brown slightly clayey very gravelly fine to medium sand with rootlets. Gravel is fine to coarse angular to sub rounded of mudstone, sandstone, brick, plastic and ceramic. (Topsoil).
				0.80	25.29		MADE GROUND: Brown very gravelly fine to medium sand with cobbles. Gravel is fine to coarse angular to sub rounded of mudstone, sandstone, brick, ceramic, plastic and metal. Cobbles are sub angular of brick.
							End of Pit at 0.80m

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Trial Pit Photographs



TP195



TP195 SPOIL

Remarks: 1. Terminated as electrical cable encountered at 0.60 m bgl.

Stability: Stable

Trial Pit Log

TrialPit No: TP196
Sheet 1 of 1

Project Name: Cherryfields	Project No. 15280	Co-ords: 341340.87 - 398436.20 Level: 25.89	Date 24/01/2022
Location: Kirkby		Dimensions (m): 2.30 x 0.60 Depth 3.00	Scale 1:30
Client: BDW Trading			Logged N.Gregory

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
	0.20	ES		0.15	25.74		MADE GROUND: Asphalt
				0.70	25.19		MADE GROUND: Dark grey very gravelly fine to medium sand. Gravel is fine to coarse, angular to subrounded of brick, concrete and sandstone
▼ 1.10	1.10	ES		1.10	24.79		Brown slightly gravelly fine to medium SAND.
	1.50	HVP	76				Stiff high strength brown slightly gravelly sandy CLAY. Gravel is fine to coarse subrounded to rounded of sandstone. Circa 2.50 m bgl becomes firm medium strength.
	2.00	HVP	76				
	2.50	HVP	72				
				2.80	23.09		Brown fine to medium SAND.
				3.00	22.89		End of Pit at 3.00m

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Trial Pit Photographs



TP196



TP196 SPOIL

Remarks: 1. Complete. 2. Slow water ingress at 1.10 m bgl (seepage).

Stability: Stable

Trial Pit Log

TrialPit No: TP197
Sheet 1 of 1

Project Name: Cherryfields	Project No. 15280	Co-ords: 340950.03 - 398660.82 Level: 25.67	Date 13/01/2022
Location: Kirkby		Dimensions (m): 2.00 x 0.60 Depth 1.80	Scale 1:30
Client: BDW Trading			Logged J.Beer

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
				0.10	25.57		MADE GROUND: Asphalt.
							MADE GROUND: Concrete.
				0.50	25.17		Light brown fine to medium SAND.
	0.80	ES					
				1.10	24.57		Light brown mottled grey clayey fine to medium SAND.
				1.20	24.47		Soft grey sandy CLAY.
				1.80	23.87		End of Pit at 1.80m

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Trial Pit Photographs



TP197



TP197 SPOIL

Remarks: 1. Complete. 2. Unable to complete HSV test in clay due to high sand content.

Stability: Stable

Trial Pit Log

			TrialPit No TP198 Sheet 1 of 1
Project Name: Cherryfields	Project No. 15280	Co-ords: 341289.79 - 398479.71 Level: 26.02	Date 24/01/2022
Location: Kirkby		Dimensions (m): 2.60 x 0.60 Depth 3.20	Scale 1:30
Client: BDW Trading			Logged N.Gregory

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
	0.20	ES					MADE GROUND: Dark grey slightly gravelly fine to medium sand with frequent rootlets. Gravel is fine subrounded of brick. (Topsoil)
				1.20	24.82		Stiff high strength brown sandy CLAY. Circa 2.00 m bgl becomes firm medium strength.
	1.50	HVP	85				
	2.00	HVP	75				
	2.50	HVP	66				
▼ 3.00				3.00	23.02		Brown slightly clayey fine to medium SAND
				3.20	22.82		End of Pit at 3.20m

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Trial Pit Photographs



TP198



TP198 SPOIL

Remarks: 1. Complete. 2. Slow water ingress at 3.0 m bgl.

Stability: Stable

Trial Pit Log

TrialPit No: TP199
Sheet 1 of 1

Project Name: Cherryfields	Project No. 15280	Co-ords: 340907.68 - 398614.56 Level: 26.20	Date 13/01/2022
Location: Kirkby	Dimensions (m): Depth 1.20	2.00 / 0.60	Scale 1:30
Client: BDW Trading			Logged J.Beer

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
	0.10	ES		0.15	26.05		MADE GROUND: Brown slightly clayey gravelly fine to medium sand with rootlets. Gravel is fine to medium sub angular to sub rounded of mudstone and sandstone. (Topsoil).
				0.30	25.90		MADE GROUND: Grey slightly clayey slightly sandy gravel. Gravel is fine to coarse angular to sub rounded of mudstone, sandstone and concrete.
▼ 1.00							MADE GROUND: Soft greyish brown very sandy clay with pocket of gravel at 0.50 to 1.00 m bgl. Gravel is fine to coarse angular to sub angular of ceramic.
				1.20	25.00		End of Pit at 1.20m

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Trial Pit Photographs



TP199



TP199 SPOIL

Remarks: 1. Terminated as land drain encountered at 1.00 m bgl. 2. Fast water ingress at 1.00 m bgl.

Stability: Stable

Trial Pit Log

TrialPit No: TP1100
Sheet 1 of 1

Project Name: Cherryfields	Project No. 15280	Co-ords: 341311.78 - 398103.69 Level: 25.09	Date 25/01/2022
Location: Kirkby		Dimensions (m): 2.80 x 0.60 Depth 2.80	Scale 1:30
Client: BDW Trading			Logged N.Gregory

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
	0.10	ES					MADE GROUND: Dark grey slightly gravelly fine to coarse sand with frequent rootlets and wood. Gravel is fine to coarse angular to subrounded of brick (Topsoil)
	0.50	HVP	62	0.50	24.59		Firm medium strength brown gravelly sandy CLAY. Gravel is fine to medium sub rounded of mudstone and sandstone.
	1.00	HVP	72				
	1.50	HVP	72				
▼ 2.00				2.00	23.09		Reddish brown slightly gravelly clayey fine to medium SAND. Gravel is fine to medium subrounded to rounded of sandstone. (Weathered bedrock).
				2.80	22.29		End of Pit at 2.80m

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Trial Pit Photographs



TP1100



TP1100 SPOIL

Remarks: 1. Complete. 2. Slow water ingress at 2.0 m bgl (seepage).

Stability: Stable

Trial Pit Log

TrialPit No: TP1101
Sheet 1 of 1

Project Name: Cherryfields	Project No. 15280	Co-ords: 340932.69 - 398616.63 Level: 26.38	Date 13/01/2022
Location: Kirkby		Dimensions (m): 2.00 x 0.60 Depth 2.30	Scale 1:30
Client: BDW Trading			Logged J.Beer

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
	0.10	ES		0.20	26.18		MADE GROUND: Brown slightly clayey gravelly fine to medium sand with rootlets. Gravel is fine to coarse angular to sub rounded of mudstone, sandstone, brick and ceramic. (Topsoil).
							MADE GROUND: Brown very gravelly fine to medium sand with cobbles. Gravel is fine to coarse angular to sub rounded of mudstone, sandstone, brick and glass. Cobbles are sub angular to sub rounded of brick.
0.90	0.90	ES		0.90	25.48		MADE GROUND: Black sandy gravel. Gravel is fine to coarse angular to sub rounded of timber, ash, textiles and plastic. Very strong hydrogen sulphide odour (buried bag).
	1.30	ES		1.30	25.08		Light brown slightly clayey fine to medium SAND.
				2.30	24.08		End of Pit at 2.30m

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Trial Pit Photographs



TP1101



TP1101 SPOIL

Remarks: 1. Complete. 2. Perched water at 0.90 m bgl. 3. Very strong hydrogen sulphide odour at 0.90 m bgl.

Stability: Stable

Trial Pit Log

TrialPit No TP1102/ SA111
Sheet 1 of 1

Project Name: Cherryfields	Project No. 15280	Co-ords: 341328.38 - 398136.33 Level: 24.82	Date 25/01/2022
Location: Kirkby		Dimensions (m): 2.90 × 0.60 Depth 2.50	Scale 1:30
Client: BDW Trading			Logged N.Gregory

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
				0.40	24.42		MADE GROUND: Dark grey slightly gravelly fine to medium sand with frequent rootlets, wood and cobbles. Gravel is fine to coarse angular to subrounded of brick. Cobbles are sub angular of brick. (Topsoil).
	0.50	HVP	59				Firm medium strength brown gravelly sandy CLAY. Gravel is fine to medium sub rounded of mudstone and sandstone.
	0.80	ES					
	1.00	HVP	63				
	1.50	HVP	64	1.50	23.32		Reddish brown slightly gravelly clayey fine to medium SAND. Gravel is fine to medium, subrounded to rounded of sandstone. (Weathered bedrock).
				2.50	22.32		End of Pit at 2.50m

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Trial Pit Photographs



TP1102



TP1102 SPOIL

Remarks: 1. Complete. 2. Soakaway test complete.

Stability: Stable

Trial Pit Log

TrialPit No: TP1103
Sheet 1 of 1

Project Name: Cherryfields	Project No. 15280	Co-ords: 340959.41 - 398602.24	Date 13/01/2022
Location: Kirkby		Level: 26.30	Scale 1:30
Client: BDW Trading		Dimensions (m): Depth 2.00 (0.60 x 2.00)	Logged J.Beer

Water Strike	Samples & In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
	Depth	Type	Results				
	0.10	ES		0.20	26.10		MADE GROUND: Brown slightly clayey gravelly fine to medium sand with rootlets. Gravel is fine to coarse sub angular to sub rounded of mudstone, sandstone, brick and glass. (Topsoil).
				0.30	26.00		MADE GROUND: Brown very gravelly fine to medium sand with cobbles. Gravel is fine to coarse angular to sub rounded of mudstone, sandstone, brick and glass. Cobbles are sub angular to sub rounded of brick.
				0.40	25.90		MADE GROUND: Concrete.
	0.80	B					Soft brownish grey very sandy CLAY.
				1.00	25.30		Stiff high strength brown sandy CLAY. Becoming firm medium strength at 1.50 m bgl.
	1.20	HVP	76				
	1.50	HVP	63				
				2.00	24.30		End of Pit at 2.00m

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Trial Pit Photographs



TP1103 SPOIL

Remarks: 1. Complete.

Stability: Stable

Trial Pit Log

			TrialPit No TP1104 Sheet 1 of 1
Project Name: Cherryfields	Project No. 15280	Co-ords: 341303.64 - 398148.44 Level: 24.92	Date 25/01/2022
Location: Kirkby		Dimensions (m): 2.80 x 0.60 Depth 3.00	Scale 1:30
Client: BDW Trading			Logged N.Gregory

Water Strike	Samples & In Situ Testing Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
	0.50	ES					MADE GROUND: Dark grey gravelly very sandy clay with frequent rootlets, wood and cobbles. Gravel is fine to coarse angular to subrounded of brick. Cobbles are sub angular of brick. (Topsoil)
	0.80	B					
	1.00	HVP	49	1.00	23.92		Firm medium strength brown gravelly sandy CLAY. Gravel is fine to medium sub rounded of mudstone and sandstone.
				1.30	23.62		Reddish brown slightly clayey gravelly fine to medium SAND. Gravel is fine to medium, subrounded to rounded of sandstone. (Weathered bedrock).
				3.00	21.92		End of Pit at 3.00m

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Trial Pit Photographs



TP1104



TP1104 SPOIL

Remarks: 1. Complete.

Stability: Stable

Trial Pit Log

			TrialPit No TP1105A Sheet 1 of 1
Project Name: Cherryfields	Project No. 15280	Co-ords: 340888.38 - 398601.24 Level: 25.96	Date 24/01/2022
Location: Kirkby		Dimensions (m): 2.50 x 1.20 Depth 1.40	Scale 1:30
Client: BDW Trading			Logged J.Beer

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
				0.40	25.56		MADE GROUND: Brown slightly gravelly very sandy clay with rootlets. Gravel is fine to medium sub angular to sub rounded of mudstone, sandstone and brick. (Topsoil).
				0.60	25.36		MADE GROUND: Greyish red gravelly fine to medium sand. Gravel is fine to coarse angular to sub rounded of sandstone and brick.
				1.40	24.56		MADE GROUND: Greyish brown slightly gravelly very sandy clay. Gravel is fine to medium sub angular to sub rounded of mudstone.
							End of Pit at 1.40m

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Trial Pit Photographs



TP1105A



TP1105A SPOIL

Remarks: 1.Terminated due to land drain encountered on side of pit at 1.40 m bgl.

Stability: Stable

Trial Pit Log

TrialPit No: TP1105B/SA108
Sheet 1 of 1

Project Name: Cherryfields	Project No. 15280	Co-ords: 340893.12 - 398609.28 Level: 26.27	Date 24/01/2022
Location: Kirkby		Dimensions (m): 2.90 x 1.20 Depth 2.40	Scale 1:30
Client: BDW Trading			Logged J.Beer

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
	0.10	ES		0.40	25.87		MADE GROUND: Brown slightly clayey gravelly fine to medium sand with rootlets. Gravel is fine to medium sub angular to sub rounded of brick. (Topsoil).
				0.90	25.37		Light brown gravelly fine to medium sand with cobbles. Gravel is fine to coarse angular to sub rounded of sandstone, brick and concrete. Cobbles are sub angular of concrete.
	1.40	HVP	60	1.40	24.87		Reddish light brown slightly clayey fine to medium SAND.
	2.00	HVP	88	2.40	23.87		Firm medium strength greyish red sandy CLAY. Becoming stiff high strength at 2.00 m bgl.
							End of Pit at 2.40m

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Trial Pit Photographs



TP1105B



TP1105B SPOIL

Remarks: 1. Complete. 2. Soakaway test completed.

Stability: Stable

Trial Pit Log

TrialPit No: TP1106
Sheet 1 of 1

Project Name: Cherryfields	Project No. 15280	Co-ords: 341318.04 - 398161.55 Level: 25.25	Date 25/01/2022
Location: Kirkby		Dimensions (m): 2.50 × 0.60 Depth 3.00	Scale 1:30
Client: BDW Trading			Logged N.Gregory

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
	0.10	ES		0.35	24.90		MADE GROUND: Dark grey gravelly very sandy clay with frequent rootlets, wood and cobbles. Gravel is fine to coarse angular to subrounded of brick. Cobbles are sub angular of brick. (Topsoil)
	0.50	HVP	59				Firm medium strength brown gravelly sandy CLAY. Gravel is fine to medium sub rounded of mudstone and sandstone.
	1.00	HVP	57				
	1.50	HVP	60	1.50	23.75		Brown slightly gravelly clayey fine to medium SAND. Gravel is fine to medium sub rounded of sandstone.
▼ 2.00				2.30	22.95		Reddish brown slightly clayey gravelly fine to medium SAND. Gravel is fine to coarse subrounded to rounded of sandstone. (Weathered bedrock).
				3.00	22.25		End of Pit at 3.00m

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Trial Pit Photographs



TP1106



TP1106 SPOIL

Remarks: 1. Complete. 2. Slow water ingress at 2.0 m bgl (seepage).

Stability: Stable

Trial Pit Log

TrialPit No TP1107/ SA109
Sheet 1 of 1

Project Name: Cherryfields	Project No. 15280	Co-ords: 340939.92 - 398576.81 Level: 26.37	Date 24/01/2022
Location: Kirkby		Dimensions (m): 2.10 x 1.20 Depth 2.20	Scale 1:30
Client: BDW Trading			Logged J.Beer

Water Strike	Samples & In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
	Depth	Type	Results				
				0.30	26.07		MADE GROUND: Brown slightly clayey gravelly fine to medium sand with rootlets. Gravel is fine to medium sub angular to sub rounded of brick. (Topsoil).
	0.60	ES		0.70	25.67		MADE GROUND: Red gravelly fine to medium sand. Gravel is fine to coarse angular to sub rounded of mudstone, sandstone, brick and ceramic.
				0.90	25.47		MADE GROUND: Very stiff black slightly gravelly slightly sandy clay. Gravel is fine of ash
	1.20	HVP	50	1.20	25.17		Greyish brown slightly clayey fine to medium SAND.
	1.60	HVP	119				Firm medium strength greyish red slightly sandy CLAY. Becoming stiff high strength at 1.60 m bgl.
	2.00	HVP	103				
				2.20	24.17		End of Pit at 2.20m

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Trial Pit Photographs



TP1107



TP1107 SPOIL

Remarks: 1. Complete. 2. Soakaway test completed.

Stability: Stable

Trial Pit Log

			TrialPit No TP1108 Sheet 1 of 1
Project Name: Cherryfields	Project No. 15280	Co-ords: 341272.90 - 398169.30 Level: 24.83	Date 25/01/2022
Location: Kirkby		Dimensions (m): 2.80 x 0.60 Depth 2.60	Scale 1:30
Client: BDW Trading			Logged N.Gregory

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
				0.25	24.58		MADE GROUND: Dark grey sandy clay with frequent rootlets. (Topsoil)
				0.30	24.53		MADE GROUND: Brown slightly gravelly sandy clay. Gravel is fine to medium sub rounded of mudstone.
				0.60	24.23		Firm medium strength brown slightly gravelly sandy CLAY. Gravel is fine to medium sub rounded of mudstone.
	1.00	HVP	51				Firm medium strength brown sandy CLAY.
	1.20	B		1.20	23.63		Reddish brown slightly gravelly fine to medium SAND. Gravel is fine to coarse subrounded to rounded of sandstone. (Weathered bedrock).
	1.20	ES					
				2.60	22.23		End of Pit at 2.60m

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Trial Pit Photographs



TP1108



TP1108 SPOIL

Remarks: 1. Complete. 2. Redundant water pipe encountered at 0.30 m bgl.

Stability: Stable

Trial Pit Log

TrialPit No: TP1109
Sheet 1 of 1

Project Name: Cherryfields	Project No. 15280	Co-ords: 341230.40 - 398254.87 Level: 24.83	Date 24/01/2022
Location: Kirkby		Dimensions (m): 2.50 x 1.20 Depth 2.90	Scale 1:30
Client: BDW Trading			Logged J.Beer

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
	0.10	ES					MADE GROUND: Dark brown gravelly sandy clay with rootlets. Gravel is fine to medium sub angular to sub round of mudstone and sandstone. (Topsoil).
				0.40	24.43		MADE GROUND: Dark brown very gravelly fine to medium sand with cobbles. Gravel is fine to coarse angular to sub rounded of mudstone, sandstone, brick and ceramic. Cobbles are sub angular to sub rounded of sandstone.
				1.30	23.53		Greyish brown very sandy CLAY.
				2.30	22.53		Stiff high strength red sandy CLAY.
	2.50 2.50	B HVP	114				
				2.90	21.93		End of Pit at 2.90m

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Trial Pit Photographs



TP1109



TP1109 SPOIL

Remarks: 1. Complete. 2. Clay at 1.30 to 2.30 m bgl too sandy to complete hand shear vane test.

Stability: Stable

Trial Pit Log

TrialPit No: TP1110
Sheet 1 of 1

Project Name: Cherryfields	Project No. 15280	Co-ords: 341279.40 - 398203.38 Level: 24.92	Date 25/01/2022
Location: Kirkby		Dimensions (m): 2.80 x 0.60 Depth 3.00	Scale 1:30
Client: BDW Trading			Logged N.Gregory

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
	0.30	ES		0.30	24.62		Brown slightly gravelly clayey SAND with frequent rootlets. Gravel is fine sub rounded of mudstone. (TOPSOIL)
				0.40	24.52		Firm reddish brown sandy CLAY.
				0.80	24.12		Dark grey slightly gravelly clayey fine to medium SAND with occasional cobbles. Gravel is fine to coarse subrounded to rounded of sandstone. Cobbles are sub rounded of sandstone.
	1.00	HVP	53				Firm medium strength reddish brown slightly gravelly sandy CLAY. Gravel is fine to coarse subrounded to rounded of sandstone
	1.50	HVP	56				
	2.00	HVP	62				
				2.50	22.42		Reddish brown gravelly fine to medium SAND. Gravel is fine to coarse subrounded to rounded of sandstone. (Weathered bedrock).
				3.00	21.92		End of Pit at 3.00m

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Trial Pit Photographs



TP1110



TP1110 SPOIL

Remarks: 1. Complete.

Stability: Stable

Trial Pit Log

TrialPit No: TP1111
Sheet 1 of 1

Project Name: Cherryfields	Project No. 15280	Co-ords: 341234.83 - 398234.67 Level: 24.93	Date 24/01/2022
Location: Kirkby		Dimensions (m): 2.50 x 1.20 Depth 2.70	Scale 1:30
Client: BDW Trading			Logged J.Beer

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
				0.20	24.73		MADE GROUND: Dark brown slightly gravelly very sandy CLAY with rootlets. Gravel is fine to medium sub angular to sub rounded of mudstone and sandstone. (Topsoil).
	0.80	ES					MADE GROUND: Brown sightly clayey gravelly fine to medium sand with cobbles. Gravel is fine to coarse angular to sub rounded of mudstone, sandstone, brick, ceramic and concrete. Cobbles are sub angular of concrete.
				1.00	23.93		
	1.20	HVP	112				Stiff high strength reddish brown mottled grey slightly gravelly sandy CLAY. Gravel is fine to medium sub angular to sub rounded of mudstone and sandstone. Circa. 1.80 m bgl becomes firm medium strength. Circa. 2.50 m bgl becomes stiff high strength.
	1.80	HVP	56				
	2.50	HVP	119				
				2.70	22.23		End of Pit at 2.70m

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Trial Pit Photographs



TP1111



TP1111 SPOIL

Remarks: 1. Complete.

Stability: Stable

Trial Pit Log

TrialPit No TP1112
Sheet 1 of 1

Project Name: Cherryfields	Project No. 15280	Co-ords: 341321.69 - 398208.32 Level: 24.60	Date 25/01/2022
Location: Kirkby		Dimensions (m): 3.20 x 0.60 Depth 3.00	Scale 1:30
Client: BDW Trading			Logged N.Gregory

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
				0.15	24.45		MADE GROUND: Dark grey clayey medium to coarse sand with frequent rootlets. (Topsoil)
				0.40	24.20		MADE GROUND: Dark grey slightly gravelly clayey fine to medium sand. Gravel is fine to coarse subrounded to rounded of sandstone and brick.
	0.50	HVP	55				Firm medium strength yellowish brown sandy CLAY.
	1.00	ES					
	1.00	HVP	56				
				1.25	23.35		Reddish brown gravelly fine to medium SAND. Gravel is fine to coarse, subrounded to rounded of sandstone. (Weathered bedrock).
				3.00	21.60		End of Pit at 3.00m

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Trial Pit Photographs



TP1112



TP1112 SPOIL

Remarks: 1. Complete.

Stability: Stable

Trial Pit Log

TrialPit No: TP1113
Sheet 1 of 1

Project Name: Cherryfields	Project No. 15280	Co-ords: 341142.09 - 398118.84 Level: 23.89	Date 24/01/2022
Location: Kirkby	Dimensions (m): Depth 2.50	1.20 × 2.50	Scale 1:30
Client: BDW Trading			Logged J.Beer

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
	0.10	ES		0.40	23.49		MADE GROUND: Dark brown very gravelly fine to medium sand with rootlets. Gravel is fine to coarse angular to sub rounded of mudstone and brick. (Topsoil).
	0.70	HVP	77	1.20	22.69		Stiff high strength light brown mottled grey sandy CLAY.
				2.50	21.39		Red fine to medium SAND. (Weathered bedrock).
							End of Pit at 2.50m

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Trial Pit Photographs



TP1113



TP1113 SPOIL

Remarks: 1. Complete

Stability: Stable

Trial Pit Log

TrialPit No: TP1114
Sheet 1 of 1

Project Name: Cherryfields	Project No. 15280	Co-ords: 341355.06 - 398196.51 Level: 24.69	Date 25/01/2022
Location: Kirkby	Dimensions (m): Depth 2.80	3.50 / 0.60	Scale 1:30
Client: BDW Trading			Logged N.Gregory

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
	0.10	ES		0.35	24.34		MADE GROUND: Dark grey slightly sandy gravelly clay with frequent rootlets and cobbles. Gravel is fine to coarse angular to subrounded of brick. Cobbles are sub angular of brick. (Topsoil)
	0.50	HVP	58				Firm medium strength brown slightly gravelly slightly sandy CLAY. Gravel is fine to medium sub angular to sub rounded of mudstone and sandstone.
	1.00	HVP	62				
	1.50	HVP	61				
	2.00	HVP	61				
▼ 2.60	2.50	HVP	60	2.80	21.89		End of Pit at 2.80m

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Trial Pit Photographs



TP1114



TP1114 SPOIL

Remarks: 1. Complete. 2. Slow water ingress at 2.6 m bgl (seepage).

Stability: Stable

Trial Pit Log

TrialPit No TP1115
Sheet 1 of 1

Project Name: Cherryfields	Project No. 15280	Co-ords: 341218.37 - 398121.03 Level: 24.42	Date 24/01/2022
Location: Kirkby		Dimensions (m): 2.50 x 1.20 Depth 2.70	Scale 1:30
Client: BDW Trading			Logged J.Beer

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
				0.30	24.12		MADE GROUND: Brown slightly clayey fine to medium sand with rootlets and roots. (Topsoil).
▼ 0.60							MADE GROUND: Brown gravelly fine to medium sand with cobbles. Gravel is fine to coarse angular to sub rounded of sandstone, brick, plastic and concrete. Cobbles are sub angular of brick.
				1.20	23.22		Firm medium strength brown mottled grey sandy CLAY.
	1.50 1.50	ES HVP	59	1.60	22.82		Red gravelly fine to medium SAND. Gravel is fine to medium sub angular to sub rounded of mudstone. (Weathered bedrock).
				2.70	21.72		End of Pit at 2.70m

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Trial Pit Photographs



TP1115



TP1115 SPOIL

Remarks: 1. Complete. 2. Water strike at 0.60 m bgl.

Stability: Stable

Trial Pit Log

			TrialPit No TP1116 Sheet 1 of 1
Project Name: Cherryfields	Project No. 15280	Co-ords: 341370.91 - 398253.82 Level: 24.31	Date 25/01/2022
Location: Kirkby		Dimensions (m): 3.00 x 0.65 Depth 2.50	Scale 1:30
Client: BDW Trading			Logged N.Gregory

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
	0.15	ES		0.10 0.20	24.21 24.11		MADE GROUND: Dark grey gravelly fine to medium sand with frequent rootlets. Gravel is fine to coarse angular to subrounded of brick and clinker. (Topsoil)
							MADE GROUND: Black sandy gravel. Gravel is fine to medium angular to subrounded gravel of ash and brick
0.60				0.60	23.71		Light brown slightly gravelly fine to medium SAND. Gravel is fine to coarse, angular to subrounded of sandstone.
	0.80	HVP	41				Firm medium strength brown slightly gravelly slightly sandy CLAY. Gravel is fine to medium sub angular to sub rounded of mudstone and sandstone. Circa 1.70 m bgl becomes soft low strength.
	1.30	HVP	49				
1.70	1.70	HVP	37	1.70	22.61		Brown slightly gravelly clayey fine to medium SAND. Gravel is fine to medium sub rounded of sandstone.
				2.50	21.81		End of Pit at 2.50m

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Trial Pit Photographs



TP1116



TP1116 SPOIL

Remarks: 1. Complete. 2. Perched water encountered at 0.60 bgl 3. Slow water ingress at 1.7 m bgl due to running sand present at 1.70m bgl

Stability: Unstable within sand

Trial Pit Log

TrialPit No: TP1117
Sheet 1 of 1

Project Name: Cherryfields	Project No. 15280	Co-ords: 341266.89 - 398087.47 Level: 24.23	Date 24/01/2022
Location: Kirkby		Dimensions (m): 2.50 x 1.20 Depth 2.40	Scale 1:30
Client: BDW Trading			Logged J.Beer

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
				0.20	24.03		MADE GROUND: Brown slightly gravelly sandy clay with rootlets. Gravel is fine to medium sub angular to sub rounded of mudstone. (Topsoil).
	0.40	ES					MADE GROUND: Reddish light brown gravelly sandy clay with cobbles. Gravel is fine to coarse angular to sub rounded of mudstone, sandstone and brick. Cobbles are sub angular of brick.
	0.80	HVP	75	0.80	23.43		Stiff high strength reddish grey slightly gravelly sandy CLAY. Gravel is fine to coarse sub angular to sub rounded of mudstone.
	1.10	HVP	84				
				1.20	23.03		Red fine to medium SAND. (Weathered bedrock).
	1.50	B					
				2.40	21.83		End of Pit at 2.40m

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Trial Pit Photographs



TP1117



TP1117 SPOIL

Remarks: 1. Complete.

Stability: Stable

Trial Pit Log

TrialPit No: TP1118
Sheet 1 of 1

Project Name: Cherryfields	Project No. 15280	Co-ords: 341352.64 - 398257.28 Level: 24.22	Date 25/01/2022
Location: Kirkby		Dimensions (m): 2.80 x 0.60 Depth 2.80	Scale 1:30
Client: BDW Trading			Logged N.Gregory

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
				0.10	24.12		MADE GROUND: Dark grey slightly clayey fine to medium sand with frequent rootlets. (Topsoil)
				0.15	24.07		MADE GROUND: Reddish brown sandy gravel with frequent cobbles. Gravel is fine to coarse angular to subrounded of brick. Cobbles are sub angular of brick.
				0.35	23.87		MADE GROUND: Dark grey slightly clayey gravelly fine to medium sand. Gravel is fine to coarse, angular to subrounded of brick.
	0.70	ES					
	0.80	HVP	57	0.80	23.42		MADE GROUND: Dark grey slightly clayey gravelly fine to medium sand. Gravel is fine to coarse, angular to subrounded of brick.
							Firm medium strength brown slightly gravelly slightly sandy CLAY. Gravel is fine to medium sub angular to sub rounded of mudstone and sandstone.
	1.50	HVP	62				
	2.00	HVP	64				
	2.50	HVP	62				
				2.80	21.42		End of Pit at 2.80m

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Trial Pit Photographs



TP1118



TP1118 SPOIL

Remarks: 1. Complete.

Stability: Stable

Trial Pit Log

TrialPit No: TP1119
Sheet 1 of 1

Project Name: Cherryfields	Project No. 15280	Co-ords: 341289.43 - 398062.46	Date 24/01/2022
Location: Kirkby		Dimensions (m): 2.50 x 1.20	Scale 1:30
Client: BDW Trading		Depth 2.60	Logged J.Beer

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
	0.10	ES		0.20	24.23		MADE GROUND: Brown gravelly sandy clay with rootlets and roots. Gravel is fine to medium sub angular to sub rounded of mudstone, sandstone and brick. (Topsoil).
				0.80	23.63		MADE GROUND: Light brown slightly clayey gravelly fine to medium sand with cobbles. Gravel is fine to coarse angular to sub rounded of mudstone, sandstone, brick and concrete. Cobbles are sub angular of brick.
	1.00 1.00	B HVP	61				Firm medium strength reddish light brown very sandy CLAY.
	1.50	HVP	44				
▼ 1.80				1.70	22.73		Red fine to medium SAND. (Weathered bedrock).
				2.60	21.83		End of Pit at 2.60m

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Trial Pit Photographs



TP1119



TP1119 SPOIL

Remarks: 1. Complete. 2. Water strike at 1.80 m bgl.

Stability: Stable

Trial Pit Log

			TrialPit No TP1120 Sheet 1 of 1
Project Name: Cherryfields	Project No. 15280	Co-ords: 341298.14 - 398252.44 Level: 24.41	Date 25/01/2022
Location: Kirkby		Dimensions (m): 2.80 x 0.60 Depth 2.50	Scale 1:30
Client: BDW Trading			Logged J.Beer

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
	0.10	ES		0.10	24.31		MADE GROUND: Dark brown slightly clayey gravelly sand with frequent rootlets. Gravel is fine to coarse angular to subrounded of brick (Topsoil)
				0.15	24.26		
				0.30	24.11		MADE GROUND: Orangish brown fine to medium sand.
				0.40	24.01		MADE GROUND: Dark brown sandy gravel with cobbles. Gravel is fine to coarse angular to subrounded of brick, mudstone and plastic. Cobbles are sub angular of brick.
							MADE GROUND: Concrete
							Yellowish light brown fine to medium SAND
				1.40	23.01		
	1.50	HVP	50				Firm medium strength slightly sandy CLAY. Circa 2.50 m bgl becomes stiff high strength.
	2.00	HVP	64				
	2.50	HVP	86	2.50	21.91		End of Pit at 2.50m

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Trial Pit Photographs



TP1120



TP1120 SPOIL

Remarks: 1. Complete.

Stability: Stable

Trial Pit Log

			TrialPit No TP1121 Sheet 1 of 1
Project Name: Cherryfields	Project No. 15280	Co-ords: 341310.57 - 398043.69 Level: 24.90	Date 24/01/2022
Location: Kirkby		Dimensions (m): 2.50 x 1.20 Depth 3.00	Scale 1:30
Client: BDW Trading			Logged J.Beer

Water Strike	Samples & In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
	Depth	Type	Results				
	0.10	ES					Dark brown slightly clayey fine to medium SAND with rootlets. (Topsoil).
				0.70	24.20		
	1.00	HVP	67				Firm medium strength reddish brown sandy CLAY. Becoming stiff high strength circa. 1.50 m bgl.
	1.50	HVP	77				
				1.80	23.10		Red fine to medium SAND. (Weathered bedrock).
				3.00	21.90		End of Pit at 3.00m

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Trial Pit Photographs



TP1121



TP1121 SPOIL

Remarks: 1. Complete.

Stability: Stable

Trial Pit Log

TrialPit No: TP1122
Sheet 1 of 1

Project Name: Cherryfields	Project No. 15280	Co-ords: 341287.91 - 398258.01 Level: 24.41	Date 25/01/2022
Location: Kirkby		Dimensions (m): 2.80 x 0.60 Depth 2.90	Scale 1:30
Client: BDW Trading			Logged J.Beer

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
	0.20	ES		0.15	24.26		MADE GROUND: Reddish brown gravelly fine to medium sand with frequent rootlets. Gravel is fine to coarse subangular to subrounded of brick and mudstone. (Topsoil)
				0.50	23.91		MADE GROUND: Dark brown gravelly fine to medium sand with cobbles. Gravel is fine to coarse angular to subrounded of brick, concrete, clinker and plastic. Cobbles are angular to sub angular of brick and concrete. Orangish brown fine to medium SAND.
	1.60	HVP	80	1.60	22.81		Firm medium strength reddish brown slightly sandy CLAY.
	2.00	HVP	68				
	2.40	HVP	45	2.40	22.01		Firm medium strength reddish brown sandy CLAY.
2.80 ▼				2.90	21.51		End of Pit at 2.90m

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Trial Pit Photographs



TP1122



TP1122 SPOIL

Remarks: 1. Complete. 2. Slow water ingress at 2.8 m bgl (seepage). 3. Unable to complete HSV 2.40-2.90 m bgl due to high sand content in clay.

Stability: Stable

Trial Pit Log

TrialPit No TP1123
Sheet 1 of 1

Project Name: Cherryfields	Project No. 15280	Co-ords: 341327.02 - 398069.92 Level: 25.04	Date 24/01/2022
Location: Kirkby		Dimensions (m): 2.50 x 1.20 Depth 2.60	Scale 1:30
Client: BDW Trading			Logged J.Beer

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
				0.30	24.74		MADE GROUND: Brown slightly gravelly sandy clay with rootlets. Gravel is fine to medium sub angular to sub rounded of mudstone and brick. (Topsoil).
							MADE GROUND: Brown gravelly very sandy clay. Gravel is fine to coarse sub angular to sub rounded of mudstone and brick.
	1.00	ES		0.90	24.14		MADE GROUND: Very stiff black slightly gravelly clay. Gravel is sub angular of ash and brick.
				1.20	23.84		MADE GROUND: Very soft dark grey very sandy clay.
▼ 2.00	2.00	ES		2.00	23.04		Very soft dark grey very sandy CLAY.
				2.60	22.44		End of Pit at 2.60m

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Trial Pit Photographs



TP1123



TP1123 SPOIL

Remarks: 1. Terminated due to land drain encountered at 2.00 m bgl. 3. Clay at 1.20 m to 2.60 m bgl too sandy to complete hand shear vane test.

Stability: Stable

Trial Pit Log

TrialPit No: TP1124
Sheet 1 of 1

Project Name: Cherryfields	Project No. 15280	Co-ords: 341281.56 - 398245.04 Level: 24.59	Date 25/01/2022
Location: Kirkby		Dimensions (m): 2.80 × 0.60 Depth 3.20	Scale 1:30
Client: BDW Trading			Logged N.Gregory

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
				0.10	24.49		MADE GROUND: Dark grey slightly clayey gravelly fine to medium sand with frequent rootlets and wood. Gravel is fine to coarse subangular to subrounded of brick. (Topsoil)
				0.15	24.44		MADE GROUND: Red gravel. Gravel is fine to coarse angular to subrounded of brick.
▼ 0.70	0.80	HVP	45	0.70	23.89		Dark grey slightly gravelly clayey fine to medium SAND. Gravel is fine to medium sub rounded of sandstone.
	1.20	ES					Firm medium strength brown slightly gravelly sandy CLAY
▼ 1.70				1.70	22.89		Light grey slightly clayey gravelly fine to medium SAND. Gravel is fine to coarse subangular to subrounded of sandstone.
				2.20	22.39		Red gravelly fine to medium SAND. Gravel is fine to coarse subrounded to rounded of sandstone.
				3.20	21.39		End of Pit at 3.20m

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Trial Pit Photographs



TP1124



TP1124 SPOIL

Remarks: 1. Complete. 2. perched water encountered at 0.70 bgl 3. Slow water ingress at 1.7 m bgl.

Stability: Slightly unstable

Trial Pit Log

TrialPit No: TP1125
Sheet 1 of 1

Project Name: Cherryfields	Project No. 15280	Co-ords: 341277.98 - 398115.45 Level: 24.53	Date 24/01/2022
Location: Kirkby		Dimensions (m): 2.50 x 1.20 Depth 2.70	Scale 1:30
Client: BDW Trading			Logged J.Beer

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
	0.10	ES		0.10	24.43		MADE GROUND: Brownish black sandy gravel with woodchips. Gravel is fine to coarse sub angular to sub rounded of mudstone, sandstone, brick and ceramic. (Topsoil).
				0.30	24.23		MADE GROUND: MADE GROUND: Brick layer. Recovered and sub rounded cobble of brick.
				0.70	23.83		MADE GROUND: Black sandy gravel. Gravel is fine to coarse sub angular to sub rounded of mudstone, sandstone, brick, ash and concrete.
	0.80	HVP	91				Stiff high strength reddish brown slightly sandy CLAY.
	1.20	HVP	75				
				1.40	23.13		Red fine to medium SAND.
				2.70	21.83		End of Pit at 2.70m

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Trial Pit Photographs



TP1125



TP1125 SPOIL

Remarks: 1. Complete.

Stability: Stable

Trial Pit Log

TrialPit No TP1126
Sheet 1 of 1

Project Name: Cherryfields	Project No. 15280	Co-ords: 341077.53 - 398293.89 Level: 24.00	Date 25/01/2022
Location: Kirkby		Dimensions (m): 2.80 x 0.60 Depth 2.80	Scale 1:30
Client: BDW Trading			Logged J.Beer

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
	0.10	ES		0.30	23.70		MADE GROUND: Brown clayey fine to medium sand with frequent rootlets. (Topsoil)
				0.90	23.10		MADE GROUND: Firm reddish brown gravelly sandy clay. Gravel is fine to coarse, angular to subrounded of mudstone, brick and glass.
	1.50	HVP	53	1.50	22.50		MADE GROUND: Firm black slightly gravelly sandy clay. Gravel is fine sub angular to sub rounded of ash.
				2.00	22.00		Firm medium strength reddish brown sandy CLAY.
				2.80	21.20		Reddish brown clayey fine to medium SAND. (Weathered bedrock).
							End of Pit at 2.80m

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Trial Pit Photographs



TP1126



TP1126 SPOIL

Remarks: 1. Complete.

Stability: Stable

Trial Pit Log

TrialPit No TP1127/ SA110
Sheet 1 of 1

Project Name: Cherryfields	Project No. 15280	Co-ords: 341234.50 - 398146.26 Level: 24.58	Date 24/01/2022
Location: Kirkby		Dimensions (m): 2.20 x 1.20 Depth 2.20	Scale 1:30
Client: BDW Trading			Logged J.Beer

Water Strike	Samples & In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
	Depth	Type	Results				
	0.30 0.30	B ES		0.10	24.48		MADE GROUND: Brownish black sandy gravel with woodchips. Gravel is fine to coarse sub angular to sub rounded of mudstone, sandstone, brick and ceramic. (Topsoil).
	0.80	HVP	56	0.40	24.18		MADE GROUND: Dark brown slightly clayey gravelly fine to medium sand. Gravel is fine to coarse sub angular to sub rounded of mudstone, sandstone and brick. Firm medium strength greyish light brown sandy CLAY.
	1.30	HVP	94	1.20	23.38		Stiff high strength red slightly sandy CLAY.
				1.50	23.08		Red fine to medium SAND. (Weathered bedrock).
				2.20	22.38		End of Pit at 2.20m

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Trial Pit Photographs



TP1127



TP1127 SPOIL

Remarks: 1. Complete. 2. Soakaway test completed.

Stability: Stable

Trial Pit Log

TrialPit No: TP1128
Sheet 1 of 1

Project Name: Cherryfields	Project No. 15280	Co-ords: 341030.99 - 398320.74 Level: 23.72	Date 25/01/2022
Location: Kirkby		Dimensions (m): 2.80 x 0.60 Depth 3.00	Scale 1:30
Client: BDW Trading			Logged J.Beer

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
				0.10	23.62		MADE GROUND: Brown gravelly very sandy clay with frequent rootlets. Gravel is fine to medium subrounded of brick. (Topsoil)
	0.50	ES		0.50	23.22		MADE GROUND: Greyish brown gravelly fine to medium sand. Gravel is fine to coarse, angular to subrounded of mudstone, brick and ceramic.
	1.80	HVP	55	1.80	21.92		MADE GROUND: Black sandy gravel with cobbles. Gravel is fine to coarse, angular to subrounded of mudstone, ash, brick, glass, ceramic, metal, clinker and plastic. Cobbles are angular to subangular of brick. Strong hydrocarbon odour at 0.80 m bgl.
				2.30	21.42		Firm medium strength brownish grey sandy CLAY.
				2.70	21.02		Firm reddish brown sandy CLAY.
				3.00	20.72		Reddish brown clayey fine to medium SAND. (Weathered bedrock).
							End of Pit at 3.00m

1 2 3 4

Trial Pit Photographs



TP1128



TP1128 SPOIL

Remarks: 1. Complete. 2. Very strong hydrocarbon odour at 0.80m bgl.

Stability: Stable

Trial Pit Log

			TrialPit No TP1130 Sheet 1 of 1
Project Name: Cherryfields	Project No. 15280	Co-ords: 341008.48 - 398329.46 Level: 23.54	Date 25/01/2022
Location: Kirkby		Dimensions (m): 2.80 x 0.60 Depth 3.00	Scale 1:30
Client: BDW Trading			Logged J.Beer

Water Strike	Samples & In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
	Depth	Type	Results				
				0.10	23.44		MADE GROUND: Brown slightly gravelly sandy clay with frequent rootlets. Gravel is fine to medium subrounded of brick. (Topsoil)
				0.70	22.84		MADE GROUND: Orangish brown slightly clayey slightly gravelly fine to medium sand. Gravel is fine to coarse, angular to subrounded of mudstone, brick and ceramic.
	2.60	ES		2.50	21.04		MADE GROUND: Black sandy gravel with cobbles. Gravel is fine to coarse, angular to subrounded of mudstone, brick, ash, glass, ceramic, metal, clinker and plastic. Cobbles are angular to subangular of brick.
				3.00	20.54		Reddish brown very clayey fine to medium SAND. (Weathered bedrock).
							End of Pit at 3.00m

1 2 3 4

Trial Pit Photographs



TP1130



TP1130 SPOIL

Remarks: 1. Complete.

Stability: Stable

Borehole Log

Borehole No. **WS101**

Sheet 1 of 1

Project Name:	Cherryfields	Project No. 15280	Co-ords:	341120E - 398361N	Hole Type WS
Location:	Kirkby		Level:	24.56 m AOD	Scale 1:50
Client:	BDW Trading		Dates:	10/01/2022	Logged By J.Beer

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
					0.10	24.56		MADE GROUND: Brown slightly gravelly clayey fine to medium sand with rootlets. Gravel is fine sub angular to sub rounded of mudstone. (Topsoil).
		0.50	ES					MADE GROUND: Black gravelly clayey fine to medium sand. Gravel is fine to coarse angular to sub rounded of mudstone, sandstone, ash, brick, ceramic and glass.
		1.00	D					
		1.00	SPT	N=1 (1,1/0,0,0,1)				
					1.50	24.46		MADE GROUND: Black sandy gravel. Gravel is fine to coarse angular to sub angular of mudstone, ash, brick and clinker.
		2.00	D		2.00	23.06		Medium dense orangish grey clayey fine to medium SAND.
		2.00	SPT	N=16 (2,3/3,4,4,5)				
					2.50	22.56		Firm reddish brown sandy CLAY.
		2.80	PP	29.43				
		3.00	D		3.00	22.06		Dense red fine to medium SAND. (Weathered bedrock).
		3.00	SPT	50 (3,3/50 for 295mm)				
					3.30	21.56		End of Borehole at 3.30m

Remarks

1. Terminated due to refusal on weathered bedrock at 3.3 m bgl. 2. Monitoring well installed. Response zone 0.50 to 2.00 m bgl.

Borehole Log

Borehole No. **WS102**

Sheet 1 of 1

Project Name:	Cherryfields	Project No. 15280	Co-ords:	340896E - 398153N	Hole Type WS
Location:	Kirkby		Level:	23.51 m AOD	Scale 1:50
Client:	BDW Trading		Dates:	10/01/2022	Logged By N.Gregory

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
					0.15	23.51		MADE GROUND: Dark grey very sandy clay with frequent rootlets. (Topsoil)
					0.50	23.36		MADE GROUND: Firm brown sandy gravelly clay. Gravel is fine to coarse angular to sub rounded of brick, metal, ash, clinker and wood.
		0.80	ES					MADE GROUND: Firm brown slightly gravelly sandy clay. Gravel is fine, angular to subrounded of brick.
		1.00	D					
		1.00	SPT	N=4 (1,1/1,1,1,1)				
		2.00	D					
		2.00	SPT	N=7 (1,1/1,2,2,2)	2.20	23.01		MADE GROUND: Dark brown to black gravelly clay. Gravel fine to coarse, subrounded to rounded of clinker.
		3.00	D					
		3.00	SPT	N=12 (2,2/3,3,3,3)	3.10	21.31		Stiff medium strength reddish brown slightly sandy CLAY. Circa 4.00 m bgl becomes very stiff very high strength. (Weathered bedrock).
		4.00	D					
		4.00	SPT	N=50 (6,6/12,12,14,12)				
					4.45	20.41		End of Borehole at 4.45m

Remarks

1. Terminated due to refusal on weathered bedrock at 4.45 m bgl. 2. Monitoring well installed. Response zone 1.00 to 3.00 m bgl.

Borehole Log

Borehole No. **WS103**

Sheet 1 of 1

Project Name:	Cherryfields	Project No. 15280	Co-ords:	341085E - 398343N	Hole Type WS
Location:	Kirkby		Level:	24.10 m AOD	Scale 1:50
Client:	BDW Trading		Dates:	10/01/2022	Logged By J.Beer

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
		0.10	ES		0.20	24.10		MADE GROUND: Brown sandy clay with rootlets. (Topsoil).
					0.60	23.90		MADE GROUND: Brown slightly gravelly sandy clay. Gravel is fine sub angular to sub rounded of mudstone and brick.
		0.80	ES					
		1.00	SPT	N=18 (1,2/5,5,4,4)				MADE GROUND: Black sandy gravel. Gravel is fine to coarse angular to sub rounded of mudstone, brick, ash, glass, ceramic and plastic.
					1.70	23.50		MADE GROUND: Light brown mottled black gravelly clayey fine to medium sand. Gravel is fine to medium sub angular to sub rounded of mudstone and sandstone.
		2.00	SPT	N=1 (0,0/0,0,0,1)				
					2.50	22.40		Very soft extremely low strength light brown gravelly sandy CLAY with timber. Gravel is fine to coarse angular to sub rounded of mudstone.
		3.00	D					
		3.00	SPT	N=0 (0,0/0,0,0,0)				
					3.50	21.60		Reddish brown sandy CLAY.
		4.00	D		4.00	20.60		Loose dark brown fine to medium SAND.
		4.00	SPT	N=5 (1,1/1,1,1,2)				
					4.50	20.10		Brown slightly sandy CLAY.
		4.80	SPT	50 (25 for 70mm/50 for 70mm)	4.80	19.60		Dense red fine to medium SAND. (Weathered bedrock).
					4.94	19.30		End of Borehole at 4.94m

Remarks

1. Terminated due to refusal on weathered bedrock at 4.94 m bgl. 2. Collapse of well at 3.00 m bgl. 3. Monitoring well installed. Response zone 2.50 to 3.00 m bgl.

Borehole Log

Borehole No. **WS104**

Sheet 1 of 1

Project Name:	Cherryfields	Project No. 15280	Co-ords:	340878E - 398118N	Hole Type WS
Location:	Kirkby		Level:	20.78 m AOD	Scale 1:50
Client:	BDW Trading		Dates:	10/01/2022	Logged By N.Gregory

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
		0.50	ES		0.20	20.78		MADE GROUND: Dark grey very sandy clay with frequent rootlets. (Topsoil)
		1.00	SPT	N=9 (2,2/2,2,3,2)				MADE GROUND: Brown slightly gravelly clay. Gravel is fine to coarse, angular to subrounded of brick.
		2.00	SPT	50 (9,10/50 for 230mm)	1.50	20.58		Dense brown very clayey fine to medium SAND.
					2.38	19.28		End of Borehole at 2.38m

Remarks

1. Terminated due to refusal on weathered bedrock at 2.38 m bgl.

Borehole Log

Borehole No. **WS105**

Sheet 1 of 1

Project Name:	Cherryfields	Project No. 15280	Co-ords:	341034E - 398385N	Hole Type WS
Location:	Kirkby		Level:	23.96 m AOD	Scale 1:50
Client:	BDW Trading		Dates:	10/01/2022	Logged By J.Beer

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
					0.20	23.96		MADE GROUND: Brown clayey fine to medium sand with rootlets. (Topsoil).
					0.30	23.76		MADE GROUND: Grey gravel. Gravel is fine sub angular to sub rounded of limestone.
					0.50	23.66		MADE GROUND: Brown gravelly sandy clay. Gravel is fine to coarse angular to sub rounded of mudstone, brick and plastic.
		1.00	D					MADE GROUND: Black sandy gravel. Gravel is fine to coarse angular to sub rounded of mudstone, sandstone, brick, ash, ceramic and glass.
		1.00	SPT	N=5 (1,1/0,2,2,1)				
		1.50	ES					
		1.80	PP	36.79	1.70	23.46		Soft very low strength reddish brown slightly gravelly CLAY. Gravel is fine sub angular to sub rounded of mudstone.
	2.20	2.00	D					
		2.00	SPT	N=4 (1,2/1,1,1,1)				
					2.70	22.26		Dense red fine to medium SAND.
		3.00	D					
		3.00	SPT	50 (6,10/50 for 140mm)				
					3.29	21.26		End of Borehole at 3.29m

1 2 3 4 5 6 7 8 9 10

Remarks

1. Terminated due to refusal on weathered bedrock at 3.29 m bgl. 2. Monitoring well installed. Response zone 0.50 to 2.50 m bgl. 3. Water strike at 2.20 m bgl.

Borehole Log

Borehole No. **WS106**

Sheet 1 of 1

Project Name:	Cherryfields	Project No. 15280	Co-ords:	340909E - 398206N	Hole Type WS
Location:	Kirkby		Level:	24.41 m AOD	Scale 1:50
Client:	BDW Trading		Dates:	10/01/2022	Logged By N.Gregory

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
					0.20	24.41		MADE GROUND: Dark grey clayey fine to medium sand with frequent rootlets. (Topsoil)
		0.50	ES					MADE GROUND: Brown gravelly sandy clay. Gravel is fine to coarse, angular to subrounded of brick.
		1.00	SPT	N=8 (2,2/2,2,2,2)				
		2.00	SPT	N=11 (1,2/3,3,3,2)				
					2.50	24.21		Stiff, medium strength brown sandy CLAY.
		3.00	U					
		3.00	SPT	N=13 (3,3/3,3,3,4)				
					3.70	21.91		Dense brown clayey fine to medium SAND.
		3.80	SPT	50 (10,11/50 for 155mm)				
					4.11	20.71		End of Borehole at 4.11m

Remarks

1. Terminated due to refusal on dense sand at 4.11 m bgl. 2. Monitoring well installed. Response zone 1.00 to 3.00 m bgl.

Borehole Log

Borehole No. **WS107**

Sheet 1 of 1

Project Name:	Cherryfields	Project No. 15280	Co-ords:	340994E - 398415N	Hole Type WS
Location:	Kirkby		Level:	24.11 m AOD	Scale 1:50
Client:	BDW Trading		Dates:	10/01/2022	Logged By J.Beer

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
					0.20	24.11		MADE GROUND: Brown very sandy clay with rootlets. (Topsoil).
		0.50	ES					MADE GROUND: Soft brown slightly gravelly sandy clay. Gravel is fine sub angular to sub rounded of mudstone and brick.
		0.80	PP	44.14	0.70	23.91		Stiff medium strength reddish brown slightly gravelly CLAY. Gravel is fine to medium sub angular to sub rounded of mudstone and sandstone.
		1.00	D					
		1.00	SPT	N=11 (1,2/3,2,3,3)				
		1.50	PP	22.07				
					1.60	23.41		Dense red fine to medium SAND.
		2.00	D					
		2.00	SPT	50 (6,7/50 for 290mm)				
					2.44	22.51		End of Borehole at 2.44m

Remarks

1. Terminated due to refusal on weathered bedrock at 2.44 m bgl.

Borehole Log

Borehole No. **WS108**

Sheet 1 of 1

Project Name:	Cherryfields	Project No. 15280	Co-ords:	340907E - 398264N	Hole Type WS
Location:	Kirkby		Level:	23.22 m AOD	Scale 1:50
Client:	BDW Trading		Dates:	10/01/2022	Logged By N.Gregory

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
					0.25	23.22		MADE GROUND: Dark grey sandy clay with frequent rootlets (Topsoil).
		1.00 1.00 1.20	D SPT ES	N=20 (2,3/6,4,5,5)				MADE GROUND: Brownish black gravelly sandy clay. Gravel is fine to coarse, angular to subrounded of brick, ash and clinker.
	2.20	2.00 2.00	D SPT	N=0 (1,1/0,0,0,0)				
		2.80 2.80	D SPT	50 (25 for 75mm/50 for 30mm)	2.91	22.98		End of Borehole at 2.91m

Remarks

1. Terminated due to refusal within Made Ground at 2.91 m bgl. 2. Monitoring well installed. Response zone 0.80 to 2.80 m bgl. 3. Slow water strike at 2.20 m bgl.

Borehole Log

Borehole No. **WS109**

Sheet 1 of 1

Project Name:	Cherryfields	Project No. 15280	Co-ords:	340985E - 398349N	Hole Type WS
Location:	Kirkby		Level:	23.38 m AOD	Scale 1:50
Client:	BDW Trading		Dates:	10/01/2022	Logged By J.Beer

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
		0.10	ES		0.20	23.38		MADE GROUND: Brown very sandy clay with rootlets. (Topsoil).
		0.80	PP	29.43				MADE GROUND: Reddish brown gravelly sandy clay. Gravel is fine to coarse sub angular to sub rounded of mudstone, sandstone and brick.
		1.00	SPT	N=6 (1,1/1,1,2,2)	1.00	23.18		MADE GROUND: Brownish black slightly clayey sandy gravel. Gravel is fine to coarse angular to sub rounded of mudstone, sandstone, brick, ash, glass and ceramic. Becoming very loose at 2.00 m bgl.
		2.00	SPT	N=1 (0,0/1,0,0,0)				
		3.00	SPT	N=4 (1,1/1,1,1,1)				
	4.00	4.00	SPT	N=1 (1,1/0,1,0,0)				
					4.50	22.38		Medium dense reddish brown slightly clayey fine to medium SAND.
		5.00	D					
		5.00	SPT	N=18 (2,4/4,4,5,5)				
					5.45	18.88		End of Borehole at 5.45m

Remarks

1. Complete. 2. Water strike at 4.00 m bgl (perched water within Made Ground).

Borehole Log

Borehole No. **WS110**

Sheet 1 of 1

Project Name:	Cherryfields	Project No. 15280	Co-ords:	340947E - 398296N	Hole Type WS
Location:	Kirkby		Level:	23.03 m AOD	Scale 1:50
Client:	BDW Trading		Dates:	10/01/2022	Logged By N.Gregory

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
					0.25	23.03		MADE GROUND: Dark grey sandy CLAY with frequent rootlets. (Topsoil)
		1.00 1.00 1.20	D SPT ES	N=23 (1,2/6,5,5,7)				Brown slightly gravelly sandy CLAY. Gravel is fine to coarse, subrounded to rounded of sandstone.
					1.25	22.78		Medium dense reddish brown silty fine to medium SAND. Circa 2.00 m bgl becomes dense.
		2.00	SPT	50 (6,9/50 for 230mm)				
					2.38	21.78		End of Borehole at 2.38m

Remarks

1. Terminated due to refusal on weathered bedrock at 2.38 m bgl. 2. Monitoring well installed. Response zone 1.00 to 2.00 m bgl.

Borehole Log

Borehole No. **WS111**

Sheet 1 of 1

Project Name:	Cherryfields	Project No. 15280	Co-ords:	340945E - 398377N	Hole Type WS
Location:	Kirkby		Level:	23.13 m AOD	Scale 1:50
Client:	BDW Trading		Dates:	10/01/2022	Logged By J.Beer

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
					0.15	23.13		MADE GROUND: Brown sandy clay with rootlets. (Topsoil).
					0.60	22.98		MADE GROUND: Reddish brown clayey gravelly fine to medium sand. Gravel is fine to coarse angular to sub rounded of mudstone, brick, ceramic and glass.
		1.00	SPT	N=6 (1,1/1,1,2,2)				MADE GROUND: Black clayey sandy gravel. Gravel is fine to coarse angular to sub rounded of mudstone, ash, sandstone, brick, ceramic, glass and metal. Poor recovery 0.60-2.00 m bgl.
		2.00	SPT	N=5 (2,2/1,1,2,1)				
		2.50	ES					
		3.00	SPT	N=23 (4,6/6,5,6,6)				
		4.00	SPT	N=4 (1,1/1,1,1,1)				
		5.00	SPT	N=19 (4,4/4,5,5,5)				
					5.45	22.53		End of Borehole at 5.45m

Remarks

1. Complete. 2. Monitoring well installed. Response zone 0.50 to 3.00 m bgl.

Borehole Log

Borehole No. **WS112**

Sheet 1 of 1

Project Name:	Cherryfields	Project No. 15280	Co-ords:	341008E - 398278N	Hole Type WS
Location:	Kirkby		Level:	23.26 m AOD	Scale 1:50
Client:	BDW Trading		Dates:	10/01/2022	Logged By N.Gregory

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
		0.50	ES		0.40	23.26		MADE GROUND: Dark grey slightly gravelly clayey medium to coarse sand with frequent rootlets. Gravel is fine to coarse, angular to subrounded of ash and clinker. (Topsoil)
		1.00 1.00	D SPT	N=4 (1,1/1,1,1,1)				MADE GROUND: Black very gravelly clay. Gravel is fine to coarse, angular to subrounded of brick, ash and clinker.
		2.00 2.00	D SPT	N=12 (4,4/3,4,2,3)	1.80	22.86		Stiff medium strength dark brown sandy CLAY.
		3.00	SPT	50 (8,13/50 for 160mm)	2.30 3.10	21.46 20.96		Dense reddish brown clayey fine to medium SAND End of Borehole at 3.10m

Remarks

1. Terminated due to refusal on dense SAND at 3.1 m bgl.

Borehole Log

Borehole No. **WS113**

Sheet 1 of 1

Project Name:	Cherryfields	Project No. 15280	Co-ords:	340970E - 398462N	Hole Type WS
Location:	Kirkby		Level:	24.43 m AOD	Scale 1:50
Client:	BDW Trading		Dates:	11/01/2022	Logged By J.Beer

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
		0.10	ES		0.15	24.43		Brown slightly sandy CLAY with rootlets. (TOPSOIL).
		0.50	PP	53.96				Stiff medium strength brownish red slightly gravelly CLAY. Gravel is fine sub rounded of mudstone.
		1.00	D					
		1.00	SPT	N=12 (2,3/2,4,3,3)				
		1.50	U					
		2.00	D		2.00	24.28		Dense red fine to medium SAND.
		2.00	SPT	50 (3,4/50 for 290mm)				
					2.44	22.43		End of Borehole at 2.44m

Remarks

1. Terminated due to refusal on weathered bedrock at 2.44 m bgl. 2. Monitoring well installed. Response zone 1.00 m to 2.00 m bgl.

Borehole Log

Borehole No. **WS114**

Sheet 1 of 1

Project Name:	Cherryfields	Project No. 15280	Co-ords:	341056E - 398257N	Hole Type WS
Location:	Kirkby		Level:	23.53 m AOD	Scale 1:50
Client:	BDW Trading		Dates:	10/01/2022	Logged By N.Gregory

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
		0.50	ES		0.20	23.53		MADE GROUND: Dark grey sandy clay with frequent rootlets. (Topsoil) Brown sandy CLAY.
		1.00	SPT	N=15 (2,2/3,3,4,5)	1.10	23.33		Medium dense reddish brown clayey fine to medium SAND. Circa 2.00 m bgl becomes dense.
		2.00	SPT	50 (8,7/50 for 160mm)	2.31	22.43		End of Borehole at 2.31m

Remarks

1. Terminated due to refusal on dense sand at 2.31 m bgl. 2. Monitoring well installed. Response zone 1.00 to 2.00 m bgl.

Borehole Log

Borehole No. **WS115**

Sheet 1 of 1

Project Name:	Cherryfields	Project No. 15280	Co-ords:	341056E - 398438N	Hole Type WS
Location:	Kirkby		Level:	24.65 m AOD	Scale 1:50
Client:	BDW Trading		Dates:	11/01/2022	Logged By J.Beer

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
		0.50	U		0.50	24.65		Brown sandy CLAY with rootlets. (Topsoil).
		1.00	D		1.00	24.15		Firm reddish brown slightly gravelly CLAY. Gravel is fine sub rounded of mudstone.
		1.00	SPT	N=8 (2,2/2,2,2,2)				Stiff medium strength brown silty CLAY.
		1.20	PP	17.17				
		1.50	ES					
		2.00	SPT	50 (5,8/50 for 235mm)	2.00	23.65		Dense red fine to medium SAND.
					2.39	22.65		End of Borehole at 2.39m

Remarks

1. Terminated due to refusal on weathered bedrock at 2.39 m bgl. 2. Monitoring well installed. Response zone 1.00 m to 2.00 m bgl.

Borehole Log

Borehole No. **WS116**

Sheet 1 of 1

Project Name:	Cherryfields	Project No. 15280	Co-ords:	341078E - 398297N	Hole Type WS
Location:	Kirkby		Level:	24.08 m AOD	Scale 1:50
Client:	BDW Trading		Dates:	11/01/2022	Logged By N.Gregory

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
		0.10	ES		0.30	24.08		MADE GROUND: Dark grey slightly gravelly clayey fine to medium sand with frequent rootlets. Gravel is fine to coarse, angular to subrounded of brick. (Topsoil)
		0.50	U					Firm medium strength light brown sandy CLAY.
	▼ 1.00	1.00	SPT	N=25 (2,3/4,8,8,5)	1.00	23.78		Medium dense reddish brown clayey fine to medium SAND. Circa 2.00 m bgl becomes dense.
		2.00	SPT	N=50 (4,5/12,13,14,11)				
					2.45	23.08		End of Borehole at 2.45m

1 2 3 4 5 6 7 8 9 10

Remarks

1. Terminated due to refusal on dense sand at 2.45 m bgl. 2. Slow water ingress at 1.00 m bgl (seepage).

Borehole Log

Borehole No. **WS117**

Sheet 1 of 1

Project Name:	Cherryfields	Project No. 15280	Co-ords:	341129E - 398422N	Hole Type WS
Location:	Kirkby		Level:	24.89 m AOD	Scale 1:50
Client:	BDW Trading		Dates:	11/01/2022	Logged By J.Beer

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
		0.10	ES		0.20	24.89		MADE GROUND: Brown slightly gravelly sandy clay with rootlets. Gravel is fine sub angular to sub rounded of mudstone, sandstone and brick (Topsoil).
		0.80	PP	90.74				Very stiff high strength reddish brown mottled grey slightly gravelly CLAY. Gravel is fine to coarse sub angular to sub rounded of mudstone and sandstone.
		1.00	D					
		1.00	SPT	N=16 (3,3/4,4,4,4)	1.40	24.69		Stiff medium strength reddish brown slightly gravelly silty CLAY. Gravel is fine to medium sub angular to sub rounded of mudstone and sandstone.
	2.00	2.00	D					
		2.00	SPT	N=16 (2,3/3,4,4,5)				
		2.20	PP	22.07	2.50	23.49		Firm slightly sandy gravelly CLAY. Gravel is fine to coarse sub angular to sub rounded of mudstone and sandstone.
		3.00	SPT	50 (10,10/50 for 280mm)	2.80	22.39		Dense red fine to medium SAND.
					3.43	22.09		End of Borehole at 3.43m

Remarks

1. Terminated due to refusal on weathered bedrock at 3.43 m bgl. 2. Monitoring well installed. Response zone 1.00 m to 2.50 m bgl. 3. Water strike at 2.00 m bgl.

Borehole Log

Borehole No. **WS118**

Sheet 1 of 1

Project Name:	Cherryfields	Project No. 15280	Co-ords:	341093E - 398266N	Hole Type WS
Location:	Kirkby		Level:	23.94 m AOD	Scale 1:50
Client:	BDW Trading		Dates:	11/01/2022	Logged By N.Gregory

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
					0.20	23.94		MADE GROUND: Dark grey sandy clay with frequent rootlets. (Topsoil)
		0.60	ES		0.70	23.74		MADE GROUND: Brown slightly sandy slightly gravelly clay. Gravel is fine to coarse, angular to subrounded of brick.
		1.00	SPT	N=8 (1,1/2,2,2,2)				Stiff medium strength reddish brown slightly sandy CLAY. Circa 2.00m bgl becomes very stiff very high strength.
		2.00	SPT	50 (2,3/50 for 155mm)				
					2.31	23.24		End of Borehole at 2.31m

Remarks

1. Terminated due to refusal on very stiff, high strength clay at 2.31 m bgl. 2. Monitoring well installed. Response zone 1.00 to 2.00 m bgl.

Borehole Log

Borehole No. **WS119**

Sheet 1 of 1

Project Name:	Cherryfields	Project No. 15280	Co-ords:	341199E - 398416N	Hole Type WS
Location:	Kirkby		Level:	26.02 m AOD	Scale 1:50
Client:	BDW Trading		Dates:	11/01/2022	Logged By J.Beer

Well	Water Strikes	Sample and In Situ Testing Depth (m)	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
		0.10	ES		0.20	26.02		MADE GROUND: Brown slightly gravelly sandy clay with rootlets. Gravel is fine sub angular to sub rounded of mudstone, sandstone and brick (Topsoil).
		1.00	D		1.00	25.82		MADE GROUND: Reddish brown gravelly clay. Gravel is fine to coarse sub angular to sub rounded of mudstone, sandstone and brick. (Poor recovery 0.70-1.00 m bgl).
		1.00	SPT	N=17 (3,4/4,5,4,4)				Very stiff high strength reddish brown slightly gravelly silty CLAY. Gravel is fine to medium sub angular to sub rounded of mudstone and sandstone.
		2.00	D					
		2.00	SPT	N=25 (3,5/5,7,6,7)				
		2.50	PP	34.34				
	2.80				2.80	25.02		Brown slightly clayey fine to medium SAND.
		3.00	D		3.00	23.22		Stiff medium strength brown silty CLAY.
		3.00	SPT	N=16 (2,3/3,4,4,5)				
		4.00	D		4.00	23.02		Dense reddish brown fine to medium SAND. (Weathered bedrock).
		4.00	SPT	50 (3,5/50 for 290mm)				
					4.44	22.02		End of Borehole at 4.44m

Remarks

1. Terminated due to refusal on weathered bedrock at 4.44 m bgl. 2. Monitoring well installed. Response zone 0.50 m to 3.50 m bgl.

Borehole Log

Borehole No. **WS120**

Sheet 1 of 1

Project Name:	Cherryfields	Project No. 15280	Co-ords:	341116E - 398222N	Hole Type WS
Location:	Kirkby		Level:	23.74 m AOD	Scale 1:50
Client:	BDW Trading		Dates:	11/01/2022	Logged By N.Gregory

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
		0.20	ES		0.30	23.74		MADE GROUND: Dark grey slightly clayey medium to coarse sand with frequent rootlets. (Topsoil)
					0.50	23.44		MADE GROUND: Brown slightly gravelly clay. Gravel is fine to coarse, angular to subrounded of brick. Reddish brown clayey fine to medium SAND.
		1.00	SPT	N=10 (1,1/2,2,2,4)				
		2.00	SPT	N=50 (18,7/10,12,13,15)				
					2.45	23.24		End of Borehole at 2.45m

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Remarks

1. Terminated due to refusal on dense sand at 2.45 m bgl. 2. Monitoring well installed. Response zone 1.00 to 2.00 m bgl.

Borehole Log

Borehole No. **WS121**

Sheet 1 of 1

Project Name:	Cherryfields	Project No. 15280	Co-ords:	341147E - 398466N	Hole Type WS
Location:	Kirkby		Level:	26.39 m AOD	Scale 1:50
Client:	BDW Trading		Dates:	11/01/2022	Logged By J.Beer

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
					0.20	26.39		MADE GROUND: Dark brown clayey fine to medium sand with rootlets. (Topsoil).
					0.50	26.19		MADE GROUND: Dark brown clayey gravelly fine to medium sand. Gravel is fine to medium sub angular to sub rounded of mudstone, sandstone and brick.
		0.80	ES					MADE GROUND: Black slightly clayey sandy gravel. Gravel is fine to coarse angular to sub rounded of mudstone, sandstone, ash, brick, ceramic and glass.
		1.00	SPT	N=1 (0,1/0,1,0,0)				
					1.60	25.89		Very stiff high strength reddish grey slightly gravelly silty CLAY. Gravel is fine to medium sub angular to sub rounded of mudstone and sandstone.
		2.00	D					
		2.00	SPT	N=17 (1,2/3,4,4,6)				
					2.80	24.79		Dense red fine to medium SAND.
		3.00	SPT	50 (5,6/50 for 280mm)				
					3.43	23.59		End of Borehole at 3.43m

1 2 3 4 5 6 7 8 9 10

Remarks

1. Terminated due to refusal on weathered bedrock at 3.43 m bgl. 2. Monitoring well installed. Response zone 0.50 m to 1.50 m bgl.

Borehole Log

Borehole No. **WS122**

Sheet 1 of 1

Project Name:	Cherryfields	Project No. 15280	Co-ords:	341158E - 398245N	Hole Type WS
Location:	Kirkby		Level:	24.45 m AOD	Scale 1:50
Client:	BDW Trading		Dates:	11/01/2022	Logged By N.Gregory

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
		0.50	ES		0.30	24.45		MADE GROUND: Dark grey gravelly clayey fine to coarse sand with frequent rootlets. Gravel is fine to coarse, angular to subrounded of ash and clinker. (Topsoil)
		1.00 1.00	D SPT	N=7 (2,2/1,2,2,2)	1.00	24.15		MADE GROUND: Brown slightly gravelly sandy clay. Gravel is fine, angular to subrounded of brick.
		2.00 2.00	D SPT	N=50 (4,4/10,12,15,13)				Firm low strength reddish brown sandy CLAY. (Becoming very stiff, very high strength at 2.00m bgl)
					2.45	23.45		End of Borehole at 2.45m

Remarks

1. Terminated due to refusal on very stiff, high strength clay at 2.305 m bgl. 2. Monitoring well installed. Response zone 0.50 to 1.50 m bgl.

Borehole Log

Borehole No. **WS123**

Sheet 1 of 1

Project Name:	Cherryfields	Project No. 15280	Co-ords:	341082E - 398509N	Hole Type WS
Location:	Kirkby		Level:	26.53 m AOD	Scale 1:50
Client:	BDW Trading		Dates:	11/01/2022	Logged By J.Beer

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
					0.20	26.53		MADE GROUND: Dark brown clayey fine to medium sand with rootlets. (Topsoil).
					0.60	26.33		MADE GROUND: Dark brown clayey gravelly fine to medium sand. Gravel is fine to medium sub angular to sub rounded of mudstone, sandstone and brick.
		1.00 1.00	D SPT	N=0 (1,1/0,0,0,0)				MADE GROUND: Very loose black slightly clayey sandy gravel. Gravel is fine to coarse angular to sub rounded of mudstone, sandstone, brick, ash, ceramic and glass.
		1.60	ES		1.50	25.93		Stiff medium strength brownish red mottled grey slightly sandy silty CLAY.
		2.00 2.00	D SPT	N=12 (2,2/2,3,3,4)				
		3.00	SPT	50 (4,4/50 for 290mm)	2.60	25.03		Dense red fine to medium SAND.
					3.44	23.93		End of Borehole at 3.44m

1 2 3 4 5 6 7 8 9 10

Remarks

1. Terminated due to refusal on weathered bedrock at 3.44 m bgl. 2. Monitoring well installed. Response zone 0.50 m to 3.00 m bgl.

Borehole Log

Borehole No. **WS124**

Sheet 1 of 1

Project Name:	Cherryfields	Project No. 15280	Co-ords:	340883E - 398506N	Hole Type WS
Location:	Kirkby		Level:	25.97 m AOD	Scale 1:50
Client:	BDW Trading		Dates:	11/01/2022	Logged By N.Gregory

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
					0.30	25.97		MADE GROUND: Dark grey sandy clay with frequent rootlets. (Topsoil)
								MADE GROUND: Brown slightly gravelly sandy clay. Gravel is fine to coarse, angular to subrounded of brick, ash and clinker.
		1.00	SPT	N=7 (1,1/1,2,2,2)	1.10	25.67		
					1.30	24.87		MADE GROUND: Dark grey slightly gravelly clayey fine to medium sand. Gravel is fine to coarse, angular to subrounded of brick, ash and clinker.
					1.70	24.67		MADE GROUND: Reddish brown slightly gravelly clayey fine to medium sand. Gravel is fine to coarse, angular to subrounded of brick, ash and clinker.
		1.90	ES					
		2.00	SPT	N=8 (1,1/1,2,2,3)				MADE GROUND: Black slightly gravelly slightly clayey fine to medium sand (ashy). Gravel is fine of ash.
					2.30	24.27		MADE GROUND: Grey slightly gravelly clayey fine to medium sand. Gravel is fine to coarse, angular to subrounded of brick and ash.
		3.00	D					
		3.00	SPT	N=11 (3,4/5,2,2,2)	3.20	23.67		MADE GROUND: Reddish brown slightly gravelly sandy clay. Gravel is fine, angular to subrounded of brick.
		4.00	D					
		4.00	SPT	50 (25 for 75mm/50 for 30mm)	4.10	22.77		End of Borehole at 4.10m

Remarks

1. Terminated due to refusal within Made Ground at 4.10 m bgl. 2. Monitoring well installed. Response zone 1.00 to 4.00 m bgl.

Borehole Log

Borehole No. **WS125**

Sheet 1 of 1

Project Name:	Cherryfields	Project No. 15280	Co-ords:	341252E - 398460N	Hole Type WS
Location:	Kirkby		Level:	25.92 m AOD	Scale 1:50
Client:	BDW Trading		Dates:	12/01/2022	Logged By H.Mason

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
					0.10	25.92		MADE GROUND: Dark brown slightly sandy clay with frequent rootlets. (Topsoil).
		0.30	ES					MADE GROUND: Dark brown clayey gravel. Gravel is fine to coarse sub angular to sub rounded of sandstone, brick, ash, glass and ceramic.
		1.00	D		1.00	25.82		Stiff medium strength brown mottled grey slightly gravelly slightly sandy CLAY. Gravel is fine to medium sub angular to sub rounded of sandstone.
		1.00	ES					
		1.00	SPT	N=12 (1,2/2,3,4,3)				
		2.00	D		2.00	24.92		Very stiff high strength brown sandy CLAY. Becoming very stiff very high strength at 2.50 m bgl.
		2.00	ES					
		2.00	SPT	N=18 (2,2/3,5,5,5)				
		2.50	D					
		2.50	SPT	N=50 (7,9/13,13,13,11)				
					2.95	23.92		End of Borehole at 2.95m

Remarks

1. Terminated due to refusal on weathered bedrock at 2.95 m bgl. 2. Monitoring well installed. Response zone 0.50 m to 1.00 m bgl.

Borehole Log

Borehole No. **WS126**

Sheet 1 of 1

Project Name:	Cherryfields	Project No. 15280	Co-ords:	341136E - 398628N	Hole Type WS
Location:	Kirkby		Level:	23.56 m AOD	Scale 1:50
Client:	BDW Trading		Dates:	11/01/2022	Logged By N.Gregory

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
		0.30	ES		0.20	23.56		MADE GROUND: Dark brown slightly clayey fine to medium with frequent rootlets. (Topsoil)
					0.40	23.36		Brown slightly clayey fine to medium SAND.
					0.70	23.16		Brown slightly clayey fine to medium SAND with organic matter.
		1.00	SPT	N=10 (1,2/2,3,3,2)				Medium dense brown slightly clayey gravelly fine to medium SAND. Gravel is fine to medium, subrounded to rounded of sandstone. Circa 2.00 m bgl becomes dense.
		2.00	SPT	N=50 (4,7/10,13,16,11)				
					2.45	22.86		End of Borehole at 2.45m

Remarks

1. Terminated due to refusal on dense sand at 2.45 m bgl. 2. Monitoring well installed. Response zone 0.60 to 1.60 m bgl.

Borehole Log

Borehole No. **WS127**

Sheet 1 of 1

Project Name:	Cherryfields	Project No. 15280	Co-ords:	341121E - 398512N	Hole Type WS
Location:	Kirkby		Level:	26.43 m AOD	Scale 1:50
Client:	BDW Trading		Dates:	12/01/2022	Logged By J.Beer

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
					0.20	26.43		MADE GROUND: Dark brown slightly sandy clay with frequent rootlets. (Topsoil).
		0.60	ES					MADE GROUND: Dark brown slightly sandy clayey gravel. Gravel is fine to coarse sub angular to sub rounded of brick, sandstone, ash, metal and glass.
		1.00 1.00	D SPT	N=6 (0,1/0,1,2,3)	1.00	26.23		Firm low strength brown slightly sandy gravelly CLAY. Gravel is fine to medium sub angular to sub rounded of sandstone. Becoming very stiff high strength at 2.00 m bgl.
		2.00 2.00	D SPT	N=18 (3,3/4,4,5,5)				
		3.00	SPT	N=17 (3,5/4,4,3,6)	3.00	25.43		Medium dense brown clayey fine to medium SAND.
		4.00	SPT	N=18 (2,2/4,4,4,6)				
					4.45	23.43		End of Borehole at 4.45m

Remarks

1. Terminated due to collapse of well at 4.00m to 3.50 bgl.

Borehole Log

Borehole No. **WS128**

Sheet 1 of 1

Project Name:	Cherryfields	Project No. 15280	Co-ords:	341168E - 398571N	Hole Type WS
Location:	Kirkby		Level:	25.02 m AOD	Scale 1:50
Client:	BDW Trading		Dates:	11/01/2022	Logged By N.Gregory

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
					0.15	25.02		Dark brown clayey fine to medium SAND with frequent rootlets (Topsoil)
		0.80	ES					Stiff medium strength brown slightly gravelly sandy CLAY. Gravel is fine to coarse angular to rounded of sandstone. Circa 2.00 m bgl becomes firm low strength. Circa 3.00 m bgl becomes stiff medium strength. Circa 3.70 m bgl becomes very stiff very high strength.
		1.00 1.00	D SPT	N=8 (3,2/2,2,2,2)				
		1.50	PP	12.26				
		2.00 2.00	D SPT	N=7 (1,2/2,2,1,2)				
		3.00 3.00	D SPT	N=13 (2,2/3,2,3,5)				
		3.70 3.70	D SPT	50 (11,13/50 for 165mm)				
					4.02	24.87		End of Borehole at 4.02m

Remarks

1. Terminated due to refusal on gravelly clay at 4.02 m bgl. 2. Monitoring well installed. Response zone 1.00 to 3.00 m bgl.

Borehole Log

Borehole No. **WS129**

Sheet 1 of 1

Project Name:	Cherryfields	Project No. 15280	Co-ords:	341057E - 398550N	Hole Type WS
Location:	Kirkby		Level:	26.33 m AOD	Scale 1:50
Client:	BDW Trading		Dates:	12/01/2022	Logged By J.Beer

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
					0.20	26.33		MADE GROUND: Brown gravelly slightly clayey fine to medium sand with rootlets. Gravel is fine to coarse angular to sub rounded of mudstone, sandstone and brick. (Topsoil).
		0.50	ES		0.60	26.13		MADE GROUND: Blackish brown sandy gravel. Gravel is fine to coarse angular to sub rounded of mudstone, sandstone, ash, brick and ceramic.
		1.00	D					Very stiff high strength grey very sandy CLAY with lenses of grey fine to medium sand. Becoming stiff medium strength at 2.00 m bgl.
		1.00	SPT	N=15 (1,3/3,4,4,4)				
		1.50	PP	36.79				
		2.00	D					
		2.00	SPT	N=16 (2,2/3,4,4,5)				
	2.50				2.80	25.73		Loose grey slightly clayey fine to medium SAND.
		3.00	SPT	N=10 (2,3/2,2,3,3)				
		4.00	SPT	N=22 (4,4/5,6,5,6)	4.00	23.53		Medium dense red fine to coarse SAND. (Weathered bedrock).
					4.45	22.33		End of Borehole at 4.45m

Remarks

1. Terminated due to collapse of well at 3.50 m bgl. 2. Monitoring well installed. Response zone 1.00 m to 3.50 m bgl. 3. Water strike at 2.50 m bgl.

Borehole Log

Borehole No. **WS130**

Sheet 1 of 1

Project Name:	Cherryfields	Project No. 15280	Co-ords:	341176E - 398535N	Hole Type WS
Location:	Kirkby		Level:	25.33 m AOD	Scale 1:50
Client:	BDW Trading		Dates:	12/01/2022	Logged By N.Gregory

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
					0.20	25.33		MADE GROUND: Dark brown slightly clayey sandy gravel with frequent rootlets and cobbles. Gravel is fine to coarse, angular to subrounded of brick and sandstone. Cobbles are sub angular of brick. (Topsoil)
		0.50	ES		0.60	25.13		Orangish brownish grey slightly gravelly sandy CLAY. Gravel is fine to coarse, subrounded to rounded of sandstone.
		1.00	D		1.00	24.73		Brown slightly gravelly clayey fine to medium SAND with pockets of grey clay. Gravel is fine to coarse, subrounded to rounded of sandstone.
		1.00	SPT	N=7 (1,2/2,1,2,2)				Firm low strength reddish brown slightly gravelly CLAY. Gravel is fine to medium, subrounded to rounded of sandstone.
		1.50	U					
		2.00	D					
		2.00	SPT	N=7 (1,1/1,2,2,2)	2.20	24.33		Firm low strength reddish brown slightly gravelly sandy CLAY. Gravel is fine to medium sub angular to sub rounded of sandstone. Circa 2.00m becomes stiff medium strength. Circa 3.50 m bgl becomes very stiff very high strength.
		3.00	D					
		3.00	SPT	N=14 (2,3/3,3,4,4)				
		3.50	D					
		3.50	SPT	50 (6,6/50 for 230mm)				
					3.88	23.13		End of Borehole at 3.88m

Remarks

1. Terminated due to refusal on very stiff, high strength CLAY at 3.88 m bgl. 2. Monitoring well installed. Response zone 1.00 to 3.00 m bgl.

Borehole Log

Borehole No. **WS131**

Sheet 1 of 1

Project Name:	Cherryfields	Project No. 15280	Co-ords:	341010E - 398600N	Hole Type WS
Location:	Kirkby		Level:	26.13 m AOD	Scale 1:50
Client:	BDW Trading		Dates:	12/01/2022	Logged By J.Beer

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
		0.10	ES		0.20	26.13		Brown clayey fine to medium SAND with rootlets (Topsoil).
		0.50	PP	17.17				Very stiff high strength slightly gravelly sandy CLAY. Gravel is fine sub angular to sub rounded of mudstone and sandstone. Becoming very stiff very high strength at 2.00 m bgl.
		1.00 1.00	D SPT	N=21 (3,4/4,6,5,6)				
		1.50	PP	88.29				
		2.00 2.00	D SPT	50 (4,7/50 for 285mm)				
					2.44	25.93		End of Borehole at 2.44m

Remarks

1. Terminated due to refusal on weathered bedrock at 2.44 m bgl.

Borehole Log

Borehole No. **WS132**

Sheet 1 of 1

Project Name:	Cherryfields	Project No. 15280	Co-ords:	341115E - 398572N	Hole Type WS
Location:	Kirkby		Level:	24.70 m AOD	Scale 1:50
Client:	BDW Trading		Dates:	12/01/2022	Logged By N.Gregory

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
					0.20	24.70		MADE GROUND: Dark brown slightly clayey fine to medium sand with frequent rootlets. (Topsoil) Reddish brown sandy CLAY.
		0.50 - 1.00	U					
		1.00 1.00 1.20	D SPT ES	N=8 (2,2/2,2,2,2)	1.00	24.50		Stiff, medium strength reddish brown slightly gravelly sandy CLAY. Gravel is fine to medium, subrounded to rounded of sandstone. Circa 3.80 m bgl becomes very stiff very high strength.
		2.00 2.00	D SPT	N=16 (2,3/3,4,4,5)				
		3.00 3.00	D SPT	N=16 (3,2/3,6,4,3)				
		3.80 3.80	D SPT	50 (9,12/50 for 155mm)	4.11	23.70		End of Borehole at 4.11m

Remarks

1. Terminated due to refusal on stiff, medium strength clay at 3.88 m bgl. 2. Monitoring well installed. Response zone 1.00 to 4.00 m bgl.

Borehole Log

Borehole No. **WS133**

Sheet 1 of 1

Project Name:	Cherryfields	Project No. 15280	Co-ords:	341018E - 398509N	Hole Type WS
Location:	Kirkby		Level:	26.39 m AOD	Scale 1:50
Client:	BDW Trading		Dates:	12/01/2022	Logged By J.Beer

Well	Water Strikes	Sample and In Situ Testing Depth (m)	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
		0.10	ES		0.40	26.39		MADE GROUND: Brown gravelly slightly clayey fine to medium sand with rootlets. Gravel is fine to coarse angular to sub rounded of mudstone, sandstone, brick. (Topsoil).
		1.00	SPT	N=15 (3,3/3,4,3,5)				Medium dense brownish clayey fine to medium SAND.
		1.80	PP	36.79				
		2.00	D		2.00	25.99		
		2.00	SPT	N=12 (2,2/3,3,3,3)				Stiff medium strength grey sandy CLAY. (Poor recovery).
	3.00	3.00	D		3.00	24.39		
		3.00	SPT	N=18 (2,2/5,4,4,5)				Very stiff high strength reddish brown very sandy CLAY. (Poor recovery).
		3.90	SPT	50 (9,12/50 for 215mm)	4.00	23.39		Very dense red fine to medium SAND. (Weathered bedrock).
					4.27	22.39		End of Borehole at 4.27m

Remarks

1. Terminated due to refusal on weathered bedrock at 4.27 m bgl. 2. Monitoring well installed. Response zone 0.50 m to 3.90 m bgl. 3. Water strike at 3.00 m bgl.

Borehole Log

Borehole No. **WS134**

Sheet 1 of 1

Project Name:	Cherryfields	Project No. 15280	Co-ords:	341071E - 398612N	Hole Type WS
Location:	Kirkby		Level:	24.43 m AOD	Scale 1:50
Client:	BDW Trading		Dates:	12/01/2022	Logged By N.Gregory

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
					0.20	24.43		MADE GROUND: Dark brown slightly gravelly clayey fine to medium sand with frequent rootlets. Gravel is fine to coarse, angular to rounded of brick. (Topsoil)
		0.50 0.50	ES U					Stiff, medium strength brown slightly sandy gravelly CLAY. Gravel is fine to medium, subrounded to rounded of sandstone and mudstone.
		1.00 1.00	D SPT	N=11 (3,2/2,2,3,4)				
					1.80	24.23		Very stiff high strength reddish brown sandy CLAY. Circa 3.00 m bgl becomes very stiff very high strength.
		2.00 2.00	D SPT	N=18 (3,3/4,4,5,5)				
		3.00 3.00	D SPT	N=50 (3,3/3,13,14,20)				
					3.45	22.63		End of Borehole at 3.45m

Remarks

1. Terminated due to refusal on very stiff, high strength CLAY at 3.45 m bgl.

Borehole Log

Borehole No. **WS135**

Sheet 1 of 1

Project Name:	Cherryfields	Project No. 15280	Co-ords:	340987E - 398559N	Hole Type WS
Location:	Kirkby		Level:	26.46 m AOD	Scale 1:50
Client:	BDW Trading		Dates:	12/01/2022	Logged By J.Beer

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
					0.20	26.46		Brown slightly clayey fine to medium SAND with rootlets. (Topsoil).
		0.80	ES					Medium dense brownish grey slightly clayey fine to medium SAND.
		1.00	SPT	N=11 (1,3/3,2,3,3)				
					1.90	26.26		
		2.00	D					Grey sandy CLAY.
		2.00	SPT	N=21 (1,4/5,4,6,6)	2.20	24.56		Very stiff high strength grey sandy CLAY.
					2.70	24.26		Very stiff very high strength grey sandy CLAY.
		3.00	D					
		3.00	SPT	50 (4,5/50 for 280mm)				
					3.43	23.76		End of Borehole at 3.43m

Remarks

1. Terminated due to refusal on weathered bedrock at 3.43 m bgl. 2. Monitoring well installed. Response zone 0.50 m to 3.00 m bgl.

Borehole Log

Borehole No. **WS136**

Sheet 1 of 1

Project Name:	Cherryfields	Project No. 15280	Co-ords:	341094E - 398601N	Hole Type WS
Location:	Kirkby		Level:	24.47 m AOD	Scale 1:50
Client:	BDW Trading		Dates:	12/01/2022	Logged By N.Gregory

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
					0.20	24.47		MADE GROUND: Dark brown slightly clayey fine to medium sand with frequent rootlets. (Topsoil)
		0.50	U					Stiff, medium strength brown slightly sandy CLAY.
		1.00	D					
		1.00	SPT	N=12 (1,2/3,3,3,3)				
		1.20	ES					
		1.50	U					
		2.00	D		2.00	24.27		
		2.00	SPT	N=15 (2,3/4,4,3,4)				Very stiff high strength reddish brown slightly gravelly sandy CLAY. Gravel is fine to medium, subrounded to rounded of sandstone. Circa 3.50 m bgl becomes very stiff very high strength.
		3.00	D					
		3.00	SPT	N=21 (2,3/4,5,6,6)				
	▼ 3.50	3.50	D					
		3.50	SPT	50 (25 for 75mm/50 for 30mm)	3.61	22.47		End of Borehole at 3.61m

Remarks

1. Terminated due to refusal on very stiff, high strength clay at 3.61 m bgl. 2. Monitoring well installed. Response zone 0.50 to 3.50 m bgl. 3. Slow water ingress at 3.50 m bgl (seepage).

Borehole Log

Borehole No. **WS137**

Sheet 1 of 1

Project Name:	Cherryfields	Project No. 15280	Co-ords:	340926E - 398547N	Hole Type WS
Location:	Kirkby		Level:	25.96 m AOD	Scale 1:50
Client:	BDW Trading		Dates:	13/01/2022	Logged By J.Beer

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
					0.25	25.96		MADE GROUND: Brown gravelly sandy clay with rootlets. Gravel is fine to medium sub angular to sub rounded of brick, mudstone and sandstone. (Topsoil).
		0.80	ES		0.70	25.71		MADE GROUND: Stiff brown gravelly sandy clay. Gravel is fine to coarse angular to sub rounded of mudstone, sandstone and brick.
		1.00	SPT	N=6 (2,1/2,1,1,2)	1.00	25.26		MADE GROUND: Black gravelly fine to medium sand. Gravel is fine to coarse angular to sub rounded of mudstone, sandstone, brick, ash, glass and ceramic.
					1.50	24.96		MADE GROUND: Black sandy gravel. Gravel is fine to coarse angular to sub rounded of brick, mudstone, sandstone and ceramic.
		1.80	PP	12.26				Firm low strength reddish brown very sandy CLAY.
		2.00	D					
		2.00	SPT	N=8 (1,1/2,1,2,3)				
					2.50	24.46		Dense red fine to medium SAND. (Weathered bedrock).
		3.00	SPT	50 (11,12/50 for 125mm)				
					3.28	23.46		End of Borehole at 3.28m

Remarks

1. Terminated due to refusal on weathered bedrock at 3.28 m bgl. 2. Monitoring well installed. Response zone 2.00 m to 3.00 m bgl.

Borehole Log

Borehole No. **WS138**

Sheet 1 of 1

Project Name:	Cherryfields	Project No. 15280	Co-ords:	341023E - 398632N	Hole Type WS
Location:	Kirkby		Level:	24.93 m AOD	Scale 1:50
Client:	BDW Trading		Dates:	12/01/2022	Logged By N.Gregory

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
		0.50	ES					MADE GROUND: Dark brown slightly clayey sandy GRAVEL. Gravel is fine to medium, angular to subrounded of brick, sandstone and concrete.
		1.00	D		1.00	24.93		
		1.00	SPT	N=7 (1,1/2,2,1,2)				Firm low strength brown slightly gravelly sandy CLAY. Gravel is fine to medium, angular to subrounded of sandstone.
		2.00	SPT	N=10 (2,2/2,2,3,3)	1.80	23.93		Loose brown slightly clayey fine to medium SAND.
		3.00	SPT	N=17 (3,3/4,4,4,5)	3.00	23.13		Medium dense brown fine to medium SAND.
		4.00	SPT	N=50 (3,4/3,10,15,22)	3.80	21.93		Dense brown reddish fine to medium SAND. (Weathered bedrock).
					4.45	21.13		End of Borehole at 4.45m

Remarks

1. Terminated due to refusal on dense sand at 4.45 m bgl. 2. Monitoring well installed. Response zone 1.00 to 4.00 m bgl.

Borehole Log

Borehole No. **WS139**

Sheet 1 of 1

Project Name:	Cherryfields	Project No. 15280	Co-ords:	340872E - 398565N	Hole Type WS
Location:	Kirkby		Level:	25.90 m AOD	Scale 1:50
Client:	BDW Trading		Dates:	13/01/2022	Logged By J.Beer

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
		0.10	ES		0.20	25.90		MADE GROUND: Brown slightly gravelly fine to medium sand with rootlets. Gravel is fine to coarse sub angular to sub rounded of mudstone, sandstone, brick. (Topsoil).
		1.00	SPT	N=22 (5,7/15,4,2,1)				MADE GROUND: Reddish brown sandy gravel. Gravel is fine to coarse angular to sub rounded of mudstone, sandstone, brick, ash, ceramic, glass and concrete.
					1.30	25.70		Stiff medium strength brown slightly gravelly slightly sandy CLAY. Gravel is fine sub angular to sub rounded of mudstone and sandstone.
		1.80	PP	12.26				
		2.00	D					
		2.00	SPT	N=13 (3,2/3,3,3,4)				
		2.50 - 3.00	U					
		3.00	SPT	50 (11,13/50 for 100mm)	3.00	24.60		Dense red fine to coarse SAND. (Weathered bedrock).
					3.25	22.90		End of Borehole at 3.25m

Remarks

1. Terminated due to refusal on weathered bedrock at 3.25 m bgl.

Borehole Log

Borehole No. **WS140**

Sheet 1 of 1

Project Name:	Cherryfields	Project No. 15280	Co-ords:	341078E - 398639N	Hole Type WS
Location:	Kirkby		Level:	24.05 m AOD	Scale 1:50
Client:	BDW Trading		Dates:	13/01/2022	Logged By N.Gregory

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
		0.50	ES					MADE GROUND: Brown gravel. Gravel is fine to coarse angular to subrounded of concrete and brick.
		1.00	SPT	N=5 (1,1/1,2,1,1)	1.00	24.05		Loose brown slightly clayey gravelly fine to medium SAND. Gravel is fine to medium, subrounded to rounded of sandstone.
		1.50	U		1.40	23.05		Firm, low strength brown slightly gravelly slightly sandy CLAY. Gravel is fine to medium, subrounded to rounded of sandstone.
		2.00	D		2.00	22.65		Firm, low strength brown slightly gravelly sandy CLAY. Gravel is fine to medium, subrounded to rounded of sandstone.
		2.00	SPT	N=8 (2,2/2,2,2,2)	2.40	22.05		Very stiff, very high strength reddish brown slightly gravelly sandy CLAY. Gravel is fine to medium, subrounded to rounded of sandstone.
		3.00	D					
		3.00	SPT	N=50 (13,5/10,14,15,11)	3.45	21.65		End of Borehole at 3.45m

Remarks

1. Terminated due to refusal on very stiff, high strength clay at 3.45 m bgl. 2. Monitoring well installed. Response zone 1.00 to 3.00 m bgl.

Borehole Log

Borehole No. **WS141**

Sheet 1 of 1

Project Name:	Cherryfields	Project No. 15280	Co-ords:	340914E - 398591N	Hole Type WS
Location:	Kirkby		Level:	26.19 m AOD	Scale 1:50
Client:	BDW Trading		Dates:	13/01/2022	Logged By J.Beer

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
		0.20	ES		0.20	26.19		MADE GROUND: Brown slightly clayey gravelly fine to medium sand with rootlets and suspected asbestos sheeting. Gravel is fine to medium sub angular to sub rounded of mudstone. (Topsoil).
					0.60	25.99		MADE GROUND: Brown sandy gravel. Gravel is fine to coarse angular to sub rounded of mudstone, sandstone, brick, ceramic, ash, glass and concrete.
		1.00	D		1.00	25.59		Brown slightly clayey fine to medium SAND.
		1.00	SPT	N=11 (1,2/2,3,3,3)				Stiff medium strength brown slightly sandy CLAY.
		1.60	PP	71.12				
		1.80	ES					
		2.00	D		2.00	25.19		Very stiff high strength reddish brown gravelly sandy CLAY. Gravel is fine to medium sub angular to sub rounded of mudstone and sandstone.
		2.00	SPT	N=27 (3,5/5,7,6,9)				
		2.60	PP	76.03				
		3.00	SPT	50 (4,6/50 for 290mm)	3.00	24.19		Dense red fine to medium SAND.(Weathered bedrock).
					3.44	23.19		End of Borehole at 3.44m

Remarks

1. Terminated due to refusal on weathered bedrock at 3.44 m bgl. 2. Monitoring well installed. Response zone 1.00 m to 3.00 m bgl.

Borehole Log

Borehole No. **WS142**

Sheet 1 of 1

Project Name:	Cherryfields	Project No. 15280	Co-ords:	341108E - 398636N	Hole Type WS
Location:	Kirkby		Level:	23.59 m AOD	Scale 1:50
Client:	BDW Trading		Dates:	13/01/2022	Logged By N.Gregory

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
								MADE GROUND: Brown slightly sandy gravel. Gravel is fine to coarse angular to subrounded concrete and brick.
		1.00	SPT	N=15 (1,2/2,4,4,5)	1.00	23.59		
		1.60	ES					Medium dense brown slightly clayey gravelly fine to medium SAND. Gravel is fine to medium, subrounded to rounded of sandstone. Hydrocarbon odour 1.00-2.40 m bgl. Circa 2.00 m bgl becomes loose.
		2.00	SPT	N=6 (1,2/2,1,1,2)				
					2.40	22.59		Very stiff, very high strength brown slightly gravelly sandy CLAY. Gravel is fine to medium, subrounded to rounded of sandstone.
		3.00	D					
		3.00	SPT	50 (25 for 80mm/50 for 30mm)	3.11	21.19		End of Borehole at 3.11m

Remarks

1. Terminated due to refusal on very stiff, high strength clay at 3.11m bgl. 2. Monitoring well installed. Response zone 1.00 to 3.00 m bgl. 3. Hydrocarbon odour between 1.00 to 2.40 m bgl.

Borehole Log

Borehole No. **WS143**

Sheet 1 of 1

Project Name:	Cherryfields	Project No. 15280	Co-ords:	340967E - 398632N	Hole Type WS
Location:	Kirkby		Level:	26.04 m AOD	Scale 1:50
Client:	BDW Trading		Dates:	13/01/2022	Logged By J.Beer

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
					0.20	26.04		MADE GROUND: Brown gravelly fine to medium sand with rootlets. Gravel is fine to coarse angular to sub rounded of mudstone, sandstone and brick. (Topsoil).
		0.40 0.50	ES U		0.50	25.84		MADE GROUND: Brown very gravelly fine to medium sand with cobbles. Gravel is fine to coarse angular to sub rounded of mudstone, sandstone, brick and glass. Cobbles are sub angular to sub rounded of brick.
		1.00 1.00	D SPT	N=12 (1,4/4,3,2,3)				Stiff medium strength greyish brown slightly sandy CLAY.
					1.40	25.54		Reddish brown fine to medium SAND.
					1.70	24.64		Dense brown slightly clayey fine to medium SAND. (Weathered bedrock).
		2.00	SPT	51 (1,2/51 for 290mm)				
					2.44	24.34		End of Borehole at 2.44m

1 2 3 4 5 6 7 8 9 10

Remarks

1. Terminated due to refusal on weathered bedrock at 2.44 m bgl.

Borehole Log

Borehole No. **WS144**

Sheet 1 of 1

Project Name:	Cherryfields	Project No. 15280	Co-ords:	341334E - 398516N	Hole Type WS
Location:	Kirkby		Level:	25.87 m AOD	Scale 1:50
Client:	BDW Trading		Dates:	24/01/2022	Logged By N.Gregory

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
					0.40	25.87		MADE GROUND: Concrete with rebar
		1.00	SPT	N=6 (2,2/1,2,1,2)				MADE GROUND: Grey gravel. Gravel is fine to coarse angular to subrounded of concrete and metal
		1.40	ES		1.20	25.47		Loose brown slightly gravelly fine to medium SAND. Gravel is fine to medium, subrounded to rounded of sandstone.
		2.00	D					
		2.00	SPT	N=15 (3,3/3,4,4,4)	2.10	24.67		Stiff medium strength brown slightly sandy CLAY.
	3.00	3.00	D		3.00	23.77		Dense brown very sandy gravel. Gravel is fine to coarse angular to subrounded of sandstone.
		3.00	SPT	50 (6,9/50 for 295mm)				
					3.44	22.87		End of Borehole at 3.44m

1 2 3 4 5 6 7 8 9 10

Remarks

1. Terminated due to refusal on SAND and GRAVEL at 3.44m bgl. 2. Monitoring well installed. Response zone 1.00 to 3.00 m bgl. 3. Slow water ingress at 3.00 m bgl (seepage).

Borehole Log

Borehole No. **WS145**

Sheet 1 of 1

Project Name:	Cherryfields	Project No. 15280	Co-ords:	340928E - 398645N	Hole Type WS
Location:	Kirkby		Level:	26.22 m AOD	Scale 1:50
Client:	BDW Trading		Dates:	13/01/2022	Logged By J.Beer

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
		0.10	ES		0.30	26.22		MADE GROUND: Brown slightly clayey gravelly fine to medium sand with rootlets. Gravel is fine to medium sub angular to sub rounded of mudstone and sandstone. (Topsoil).
	1.00	1.00	ES					MADE GROUND: Medium dense brown sandy gravel. Gravel is fine to coarse angular to sub rounded of mudstone, sandstone, brick, ceramic, glass and concrete.
		1.00	SPT	N=12 (1,2/2,1,4,5)	1.20	25.92		Medium dense brown slightly clayey fine to medium SAND. Circa 2.00 m bgl becomes dense. (Weathered bedrock).
		2.00	SPT	50 (3,5/50 for 290mm)				
					2.44	25.02		End of Borehole at 2.44m

Remarks

1. Terminated due to refusal on weathered bedrock at 2.44 m bgl. 2. Water strike at 1.00 m bgl (perched water in Made Ground).

Borehole Log

Borehole No. **WS146**

Sheet 1 of 1

Project Name:	Cherryfields	Project No. 15280	Co-ords:	341319E - 398492N	Hole Type WS
Location:	Kirkby		Level:	25.83 m AOD	Scale 1:50
Client:	BDW Trading		Dates:	24/01/2022	Logged By N.Gregory

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
		0.40	ES		0.15	25.83		MADE GROUND: Concrete
					0.50	25.68		MADE GROUND: Black very gravelly fine to medium SAND. Gravel is fine to coarse angular to subrounded of ash, concrete and brick.
					1.00	25.33		MADE GROUND: Light brown to reddish brown sandy GRAVEL with frequent cobbles. Gravel is fine to coarse angular to subrounded of brick. Cobbles are sub angular of brick.
								End of Borehole at 1.00m

Remarks

1. Terminated due to refusal on concrete obstruction at 1.00 m bgl.

Borehole Log

Borehole No. **WS147**

Sheet 1 of 1

Project Name:	Cherryfields	Project No. 15280	Co-ords:	340973E - 398676N	Hole Type WS
Location:	Kirkby		Level:	25.09 m AOD	Scale 1:50
Client:	BDW Trading		Dates:	13/01/2022	Logged By J.Beer

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
					0.15	25.09		MADE GROUND: Asphalt.
					0.30	24.94		MADE GROUND: Concrete.
					0.50	24.79		MADE GROUND: Reddish brown sandy gravel. Gravel is fine to coarse angular to sub rounded of brick, mudstone and ceramic.
		0.80	PP	53.96				Stiff medium strength grey sandy CLAY. Becoming very stiff very high strength at 2.00 m bgl.
		1.00	D					
		1.00	SPT	N=14 (2,2/3,3,3,5)				
		1.80	ES					
		1.80	PP	41.69				
		2.00	D					
		2.00	SPT	50 (3,4/50 for 270mm)				
					2.42	24.59		End of Borehole at 2.42m

Remarks

1. Terminated due to refusal on weathered bedrock at 2.42 m bgl. 2. Monitoring well installed. Response zone 1.00 m to 2.00 m bgl.

Borehole Log

Borehole No. **WS148**

Sheet 1 of 1

Project Name:	Cherryfields	Project No. 15280	Co-ords:	341321E - 398458N	Hole Type WS
Location:	Kirkby		Level:	25.98 m AOD	Scale 1:50
Client:	BDW Trading		Dates:	24/01/2022	Logged By N.Gregory

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
					0.15	25.98		MADE GROUND: Concrete with rebar
					0.30	25.83		MADE GROUND: Grey fine to coarse, angular to subrounded of concrete.
		0.80	ES					MADE GROUND: Dark greyish black slightly gravelly fine to medium SAND. Gravel is fine sub angular to sub rounded of ash.
		1.00	SPT	N=10 (2,2/2,3,2,3)				
					1.20	25.68		Stiff medium strength brown slightly sandy CLAY
		2.00	SPT	N=16 (2,3/4,4,4,4)	2.00	24.78		Medium dense brown slightly clayey fine to medium SAND. Circa 3.00m bgl becomes loose circa 4.00m bgl becomes medium dense.
	3.00	3.00	SPT	N=11 (3,2/2,3,3,3)				
		4.00	SPT	N=14 (3,2/3,3,4,4)				
		5.00	SPT	N=15 (4,3/3,4,4,4)				
					5.45	23.98		End of Borehole at 5.45m

Remarks

1. Completed 2. Monitoring well installed. Response zone 1.00 to 4.00 m bgl. 3. Slow water ingress at 3.00 m bgl (seepage).

Borehole Log

Borehole No. **WS149A**

Sheet 1 of 1

Project Name:	Cherryfields	Project No. 15280	Co-ords:	341216E - 398263N	Hole Type WS
Location:	Kirkby		Level:	24.97 m AOD	Scale 1:50
Client:	BDW Trading		Dates:	24/01/2022	Logged By J.Beer

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
		0.10	ES		0.10	24.97		MADE GROUND: Brown slightly clayey slightly gravelly fine to medium sand with rootlets. Gravel is fine to medium sub angular to sub rounded of mudstone, sandstone and brick. (Topsoil).
					0.30	24.87		
					0.50	24.67		MADE GROUND: Brown gravelly fine to medium sand. Gravel is fine to coarse angular to sub rounded of mudstone, sandstone, brick and concrete.
		1.00	SPT	50 (8,10/50 for 205mm)	0.90	24.47		MADE GROUND: Light brown sandy gravel. Gravel is fine to coarse angular to sub rounded sandstone and concrete.
					1.36	24.07		MADE GROUND: Red gravel with cobbles. Gravel is fine to coarse angular to sub rounded of brick. Cobbles are sub rounded of brick.
								MADE GROUND: Concrete.
								End of Borehole at 1.36m

Remarks

1. Terminated due to refusal on concrete obstruction at 1.36 m bgl. 2. Monitoring well installed. Response zone 0.50 m to 1.00 m bgl.

Borehole Log

Borehole No. **WS149B**

Sheet 1 of 1

Project Name:	Cherryfields	Project No. 15280	Co-ords:	341216E - 398263N	Hole Type WS
Location:	Kirkby		Level:	24.97 m AOD	Scale 1:50
Client:	BDW Trading		Dates:	24/01/2022	Logged By J.Beer

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
					0.10	24.97		MADE GROUND: Brown slightly clayey slightly gravelly fine to medium sand with rootlets. Gravel is fine to medium sub angular to sub rounded of mudstone, sandstone and brick. (Topsoil).
					0.40	24.87		MADE GROUND: Brown gravelly fine to medium sand. Gravel is fine to coarse angular to sub rounded of mudstone, sandstone, brick and concrete.
					0.50	24.57		MADE GROUND: Light brown sandy gravel. Gravel is fine to coarse angular to sub rounded sandstone and concrete.
		1.00	SPT	50 (11,8/50 for 215mm)	0.90	24.47		MADE GROUND: Red gravel with cobble. Gravel is fine to coarse angular to sub rounded of brick. Cobble is sub rounded of brick.
					1.37	24.07		MADE GROUND: Concrete.
								End of Borehole at 1.37m

Remarks

1. Terminated due to refusal on concrete obstruction at 1.37 m bgl.

Borehole Log

Borehole No. **WS150**

Sheet 1 of 1

Project Name:	Cherryfields	Project No. 15280	Co-ords:	341309E - 398443N	Hole Type WS
Location:	Kirkby		Level:	25.91 m AOD	Scale 1:50
Client:	BDW Trading		Dates:	24/01/2022	Logged By N.Gregory

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
					0.03	25.91		MADE GROUND: Asphalt
					0.20	25.88		MADE GROUND: Black gravel. Gravel is fine to coarse angular to subrounded of concrete and asphalt.
		0.40	ES					
					0.75	25.71		MADE GROUND: Orangish brown slightly gravelly fine to medium sand. Gravel is fine to medium angular to subrounded of clinker and brick.
		1.00	SPT	N=6 (2,1/1,1,2,2)				Loose light brown clayey fine to medium SAND
					1.50	25.16		Medium dense light brown fine to medium SAND
	▼ 2.00	2.00	U					
		2.00	SPT	N=17 (3,4/3,5,4,5)				
		3.00	D					
		3.00	SPT	N=21 (4,5/4,5,6,6)				
					3.30	24.41		Very stiff high strength brown very sandy CLAY
		4.00	D					
		4.00	SPT	50 (7,10/50 for 290mm)				
					4.44	22.61		End of Borehole at 4.44m

Remarks

1. Terminated due to refusal on sandy CLAY at 4.44m bgl. 2. Slow water ingress at 2.00 m bgl (seepage).

Borehole Log

Borehole No. **WS151**

Sheet 1 of 1

Project Name:	Cherryfields	Project No. 15280	Co-ords:	341149E - 398139N	Hole Type WS
Location:	Kirkby		Level:	24.03 m AOD	Scale 1:50
Client:	BDW Trading		Dates:	24/01/2022	Logged By J.Beer

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
					0.10	24.03		MADE GROUND: Light brown slightly gravelly sandy clay. Gravel is fine to medium sub angular to sub rounded of mudstone, sandstone and brick.
		0.40	ES		0.50	23.93		MADE GROUND: Black sandy gravel. Gravel is fine to coarse angular to sub rounded of mudstone, sandstone, ash, brick and glass.
		1.00	D		0.70	23.53		MADE GROUND: Black slightly gravelly slightly clayey fine to medium sand. Gravel is fine to medium sub angular to sub rounded of sandstone ash and brick.
		1.00	SPT	N=14 (2,2/3,3,3,5)				Stiff medium strength reddish light brown slightly gravelly slightly sandy CLAY. Gravel is fine to medium sub angular to sub rounded of mudstone.
		1.50	U					
		2.00	SPT	50 (4,10/50 for 290mm)	2.00	23.33		Dense red fine to medium SAND. (Weathered bedrock).
					2.44	22.03		End of Borehole at 2.44m

Remarks

1. Terminated due to refusal on weathered bedrock at 2.44 m bgl. 2. Monitoring well installed. Response zone 1.00 m to 2.00 m bgl.

Borehole Log

Borehole No. **WS152**

Sheet 1 of 1

Project Name:	Cherryfields	Project No. 15280	Co-ords:	341378E - 398444N	Hole Type WS
Location:	Kirkby		Level:	26.62 m AOD	Scale 1:50
Client:	BDW Trading		Dates:	24/01/2022	Logged By N.Gregory

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
		0.50	ES		0.40	26.62		MADE GROUND: Dark grey gravelly sandy clay with frequent rootlets. Gravel is fine subrounded of brick (Topsoil)
		1.00	SPT	N=6 (1,1/2,1,2,1)	1.10	26.22		MADE GROUND: Dark grey slightly gravelly clay. Gravel is fine subrounded of brick.
		1.50	ES					MADE GROUND: Black gravelly fine to medium sand. Gravel is fine to coarse, angular to subrounded of ash, clinker and brick.
	2.00	2.00	SPT	N=0 (0,0/0,0,0,0)				
					2.50	25.52		MADE GROUND: Brownish black slightly gravelly slightly sandy clay. Gravel is fine sub angular to sub rounded of ash
		3.00	SPT	N=50 (2,2/12,12,13,13)				
					3.45	24.12		End of Borehole at 3.45m

Remarks

1. Terminated due to refusal in Made Ground at 3.45m bgl. 2. Monitoring well installed. Response zone 0.50 to 2.50 m bgl. 3. Slow water ingress at 2.00 m bgl.

Borehole Log

Borehole No. **WS153A**

Sheet 1 of 1

Project Name:	Cherryfields	Project No. 15280	Co-ords:	341237E - 398096N	Hole Type WS
Location:	Kirkby		Level:	24.19 m AOD	Scale 1:50
Client:	BDW Trading		Dates:	24/01/2022	Logged By J.Beer

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
					0.20	24.19		MADE GROUND: Blackish brown gravelly sandy clay with rootlets. Gravel is fine to medium sub angular to sub rounded of mudstone, sandstone, ash and brick. (Topsoil).
								MADE GROUND: Reddish brown slightly gravelly sandy clay. Gravel is fine to medium angular to sub rounded of mudstone, sandstone, brick.
		1.00	SPT	50 (25 for 70mm/50 for 100mm)	0.90 0.95 1.17	23.99 23.29 23.24		MADE GROUND: Brick layer. Recovered as sub rounded cobble of brick.
								MADE GROUND: Concrete.
								End of Borehole at 1.17m

Remarks

1. Terminated due to refusal on concrete obstruction at 1.17 m bgl. 2. Monitoring well installed. Response zone 0.50 to 1.00 m bgl.

Borehole Log

Borehole No. **WS153B**

Sheet 1 of 1

Project Name:	Cherryfields	Project No. 15280	Co-ords:	341237E - 398096N	Hole Type WS
Location:	Kirkby		Level:	24.19 m AOD	Scale 1:50
Client:	BDW Trading		Dates:	24/01/2022	Logged By J.Beer

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
					0.15	24.19		MADE GROUND: Blackish brown gravelly sandy clay with rootlets. Gravel is fine to medium sub angular to sub rounded of mudstone, sandstone, ash and brick. (Topsoil).
					0.80	24.04		MADE GROUND: Reddish brown slightly gravelly sandy clay. Gravel is fine to medium angular to sub rounded of mudstone, sandstone, brick.
		1.00	SPT	50 (25 for 45mm/50 for 25mm)	0.85	23.39		MADE GROUND: Brick layer. Recovered as sub rounded cobble of brick.
					1.07	23.34		MADE GROUND: Concrete.
								End of Borehole at 1.07m

Remarks

1. Terminated due to refusal on concrete obstruction at 1.07 m bgl.

Borehole Log

Borehole No. **WS153C**

Sheet 1 of 1

Project Name:	Cherryfields	Project No. 15280	Co-ords:	341237E - 398096N	Hole Type WS
Location:	Kirkby		Level:	24.19 m AOD	Scale 1:50
Client:	BDW Trading		Dates:	24/01/2022	Logged By J.Beer

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
		0.10	ES		0.15	24.19		MADE GROUND: Blackish brown gravelly sandy clay with rootlets. Gravel is fine to medium sub angular to sub rounded of mudstone, sandstone, ash and brick. (Topsoil).
					0.85	24.04		MADE GROUND: Reddish brown slightly gravelly sandy clay. Gravel is fine to medium angular to sub rounded of mudstone, sandstone, brick.
		1.00	SPT	50 (25 for 60mm/50 for 110mm)	1.17	23.34		MADE GROUND: Brick layer. Recovered as sub rounded cobble of brick.
								End of Borehole at 1.17m

Remarks

1. Terminated due to refusal on concrete obstruction at 1.17 m bgl.

Borehole Log

Borehole No. **WS155**

Sheet 1 of 1

Project Name:	Cherryfields	Project No. 15280	Co-ords:	341299E - 398081N	Hole Type WS
Location:	Kirkby		Level:	24.46 m AOD	Scale 1:50
Client:	BDW Trading		Dates:	24/01/2022	Logged By J.Beer

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
					0.20	24.46		MADE GROUND: Black gravelly sandy clay with rootlets. Gravel is fine to medium sub angular to sub rounded of mudstone, sandstone, ash and brick. (Topsoil).
					0.70	24.26		MADE GROUND: Black sandy gravelly clay. Gravel is fine to medium sub angular to sub rounded of mudstone, ash and brick.
	▼ 1.20	1.00 1.00 1.20	D SPT ES	N=13 (3,2/2,4,3,4)	1.20	23.76		Firm reddish grey very sandy CLAY.
					1.60	23.26		Medium dense brownish grey slightly clayey fine to medium SAND.
		2.00	SPT	50 (7,16/50 for 135mm)	2.29	22.86		Dense red fine to medium SAND. (Weathered bedrock).
								End of Borehole at 2.29m

Remarks

1. Terminated due to refusal on weathered bedrock at 2.29 m bgl. 2. Water strike at 1.20 m bgl.

Borehole Log

Borehole No. **WS157**

Sheet 1 of 1

Project Name:	Cherryfields	Project No. 15280	Co-ords:	341306E - 398130N	Hole Type WS
Location:	Kirkby		Level:	24.86 m AOD	Scale 1:50
Client:	BDW Trading		Dates:	24/01/2022	Logged By J.Beer

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
		0.10	ES		0.10	24.86		MADE GROUND: Light brown slightly gravelly sandy clay with rootlets. Gravel is fine to medium sub angular to sub rounded of mudstone and brick. (Topsoil).
		0.30	PP	49.05				
		0.50	U					
					0.80	24.76		Firm greyish light brown slightly sandy slightly gravelly CLAY. Gravel is fine to medium sub angular to sub rounded of mudstone and sandstone.
		1.00	D					
		1.00	SPT	N=12 (2,1/2,3,3,4)				Stiff medium strength red slightly sandy CLAY
		1.50	PP	58.86				
					1.60	24.06		Dense red fine to medium SAND. (Weathered bedrock).
		2.00	SPT	50 (5,19/50 for 65mm)				
					2.22	23.26		End of Borehole at 2.22m

Remarks

1. Terminated due to refusal on weathered bedrock at 2.22 m bgl. 2. Monitoring well installed. Response zone 1.00 m to 2.00 m bgl.

Borehole Log

Borehole No. **WS159**

Sheet 1 of 1

Project Name:	Cherryfields	Project No. 15280	Co-ords:	341271E - 398155N	Hole Type WS
Location:	Kirkby		Level:	25.12 m AOD	Scale 1:50
Client:	BDW Trading		Dates:	24/01/2022	Logged By J.Beer

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
		0.20	ES		0.10	25.12		MADE GROUND: Dark Brown sandy gravel with woodchips. Gravel is fine to coarse sub angular to sub rounded of mudstone, sandstone, brick and ceramic. (Topsoil).
		0.50	U		0.50	25.02		MADE GROUND: Reddish brown gravelly fine to medium sand. Gravel is fine to coarse angular to sub rounded of mudstone, sandstone, brick and ceramic.
		1.00	D					
		1.00	SPT	N=11 (1,3/2,3,3,3)				Stiff medium strength brownish red mottled grey slightly gravelly CLAY. Gravel is fine to medium sub angular to sub rounded of mudstone.
		1.50	PP	24.52				
					1.70	24.62		Dense red fine to medium SAND. (Weathered bedrock).
		2.00	SPT	50 (3,9/50 for 215mm)				
					2.37	23.42		End of Borehole at 2.37m

Remarks

1. Terminated due to refusal on weathered bedrock at 2.37 m bgl.

Borehole Log

Borehole No. **WS161**

Sheet 1 of 1

Project Name:	Cherryfields	Project No. 15280	Co-ords:	341298E - 398180N	Hole Type WS
Location:	Kirkby		Level:	24.78 m AOD	Scale 1:50
Client:	BDW Trading		Dates:	25/01/2022	Logged By J.Beer

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
					0.10	24.78		MADE GROUND: Black gravelly sandy clay. Gravel is fine to coarse sub angular to sub rounded of mudstone, ash, brick and concrete. (Topsoil).
		0.50	U		0.40	24.68		MADE GROUND: Black slightly gravelly clayey fine to medium sand. Gravel is fine of ash.
		1.00	D					Firm brown slightly sandy CLAY.
		1.00	SPT	N=20 (2,2/2,5,5,8)	1.00	24.38		Very stiff high strength brown mottled grey slightly sandy slightly gravelly CLAY. Gravel is fine to medium sub angular to sub rounded of mudstone.
		1.50	ES					
		1.70	SPT	50 (8,13/50 for 205mm)	1.60	23.78		Dense light brown fine to medium SAND.
					2.00	23.18		Dense reddish brown fine to medium SAND.
					2.06	22.78		End of Borehole at 2.06m

Remarks

1. Terminated due to refusal on weathered bedrock at 2.06 m bgl. 2. Monitoring well installed. Response zone 0.50 m to 1.50 m bgl.

Borehole Log

Borehole No. **WS163**

Sheet 1 of 1

Project Name:	Cherryfields	Project No. 15280	Co-ords:	341348E - 398155N	Hole Type WS
Location:	Kirkby		Level:	25.47 m AOD	Scale 1:50
Client:	BDW Trading		Dates:	25/01/2022	Logged By J.Beer

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
		0.10	ES		0.30	25.47		MADE GROUND: Brown slightly gravelly slightly clayey fine to medium sand with rootlets. Gravel is fine to medium sub angular of brick. Light brown fine to medium SAND.
		1.00	SPT	N=17 (2,3/4,4,4,5)	1.00	25.17		Medium dense grey mottled black clayey fine to medium SAND. Slight organic odour.
	▼ 1.30	1.30	ES		1.40	24.47		Grey slightly clayey fine to medium SAND with pocket of grey clay at 1.80 m bgl.
		2.00	D		2.00	24.07		Stiff medium strength grey slightly sandy CLAY.
		2.00	SPT	N=12 (2,1/3,3,3,3)	2.40	23.47		Very stiff very high strength greyish brown sandy CLAY.
		3.00	D					
		3.00	SPT	50 (2,3/50 for 290mm)	3.44	23.07		End of Borehole at 3.44m

Remarks

1. Terminated due to refusal on weathered bedrock at 3.44 m bgl. 2. Water strike at 1.30 m bgl. 3. Slight organic odour 1.00-1.40 m bgl.

Borehole Log

Borehole No. **WS165A**

Sheet 1 of 1

Project Name:	Cherryfields	Project No. 15280	Co-ords:	341320E - 398262N	Hole Type WS
Location:	Kirkby		Level:	24.19 m AOD	Scale 1:50
Client:	BDW Trading		Dates:	25/01/2022	Logged By J.Beer

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
		0.10	ES		0.30	24.19		MADE GROUND: Brown slightly clayey gravelly clay with rootlets. Gravel is fine to coarse sub angular to sub rounded of mudstone, sandstone and brick. (Topsoil).
		0.30	SPT	50 (25 for 25mm/50 for 15mm)	0.34	23.89		MADE GROUND: Concrete.
								End of Borehole at 0.34m

Remarks

1. Terminated due to refusal on concrete obstruction at 0.34 m bgl.

Borehole Log

Borehole No. **WS165B**

Sheet 1 of 1

Project Name:	Cherryfields	Project No. 15280	Co-ords:	341320E - 398262N	Hole Type WS
Location:	Kirkby		Level:	24.19 m AOD	Scale 1:50
Client:	BDW Trading		Dates:	25/01/2022	Logged By J.Beer

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
					0.20	24.19		MADE GROUND: Brown slightly clayey gravelly clay with rootlets. Gravel is fine to coarse sub angular to sub rounded of mudstone, sandstone and brick. (Topsoil).
					0.25	23.99		MADE GROUND: Concrete.
								End of Borehole at 0.25m

1 2 3 4 5 6 7 8 9 10

Remarks

1. Terminated due to refusal on concrete obstruction at 0.25 m bgl.

Borehole Log

Borehole No. **WS165C**

Sheet 1 of 1

Project Name:	Cherryfields	Project No. 15280	Co-ords:	341320E - 398262N	Hole Type WS
Location:	Kirkby		Level:	24.19 m AOD	Scale 1:50
Client:	BDW Trading		Dates:	25/01/2022	Logged By J.Beer

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
					0.30	24.19		MADE GROUND: Brown slightly clayey gravelly clay with rootlets. Gravel is fine to coarse sub angular to sub rounded of mudstone, sandstone and brick. (Topsoil).
					0.35	23.89		MADE GROUND: Concrete.
								End of Borehole at 0.35m

1 2 3 4 5 6 7 8 9 10

Remarks

1. Terminated due to refusal on concrete obstruction at 0.35 m bgl.

Borehole Log

Borehole No. **WS167A**

Sheet 1 of 1

Project Name:	Cherryfields	Project No. 15280	Co-ords:	341263E - 398265N	Hole Type WS
Location:	Kirkby		Level:	24.85 m AOD	Scale 1:50
Client:	BDW Trading		Dates:	25/01/2022	Logged By J.Beer

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
		0.30	SPT	50 (25 for 25mm/50 for 25mm)	0.10	24.85		MADE GROUND: Brown slightly clayey gravelly clay with rootlets. Gravel is fine to coarse sub angular to sub rounded of mudstone, sandstone and brick. (Topsoil).
					0.30	24.75		MADE GROUND: Brownish red sandy gravel. Gravel is fine to coarse angular to sub angular of sandstone and brick.
					0.35	24.55		MADE GROUND: Concrete.
								End of Borehole at 0.35m

Remarks

1. Terminated due to refusal on concrete obstruction at 0.34 m bgl.

Borehole Log

Borehole No. **WS167B**

Sheet 1 of 1

Project Name:	Cherryfields	Project No. 15280	Co-ords:	341263E - 398265N	Hole Type WS
Location:	Kirkby		Level:	24.85 m AOD	Scale 1:50
Client:	BDW Trading		Dates:	25/01/2022	Logged By J.Beer

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
		0.20	ES		0.10	24.85		MADE GROUND: Brown slightly clayey gravelly clay with rootlets. Gravel is fine to coarse sub angular to sub rounded of mudstone, sandstone and brick. (Topsoil)..
					0.25	24.75		MADE GROUND: Brownish red sandy gravel. Gravel is fine to coarse angular to sub angular of sandstone and brick.
					0.30	24.60		MADE GROUND: Concrete.
								End of Borehole at 0.30m

Remarks

1. Terminated due to refusal on concrete obstruction at 0.30 m bgl.

Borehole Log

Borehole No. **WS167C**

Sheet 1 of 1

Project Name:	Cherryfields	Project No. 15280	Co-ords:	341263E - 398265N	Hole Type WS
Location:	Kirkby		Level:	24.85 m AOD	Scale 1:50
Client:	BDW Trading		Dates:	25/01/2022	Logged By J.Beer

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
					0.10	24.85		MADE GROUND: Brown slightly clayey gravelly clay with rootlets. Gravel is fine to coarse sub angular to sub rounded of mudstone, sandstone and brick. (Topsoil).
					0.25	24.75		MADE GROUND: Brownish red sandy gravel. Gravel is fine to coarse angular to sub angular of sandstone and brick.
					0.30	24.60		MADE GROUND: Concrete.
								End of Borehole at 0.30m

Remarks

1. Terminated due to refusal on concrete obstruction at 0.30 m bgl.

Borehole Log

Borehole No. **WS169**

Sheet 1 of 1

Project Name:	Cherryfields	Project No. 15280	Co-ords:	341263E - 398228N	Hole Type WS
Location:	Kirkby		Level:	24.79 m AOD	Scale 1:50
Client:	BDW Trading		Dates:	25/01/2022	Logged By J.Beer

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
					0.10	24.79		MADE GROUND: Brown slightly sandy gravelly clay with rootlets. Gravel is fine to medium sub angular to sub rounded of mudstone and brick. (Topsoil).
					0.30	24.69		MADE GROUND: Black red brown slightly sandy gravel. Gravel is fine to coarse angular to sub rounded of brick, ash, concrete and mudstone.
					0.50	24.49		MADE GROUND: Reddish brown slightly sandy gravelly clay. Gravel is fine to coarse sub angular to sub rounded of mudstone and brick.
		0.80	ES					Greyish brown slightly sandy slightly gravelly CLAY. Gravel is fine to medium sub angular to sub rounded of mudstone and sandstone.
		0.80	PP	61.31				Stiff medium strength reddish grey slightly sandy CLAY
		1.00	D		1.00	24.29		Dense red slightly clayey fine to medium SAND. (Weathered bedrock).
		1.00	SPT	N=13 (2,3/2,4,3,4)				End of Borehole at 2.44m
		1.50	U					
		1.50	PP	44.14				
		2.00	SPT	50 (1,3/50 for 290mm)	2.00	23.79		
					2.44	22.79		

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Remarks

1. Terminated due to refusal on weathered bedrock at 2.44m bgl. 2. Monitoring well installed. Response zone 1.00 m to 2.00 m bgl.

Borehole Log

Borehole No. **WS171**

Sheet 1 of 1

Project Name:	Cherryfields	Project No. 15280	Co-ords:	341103E - 398395N	Hole Type WS
Location:	Kirkby		Level:	24.72 m AOD	Scale 1:50
Client:	BDW Trading		Dates:	25/01/2022	Logged By J.Beer

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
		0.30	ES		0.20	24.72		MADE GROUND: Brown slightly clayey fine to medium sand with rootlets. (Topsoil).
		0.60	U		0.60	24.52		MADE GROUND: Brown gravelly very sandy clay. Gravel is fine to coarse angular to sub rounded of mudstone, sandstone, brick and ceramic.
		1.00	D					Stiff medium strength reddish brown slightly gravelly slightly sandy CLAY. Gravel is fine sub angular to sub rounded of mudstone and sandstone.
		1.00	SPT	N=12 (2,2/3,3,3,3)				
		1.70	PP	27.00				
		2.00	SPT	N=40 (5,6/10,10,10,10)	1.90 2.00	24.12 22.82		Brown slightly clayey fine to medium SAND. Dense red fine to medium SAND. (Weathered bedrock).
		2.60	SPT	50 (5,8/50 for 260mm)				
					3.01	22.72		End of Borehole at 3.01m

Remarks

1. Terminated due to refusal on weathered bedrock at 3.01 m bgl. 2. Monitoring well installed. Response zone 1.00 m to 2.50 m bgl.

Rotary Core Log

Borehole No. **CP/RB101**

Sheet 1 of 3

Project Name: Cherryfields	Project No. 15280	Co-ords: 340952.00 - 398398.00	Hole Type CP+RC
Location: Kirkby		Level: 23.26mbgl Orientation: ° Inclination: °	Scale 1:30
Client: BDW Trading		Dates: 08/02/2022 -	Logged By NG

Well	Water Strikes	Depth (m)	Type / FI	Coring TCR	Coring SCR	Coring RQD	Results & Information	Depth (m)	Level (m)	Legend	Stratum Description
								0.20	23.06		MADE GROUND: Dark grey very clayey fine to medium sand with frequent rootlets. (Topsoil).
		1.00 1.00 - 1.45	SPD				N=2 (1,0/1,0,1,0)				MADE GROUND: Black slightly clayey very gravelly fine to medium sand with cobbles. Gravel is fine to coarse angular to sub rounded of mudstone, sandstone, brick, ash, ceramic, glass, plastic and textile. Cobbles are sub angular of brick. (Suspected landfill).
		2.00 2.00 - 2.45	SPD				N=2 (1,0/0,1,0,1)				
		3.00 3.00 - 3.45	SPD				N=1 (1,0/0,0,0,1)				
		4.00 4.00 - 4.45	SPD				N=2 (1,0/1,0,1,0)				
		5.00 5.00 - 5.45	SPD				N=4 (1,0/1,1,1,1)				
								5.50	17.76		Very soft, extremely low strength red sandy CLAY.
		6.00	SPD								

Continued on next sheet

Remarks

1. Complete. 2. Monitoring well installed. Response zone 3.00-5.00 m bgl.

Rotary Core Log

Borehole No. **CP/RB101**

Sheet 2 of 3

Project Name: Cherryfields	Project No. 15280	Co-ords: 340952.00 - 398398.00	Hole Type CP+RC
Location: Kirkby		Level: 23.26mbgl Orientation: ° Inclination: °	Scale 1:30
Client: BDW Trading		Dates: 08/02/2022 -	Logged By NG

Well	Water Strikes	Depth (m)	Type / FI	Coring TCR	Coring SCR	Coring RQD	Results & Information	Depth (m)	Level (m)	Legend	Stratum Description
		6.00 - 6.45					50 (10,11/50 for 290mm)				
		6.50 - 8.00	C					6.50	16.76		Weak reddish brown fine to medium grained SANDSTONE.
								6.70	16.56		Extremely weak reddish brown fine to medium grained SANDSTONE. *6.78m - 7.10m: NON-INTACT*
		6.50 - 7.50		61	40	31					
								7.10	16.16		No Recovery *7.10m - 7.50m: No Recovery*
								7.50	15.76		Moderately strong reddish brown fine to medium grained SANDSTONE. *7.50m : 10° planar rough*
		7.50 - 8.50	C	80	80	70					*8.3m : 5° planar rough* *8.30m - 8.50m: AZCL (Assumed Zone of Core Loss)* *8.50m - 8.61m: NON-INTACT*
		8.50 - 9.50		40	26	11		8.93	14.32		No Recovery *8.93m - 9.50m: AZCL*
		9.50 - 11.00	C					9.50	13.76		Weak reddish brown fine to medium grained SANDSTONE. *9.50m - 9.56m: NON-INTACT*
		9.50 - 10.50		84	64	39					*9.95m : 15° planar rough* *9.99m - 10.34m: NON-INTACT*
								10.34	12.92		Moderately strong reddish brown fine to medium grained SANDSTONE.
		10.50 - 12.50	C	82	65	65		10.50	12.76		Weak to moderately strong reddish brown fine to medium grained SANDSTONE.
								11.30	11.96		Moderately strong reddish brown fine to medium grained SANDSTONE. *11.30m - 11.50m: AZCL*
								12.00	11.26		Continued on next sheet

Remarks

1. Complete. 2. Monitoring well installed. Response zone 3.00-5.00 m bgl.

Rotary Core Log

Borehole No. **CP/RB101**

Sheet 3 of 3

Project Name: Cherryfields	Project No. 15280	Co-ords: 340952.00 - 398398.00	Hole Type CP+RC
Location: Kirkby		Level: 23.26mbgl Orientation: ° Inclination: °	Scale 1:30
Client: BDW Trading		Dates: 08/02/2022 -	Logged By NG

Well	Water Strikes	Depth (m)	Type / FI	Coring TCR	Coring SCR	Coring RQD	Results & Information	Depth (m)	Level (m)	Legend	Stratum Description
		11.50 - 12.50		50	46	46		12.50	10.76		No Recovery *12.00m - 12.50m: No Recovery* End of borehole at 12.50 m

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Remarks
1. Complete. 2. Monitoring well installed. Response zone 3.00-5.00 m bgl.

Rotary Core Log

Borehole No. **CP/RB102**

Sheet 1 of 3

Project Name: Cherryfields	Project No. 15280	Co-ords: 341087.00 - 398552.00	Hole Type CP+RC
Location: Kirkby		Level: 25.91mbgl Orientation: ° Inclination: °	Scale 1:30
Client: BDW Trading		Dates: 07/02/2022 -	Logged By NG

Well	Water Strikes	Depth (m)	Type / FI	Coring TCR	Coring SCR	Coring RQD	Results & Information	Depth (m)	Level (m)	Legend	Stratum Description
											MADE GROUND: Dark grey very clayey fine to medium sand with frequent rootlets. (Topsoil).
								0.40	25.51		MADE GROUND: Brownish black sandy gravel with cobbles. Gravel is fine to coarse angular to sub rounded of mudstone, sandstone, brick, ash, ceramic, glass, plastic and metal. Cobbles are angular to sub rounded of brick, glass and ceramic. (Suspected landfill).
		1.00 1.00 - 1.45	SPD				N=1 (1,0/0,0,0,1)				
	▼	2.00 2.00 - 2.45	SPD				N=1 (1,0/0,0,1,0)				
		3.00 3.00 - 3.45	SPD				N=3 (0,0/1,1,1,0)				
		4.00 4.00 - 4.45	SPD				N=3 (1,0/0,1,1,1)				
								4.90	21.01		Very soft, extremely low strength red sandy CLAY.
		5.00 5.00 - 5.45	SPD				50 (3,10/50 for 154mm)	5.10	20.81		Weak reddish brown fine to medium grained SANDSTONE. Recovered as fine to coarse angular to subrounded GRAVEL.
		6.00 - 7.50	C					6.00	19.91		

Continued on next sheet

Remarks

1. Complete. 2. Monitoring well installed. Response zone 3.00-4.00 m bgl.

Rotary Core Log

Borehole No. **CP/RB102**

Sheet 2 of 3

Project Name: Cherryfields	Project No. 15280	Co-ords: 341087.00 - 398552.00	Hole Type CP+RC
Location: Kirkby		Level: 25.91mbgl Orientation: ° Inclination: °	Scale 1:30
Client: BDW Trading		Dates: 07/02/2022 -	Logged By NG

Well	Water Strikes	Depth (m)	Type / FI	Coring TCR	Coring SCR	Coring RQD	Results & Information	Depth (m)	Level (m)	Legend	Stratum Description
		6.00 - 7.00		65	63	50					Moderately strong reddish brown fine to medium grained SANDSTONE. *6.09m: 5° planar rough with medium sand infill* *6.37m - 6.40m: 15° undulating rough, open 30mm* *6.55m - 6.56m: 10° undulating rough, open 10mm* *6.63m - 7.00m: AZCL*
		7.00 - 8.00	2.9 C	72	42	13					*7.72m - 8.00m: AZCL*
		8.00 - 9.00		48	14	14		8.45	17.46		*8.10m - 8.27m: NON-INTACT* *8.40m - 8.45m: NON-INTACT* No Recovery *8.45m - 9.00m: No Recovery*
		9.00 - 10.50	C					9.00	16.91		Extremely weak to weak reddish brown fine to medium grained SANDSTONE.
		9.00 - 10.00		72	60	42		9.30	16.61		Weak to moderately strong reddish brown fine to medium grained SANDSTONE. Recovered as fine to coarse angular to subrounded GRAVEL.
								9.72	16.19		No Recovery *9.72m - 10.00m: No Recovery*
		10.50 - 12.00	0.6 C	82	76	44		10.00	15.91		Moderately strong reddish brown fine to medium grained SANDSTONE. *10.70m - 11.00: AZCL*
		11.00 - 12.00		80	72	23		11.30	14.61		Extremely weak reddish brown fine to medium grained SANDSTONE. Recovered as Very Stiff high strength sandy CLAY.
								11.45	14.46		No Recovery *11.45m - 11.50m: No Recovery*
								11.50	14.41		Weak to moderately strong reddish
								12.00	13.91		Continued on next sheet

Remarks
1. Complete. 2. Monitoring well installed. Response zone 3.00-4.00 m bgl.

Rotary Core Log

Borehole No.
CP/RB102
Sheet 3 of 3

Project Name: Cherryfields	Project No. 15280	Co-ords: 341087.00 - 398552.00	Hole Type CP+RC
Location: Kirkby		Level: 25.91mbgl Orientation: ° Inclination: °	Scale 1:30
Client: BDW Trading		Dates: 07/02/2022 -	Logged By NG

Well	Water Strikes	Depth (m)	Type / FI	Coring TCR	Coring SCR	Coring RQD	Results & Information	Depth (m)	Level (m)	Legend	Stratum Description
											brown fine to medium grained SANDSTONE. Recovered as fine to coarse angular to subrounded GRAVEL.
											End of borehole at 12.00 m

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Remarks
1. Complete. 2. Monitoring well installed. Response zone 3.00-4.00 m bgl.

Rotary Core Log

Borehole No. **CP/RB103**

Sheet 1 of 2

Project Name: Cherryfields	Project No. 15280	Co-ords: 341102.00 - 398322.00	Hole Type CP+RC
Location: Kirkby		Level: 25.52mbgl Orientation: ° Inclination: °	Scale 1:30
Client: BDW Trading		Dates: 08/02/2022 -	Logged By NG

Well	Water Strikes	Depth (m)	Type / FI	Coring TCR	Coring SCR	Coring RQD	Results & Information	Depth (m)	Level (m)	Legend	Stratum Description
								0.10	25.42		MADE GROUND: Dark grey very clayey fine to medium sand with frequent rootlets. (Topsoil).
		1.00 1.00 - 1.45	SPD				N=2 (1,0/1,0,1,1,0)				MADE GROUND: Reddish black clayey gravelly fine to medium sand with cobbles. Gravel is fine to coarse angular to sub rounded of mudstone, sandstone, brick, ash, ceramic, glass, timber, plastic. Cobbles are angular to sub angular of sandstone, brick and glass. (Suspected landfill).
		2.00 2.00 - 2.45	SPD				N=1 (1,0/0,0,1,0)				
		3.00 3.00 - 3.45	SPD				N=4 (1,0/0,1,1,2)				
								3.60	21.92		Very soft, extremely low strength red sandy CLAY.
		4.00 4.00 - 4.45	SPD				N=20 (1,2/3,4,4,9)				
		~~5.00~~	~~C~~				50 (25 for 60mm/50 for 45mm)	4.70	20.82		Weak reddish brown fine to medium grained SANDSTONE. Recovered as fine to coarse angular to subrounded GRAVEL.
		5.00 - 5.15 5.00 - 6.50	SPD					5.00	20.52		Moderately strong reddish brown fine to medium grained SANDSTONE.
		5.00 - 6.00	5.71	66	62	52		5.31	20.21		Weak reddish brown fine to medium grained SANDSTONE.
								5.66	19.86		No Recovery *5.66m - 6.00m: No Recovery*
								6.00	19.52		

Continued on next sheet

Remarks

1. Complete. 2. Monitoring well installed. Response zone 3.00-4.00 m bgl.

Rotary Core Log

Borehole No. **CP/RB103**

Sheet 2 of 2

Project Name: Cherryfields	Project No. 15280	Co-ords: 341102.00 - 398322.00	Hole Type CP+RC
Location: Kirkby		Level: 25.52mbgl Orientation: ° Inclination: °	Scale 1:30
Client: BDW Trading		Dates: 08/02/2022 -	Logged By NG

Well	Water Strikes	Depth (m)	Type / FI	Coring TCR	Coring SCR	Coring RQD	Results & Information	Depth (m)	Level (m)	Legend	Stratum Description
											Moderately strong reddish brown fine to medium grained SANDSTONE.
		6.60 - 8.00	C	40	40	23					6.40m - 8.00m: AZCL
		8.00 - 9.50	C								
		8.00 - 9.00		93	71	65					8.66m - 8.75m: AZCL 8.80m - 8.93m: NON-INTACT 8.93m - 9.00m: AZCL
		9.50 - 10.00	C	81	66	47					9.81m - 10.00m: AZCL
		10.00 - 11.00		80	65	60					
								10.71	14.81		No Recovery 10.71m - 10.81m: NON-INTACT 10.81m - 11.00m: No Recovery
								11.00	14.52		End of borehole at 11.00 m

Remarks

1. Complete. 2. Monitoring well installed. Response zone 3.00-4.00 m bgl.

APPENDIX VI
CHEMICAL TESTING RESULTS

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Analytical Report Number : 22-33264

Replaces Analytical Report Number: 22-33264, issue no. 1
Additional analysis undertaken.

Project / Site name:	Cherryfield Drive	**Samples received on:**	14/01/2022
Your job number:	15-280	**Samples instructed on/ Analysis started on:**	14/01/2022
Your order number:	15280-NG-B	**Analysis completed by:**	27/01/2022
Report Issue Number:	2	**Report issued on:**	27/01/2022
Samples Analysed:	5 leachate samples - 39 soil samples		

Izabela Wójcik

Signed:

Izabela Wójcik
Technical Reviewer (Reporting Team)
For & on behalf of i2 Analytical Ltd.

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41 -711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

Standard sample disposal times, unless otherwise agreed with the laboratory, are :

soils	- 4 weeks from reporting
leachates	- 2 weeks from reporting
waters	- 2 weeks from reporting
asbestos	- 6 months from reporting

Excel copies of reports are only valid when accompanied by this PDF certificate.

Any assessments of compliance with specifications are based on actual analytical results with no contribution from uncertainty of measurement.
Application of uncertainty of measurement would provide a range within which the true result lies.
An estimate of measurement uncertainty can be provided on request.

This certificate should not be reproduced, except in full, without the express permission of the laboratory.
The results included within the report are representative of the samples submitted for analysis.

Analytical Report Number: 22-33264
Project / Site name: Cherryfield Drive
Your Order No: 15280-NG-B

Lab Sample Number				2138294	2138295	2138296	2138297	2138298
Sample Reference				TP102	TP104	WS106	TP112	WS110
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.20	1.00	0.50	0.20	1.20
Date Sampled				10/01/2022	10/01/2022	10/01/2022	10/01/2022	10/01/2022
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Stone Content	%	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Moisture Content	%	0.01	NONE	26	12	16	25	16
Total mass of sample received	kg	0.001	NONE	0.30	0.30	0.30	0.30	0.30
Asbestos in Soil Screen / Identification Name	Type	N/A	ISO 17025	-	-	-	-	-
Asbestos in Soil	Type	N/A	ISO 17025	Not-detected	-	Not-detected	Not-detected	-
Asbestos Quantification (Stage 2)	%	0.001	ISO 17025	-	-	-	-	-
Asbestos Quantification Total	%	0.001	ISO 17025	-	-	-	-	-
Asbestos Analyst ID	N/A	N/A	N/A	SPU		SPU	SPU	
General Inorganics								
pH - Automated	pH Units	N/A	MCERTS	-	-	7.4	-	7.0
Total Cyanide	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Total Sulphate as SO4	mg/kg	50	MCERTS	-	-	300	-	390
Water Soluble SO4 (2:1 Leach. Equiv.) 1hr extraction	g/l	0.00125	MCERTS	-	-	0.0088	-	0.074
Water Soluble SO4 (2:1 Leach. Equiv.) 1hr extraction	mg/kg	2.5	MCERTS	-	-	18	-	150
Water Soluble SO4 (2:1 Leach. Equiv.) 1hr extraction	mg/l	1.25	MCERTS	-	-	8.8	-	73.7
Sulphide	mg/kg	1	MCERTS	-	-	< 1.0	-	17
Total Sulphur	mg/kg	50	MCERTS	-	-	170	-	350
Total Organic Carbon (TOC) - Automated	%	0.1	MCERTS	-	-	1.0	-	1.3
Total Phenols								
Total Phenols (monohydric)	mg/kg	1	MCERTS	-	-	< 1.0	-	< 1.0
Speciated PAHs								
Naphthalene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Fluorene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Phenanthrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	0.22	0.45	0.24
Anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Fluoranthene	mg/kg	0.05	MCERTS	0.42	< 0.05	0.42	0.80	0.34
Pyrene	mg/kg	0.05	MCERTS	0.45	< 0.05	0.41	0.75	0.35
Benzo(a)anthracene	mg/kg	0.05	MCERTS	0.38	< 0.05	0.42	0.55	< 0.05
Chrysene	mg/kg	0.05	MCERTS	0.29	< 0.05	0.24	0.53	< 0.05
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	0.42	< 0.05	0.46	0.62	< 0.05
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	0.23	< 0.05	0.15	0.33	< 0.05
Benzo(a)pyrene	mg/kg	0.05	MCERTS	0.41	< 0.05	0.40	0.61	< 0.05
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	0.24	< 0.05	< 0.05	0.29	< 0.05
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	0.27	< 0.05	< 0.05	0.31	< 0.05
Total PAH								
Speciated Total EPA-16 PAHs	mg/kg	0.8	MCERTS	3.11	< 0.80	2.72	5.24	0.93
Heavy Metals / Metalloids								
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	9.0	< 1.0	11	14	10
Barium (aqua regia extractable)	mg/kg	1	MCERTS	81	35	-	120	-
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	0.56	0.58	-	0.94	-
Boron (water soluble)	mg/kg	0.2	MCERTS	0.6	< 0.2	-	0.8	-
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	0.4	< 0.2	< 0.2	0.7	< 0.2
Chromium (hexavalent)	mg/kg	4	NONE	< 4.0	< 4.0	< 4.0	< 4.0	< 4.0
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	-	-	23	-	5.2

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Analytical Report Number: 22-33264
Project / Site name: Cherryfield Drive
Your Order No: 15280-NG-B

Lab Sample Number				2138294	2138295	2138296	2138297	2138298
Sample Reference				TP102	TP104	WS106	TP112	WS110
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.20	1.00	0.50	0.20	1.20
Date Sampled				10/01/2022	10/01/2022	10/01/2022	10/01/2022	10/01/2022
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Copper (aqua regia extractable)	mg/kg	1	MCERTS	44	14	41	60	1.2
Lead (aqua regia extractable)	mg/kg	1	MCERTS	75	18	50	140	76
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	15	11	19	23	39
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	1.6	< 1.0	< 1.0	< 1.0
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	19	19	-	29	-
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	71	25	60	140	81

Monoaromatics & Oxygenates

Benzene	µg/kg	1	MCERTS	-	-	-	-	-
Toluene	µg/kg	1	MCERTS	-	-	-	-	-
Ethylbenzene	µg/kg	1	MCERTS	-	-	-	-	-
p & m-xylene	µg/kg	1	MCERTS	-	-	-	-	-
o-xylene	µg/kg	1	MCERTS	-	-	-	-	-
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	1	MCERTS	-	-	-	-	-

Analytical Report Number: 22-33264
Project / Site name: Cherryfield Drive
Your Order No: 15280-NG-B

Lab Sample Number				2138294	2138295	2138296	2138297	2138298
Sample Reference				TP102	TP104	WS106	TP112	WS110
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.20	1.00	0.50	0.20	1.20
Date Sampled				10/01/2022	10/01/2022	10/01/2022	10/01/2022	10/01/2022
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Petroleum Hydrocarbons								
TPH-CWG - Aliphatic >EC5 - EC6 $_{HS\_1D\_AL}$	mg/kg	0.001	MCERTS	-	-	-	-	-
TPH-CWG - Aliphatic >EC6 - EC8 $_{HS\_1D\_AL}$	mg/kg	0.001	MCERTS	-	-	-	-	-
TPH-CWG - Aliphatic >EC8 - EC10 $_{HS\_1D\_AL}$	mg/kg	0.001	MCERTS	-	-	-	-	-
TPH-CWG - Aliphatic >EC10 - EC12 $_{EH\_CU\_1D\_AL}$	mg/kg	1	MCERTS	-	-	-	-	-
TPH-CWG - Aliphatic >EC12 - EC16 $_{EH\_CU\_1D\_AL}$	mg/kg	2	MCERTS	-	-	-	-	-
TPH-CWG - Aliphatic >EC16 - EC21 $_{EH\_CU\_1D\_AL}$	mg/kg	8	MCERTS	-	-	-	-	-
TPH-CWG - Aliphatic >EC21 - EC35 $_{EH\_CU\_1D\_AL}$	mg/kg	8	MCERTS	-	-	-	-	-
TPH-CWG - Aliphatic (EC5 - EC35) $_{EH\_CU+HS\_1D\_AL}$	mg/kg	10	MCERTS	-	-	-	-	-
TPH-CWG - Aromatic >EC5 - EC7 $_{HS\_1D\_AR}$	mg/kg	0.001	MCERTS	-	-	-	-	-
TPH-CWG - Aromatic >EC7 - EC8 $_{HS\_1D\_AR}$	mg/kg	0.001	MCERTS	-	-	-	-	-
TPH-CWG - Aromatic >EC8 - EC10 $_{HS\_1D\_AR}$	mg/kg	0.001	MCERTS	-	-	-	-	-
TPH-CWG - Aromatic >EC10 - EC12 $_{EH\_CU\_1D\_AR}$	mg/kg	1	MCERTS	-	-	-	-	-
TPH-CWG - Aromatic >EC12 - EC16 $_{EH\_CU\_1D\_AR}$	mg/kg	2	MCERTS	-	-	-	-	-
TPH-CWG - Aromatic >EC16 - EC21 $_{EH\_CU\_1D\_AR}$	mg/kg	10	MCERTS	-	-	-	-	-
TPH-CWG - Aromatic >EC21 - EC35 $_{EH\_CU\_1D\_AR}$	mg/kg	10	MCERTS	-	-	-	-	-
TPH-CWG - Aromatic (EC5 - EC35) $_{EH\_CU+HS\_1D\_AR}$	mg/kg	10	MCERTS	-	-	-	-	-
TPH (C5 - C6) $_{HS\_1D\_TOTAL}$	mg/kg	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH (C6 - C8) $_{HS\_1D\_TOTAL}$	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
TPH (C8 - C10) $_{HS\_1D\_TOTAL}$	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
TPH (C10 - C12) $_{EH\_CU\_1D\_TOTAL}$	mg/kg	2	MCERTS	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
TPH (C12 - C16) $_{EH\_CU\_1D\_TOTAL}$	mg/kg	4	MCERTS	< 4.0	< 4.0	< 4.0	< 4.0	< 4.0
TPH (C16 - C21) $_{EH\_CU\_1D\_TOTAL}$	mg/kg	1	MCERTS	7.4	< 1.0	< 1.0	< 1.0	4.5
TPH (C21 - C35) $_{EH\_CU\_1D\_TOTAL}$	mg/kg	1	MCERTS	30	< 1.0	< 1.0	< 1.0	37
TPH (C35 - C40) $_{EH\_CU\_1D\_TOTAL}$	mg/kg	10	MCERTS	< 10	< 10	< 10	< 10	31
TPH Total C5 - C40 $_{EH\_CU+HS\_1D\_TOTAL}$	mg/kg	10	MCERTS	37	< 10	< 10	< 10	72
VOCs								
Chloromethane	µg/kg	1	ISO 17025	-	-	-	-	-
Chloroethane	µg/kg	1	NONE	-	-	-	-	-
Bromomethane	µg/kg	1	ISO 17025	-	-	-	-	-
Vinyl Chloride	µg/kg	1	NONE	-	-	-	-	-
Trichlorofluoromethane	µg/kg	1	NONE	-	-	-	-	-
1,1-Dichloroethene	µg/kg	1	NONE	-	-	-	-	-
1,1,2-Trichloro 1,2,2-Trifluoroethane	µg/kg	1	ISO 17025	-	-	-	-	-
Cis-1,2-dichloroethene	µg/kg	1	MCERTS	-	-	-	-	-
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	1	MCERTS	-	-	-	-	-
1,1-Dichloroethane	µg/kg	1	MCERTS	-	-	-	-	-
2,2-Dichloropropane	µg/kg	1	MCERTS	-	-	-	-	-
Trichloromethane	µg/kg	1	MCERTS	-	-	-	-	-
1,1,1-Trichloroethane	µg/kg	1	MCERTS	-	-	-	-	-
1,2-Dichloroethane	µg/kg	1	MCERTS	-	-	-	-	-
1,1-Dichloropropene	µg/kg	1	MCERTS	-	-	-	-	-
Trans-1,2-dichloroethene	µg/kg	1	NONE	-	-	-	-	-
Benzene	µg/kg	1	MCERTS	-	-	-	-	-
Tetrachloromethane	µg/kg	1	MCERTS	-	-	-	-	-
1,2-Dichloropropane	µg/kg	1	MCERTS	-	-	-	-	-
Trichloroethene	µg/kg	1	MCERTS	-	-	-	-	-
Dibromomethane	µg/kg	1	MCERTS	-	-	-	-	-
Bromodichloromethane	µg/kg	1	MCERTS	-	-	-	-	-
Cis-1,3-dichloropropene	µg/kg	1	ISO 17025	-	-	-	-	-
Trans-1,3-dichloropropene	µg/kg	1	ISO 17025	-	-	-	-	-
Toluene	µg/kg	1	MCERTS	-	-	-	-	-
1,1,2-Trichloroethane	µg/kg	1	MCERTS	-	-	-	-	-

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Analytical Report Number: 22-33264
Project / Site name: Cherryfield Drive
Your Order No: 15280-NG-B

Lab Sample Number				2138294	2138295	2138296	2138297	2138298
Sample Reference				TP102	TP104	WS106	TP112	WS110
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.20	1.00	0.50	0.20	1.20
Date Sampled				10/01/2022	10/01/2022	10/01/2022	10/01/2022	10/01/2022
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
1,3-Dichloropropane	µg/kg	1	ISO 17025	-	-	-	-	-
Dibromochloromethane	µg/kg	1	ISO 17025	-	-	-	-	-
Tetrachloroethene	µg/kg	1	NONE	-	-	-	-	-
1,2-Dibromoethane	µg/kg	1	ISO 17025	-	-	-	-	-
Chlorobenzene	µg/kg	1	MCERTS	-	-	-	-	-
1,1,1,2-Tetrachloroethane	µg/kg	1	MCERTS	-	-	-	-	-
Ethylbenzene	µg/kg	1	MCERTS	-	-	-	-	-
p & m-Xylene	µg/kg	1	MCERTS	-	-	-	-	-
Styrene	µg/kg	1	MCERTS	-	-	-	-	-
Tribromomethane	µg/kg	1	NONE	-	-	-	-	-
o-Xylene	µg/kg	1	MCERTS	-	-	-	-	-
1,1,2,2-Tetrachloroethane	µg/kg	1	MCERTS	-	-	-	-	-
Isopropylbenzene	µg/kg	1	MCERTS	-	-	-	-	-
Bromobenzene	µg/kg	1	MCERTS	-	-	-	-	-
n-Propylbenzene	µg/kg	1	ISO 17025	-	-	-	-	-
2-Chlorotoluene	µg/kg	1	MCERTS	-	-	-	-	-
4-Chlorotoluene	µg/kg	1	MCERTS	-	-	-	-	-
1,3,5-Trimethylbenzene	µg/kg	1	ISO 17025	-	-	-	-	-
tert-Butylbenzene	µg/kg	1	MCERTS	-	-	-	-	-
1,2,4-Trimethylbenzene	µg/kg	1	ISO 17025	-	-	-	-	-
sec-Butylbenzene	µg/kg	1	MCERTS	-	-	-	-	-
1,3-Dichlorobenzene	µg/kg	1	ISO 17025	-	-	-	-	-
p-Isopropyltoluene	µg/kg	1	ISO 17025	-	-	-	-	-
1,2-Dichlorobenzene	µg/kg	1	MCERTS	-	-	-	-	-
1,4-Dichlorobenzene	µg/kg	1	MCERTS	-	-	-	-	-
Butylbenzene	µg/kg	1	MCERTS	-	-	-	-	-
1,2-Dibromo-3-chloropropane	µg/kg	1	ISO 17025	-	-	-	-	-
1,2,4-Trichlorobenzene	µg/kg	1	MCERTS	-	-	-	-	-
Hexachlorobutadiene	µg/kg	1	MCERTS	-	-	-	-	-
1,2,3-Trichlorobenzene	µg/kg	1	ISO 17025	-	-	-	-	-

SVOCs

Aniline	mg/kg	0.1	NONE	-	-	-	-	-
Phenol	mg/kg	0.2	ISO 17025	-	-	-	-	-
2-Chlorophenol	mg/kg	0.1	MCERTS	-	-	-	-	-
Bis(2-chloroethyl)ether	mg/kg	0.2	MCERTS	-	-	-	-	-
1,3-Dichlorobenzene	mg/kg	0.2	MCERTS	-	-	-	-	-
1,2-Dichlorobenzene	mg/kg	0.1	MCERTS	-	-	-	-	-
1,4-Dichlorobenzene	mg/kg	0.2	MCERTS	-	-	-	-	-
Bis(2-chloroisopropyl)ether	mg/kg	0.1	MCERTS	-	-	-	-	-
2-Methylphenol	mg/kg	0.3	MCERTS	-	-	-	-	-
Hexachloroethane	mg/kg	0.05	MCERTS	-	-	-	-	-
Nitrobenzene	mg/kg	0.3	MCERTS	-	-	-	-	-
4-Methylphenol	mg/kg	0.2	NONE	-	-	-	-	-
Isophorone	mg/kg	0.2	MCERTS	-	-	-	-	-
2-Nitrophenol	mg/kg	0.3	MCERTS	-	-	-	-	-
2,4-Dimethylphenol	mg/kg	0.3	MCERTS	-	-	-	-	-
Bis(2-chloroethoxy)methane	mg/kg	0.3	MCERTS	-	-	-	-	-
1,2,4-Trichlorobenzene	mg/kg	0.3	MCERTS	-	-	-	-	-
Naphthalene	mg/kg	0.05	MCERTS	-	-	-	-	-
2,4-Dichlorophenol	mg/kg	0.3	MCERTS	-	-	-	-	-
4-Chloroaniline	mg/kg	0.1	NONE	-	-	-	-	-
Hexachlorobutadiene	mg/kg	0.1	MCERTS	-	-	-	-	-
4-Chloro-3-methylphenol	mg/kg	0.1	NONE	-	-	-	-	-
2,4,6-Trichlorophenol	mg/kg	0.1	MCERTS	-	-	-	-	-
2,4,5-Trichlorophenol	mg/kg	0.2	MCERTS	-	-	-	-	-

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Analytical Report Number: 22-33264
Project / Site name: Cherryfield Drive
Your Order No: 15280-NG-B

Lab Sample Number				2138294	2138295	2138296	2138297	2138298
Sample Reference				TP102	TP104	WS106	TP112	WS110
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.20	1.00	0.50	0.20	1.20
Date Sampled				10/01/2022	10/01/2022	10/01/2022	10/01/2022	10/01/2022
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
2-Methylnaphthalene	mg/kg	0.1	NONE	-	-	-	-	-
2-Chloronaphthalene	mg/kg	0.1	MCERTS	-	-	-	-	-
Dimethylphthalate	mg/kg	0.1	MCERTS	-	-	-	-	-
2,6-Dinitrotoluene	mg/kg	0.1	MCERTS	-	-	-	-	-
Acenaphthylene	mg/kg	0.05	MCERTS	-	-	-	-	-
Acenaphthene	mg/kg	0.05	MCERTS	-	-	-	-	-
2,4-Dinitrotoluene	mg/kg	0.2	MCERTS	-	-	-	-	-
Dibenzofuran	mg/kg	0.2	MCERTS	-	-	-	-	-
4-Chlorophenyl phenyl ether	mg/kg	0.3	ISO 17025	-	-	-	-	-
Diethyl phthalate	mg/kg	0.2	MCERTS	-	-	-	-	-
4-Nitroaniline	mg/kg	0.2	MCERTS	-	-	-	-	-
Fluorene	mg/kg	0.05	MCERTS	-	-	-	-	-
Azobenzene	mg/kg	0.3	MCERTS	-	-	-	-	-
Bromophenyl phenyl ether	mg/kg	0.2	MCERTS	-	-	-	-	-
Hexachlorobenzene	mg/kg	0.3	MCERTS	-	-	-	-	-
Phenanthrene	mg/kg	0.05	MCERTS	-	-	-	-	-
Anthracene	mg/kg	0.05	MCERTS	-	-	-	-	-
Carbazole	mg/kg	0.3	MCERTS	-	-	-	-	-
Dibutyl phthalate	mg/kg	0.2	MCERTS	-	-	-	-	-
Anthraquinone	mg/kg	0.3	MCERTS	-	-	-	-	-
Fluoranthene	mg/kg	0.05	MCERTS	-	-	-	-	-
Pyrene	mg/kg	0.05	MCERTS	-	-	-	-	-
Butyl benzyl phthalate	mg/kg	0.3	ISO 17025	-	-	-	-	-
Benzo(a)anthracene	mg/kg	0.05	MCERTS	-	-	-	-	-
Chrysene	mg/kg	0.05	MCERTS	-	-	-	-	-
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	-	-	-	-	-
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	-	-	-	-	-
Benzo(a)pyrene	mg/kg	0.05	MCERTS	-	-	-	-	-
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	-	-	-	-	-
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	-	-	-	-	-
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	-	-	-	-	-

PCBs by GC-MS

PCB Congener 28	mg/kg	0.001	MCERTS	-	-	-	-	-
PCB Congener 52	mg/kg	0.001	MCERTS	-	-	-	-	-
PCB Congener 101	mg/kg	0.001	MCERTS	-	-	-	-	-
PCB Congener 118	mg/kg	0.001	MCERTS	-	-	-	-	-
PCB Congener 138	mg/kg	0.001	MCERTS	-	-	-	-	-
PCB Congener 153	mg/kg	0.001	MCERTS	-	-	-	-	-
PCB Congener 180	mg/kg	0.001	MCERTS	-	-	-	-	-

Total PCBs by GC-MS

Total PCBs	mg/kg	0.007	MCERTS	-	-	-	-	-

U/S = Unsuitable Sample I/S = Insufficient Sample

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Analytical Report Number: 22-33264
Project / Site name: Cherryfield Drive
Your Order No: 15280-NG-B

Lab Sample Number				2138299	2138300	2138301	2138302	2138303
Sample Reference				TP118	TP120	WS114	TP128	TP132
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.50	0.10	0.50	0.70	0.20
Date Sampled				10/01/2022	10/01/2022	10/01/2022	11/01/2022	11/01/2022
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Stone Content	%	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Moisture Content	%	0.01	NONE	28	19	17	21	24
Total mass of sample received	kg	0.001	NONE	0.40	0.30	0.30	0.30	0.30

Asbestos in Soil Screen / Identification Name	Type	N/A	ISO 17025	Amosite	-	-	-	Chrysotile & Crocidolite
Asbestos in Soil	Type	N/A	ISO 17025	Detected	Not-detected	-	-	Detected
Asbestos Quantification (Stage 2)	%	0.001	ISO 17025	0.002	-	-	-	< 0.001
Asbestos Quantification Total	%	0.001	ISO 17025	0.002	-	-	-	< 0.001
Asbestos Analyst ID	N/A	N/A	N/A	SPU	SPU			SPU

General Inorganics

pH - Automated	pH Units	N/A	MCERTS	6.9	-	7.5	-	7.3
Total Cyanide	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Total Sulphate as SO4	mg/kg	50	MCERTS	6400	-	110	-	560
Water Soluble SO4 (2:1 Leach. Equiv.) 1hr extraction	g/l	0.00125	MCERTS	2.4	-	0.0053	-	0.073
Water Soluble SO4 (2:1 Leach. Equiv.) 1hr extraction	mg/kg	2.5	MCERTS	4700	-	11	-	150
Water Soluble SO4 (2:1 Leach. Equiv.) 1hr extraction	mg/l	1.25	MCERTS	2360	-	5.3	-	72.8
Sulphide	mg/kg	1	MCERTS	160	-	< 1.0	-	12
Total Sulphur	mg/kg	50	MCERTS	7800	-	100	-	950
Total Organic Carbon (TOC) - Automated	%	0.1	MCERTS	3.4	-	0.7	-	2.1

Total Phenols

Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0	-	< 1.0	-	< 1.0

Speciated PAHs

Naphthalene	mg/kg	0.05	MCERTS	-	< 0.05	< 0.05	< 0.05	1.3
Acenaphthylene	mg/kg	0.05	MCERTS	-	< 0.05	< 0.05	< 0.05	0.27
Acenaphthene	mg/kg	0.05	MCERTS	-	0.97	< 0.05	< 0.05	0.81
Fluorene	mg/kg	0.05	MCERTS	-	0.67	< 0.05	< 0.05	0.88
Phenanthrene	mg/kg	0.05	MCERTS	-	4.7	< 0.05	0.50	8.6
Anthracene	mg/kg	0.05	MCERTS	-	0.71	< 0.05	< 0.05	2.2
Fluoranthene	mg/kg	0.05	MCERTS	-	3.7	< 0.05	0.82	11
Pyrene	mg/kg	0.05	MCERTS	-	3.7	< 0.05	0.78	9.3
Benzo(a)anthracene	mg/kg	0.05	MCERTS	-	2.4	< 0.05	0.48	7.7
Chrysene	mg/kg	0.05	MCERTS	-	1.9	< 0.05	0.51	5.0
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	-	2.5	< 0.05	0.43	6.8
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	-	0.58	< 0.05	0.39	2.2
Benzo(a)pyrene	mg/kg	0.05	MCERTS	-	2.2	< 0.05	0.54	5.7
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	-	0.85	< 0.05	0.26	2.6
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	-	0.32	< 0.05	< 0.05	0.78
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	-	1.1	< 0.05	0.35	2.6

Total PAH

Speciated Total EPA-16 PAHs	mg/kg	0.8	MCERTS	-	26.2	< 0.80	5.06	68.1

Heavy Metals / Metalloids

Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	110	12	< 1.0	10	52
Barium (aqua regia extractable)	mg/kg	1	MCERTS	-	80	-	110	-
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	-	0.73	-	1.4	-
Boron (water soluble)	mg/kg	0.2	MCERTS	-	0.3	-	1.5	-
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
Chromium (hexavalent)	mg/kg	4	NONE	< 4.0	< 4.0	< 4.0	< 4.0	< 4.0
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	82	-	5.0	-	25

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The results included within the report are representative of the samples submitted for analysis.

Analytical Report Number: 22-33264
Project / Site name: Cherryfield Drive
Your Order No: 15280-NG-B

Lab Sample Number				2138299	2138300	2138301	2138302	2138303
Sample Reference				TP118	TP120	WS114	TP128	TP132
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.50	0.10	0.50	0.70	0.20
Date Sampled				10/01/2022	10/01/2022	10/01/2022	11/01/2022	11/01/2022
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Copper (aqua regia extractable)	mg/kg	1	MCERTS	320	60	3.4	64	200
Lead (aqua regia extractable)	mg/kg	1	MCERTS	220	98	2.5	85	160
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	2.8	0.7	0.4	< 0.3	1.1
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	130	17	1.5	24	74
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	3.9	< 1.0
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	-	23	-	33	-
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	480	84	< 1.0	140	94

Monoaromatics & Oxygenates

Benzene	µg/kg	1	MCERTS	< 1.0	-	-	-	-
Toluene	µg/kg	1	MCERTS	< 1.0	-	-	-	-
Ethylbenzene	µg/kg	1	MCERTS	< 1.0	-	-	-	-
p & m-xylene	µg/kg	1	MCERTS	< 1.0	-	-	-	-
o-xylene	µg/kg	1	MCERTS	< 1.0	-	-	-	-
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	1	MCERTS	< 1.0	-	-	-	-

Analytical Report Number: 22-33264
Project / Site name: Cherryfield Drive
Your Order No: 15280-NG-B

Lab Sample Number				2138299	2138300	2138301	2138302	2138303
Sample Reference				TP118	TP120	WS114	TP128	TP132
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.50	0.10	0.50	0.70	0.20
Date Sampled				10/01/2022	10/01/2022	10/01/2022	11/01/2022	11/01/2022
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Petroleum Hydrocarbons								
TPH-CWG - Aliphatic >EC5 - EC6 $_{HS\_1D\_AL}$	mg/kg	0.001	MCERTS	< 0.001	-	-	-	-
TPH-CWG - Aliphatic >EC6 - EC8 $_{HS\_1D\_AL}$	mg/kg	0.001	MCERTS	< 0.001	-	-	-	-
TPH-CWG - Aliphatic >EC8 - EC10 $_{HS\_1D\_AL}$	mg/kg	0.001	MCERTS	< 0.001	-	-	-	-
TPH-CWG - Aliphatic >EC10 - EC12 $_{EH\_CU\_1D\_AL}$	mg/kg	1	MCERTS	< 1.0	-	-	-	-
TPH-CWG - Aliphatic >EC12 - EC16 $_{EH\_CU\_1D\_AL}$	mg/kg	2	MCERTS	4.4	-	-	-	-
TPH-CWG - Aliphatic >EC16 - EC21 $_{EH\_CU\_1D\_AL}$	mg/kg	8	MCERTS	35	-	-	-	-
TPH-CWG - Aliphatic >EC21 - EC35 $_{EH\_CU\_1D\_AL}$	mg/kg	8	MCERTS	390	-	-	-	-
TPH-CWG - Aliphatic (EC5 - EC35) $_{EH\_CU+HS\_1D\_AL}$	mg/kg	10	MCERTS	430	-	-	-	-
TPH-CWG - Aromatic >EC5 - EC7 $_{HS\_1D\_AR}$	mg/kg	0.001	MCERTS	< 0.001	-	-	-	-
TPH-CWG - Aromatic >EC7 - EC8 $_{HS\_1D\_AR}$	mg/kg	0.001	MCERTS	< 0.001	-	-	-	-
TPH-CWG - Aromatic >EC8 - EC10 $_{HS\_1D\_AR}$	mg/kg	0.001	MCERTS	< 0.001	-	-	-	-
TPH-CWG - Aromatic >EC10 - EC12 $_{EH\_CU\_1D\_AR}$	mg/kg	1	MCERTS	< 1.0	-	-	-	-
TPH-CWG - Aromatic >EC12 - EC16 $_{EH\_CU\_1D\_AR}$	mg/kg	2	MCERTS	< 2.0	-	-	-	-
TPH-CWG - Aromatic >EC16 - EC21 $_{EH\_CU\_1D\_AR}$	mg/kg	10	MCERTS	18	-	-	-	-
TPH-CWG - Aromatic >EC21 - EC35 $_{EH\_CU\_1D\_AR}$	mg/kg	10	MCERTS	190	-	-	-	-
TPH-CWG - Aromatic (EC5 - EC35) $_{EH\_CU+HS\_1D\_AR}$	mg/kg	10	MCERTS	210	-	-	-	-
TPH (C5 - C6) $_{HS\_1D\_TOTAL}$	mg/kg	1	NONE	-	< 1.0	< 1.0	< 1.0	< 1.0
TPH (C6 - C8) $_{HS\_1D\_TOTAL}$	mg/kg	0.1	MCERTS	-	< 0.1	< 0.1	< 0.1	< 0.1
TPH (C8 - C10) $_{HS\_1D\_TOTAL}$	mg/kg	0.1	MCERTS	-	< 0.1	< 0.1	< 0.1	< 0.1
TPH (C10 - C12) $_{EH\_CU\_1D\_TOTAL}$	mg/kg	2	MCERTS	-	< 2.0	< 2.0	< 2.0	12
TPH (C12 - C16) $_{EH\_CU\_1D\_TOTAL}$	mg/kg	4	MCERTS	-	< 4.0	< 4.0	< 4.0	10
TPH (C16 - C21) $_{EH\_CU\_1D\_TOTAL}$	mg/kg	1	MCERTS	-	9.0	< 1.0	7.5	19
TPH (C21 - C35) $_{EH\_CU\_1D\_TOTAL}$	mg/kg	1	MCERTS	-	20	< 1.0	21	42
TPH (C35 - C40) $_{EH\_CU\_1D\_TOTAL}$	mg/kg	10	MCERTS	-	< 10	< 10	< 10	< 10
TPH Total C5 - C40 $_{EH\_CU+HS\_1D\_TOTAL}$	mg/kg	10	MCERTS	-	29	< 10	29	83
VOCs								
Chloromethane	µg/kg	1	ISO 17025	< 1.0	-	-	-	-
Chloroethane	µg/kg	1	NONE	< 1.0	-	-	-	-
Bromomethane	µg/kg	1	ISO 17025	< 1.0	-	-	-	-
Vinyl Chloride	µg/kg	1	NONE	< 1.0	-	-	-	-
Trichlorofluoromethane	µg/kg	1	NONE	< 1.0	-	-	-	-
1,1-Dichloroethene	µg/kg	1	NONE	< 1.0	-	-	-	-
1,1,2-Trichloro 1,2,2-Trifluoroethane	µg/kg	1	ISO 17025	< 1.0	-	-	-	-
Cis-1,2-dichloroethene	µg/kg	1	MCERTS	< 1.0	-	-	-	-
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	1	MCERTS	< 1.0	-	-	-	-
1,1-Dichloroethane	µg/kg	1	MCERTS	< 1.0	-	-	-	-
2,2-Dichloropropane	µg/kg	1	MCERTS	< 1.0	-	-	-	-
Trichloromethane	µg/kg	1	MCERTS	< 1.0	-	-	-	-
1,1,1-Trichloroethane	µg/kg	1	MCERTS	< 1.0	-	-	-	-
1,2-Dichloroethane	µg/kg	1	MCERTS	< 1.0	-	-	-	-
1,1-Dichloropropene	µg/kg	1	MCERTS	< 1.0	-	-	-	-
Trans-1,2-dichloroethene	µg/kg	1	NONE	< 1.0	-	-	-	-
Benzene	µg/kg	1	MCERTS	< 1.0	-	-	-	-
Tetrachloromethane	µg/kg	1	MCERTS	< 1.0	-	-	-	-
1,2-Dichloropropane	µg/kg	1	MCERTS	< 1.0	-	-	-	-
Trichloroethene	µg/kg	1	MCERTS	< 1.0	-	-	-	-
Dibromomethane	µg/kg	1	MCERTS	< 1.0	-	-	-	-
Bromodichloromethane	µg/kg	1	MCERTS	< 1.0	-	-	-	-
Cis-1,3-dichloropropene	µg/kg	1	ISO 17025	< 1.0	-	-	-	-
Trans-1,3-dichloropropene	µg/kg	1	ISO 17025	< 1.0	-	-	-	-
Toluene	µg/kg	1	MCERTS	< 1.0	-	-	-	-
1,1,2-Trichloroethane	µg/kg	1	MCERTS	< 1.0	-	-	-	-

Analytical Report Number: 22-33264
Project / Site name: Cherryfield Drive
Your Order No: 15280-NG-B

Lab Sample Number				2138299	2138300	2138301	2138302	2138303
Sample Reference				TP118	TP120	WS114	TP128	TP132
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.50	0.10	0.50	0.70	0.20
Date Sampled				10/01/2022	10/01/2022	10/01/2022	11/01/2022	11/01/2022
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
1,3-Dichloropropane	µg/kg	1	ISO 17025	< 1.0	-	-	-	-
Dibromochloromethane	µg/kg	1	ISO 17025	< 1.0	-	-	-	-
Tetrachloroethene	µg/kg	1	NONE	< 1.0	-	-	-	-
1,2-Dibromoethane	µg/kg	1	ISO 17025	< 1.0	-	-	-	-
Chlorobenzene	µg/kg	1	MCERTS	< 1.0	-	-	-	-
1,1,1,2-Tetrachloroethane	µg/kg	1	MCERTS	< 1.0	-	-	-	-
Ethylbenzene	µg/kg	1	MCERTS	< 1.0	-	-	-	-
p & m-Xylene	µg/kg	1	MCERTS	< 1.0	-	-	-	-
Styrene	µg/kg	1	MCERTS	< 1.0	-	-	-	-
Tribromomethane	µg/kg	1	NONE	< 1.0	-	-	-	-
o-Xylene	µg/kg	1	MCERTS	< 1.0	-	-	-	-
1,1,2,2-Tetrachloroethane	µg/kg	1	MCERTS	< 1.0	-	-	-	-
Isopropylbenzene	µg/kg	1	MCERTS	< 1.0	-	-	-	-
Bromobenzene	µg/kg	1	MCERTS	< 1.0	-	-	-	-
n-Propylbenzene	µg/kg	1	ISO 17025	< 1.0	-	-	-	-
2-Chlorotoluene	µg/kg	1	MCERTS	< 1.0	-	-	-	-
4-Chlorotoluene	µg/kg	1	MCERTS	< 1.0	-	-	-	-
1,3,5-Trimethylbenzene	µg/kg	1	ISO 17025	< 1.0	-	-	-	-
tert-Butylbenzene	µg/kg	1	MCERTS	< 1.0	-	-	-	-
1,2,4-Trimethylbenzene	µg/kg	1	ISO 17025	< 1.0	-	-	-	-
sec-Butylbenzene	µg/kg	1	MCERTS	< 1.0	-	-	-	-
1,3-Dichlorobenzene	µg/kg	1	ISO 17025	< 1.0	-	-	-	-
p-Isopropyltoluene	µg/kg	1	ISO 17025	< 1.0	-	-	-	-
1,2-Dichlorobenzene	µg/kg	1	MCERTS	< 1.0	-	-	-	-
1,4-Dichlorobenzene	µg/kg	1	MCERTS	< 1.0	-	-	-	-
Butylbenzene	µg/kg	1	MCERTS	< 1.0	-	-	-	-
1,2-Dibromo-3-chloropropane	µg/kg	1	ISO 17025	< 1.0	-	-	-	-
1,2,4-Trichlorobenzene	µg/kg	1	MCERTS	< 1.0	-	-	-	-
Hexachlorobutadiene	µg/kg	1	MCERTS	< 1.0	-	-	-	-
1,2,3-Trichlorobenzene	µg/kg	1	ISO 17025	< 1.0	-	-	-	-

SVOCs

Aniline	mg/kg	0.1	NONE	< 0.1	-	-	-	-
Phenol	mg/kg	0.2	ISO 17025	< 0.2	-	-	-	-
2-Chlorophenol	mg/kg	0.1	MCERTS	< 0.1	-	-	-	-
Bis(2-chloroethyl)ether	mg/kg	0.2	MCERTS	< 0.2	-	-	-	-
1,3-Dichlorobenzene	mg/kg	0.2	MCERTS	< 0.2	-	-	-	-
1,2-Dichlorobenzene	mg/kg	0.1	MCERTS	< 0.1	-	-	-	-
1,4-Dichlorobenzene	mg/kg	0.2	MCERTS	< 0.2	-	-	-	-
Bis(2-chloroisopropyl)ether	mg/kg	0.1	MCERTS	< 0.1	-	-	-	-
2-Methylphenol	mg/kg	0.3	MCERTS	< 0.3	-	-	-	-
Hexachloroethane	mg/kg	0.05	MCERTS	< 0.05	-	-	-	-
Nitrobenzene	mg/kg	0.3	MCERTS	< 0.3	-	-	-	-
4-Methylphenol	mg/kg	0.2	NONE	< 0.2	-	-	-	-
Isophorone	mg/kg	0.2	MCERTS	< 0.2	-	-	-	-
2-Nitrophenol	mg/kg	0.3	MCERTS	< 0.3	-	-	-	-
2,4-Dimethylphenol	mg/kg	0.3	MCERTS	< 0.3	-	-	-	-
Bis(2-chloroethoxy)methane	mg/kg	0.3	MCERTS	< 0.3	-	-	-	-
1,2,4-Trichlorobenzene	mg/kg	0.3	MCERTS	< 0.3	-	-	-	-
Naphthalene	mg/kg	0.05	MCERTS	< 0.05	-	-	-	-
2,4-Dichlorophenol	mg/kg	0.3	MCERTS	< 0.3	-	-	-	-
4-Chloroaniline	mg/kg	0.1	NONE	< 0.1	-	-	-	-
Hexachlorobutadiene	mg/kg	0.1	MCERTS	< 0.1	-	-	-	-
4-Chloro-3-methylphenol	mg/kg	0.1	NONE	< 0.1	-	-	-	-
2,4,6-Trichlorophenol	mg/kg	0.1	MCERTS	< 0.1	-	-	-	-
2,4,5-Trichlorophenol	mg/kg	0.2	MCERTS	< 0.2	-	-	-	-

Analytical Report Number: 22-33264
Project / Site name: Cherryfield Drive
Your Order No: 15280-NG-B

Lab Sample Number				2138299	2138300	2138301	2138302	2138303
Sample Reference				TP118	TP120	WS114	TP128	TP132
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.50	0.10	0.50	0.70	0.20
Date Sampled				10/01/2022	10/01/2022	10/01/2022	11/01/2022	11/01/2022
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
2-Methylnaphthalene	mg/kg	0.1	NONE	< 0.1	-	-	-	-
2-Chloronaphthalene	mg/kg	0.1	MCERTS	< 0.1	-	-	-	-
Dimethylphthalate	mg/kg	0.1	MCERTS	< 0.1	-	-	-	-
2,6-Dinitrotoluene	mg/kg	0.1	MCERTS	< 0.1	-	-	-	-
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	-	-	-	-
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05	-	-	-	-
2,4-Dinitrotoluene	mg/kg	0.2	MCERTS	< 0.2	-	-	-	-
Dibenzofuran	mg/kg	0.2	MCERTS	< 0.2	-	-	-	-
4-Chlorophenyl phenyl ether	mg/kg	0.3	ISO 17025	< 0.3	-	-	-	-
Diethyl phthalate	mg/kg	0.2	MCERTS	< 0.2	-	-	-	-
4-Nitroaniline	mg/kg	0.2	MCERTS	< 0.2	-	-	-	-
Fluorene	mg/kg	0.05	MCERTS	< 0.05	-	-	-	-
Azobenzene	mg/kg	0.3	MCERTS	< 0.3	-	-	-	-
Bromophenyl phenyl ether	mg/kg	0.2	MCERTS	< 0.2	-	-	-	-
Hexachlorobenzene	mg/kg	0.3	MCERTS	< 0.3	-	-	-	-
Phenanthrene	mg/kg	0.05	MCERTS	0.48	-	-	-	-
Anthracene	mg/kg	0.05	MCERTS	< 0.05	-	-	-	-
Carbazole	mg/kg	0.3	MCERTS	< 0.3	-	-	-	-
Dibutyl phthalate	mg/kg	0.2	MCERTS	< 0.2	-	-	-	-
Anthraquinone	mg/kg	0.3	MCERTS	< 0.3	-	-	-	-
Fluoranthene	mg/kg	0.05	MCERTS	0.52	-	-	-	-
Pyrene	mg/kg	0.05	MCERTS	0.51	-	-	-	-
Butyl benzyl phthalate	mg/kg	0.3	ISO 17025	< 0.3	-	-	-	-
Benzo(a)anthracene	mg/kg	0.05	MCERTS	< 0.05	-	-	-	-
Chrysene	mg/kg	0.05	MCERTS	< 0.05	-	-	-	-
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	< 0.05	-	-	-	-
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	< 0.05	-	-	-	-
Benzo(a)pyrene	mg/kg	0.05	MCERTS	< 0.05	-	-	-	-
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	< 0.05	-	-	-	-
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05	-	-	-	-
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	< 0.05	-	-	-	-

PCBs by GC-MS

PCB Congener 28	mg/kg	0.001	MCERTS	-	-	-	-	-
PCB Congener 52	mg/kg	0.001	MCERTS	-	-	-	-	-
PCB Congener 101	mg/kg	0.001	MCERTS	-	-	-	-	-
PCB Congener 118	mg/kg	0.001	MCERTS	-	-	-	-	-
PCB Congener 138	mg/kg	0.001	MCERTS	-	-	-	-	-
PCB Congener 153	mg/kg	0.001	MCERTS	-	-	-	-	-
PCB Congener 180	mg/kg	0.001	MCERTS	-	-	-	-	-

Total PCBs by GC-MS

Total PCBs	mg/kg	0.007	MCERTS	-	-	-	-	-

U/S = Unsuitable Sample I/S = Insufficient Sample

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The results included within the report are representative of the samples submitted for analysis.

Analytical Report Number: 22-33264
Project / Site name: Cherryfield Drive
Your Order No: 15280-NG-B

Lab Sample Number				2138304	2138305	2138306	2138307	2138308
Sample Reference				TP136	TP140	WS124	TP142	TP154
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.10	0.10	1.90	1.00	0.80
Date Sampled				11/01/2022	11/01/2022	11/01/2022	11/01/2022	12/01/2022
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Stone Content	%	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	21
Moisture Content	%	0.01	NONE	21	19	17	17	14
Total mass of sample received	kg	0.001	NONE	0.30	0.30	0.30	0.30	0.30
Asbestos in Soil Screen / Identification Name	Type	N/A	ISO 17025	-	Chrysotile	-	-	-
Asbestos in Soil	Type	N/A	ISO 17025	Not-detected	Detected	Not-detected	Not-detected	Not-detected
Asbestos Quantification (Stage 2)	%	0.001	ISO 17025	-	0.005	-	-	-
Asbestos Quantification Total	%	0.001	ISO 17025	-	0.005	-	-	-
Asbestos Analyst ID	N/A	N/A	N/A	SPU	SPU	SPU	SPU	JSW
General Inorganics								
pH - Automated	pH Units	N/A	MCERTS	-	-	7.4	-	-
Total Cyanide	mg/kg	1	MCERTS	< 1.0	11	1.9	< 1.0	< 1.0
Total Sulphate as SO4	mg/kg	50	MCERTS	-	-	970	-	-
Water Soluble SO4 (2:1 Leach. Equiv.) 1hr extraction	g/l	0.00125	MCERTS	-	-	0.26	-	-
Water Soluble SO4 (2:1 Leach. Equiv.) 1hr extraction	mg/kg	2.5	MCERTS	-	-	520	-	-
Water Soluble SO4 (2:1 Leach. Equiv.) 1hr extraction	mg/l	1.25	MCERTS	-	-	258	-	-
Sulphide	mg/kg	1	MCERTS	-	-	16	-	-
Total Sulphur	mg/kg	50	MCERTS	-	-	990	-	-
Total Organic Carbon (TOC) - Automated	%	0.1	MCERTS	-	-	1.0	-	-
Total Phenols								
Total Phenols (monohydric)	mg/kg	1	MCERTS	-	-	< 1.0	-	-
Speciated PAHs								
Naphthalene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	0.72	< 0.05
Fluorene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	0.67	< 0.05
Phenanthrene	mg/kg	0.05	MCERTS	0.48	1.8	0.76	3.9	0.31
Anthracene	mg/kg	0.05	MCERTS	< 0.05	0.42	< 0.05	1.4	< 0.05
Fluoranthene	mg/kg	0.05	MCERTS	0.70	3.1	1.0	7.0	0.50
Pyrene	mg/kg	0.05	MCERTS	0.69	2.6	0.87	6.3	0.44
Benzo(a)anthracene	mg/kg	0.05	MCERTS	0.58	2.4	0.75	4.4	0.38
Chrysene	mg/kg	0.05	MCERTS	0.36	1.5	0.55	2.8	0.26
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	0.52	2.2	0.73	3.8	0.41
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	0.28	0.62	0.28	1.5	0.13
Benzo(a)pyrene	mg/kg	0.05	MCERTS	0.50	1.5	0.61	3.6	0.34
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	0.24	0.79	0.27	1.3	< 0.05
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	0.45	< 0.05
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	0.30	0.82	0.37	1.7	< 0.05
Total PAH								
Speciated Total EPA-16 PAHs	mg/kg	0.8	MCERTS	4.65	17.8	6.19	39.4	2.77
Heavy Metals / Metalloids								
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	14	41	11	13	16
Barium (aqua regia extractable)	mg/kg	1	MCERTS	110	330	-	110	140
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	0.93	1.9	-	0.83	0.80
Boron (water soluble)	mg/kg	0.2	MCERTS	0.4	0.5	-	1.0	0.5
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
Chromium (hexavalent)	mg/kg	4	NONE	< 4.0	< 4.0	< 4.0	< 4.0	< 4.0
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	-	-	16	-	-

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Analytical Report Number: 22-33264
Project / Site name: Cherryfield Drive
Your Order No: 15280-NG-B

Lab Sample Number				2138304	2138305	2138306	2138307	2138308
Sample Reference				TP136	TP140	WS124	TP142	TP154
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.10	0.10	1.90	1.00	0.80
Date Sampled				11/01/2022	11/01/2022	11/01/2022	11/01/2022	12/01/2022
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Copper (aqua regia extractable)	mg/kg	1	MCERTS	45	230	32	43	46
Lead (aqua regia extractable)	mg/kg	1	MCERTS	160	270	190	72	60
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	0.4	1.2	0.5	< 0.3	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	23	73	14	25	20
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	29	44	-	30	24
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	110	280	120	200	69

Monoaromatics & Oxygenates

Benzene	µg/kg	1	MCERTS	-	-	-	-	-
Toluene	µg/kg	1	MCERTS	-	-	-	-	-
Ethylbenzene	µg/kg	1	MCERTS	-	-	-	-	-
p & m-xylene	µg/kg	1	MCERTS	-	-	-	-	-
o-xylene	µg/kg	1	MCERTS	-	-	-	-	-
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	1	MCERTS	-	-	-	-	-

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Analytical Report Number: 22-33264
Project / Site name: Cherryfield Drive
Your Order No: 15280-NG-B

Lab Sample Number				2138304	2138305	2138306	2138307	2138308
Sample Reference				TP136	TP140	WS124	TP142	TP154
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.10	0.10	1.90	1.00	0.80
Date Sampled				11/01/2022	11/01/2022	11/01/2022	11/01/2022	12/01/2022
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Petroleum Hydrocarbons								
TPH-CWG - Aliphatic >EC5 - EC6 $_{HS\_1D\_AL}$	mg/kg	0.001	MCERTS	-	-	-	-	-
TPH-CWG - Aliphatic >EC6 - EC8 $_{HS\_1D\_AL}$	mg/kg	0.001	MCERTS	-	-	-	-	-
TPH-CWG - Aliphatic >EC8 - EC10 $_{HS\_1D\_AL}$	mg/kg	0.001	MCERTS	-	-	-	-	-
TPH-CWG - Aliphatic >EC10 - EC12 $_{EH\_CU\_1D\_AL}$	mg/kg	1	MCERTS	-	-	-	-	-
TPH-CWG - Aliphatic >EC12 - EC16 $_{EH\_CU\_1D\_AL}$	mg/kg	2	MCERTS	-	-	-	-	-
TPH-CWG - Aliphatic >EC16 - EC21 $_{EH\_CU\_1D\_AL}$	mg/kg	8	MCERTS	-	-	-	-	-
TPH-CWG - Aliphatic >EC21 - EC35 $_{EH\_CU\_1D\_AL}$	mg/kg	8	MCERTS	-	-	-	-	-
TPH-CWG - Aliphatic (EC5 - EC35) $_{EH\_CU+HS\_1D\_AL}$	mg/kg	10	MCERTS	-	-	-	-	-
TPH-CWG - Aromatic >EC5 - EC7 $_{HS\_1D\_AR}$	mg/kg	0.001	MCERTS	-	-	-	-	-
TPH-CWG - Aromatic >EC7 - EC8 $_{HS\_1D\_AR}$	mg/kg	0.001	MCERTS	-	-	-	-	-
TPH-CWG - Aromatic >EC8 - EC10 $_{HS\_1D\_AR}$	mg/kg	0.001	MCERTS	-	-	-	-	-
TPH-CWG - Aromatic >EC10 - EC12 $_{EH\_CU\_1D\_AR}$	mg/kg	1	MCERTS	-	-	-	-	-
TPH-CWG - Aromatic >EC12 - EC16 $_{EH\_CU\_1D\_AR}$	mg/kg	2	MCERTS	-	-	-	-	-
TPH-CWG - Aromatic >EC16 - EC21 $_{EH\_CU\_1D\_AR}$	mg/kg	10	MCERTS	-	-	-	-	-
TPH-CWG - Aromatic >EC21 - EC35 $_{EH\_CU\_1D\_AR}$	mg/kg	10	MCERTS	-	-	-	-	-
TPH-CWG - Aromatic (EC5 - EC35) $_{EH\_CU+HS\_1D\_AR}$	mg/kg	10	MCERTS	-	-	-	-	-
TPH (C5 - C6) $_{HS\_1D\_TOTAL}$	mg/kg	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH (C6 - C8) $_{HS\_1D\_TOTAL}$	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
TPH (C8 - C10) $_{HS\_1D\_TOTAL}$	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
TPH (C10 - C12) $_{EH\_CU\_1D\_TOTAL}$	mg/kg	2	MCERTS	< 2.0	< 2.0	< 2.0	4.6	< 2.0
TPH (C12 - C16) $_{EH\_CU\_1D\_TOTAL}$	mg/kg	4	MCERTS	< 4.0	9.7	< 4.0	19	< 4.0
TPH (C16 - C21) $_{EH\_CU\_1D\_TOTAL}$	mg/kg	1	MCERTS	< 1.0	35	< 1.0	70	< 1.0
TPH (C21 - C35) $_{EH\_CU\_1D\_TOTAL}$	mg/kg	1	MCERTS	< 1.0	110	< 1.0	170	< 1.0
TPH (C35 - C40) $_{EH\_CU\_1D\_TOTAL}$	mg/kg	10	MCERTS	< 10	36	< 10	60	< 10
TPH Total C5 - C40 $_{EH\_CU+HS\_1D\_TOTAL}$	mg/kg	10	MCERTS	< 10	190	< 10	330	< 10
VOCs								
Chloromethane	µg/kg	1	ISO 17025	-	-	-	-	-
Chloroethane	µg/kg	1	NONE	-	-	-	-	-
Bromomethane	µg/kg	1	ISO 17025	-	-	-	-	-
Vinyl Chloride	µg/kg	1	NONE	-	-	-	-	-
Trichlorofluoromethane	µg/kg	1	NONE	-	-	-	-	-
1,1-Dichloroethene	µg/kg	1	NONE	-	-	-	-	-
1,1,2-Trichloro 1,2,2-Trifluoroethane	µg/kg	1	ISO 17025	-	-	-	-	-
Cis-1,2-dichloroethene	µg/kg	1	MCERTS	-	-	-	-	-
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	1	MCERTS	-	-	-	-	-
1,1-Dichloroethane	µg/kg	1	MCERTS	-	-	-	-	-
2,2-Dichloropropane	µg/kg	1	MCERTS	-	-	-	-	-
Trichloromethane	µg/kg	1	MCERTS	-	-	-	-	-
1,1,1-Trichloroethane	µg/kg	1	MCERTS	-	-	-	-	-
1,2-Dichloroethane	µg/kg	1	MCERTS	-	-	-	-	-
1,1-Dichloropropene	µg/kg	1	MCERTS	-	-	-	-	-
Trans-1,2-dichloroethene	µg/kg	1	NONE	-	-	-	-	-
Benzene	µg/kg	1	MCERTS	-	-	-	-	-
Tetrachloromethane	µg/kg	1	MCERTS	-	-	-	-	-
1,2-Dichloropropane	µg/kg	1	MCERTS	-	-	-	-	-
Trichloroethene	µg/kg	1	MCERTS	-	-	-	-	-
Dibromomethane	µg/kg	1	MCERTS	-	-	-	-	-
Bromodichloromethane	µg/kg	1	MCERTS	-	-	-	-	-
Cis-1,3-dichloropropene	µg/kg	1	ISO 17025	-	-	-	-	-
Trans-1,3-dichloropropene	µg/kg	1	ISO 17025	-	-	-	-	-
Toluene	µg/kg	1	MCERTS	-	-	-	-	-
1,1,2-Trichloroethane	µg/kg	1	MCERTS	-	-	-	-	-

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Analytical Report Number: 22-33264
Project / Site name: Cherryfield Drive
Your Order No: 15280-NG-B

Lab Sample Number				2138304	2138305	2138306	2138307	2138308
Sample Reference				TP136	TP140	WS124	TP142	TP154
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.10	0.10	1.90	1.00	0.80
Date Sampled				11/01/2022	11/01/2022	11/01/2022	11/01/2022	12/01/2022
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
1,3-Dichloropropane	µg/kg	1	ISO 17025	-	-	-	-	-
Dibromochloromethane	µg/kg	1	ISO 17025	-	-	-	-	-
Tetrachloroethene	µg/kg	1	NONE	-	-	-	-	-
1,2-Dibromoethane	µg/kg	1	ISO 17025	-	-	-	-	-
Chlorobenzene	µg/kg	1	MCERTS	-	-	-	-	-
1,1,1,2-Tetrachloroethane	µg/kg	1	MCERTS	-	-	-	-	-
Ethylbenzene	µg/kg	1	MCERTS	-	-	-	-	-
p & m-Xylene	µg/kg	1	MCERTS	-	-	-	-	-
Styrene	µg/kg	1	MCERTS	-	-	-	-	-
Tribromomethane	µg/kg	1	NONE	-	-	-	-	-
o-Xylene	µg/kg	1	MCERTS	-	-	-	-	-
1,1,2,2-Tetrachloroethane	µg/kg	1	MCERTS	-	-	-	-	-
Isopropylbenzene	µg/kg	1	MCERTS	-	-	-	-	-
Bromobenzene	µg/kg	1	MCERTS	-	-	-	-	-
n-Propylbenzene	µg/kg	1	ISO 17025	-	-	-	-	-
2-Chlorotoluene	µg/kg	1	MCERTS	-	-	-	-	-
4-Chlorotoluene	µg/kg	1	MCERTS	-	-	-	-	-
1,3,5-Trimethylbenzene	µg/kg	1	ISO 17025	-	-	-	-	-
tert-Butylbenzene	µg/kg	1	MCERTS	-	-	-	-	-
1,2,4-Trimethylbenzene	µg/kg	1	ISO 17025	-	-	-	-	-
sec-Butylbenzene	µg/kg	1	MCERTS	-	-	-	-	-
1,3-Dichlorobenzene	µg/kg	1	ISO 17025	-	-	-	-	-
p-Isopropyltoluene	µg/kg	1	ISO 17025	-	-	-	-	-
1,2-Dichlorobenzene	µg/kg	1	MCERTS	-	-	-	-	-
1,4-Dichlorobenzene	µg/kg	1	MCERTS	-	-	-	-	-
Butylbenzene	µg/kg	1	MCERTS	-	-	-	-	-
1,2-Dibromo-3-chloropropane	µg/kg	1	ISO 17025	-	-	-	-	-
1,2,4-Trichlorobenzene	µg/kg	1	MCERTS	-	-	-	-	-
Hexachlorobutadiene	µg/kg	1	MCERTS	-	-	-	-	-
1,2,3-Trichlorobenzene	µg/kg	1	ISO 17025	-	-	-	-	-

SVOCs

Aniline	mg/kg	0.1	NONE	-	-	-	-	-
Phenol	mg/kg	0.2	ISO 17025	-	-	-	-	-
2-Chlorophenol	mg/kg	0.1	MCERTS	-	-	-	-	-
Bis(2-chloroethyl)ether	mg/kg	0.2	MCERTS	-	-	-	-	-
1,3-Dichlorobenzene	mg/kg	0.2	MCERTS	-	-	-	-	-
1,2-Dichlorobenzene	mg/kg	0.1	MCERTS	-	-	-	-	-
1,4-Dichlorobenzene	mg/kg	0.2	MCERTS	-	-	-	-	-
Bis(2-chloroisopropyl)ether	mg/kg	0.1	MCERTS	-	-	-	-	-
2-Methylphenol	mg/kg	0.3	MCERTS	-	-	-	-	-
Hexachloroethane	mg/kg	0.05	MCERTS	-	-	-	-	-
Nitrobenzene	mg/kg	0.3	MCERTS	-	-	-	-	-
4-Methylphenol	mg/kg	0.2	NONE	-	-	-	-	-
Isophorone	mg/kg	0.2	MCERTS	-	-	-	-	-
2-Nitrophenol	mg/kg	0.3	MCERTS	-	-	-	-	-
2,4-Dimethylphenol	mg/kg	0.3	MCERTS	-	-	-	-	-
Bis(2-chloroethoxy)methane	mg/kg	0.3	MCERTS	-	-	-	-	-
1,2,4-Trichlorobenzene	mg/kg	0.3	MCERTS	-	-	-	-	-
Naphthalene	mg/kg	0.05	MCERTS	-	-	-	-	-
2,4-Dichlorophenol	mg/kg	0.3	MCERTS	-	-	-	-	-
4-Chloroaniline	mg/kg	0.1	NONE	-	-	-	-	-
Hexachlorobutadiene	mg/kg	0.1	MCERTS	-	-	-	-	-
4-Chloro-3-methylphenol	mg/kg	0.1	NONE	-	-	-	-	-
2,4,6-Trichlorophenol	mg/kg	0.1	MCERTS	-	-	-	-	-
2,4,5-Trichlorophenol	mg/kg	0.2	MCERTS	-	-	-	-	-

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Analytical Report Number: 22-33264
Project / Site name: Cherryfield Drive
Your Order No: 15280-NG-B

Lab Sample Number				2138304	2138305	2138306	2138307	2138308
Sample Reference				TP136	TP140	WS124	TP142	TP154
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.10	0.10	1.90	1.00	0.80
Date Sampled				11/01/2022	11/01/2022	11/01/2022	11/01/2022	12/01/2022
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
2-Methylnaphthalene	mg/kg	0.1	NONE	-	-	-	-	-
2-Chloronaphthalene	mg/kg	0.1	MCERTS	-	-	-	-	-
Dimethylphthalate	mg/kg	0.1	MCERTS	-	-	-	-	-
2,6-Dinitrotoluene	mg/kg	0.1	MCERTS	-	-	-	-	-
Acenaphthylene	mg/kg	0.05	MCERTS	-	-	-	-	-
Acenaphthene	mg/kg	0.05	MCERTS	-	-	-	-	-
2,4-Dinitrotoluene	mg/kg	0.2	MCERTS	-	-	-	-	-
Dibenzofuran	mg/kg	0.2	MCERTS	-	-	-	-	-
4-Chlorophenyl phenyl ether	mg/kg	0.3	ISO 17025	-	-	-	-	-
Diethyl phthalate	mg/kg	0.2	MCERTS	-	-	-	-	-
4-Nitroaniline	mg/kg	0.2	MCERTS	-	-	-	-	-
Fluorene	mg/kg	0.05	MCERTS	-	-	-	-	-
Azobenzene	mg/kg	0.3	MCERTS	-	-	-	-	-
Bromophenyl phenyl ether	mg/kg	0.2	MCERTS	-	-	-	-	-
Hexachlorobenzene	mg/kg	0.3	MCERTS	-	-	-	-	-
Phenanthrene	mg/kg	0.05	MCERTS	-	-	-	-	-
Anthracene	mg/kg	0.05	MCERTS	-	-	-	-	-
Carbazole	mg/kg	0.3	MCERTS	-	-	-	-	-
Dibutyl phthalate	mg/kg	0.2	MCERTS	-	-	-	-	-
Anthraquinone	mg/kg	0.3	MCERTS	-	-	-	-	-
Fluoranthene	mg/kg	0.05	MCERTS	-	-	-	-	-
Pyrene	mg/kg	0.05	MCERTS	-	-	-	-	-
Butyl benzyl phthalate	mg/kg	0.3	ISO 17025	-	-	-	-	-
Benzo(a)anthracene	mg/kg	0.05	MCERTS	-	-	-	-	-
Chrysene	mg/kg	0.05	MCERTS	-	-	-	-	-
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	-	-	-	-	-
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	-	-	-	-	-
Benzo(a)pyrene	mg/kg	0.05	MCERTS	-	-	-	-	-
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	-	-	-	-	-
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	-	-	-	-	-
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	-	-	-	-	-

PCBs by GC-MS

PCB Congener 28	mg/kg	0.001	MCERTS	-	-	-	-	< 0.001
PCB Congener 52	mg/kg	0.001	MCERTS	-	-	-	-	< 0.001
PCB Congener 101	mg/kg	0.001	MCERTS	-	-	-	-	< 0.001
PCB Congener 118	mg/kg	0.001	MCERTS	-	-	-	-	< 0.001
PCB Congener 138	mg/kg	0.001	MCERTS	-	-	-	-	< 0.001
PCB Congener 153	mg/kg	0.001	MCERTS	-	-	-	-	< 0.001
PCB Congener 180	mg/kg	0.001	MCERTS	-	-	-	-	< 0.001

Total PCBs by GC-MS

Total PCBs	mg/kg	0.007	MCERTS	-	-	-	-	< 0.007

U/S = Unsuitable Sample I/S = Insufficient Sample

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Analytical Report Number: 22-33264
Project / Site name: Cherryfield Drive
Your Order No: 15280-NG-B

Lab Sample Number				2138309	2138310	2138311	2138312	2138313
Sample Reference				WS130	TP162	TP164	TP166	WS140
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.50	0.10	0.30	0.40	0.50
Date Sampled				12/01/2022	12/01/2022	12/01/2022	12/01/2022	13/01/2022
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Stone Content	%	0.1	NONE	< 0.1	< 0.1	26	< 0.1	22
Moisture Content	%	0.01	NONE	10	19	8.3	9.5	7.9
Total mass of sample received	kg	0.001	NONE	0.30	0.30	0.30	1.0	0.30
Asbestos in Soil Screen / Identification Name	Type	N/A	ISO 17025	-	-	-	-	-
Asbestos in Soil	Type	N/A	ISO 17025	-	Not-detected	Not-detected	Not-detected	Not-detected
Asbestos Quantification (Stage 2)	%	0.001	ISO 17025	-	-	-	-	-
Asbestos Quantification Total	%	0.001	ISO 17025	-	-	-	-	-
Asbestos Analyst ID	N/A	N/A	N/A		JSW	JSW	JSW	JSW
General Inorganics								
pH - Automated	pH Units	N/A	MCERTS	6.7	8.9	-	9.0	12.0
Total Cyanide	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Total Sulphate as SO4	mg/kg	50	MCERTS	70	440	-	180	3700
Water Soluble SO4 (2:1 Leach. Equiv.) 1hr extraction	g/l	0.00125	MCERTS	0.030	0.030	-	0.058	0.027
Water Soluble SO4 (2:1 Leach. Equiv.) 1hr extraction	mg/kg	2.5	MCERTS	59	59	-	120	55
Water Soluble SO4 (2:1 Leach. Equiv.) 1hr extraction	mg/l	1.25	MCERTS	29.7	29.5	-	57.6	27.4
Sulphide	mg/kg	1	MCERTS	< 1.0	< 1.0	-	4.3	7.0
Total Sulphur	mg/kg	50	MCERTS	< 50	230	-	200	3100
Total Organic Carbon (TOC) - Automated	%	0.1	MCERTS	0.3	1.5	-	0.7	2.4
Total Phenols								
Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0	< 1.0	-	< 1.0	< 1.0
Speciated PAHs								
Naphthalene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	-	< 0.05	-
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	-	< 0.05	-
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	-	< 0.05	-
Fluorene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	-	< 0.05	-
Phenanthrene	mg/kg	0.05	MCERTS	< 0.05	0.23	-	< 0.05	-
Anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	-	< 0.05	-
Fluoranthene	mg/kg	0.05	MCERTS	< 0.05	0.47	-	< 0.05	-
Pyrene	mg/kg	0.05	MCERTS	< 0.05	0.39	-	< 0.05	-
Benzo(a)anthracene	mg/kg	0.05	MCERTS	< 0.05	0.29	-	< 0.05	-
Chrysene	mg/kg	0.05	MCERTS	< 0.05	0.22	-	< 0.05	-
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	< 0.05	0.31	-	< 0.05	-
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	< 0.05	0.15	-	< 0.05	-
Benzo(a)pyrene	mg/kg	0.05	MCERTS	< 0.05	0.26	-	< 0.05	-
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	-	< 0.05	-
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	-	< 0.05	-
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	-	< 0.05	-
Total PAH								
Speciated Total EPA-16 PAHs	mg/kg	0.8	MCERTS	< 0.80	2.32	-	< 0.80	-
Heavy Metals / Metalloids								
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	14	9.7	2.0	12
Barium (aqua regia extractable)	mg/kg	1	MCERTS	-	-	70	-	-
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	-	-	0.47	-	-
Boron (water soluble)	mg/kg	0.2	MCERTS	-	-	0.4	-	-
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
Chromium (hexavalent)	mg/kg	4	NONE	< 4.0	< 4.0	< 4.0	< 4.0	< 4.0
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	7.9	12	-	6.6	26

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The results included within the report are representative of the samples submitted for analysis.

Analytical Report Number: 22-33264
Project / Site name: Cherryfield Drive
Your Order No: 15280-NG-B

Lab Sample Number				2138309	2138310	2138311	2138312	2138313
Sample Reference				WS130	TP162	TP164	TP166	WS140
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.50	0.10	0.30	0.40	0.50
Date Sampled				12/01/2022	12/01/2022	12/01/2022	12/01/2022	13/01/2022
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Copper (aqua regia extractable)	mg/kg	1	MCERTS	4.9	68	25	10	23
Lead (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	85	36	8.9	35
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	0.7	< 0.3	< 0.3	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	11	19	6.9	23
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	-	-	21	-	-
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	4.9	68	100	21	70
Monoaromatics & Oxygenates								
Benzene	µg/kg	1	MCERTS	-	-	< 1.0	-	< 1.0
Toluene	µg/kg	1	MCERTS	-	-	< 1.0	-	< 1.0
Ethylbenzene	µg/kg	1	MCERTS	-	-	< 1.0	-	< 1.0
p & m-xylene	µg/kg	1	MCERTS	-	-	< 1.0	-	< 1.0
o-xylene	µg/kg	1	MCERTS	-	-	< 1.0	-	< 1.0
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	1	MCERTS	-	-	< 1.0	-	< 1.0

Analytical Report Number: 22-33264
Project / Site name: Cherryfield Drive
Your Order No: 15280-NG-B

Lab Sample Number				2138309	2138310	2138311	2138312	2138313
Sample Reference				WS130	TP162	TP164	TP166	WS140
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.50	0.10	0.30	0.40	0.50
Date Sampled				12/01/2022	12/01/2022	12/01/2022	12/01/2022	13/01/2022
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Petroleum Hydrocarbons								
TPH-CWG - Aliphatic >EC5 - EC6 $_{HS\_1D\_AL}$	mg/kg	0.001	MCERTS	-	-	< 0.001	-	< 0.001
TPH-CWG - Aliphatic >EC6 - EC8 $_{HS\_1D\_AL}$	mg/kg	0.001	MCERTS	-	-	< 0.001	-	< 0.001
TPH-CWG - Aliphatic >EC8 - EC10 $_{HS\_1D\_AL}$	mg/kg	0.001	MCERTS	-	-	< 0.001	-	< 0.001
TPH-CWG - Aliphatic >EC10 - EC12 $_{EH\_CU\_1D\_AL}$	mg/kg	1	MCERTS	-	-	< 1.0	-	2.7
TPH-CWG - Aliphatic >EC12 - EC16 $_{EH\_CU\_1D\_AL}$	mg/kg	2	MCERTS	-	-	3.0	-	8.8
TPH-CWG - Aliphatic >EC16 - EC21 $_{EH\_CU\_1D\_AL}$	mg/kg	8	MCERTS	-	-	9.1	-	13
TPH-CWG - Aliphatic >EC21 - EC35 $_{EH\_CU\_1D\_AL}$	mg/kg	8	MCERTS	-	-	59	-	44
TPH-CWG - Aliphatic (EC5 - EC35) $_{EH\_CU+HS\_1D\_AL}$	mg/kg	10	MCERTS	-	-	71	-	68
TPH-CWG - Aromatic >EC5 - EC7 $_{HS\_1D\_AR}$	mg/kg	0.001	MCERTS	-	-	< 0.001	-	< 0.001
TPH-CWG - Aromatic >EC7 - EC8 $_{HS\_1D\_AR}$	mg/kg	0.001	MCERTS	-	-	< 0.001	-	< 0.001
TPH-CWG - Aromatic >EC8 - EC10 $_{HS\_1D\_AR}$	mg/kg	0.001	MCERTS	-	-	< 0.001	-	< 0.001
TPH-CWG - Aromatic >EC10 - EC12 $_{EH\_CU\_1D\_AR}$	mg/kg	1	MCERTS	-	-	< 1.0	-	< 1.0
TPH-CWG - Aromatic >EC12 - EC16 $_{EH\_CU\_1D\_AR}$	mg/kg	2	MCERTS	-	-	< 2.0	-	< 2.0
TPH-CWG - Aromatic >EC16 - EC21 $_{EH\_CU\_1D\_AR}$	mg/kg	10	MCERTS	-	-	< 10	-	< 10
TPH-CWG - Aromatic >EC21 - EC35 $_{EH\_CU\_1D\_AR}$	mg/kg	10	MCERTS	-	-	120	-	92
TPH-CWG - Aromatic (EC5 - EC35) $_{EH\_CU+HS\_1D\_AR}$	mg/kg	10	MCERTS	-	-	130	-	99
TPH (C5 - C6) $_{HS\_1D\_TOTAL}$	mg/kg	1	NONE	< 1.0	< 1.0	-	< 1.0	-
TPH (C6 - C8) $_{HS\_1D\_TOTAL}$	mg/kg	0.1	MCERTS	< 0.1	< 0.1	-	< 0.1	-
TPH (C8 - C10) $_{HS\_1D\_TOTAL}$	mg/kg	0.1	MCERTS	< 0.1	< 0.1	-	< 0.1	-
TPH (C10 - C12) $_{EH\_CU\_1D\_TOTAL}$	mg/kg	2	MCERTS	< 2.0	< 2.0	-	< 2.0	-
TPH (C12 - C16) $_{EH\_CU\_1D\_TOTAL}$	mg/kg	4	MCERTS	< 4.0	< 4.0	-	< 4.0	-
TPH (C16 - C21) $_{EH\_CU\_1D\_TOTAL}$	mg/kg	1	MCERTS	< 1.0	< 1.0	-	< 1.0	-
TPH (C21 - C35) $_{EH\_CU\_1D\_TOTAL}$	mg/kg	1	MCERTS	< 1.0	< 1.0	-	< 1.0	-
TPH (C35 - C40) $_{EH\_CU\_1D\_TOTAL}$	mg/kg	10	MCERTS	< 10	< 10	-	< 10	-
TPH Total C5 - C40 $_{EH\_CU+HS\_1D\_TOTAL}$	mg/kg	10	MCERTS	< 10	< 10	-	< 10	-
VOCs								
Chloromethane	µg/kg	1	ISO 17025	-	-	< 1.0	-	< 1.0
Chloroethane	µg/kg	1	NONE	-	-	< 1.0	-	< 1.0
Bromomethane	µg/kg	1	ISO 17025	-	-	< 1.0	-	< 1.0
Vinyl Chloride	µg/kg	1	NONE	-	-	< 1.0	-	< 1.0
Trichlorofluoromethane	µg/kg	1	NONE	-	-	< 1.0	-	< 1.0
1,1-Dichloroethene	µg/kg	1	NONE	-	-	< 1.0	-	< 1.0
1,1,2-Trichloro 1,2,2-Trifluoroethane	µg/kg	1	ISO 17025	-	-	< 1.0	-	< 1.0
Cis-1,2-dichloroethene	µg/kg	1	MCERTS	-	-	< 1.0	-	< 1.0
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	1	MCERTS	-	-	< 1.0	-	< 1.0
1,1-Dichloroethane	µg/kg	1	MCERTS	-	-	< 1.0	-	< 1.0
2,2-Dichloropropane	µg/kg	1	MCERTS	-	-	< 1.0	-	< 1.0
Trichloromethane	µg/kg	1	MCERTS	-	-	< 1.0	-	< 1.0
1,1,1-Trichloroethane	µg/kg	1	MCERTS	-	-	< 1.0	-	< 1.0
1,2-Dichloroethane	µg/kg	1	MCERTS	-	-	< 1.0	-	< 1.0
1,1-Dichloropropene	µg/kg	1	MCERTS	-	-	< 1.0	-	< 1.0
Trans-1,2-dichloroethene	µg/kg	1	NONE	-	-	< 1.0	-	< 1.0
Benzene	µg/kg	1	MCERTS	-	-	< 1.0	-	< 1.0
Tetrachloromethane	µg/kg	1	MCERTS	-	-	< 1.0	-	< 1.0
1,2-Dichloropropane	µg/kg	1	MCERTS	-	-	< 1.0	-	< 1.0
Trichloroethene	µg/kg	1	MCERTS	-	-	< 1.0	-	< 1.0
Dibromomethane	µg/kg	1	MCERTS	-	-	< 1.0	-	< 1.0
Bromodichloromethane	µg/kg	1	MCERTS	-	-	< 1.0	-	< 1.0
Cis-1,3-dichloropropene	µg/kg	1	ISO 17025	-	-	< 1.0	-	< 1.0
Trans-1,3-dichloropropene	µg/kg	1	ISO 17025	-	-	< 1.0	-	< 1.0
Toluene	µg/kg	1	MCERTS	-	-	< 1.0	-	< 1.0
1,1,2-Trichloroethane	µg/kg	1	MCERTS	-	-	< 1.0	-	< 1.0

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Analytical Report Number: 22-33264
Project / Site name: Cherryfield Drive
Your Order No: 15280-NG-B

Lab Sample Number				2138309	2138310	2138311	2138312	2138313
Sample Reference				WS130	TP162	TP164	TP166	WS140
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.50	0.10	0.30	0.40	0.50
Date Sampled				12/01/2022	12/01/2022	12/01/2022	12/01/2022	13/01/2022
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
1,3-Dichloropropane	µg/kg	1	ISO 17025	-	-	< 1.0	-	< 1.0
Dibromochloromethane	µg/kg	1	ISO 17025	-	-	< 1.0	-	< 1.0
Tetrachloroethene	µg/kg	1	NONE	-	-	< 1.0	-	< 1.0
1,2-Dibromoethane	µg/kg	1	ISO 17025	-	-	< 1.0	-	< 1.0
Chlorobenzene	µg/kg	1	MCERTS	-	-	< 1.0	-	< 1.0
1,1,1,2-Tetrachloroethane	µg/kg	1	MCERTS	-	-	< 1.0	-	< 1.0
Ethylbenzene	µg/kg	1	MCERTS	-	-	< 1.0	-	< 1.0
p & m-Xylene	µg/kg	1	MCERTS	-	-	< 1.0	-	< 1.0
Styrene	µg/kg	1	MCERTS	-	-	< 1.0	-	< 1.0
Tribromomethane	µg/kg	1	NONE	-	-	< 1.0	-	< 1.0
o-Xylene	µg/kg	1	MCERTS	-	-	< 1.0	-	< 1.0
1,1,2,2-Tetrachloroethane	µg/kg	1	MCERTS	-	-	< 1.0	-	< 1.0
Isopropylbenzene	µg/kg	1	MCERTS	-	-	< 1.0	-	< 1.0
Bromobenzene	µg/kg	1	MCERTS	-	-	< 1.0	-	< 1.0
n-Propylbenzene	µg/kg	1	ISO 17025	-	-	< 1.0	-	< 1.0
2-Chlorotoluene	µg/kg	1	MCERTS	-	-	< 1.0	-	< 1.0
4-Chlorotoluene	µg/kg	1	MCERTS	-	-	< 1.0	-	< 1.0
1,3,5-Trimethylbenzene	µg/kg	1	ISO 17025	-	-	< 1.0	-	< 1.0
tert-Butylbenzene	µg/kg	1	MCERTS	-	-	< 1.0	-	< 1.0
1,2,4-Trimethylbenzene	µg/kg	1	ISO 17025	-	-	< 1.0	-	< 1.0
sec-Butylbenzene	µg/kg	1	MCERTS	-	-	< 1.0	-	< 1.0
1,3-Dichlorobenzene	µg/kg	1	ISO 17025	-	-	< 1.0	-	< 1.0
p-Isopropyltoluene	µg/kg	1	ISO 17025	-	-	< 1.0	-	< 1.0
1,2-Dichlorobenzene	µg/kg	1	MCERTS	-	-	< 1.0	-	< 1.0
1,4-Dichlorobenzene	µg/kg	1	MCERTS	-	-	< 1.0	-	< 1.0
Butylbenzene	µg/kg	1	MCERTS	-	-	< 1.0	-	< 1.0
1,2-Dibromo-3-chloropropane	µg/kg	1	ISO 17025	-	-	< 1.0	-	< 1.0
1,2,4-Trichlorobenzene	µg/kg	1	MCERTS	-	-	< 1.0	-	< 1.0
Hexachlorobutadiene	µg/kg	1	MCERTS	-	-	< 1.0	-	< 1.0
1,2,3-Trichlorobenzene	µg/kg	1	ISO 17025	-	-	< 1.0	-	< 1.0

SVOCs

Aniline	mg/kg	0.1	NONE	-	-	< 0.1	-	< 0.1
Phenol	mg/kg	0.2	ISO 17025	-	-	< 0.2	-	< 0.2
2-Chlorophenol	mg/kg	0.1	MCERTS	-	-	< 0.1	-	< 0.1
Bis(2-chloroethyl)ether	mg/kg	0.2	MCERTS	-	-	< 0.2	-	< 0.2
1,3-Dichlorobenzene	mg/kg	0.2	MCERTS	-	-	< 0.2	-	< 0.2
1,2-Dichlorobenzene	mg/kg	0.1	MCERTS	-	-	< 0.1	-	< 0.1
1,4-Dichlorobenzene	mg/kg	0.2	MCERTS	-	-	< 0.2	-	< 0.2
Bis(2-chloroisopropyl)ether	mg/kg	0.1	MCERTS	-	-	< 0.1	-	< 0.1
2-Methylphenol	mg/kg	0.3	MCERTS	-	-	< 0.3	-	< 0.3
Hexachloroethane	mg/kg	0.05	MCERTS	-	-	< 0.05	-	< 0.05
Nitrobenzene	mg/kg	0.3	MCERTS	-	-	< 0.3	-	< 0.3
4-Methylphenol	mg/kg	0.2	NONE	-	-	< 0.2	-	< 0.2
Isophorone	mg/kg	0.2	MCERTS	-	-	< 0.2	-	< 0.2
2-Nitrophenol	mg/kg	0.3	MCERTS	-	-	< 0.3	-	< 0.3
2,4-Dimethylphenol	mg/kg	0.3	MCERTS	-	-	< 0.3	-	< 0.3
Bis(2-chloroethoxy)methane	mg/kg	0.3	MCERTS	-	-	< 0.3	-	< 0.3
1,2,4-Trichlorobenzene	mg/kg	0.3	MCERTS	-	-	< 0.3	-	< 0.3
Naphthalene	mg/kg	0.05	MCERTS	-	-	< 0.05	-	< 0.05
2,4-Dichlorophenol	mg/kg	0.3	MCERTS	-	-	< 0.3	-	< 0.3
4-Chloroaniline	mg/kg	0.1	NONE	-	-	< 0.1	-	< 0.1
Hexachlorobutadiene	mg/kg	0.1	MCERTS	-	-	< 0.1	-	< 0.1
4-Chloro-3-methylphenol	mg/kg	0.1	NONE	-	-	< 0.1	-	< 0.1
2,4,6-Trichlorophenol	mg/kg	0.1	MCERTS	-	-	< 0.1	-	< 0.1
2,4,5-Trichlorophenol	mg/kg	0.2	MCERTS	-	-	< 0.2	-	< 0.2

Analytical Report Number: 22-33264
Project / Site name: Cherryfield Drive
Your Order No: 15280-NG-B

Lab Sample Number				2138309	2138310	2138311	2138312	2138313
Sample Reference				WS130	TP162	TP164	TP166	WS140
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.50	0.10	0.30	0.40	0.50
Date Sampled				12/01/2022	12/01/2022	12/01/2022	12/01/2022	13/01/2022
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
2-Methylnaphthalene	mg/kg	0.1	NONE	-	-	< 0.1	-	< 0.1
2-Chloronaphthalene	mg/kg	0.1	MCERTS	-	-	< 0.1	-	< 0.1
Dimethylphthalate	mg/kg	0.1	MCERTS	-	-	< 0.1	-	< 0.1
2,6-Dinitrotoluene	mg/kg	0.1	MCERTS	-	-	< 0.1	-	< 0.1
Acenaphthylene	mg/kg	0.05	MCERTS	-	-	< 0.05	-	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	-	-	< 0.05	-	< 0.05
2,4-Dinitrotoluene	mg/kg	0.2	MCERTS	-	-	< 0.2	-	< 0.2
Dibenzofuran	mg/kg	0.2	MCERTS	-	-	< 0.2	-	< 0.2
4-Chlorophenyl phenyl ether	mg/kg	0.3	ISO 17025	-	-	< 0.3	-	< 0.3
Diethyl phthalate	mg/kg	0.2	MCERTS	-	-	< 0.2	-	< 0.2
4-Nitroaniline	mg/kg	0.2	MCERTS	-	-	< 0.2	-	< 0.2
Fluorene	mg/kg	0.05	MCERTS	-	-	< 0.05	-	< 0.05
Azobenzene	mg/kg	0.3	MCERTS	-	-	< 0.3	-	< 0.3
Bromophenyl phenyl ether	mg/kg	0.2	MCERTS	-	-	< 0.2	-	< 0.2
Hexachlorobenzene	mg/kg	0.3	MCERTS	-	-	< 0.3	-	< 0.3
Phenanthrene	mg/kg	0.05	MCERTS	-	-	0.25	-	0.50
Anthracene	mg/kg	0.05	MCERTS	-	-	< 0.05	-	< 0.05
Carbazole	mg/kg	0.3	MCERTS	-	-	< 0.3	-	< 0.3
Dibutyl phthalate	mg/kg	0.2	MCERTS	-	-	< 0.2	-	< 0.2
Anthraquinone	mg/kg	0.3	MCERTS	-	-	< 0.3	-	< 0.3
Fluoranthene	mg/kg	0.05	MCERTS	-	-	0.27	-	0.48
Pyrene	mg/kg	0.05	MCERTS	-	-	0.30	-	0.48
Butyl benzyl phthalate	mg/kg	0.3	ISO 17025	-	-	< 0.3	-	< 0.3
Benzo(a)anthracene	mg/kg	0.05	MCERTS	-	-	< 0.05	-	0.32
Chrysene	mg/kg	0.05	MCERTS	-	-	< 0.05	-	0.26
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	-	-	< 0.05	-	0.24
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	-	-	< 0.05	-	0.17
Benzo(a)pyrene	mg/kg	0.05	MCERTS	-	-	< 0.05	-	0.30
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	-	-	< 0.05	-	< 0.05
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	-	-	< 0.05	-	< 0.05
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	-	-	< 0.05	-	< 0.05

PCBs by GC-MS

PCB Congener 28	mg/kg	0.001	MCERTS	-	-	-	-	-
PCB Congener 52	mg/kg	0.001	MCERTS	-	-	-	-	-
PCB Congener 101	mg/kg	0.001	MCERTS	-	-	-	-	-
PCB Congener 118	mg/kg	0.001	MCERTS	-	-	-	-	-
PCB Congener 138	mg/kg	0.001	MCERTS	-	-	-	-	-
PCB Congener 153	mg/kg	0.001	MCERTS	-	-	-	-	-
PCB Congener 180	mg/kg	0.001	MCERTS	-	-	-	-	-

Total PCBs by GC-MS

Total PCBs	mg/kg	0.007	MCERTS	-	-	-	-	-

U/S = Unsuitable Sample I/S = Insufficient Sample

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The results included within the report are representative of the samples submitted for analysis.

Analytical Report Number: 22-33264
Project / Site name: Cherryfield Drive
Your Order No: 15280-NG-B

Lab Sample Number				2138314	2138315	2138316	2138317	2138318
Sample Reference				WS142	TP101	TP107	TP111	TP117
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				1.60	0.10	0.70	0.10	0.70
Date Sampled				13/01/2022	10/01/2022	10/01/2022	10/01/2022	10/01/2022
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Stone Content	%	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Moisture Content	%	0.01	NONE	12	29	11	27	21
Total mass of sample received	kg	0.001	NONE	0.30	0.30	0.30	0.30	0.30
Asbestos in Soil Screen / Identification Name	Type	N/A	ISO 17025	-	-	-	-	-
Asbestos in Soil	Type	N/A	ISO 17025	-	Not-detected	-	Not-detected	Not-detected
Asbestos Quantification (Stage 2)	%	0.001	ISO 17025	-	-	-	-	-
Asbestos Quantification Total	%	0.001	ISO 17025	-	-	-	-	-
Asbestos Analyst ID	N/A	N/A	N/A		JSW		JSW	JSW
General Inorganics								
pH - Automated	pH Units	N/A	MCERTS	8.1	-	7.2	-	7.4
Total Cyanide	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Total Sulphate as SO4	mg/kg	50	MCERTS	79	-	290	-	2500
Water Soluble SO4 (2:1 Leach. Equiv.) 1hr extraction	g/l	0.00125	MCERTS	0.0055	-	0.080	-	0.77
Water Soluble SO4 (2:1 Leach. Equiv.) 1hr extraction	mg/kg	2.5	MCERTS	11	-	160	-	1500
Water Soluble SO4 (2:1 Leach. Equiv.) 1hr extraction	mg/l	1.25	MCERTS	5.5	-	79.5	-	771
Sulphide	mg/kg	1	MCERTS	1.5	-	23	-	170
Total Sulphur	mg/kg	50	MCERTS	79	-	880	-	4900
Total Organic Carbon (TOC) - Automated	%	0.1	MCERTS	0.5	-	1.0	-	2.4
Total Phenols								
Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0	-	< 1.0	-	< 1.0
Speciated PAHs								
Naphthalene	mg/kg	0.05	MCERTS	-	< 0.05	< 0.05	< 0.05	-
Acenaphthylene	mg/kg	0.05	MCERTS	-	< 0.05	< 0.05	< 0.05	-
Acenaphthene	mg/kg	0.05	MCERTS	-	< 0.05	< 0.05	< 0.05	-
Fluorene	mg/kg	0.05	MCERTS	-	< 0.05	< 0.05	< 0.05	-
Phenanthrene	mg/kg	0.05	MCERTS	-	0.86	< 0.05	0.22	-
Anthracene	mg/kg	0.05	MCERTS	-	< 0.05	< 0.05	< 0.05	-
Fluoranthene	mg/kg	0.05	MCERTS	-	0.75	0.27	0.44	-
Pyrene	mg/kg	0.05	MCERTS	-	0.85	0.29	0.42	-
Benzo(a)anthracene	mg/kg	0.05	MCERTS	-	0.48	< 0.05	0.31	-
Chrysene	mg/kg	0.05	MCERTS	-	0.52	< 0.05	0.25	-
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	-	0.53	< 0.05	0.32	-
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	-	0.25	< 0.05	0.21	-
Benzo(a)pyrene	mg/kg	0.05	MCERTS	-	0.52	< 0.05	0.39	-
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	-	0.25	< 0.05	< 0.05	-
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	-	< 0.05	< 0.05	< 0.05	-
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	-	0.28	< 0.05	< 0.05	-
Total PAH								
Speciated Total EPA-16 PAHs	mg/kg	0.8	MCERTS	-	5.29	< 0.80	2.56	-
Heavy Metals / Metalloids								
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	8.9	< 1.0	14	86
Barium (aqua regia extractable)	mg/kg	1	MCERTS	-	66	-	97	-
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	-	0.56	-	0.80	-
Boron (water soluble)	mg/kg	0.2	MCERTS	-	0.4	-	0.7	-
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2	< 0.2	0.2	0.6	12
Chromium (hexavalent)	mg/kg	4	NONE	< 4.0	< 4.0	< 4.0	< 4.0	< 4.0
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	4.8	-	2.8	-	35

Analytical Report Number: 22-33264
Project / Site name: Cherryfield Drive
Your Order No: 15280-NG-B

Lab Sample Number				2138314	2138315	2138316	2138317	2138318
Sample Reference				WS142	TP101	TP107	TP111	TP117
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				1.60	0.10	0.70	0.10	0.70
Date Sampled				13/01/2022	10/01/2022	10/01/2022	10/01/2022	10/01/2022
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Copper (aqua regia extractable)	mg/kg	1	MCERTS	12	32	4.4	52	180
Lead (aqua regia extractable)	mg/kg	1	MCERTS	8.4	69	2.1	98	450
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	2.9	16	< 1.0	21	56
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	-	23	-	30	-
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	11	63	6.7	93	330
Monoaromatics & Oxygenates								
Benzene	µg/kg	1	MCERTS	< 1.0	-	-	-	< 1.0
Toluene	µg/kg	1	MCERTS	< 1.0	-	-	-	< 1.0
Ethylbenzene	µg/kg	1	MCERTS	< 1.0	-	-	-	< 1.0
p & m-xylene	µg/kg	1	MCERTS	< 1.0	-	-	-	< 1.0
o-xylene	µg/kg	1	MCERTS	< 1.0	-	-	-	< 1.0
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	1	MCERTS	< 1.0	-	-	-	< 1.0

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Analytical Report Number: 22-33264
Project / Site name: Cherryfield Drive
Your Order No: 15280-NG-B

Lab Sample Number				2138314	2138315	2138316	2138317	2138318
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Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				1.60	0.10	0.70	0.10	0.70
Date Sampled				13/01/2022	10/01/2022	10/01/2022	10/01/2022	10/01/2022
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Petroleum Hydrocarbons								
TPH-CWG - Aliphatic >EC5 - EC6 $_{HS\_1D\_AL}$	mg/kg	0.001	MCERTS	< 0.001	-	-	-	< 0.001
TPH-CWG - Aliphatic >EC6 - EC8 $_{HS\_1D\_AL}$	mg/kg	0.001	MCERTS	< 0.001	-	-	-	< 0.001
TPH-CWG - Aliphatic >EC8 - EC10 $_{HS\_1D\_AL}$	mg/kg	0.001	MCERTS	< 0.001	-	-	-	< 0.001
TPH-CWG - Aliphatic >EC10 - EC12 $_{EH\_CU\_1D\_AL}$	mg/kg	1	MCERTS	< 1.0	-	-	-	< 1.0
TPH-CWG - Aliphatic >EC12 - EC16 $_{EH\_CU\_1D\_AL}$	mg/kg	2	MCERTS	< 2.0	-	-	-	< 2.0
TPH-CWG - Aliphatic >EC16 - EC21 $_{EH\_CU\_1D\_AL}$	mg/kg	8	MCERTS	< 8.0	-	-	-	< 8.0
TPH-CWG - Aliphatic >EC21 - EC35 $_{EH\_CU\_1D\_AL}$	mg/kg	8	MCERTS	< 8.0	-	-	-	< 8.0
TPH-CWG - Aliphatic (EC5 - EC35) $_{EH\_CU+HS\_1D\_AL}$	mg/kg	10	MCERTS	< 10	-	-	-	< 10
TPH-CWG - Aromatic >EC5 - EC7 $_{HS\_1D\_AR}$	mg/kg	0.001	MCERTS	< 0.001	-	-	-	< 0.001
TPH-CWG - Aromatic >EC7 - EC8 $_{HS\_1D\_AR}$	mg/kg	0.001	MCERTS	< 0.001	-	-	-	< 0.001
TPH-CWG - Aromatic >EC8 - EC10 $_{HS\_1D\_AR}$	mg/kg	0.001	MCERTS	< 0.001	-	-	-	< 0.001
TPH-CWG - Aromatic >EC10 - EC12 $_{EH\_CU\_1D\_AR}$	mg/kg	1	MCERTS	< 1.0	-	-	-	< 1.0
TPH-CWG - Aromatic >EC12 - EC16 $_{EH\_CU\_1D\_AR}$	mg/kg	2	MCERTS	< 2.0	-	-	-	< 2.0
TPH-CWG - Aromatic >EC16 - EC21 $_{EH\_CU\_1D\_AR}$	mg/kg	10	MCERTS	< 10	-	-	-	< 10
TPH-CWG - Aromatic >EC21 - EC35 $_{EH\_CU\_1D\_AR}$	mg/kg	10	MCERTS	< 10	-	-	-	< 10
TPH-CWG - Aromatic (EC5 - EC35) $_{EH\_CU+HS\_1D\_AR}$	mg/kg	10	MCERTS	< 10	-	-	-	< 10
TPH (C5 - C6) $_{HS\_1D\_TOTAL}$	mg/kg	1	NONE	-	< 1.0	< 1.0	< 1.0	-
TPH (C6 - C8) $_{HS\_1D\_TOTAL}$	mg/kg	0.1	MCERTS	-	< 0.1	< 0.1	< 0.1	-
TPH (C8 - C10) $_{HS\_1D\_TOTAL}$	mg/kg	0.1	MCERTS	-	< 0.1	< 0.1	< 0.1	-
TPH (C10 - C12) $_{EH\_CU\_1D\_TOTAL}$	mg/kg	2	MCERTS	-	< 2.0	< 2.0	< 2.0	-
TPH (C12 - C16) $_{EH\_CU\_1D\_TOTAL}$	mg/kg	4	MCERTS	-	< 4.0	< 4.0	< 4.0	-
TPH (C16 - C21) $_{EH\_CU\_1D\_TOTAL}$	mg/kg	1	MCERTS	-	< 1.0	< 1.0	< 1.0	-
TPH (C21 - C35) $_{EH\_CU\_1D\_TOTAL}$	mg/kg	1	MCERTS	-	< 1.0	< 1.0	< 1.0	-
TPH (C35 - C40) $_{EH\_CU\_1D\_TOTAL}$	mg/kg	10	MCERTS	-	< 10	< 10	< 10	-
TPH Total C5 - C40 $_{EH\_CU+HS\_1D\_TOTAL}$	mg/kg	10	MCERTS	-	< 10	< 10	< 10	-
VOCs								
Chloromethane	µg/kg	1	ISO 17025	< 1.0	-	-	-	< 1.0
Chloroethane	µg/kg	1	NONE	< 1.0	-	-	-	< 1.0
Bromomethane	µg/kg	1	ISO 17025	< 1.0	-	-	-	< 1.0
Vinyl Chloride	µg/kg	1	NONE	< 1.0	-	-	-	< 1.0
Trichlorofluoromethane	µg/kg	1	NONE	< 1.0	-	-	-	< 1.0
1,1-Dichloroethene	µg/kg	1	NONE	< 1.0	-	-	-	< 1.0
1,1,2-Trichloro 1,2,2-Trifluoroethane	µg/kg	1	ISO 17025	< 1.0	-	-	-	< 1.0
Cis-1,2-dichloroethene	µg/kg	1	MCERTS	< 1.0	-	-	-	< 1.0
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	1	MCERTS	< 1.0	-	-	-	< 1.0
1,1-Dichloroethane	µg/kg	1	MCERTS	< 1.0	-	-	-	< 1.0
2,2-Dichloropropane	µg/kg	1	MCERTS	< 1.0	-	-	-	< 1.0
Trichloromethane	µg/kg	1	MCERTS	< 1.0	-	-	-	< 1.0
1,1,1-Trichloroethane	µg/kg	1	MCERTS	< 1.0	-	-	-	< 1.0
1,2-Dichloroethane	µg/kg	1	MCERTS	< 1.0	-	-	-	< 1.0
1,1-Dichloropropene	µg/kg	1	MCERTS	< 1.0	-	-	-	< 1.0
Trans-1,2-dichloroethene	µg/kg	1	NONE	< 1.0	-	-	-	< 1.0
Benzene	µg/kg	1	MCERTS	< 1.0	-	-	-	< 1.0
Tetrachloromethane	µg/kg	1	MCERTS	< 1.0	-	-	-	< 1.0
1,2-Dichloropropane	µg/kg	1	MCERTS	< 1.0	-	-	-	< 1.0
Trichloroethene	µg/kg	1	MCERTS	< 1.0	-	-	-	< 1.0
Dibromomethane	µg/kg	1	MCERTS	< 1.0	-	-	-	< 1.0
Bromodichloromethane	µg/kg	1	MCERTS	< 1.0	-	-	-	< 1.0
Cis-1,3-dichloropropene	µg/kg	1	ISO 17025	< 1.0	-	-	-	< 1.0
Trans-1,3-dichloropropene	µg/kg	1	ISO 17025	< 1.0	-	-	-	< 1.0
Toluene	µg/kg	1	MCERTS	< 1.0	-	-	-	< 1.0
1,1,2-Trichloroethane	µg/kg	1	MCERTS	< 1.0	-	-	-	< 1.0

Analytical Report Number: 22-33264
Project / Site name: Cherryfield Drive
Your Order No: 15280-NG-B

Lab Sample Number				2138314	2138315	2138316	2138317	2138318
Sample Reference				WS142	TP101	TP107	TP111	TP117
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				1.60	0.10	0.70	0.10	0.70
Date Sampled				13/01/2022	10/01/2022	10/01/2022	10/01/2022	10/01/2022
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
1,3-Dichloropropane	µg/kg	1	ISO 17025	< 1.0	-	-	-	< 1.0
Dibromochloromethane	µg/kg	1	ISO 17025	< 1.0	-	-	-	< 1.0
Tetrachloroethene	µg/kg	1	NONE	< 1.0	-	-	-	< 1.0
1,2-Dibromoethane	µg/kg	1	ISO 17025	< 1.0	-	-	-	< 1.0
Chlorobenzene	µg/kg	1	MCERTS	< 1.0	-	-	-	< 1.0
1,1,1,2-Tetrachloroethane	µg/kg	1	MCERTS	< 1.0	-	-	-	< 1.0
Ethylbenzene	µg/kg	1	MCERTS	< 1.0	-	-	-	< 1.0
p & m-Xylene	µg/kg	1	MCERTS	< 1.0	-	-	-	< 1.0
Styrene	µg/kg	1	MCERTS	< 1.0	-	-	-	< 1.0
Tribromomethane	µg/kg	1	NONE	< 1.0	-	-	-	< 1.0
o-Xylene	µg/kg	1	MCERTS	< 1.0	-	-	-	< 1.0
1,1,2,2-Tetrachloroethane	µg/kg	1	MCERTS	< 1.0	-	-	-	< 1.0
Isopropylbenzene	µg/kg	1	MCERTS	< 1.0	-	-	-	< 1.0
Bromobenzene	µg/kg	1	MCERTS	< 1.0	-	-	-	< 1.0
n-Propylbenzene	µg/kg	1	ISO 17025	< 1.0	-	-	-	< 1.0
2-Chlorotoluene	µg/kg	1	MCERTS	< 1.0	-	-	-	< 1.0
4-Chlorotoluene	µg/kg	1	MCERTS	< 1.0	-	-	-	< 1.0
1,3,5-Trimethylbenzene	µg/kg	1	ISO 17025	< 1.0	-	-	-	< 1.0
tert-Butylbenzene	µg/kg	1	MCERTS	< 1.0	-	-	-	< 1.0
1,2,4-Trimethylbenzene	µg/kg	1	ISO 17025	< 1.0	-	-	-	< 1.0
sec-Butylbenzene	µg/kg	1	MCERTS	< 1.0	-	-	-	< 1.0
1,3-Dichlorobenzene	µg/kg	1	ISO 17025	< 1.0	-	-	-	< 1.0
p-Isopropyltoluene	µg/kg	1	ISO 17025	< 1.0	-	-	-	< 1.0
1,2-Dichlorobenzene	µg/kg	1	MCERTS	< 1.0	-	-	-	< 1.0
1,4-Dichlorobenzene	µg/kg	1	MCERTS	< 1.0	-	-	-	< 1.0
Butylbenzene	µg/kg	1	MCERTS	< 1.0	-	-	-	< 1.0
1,2-Dibromo-3-chloropropane	µg/kg	1	ISO 17025	< 1.0	-	-	-	< 1.0
1,2,4-Trichlorobenzene	µg/kg	1	MCERTS	< 1.0	-	-	-	< 1.0
Hexachlorobutadiene	µg/kg	1	MCERTS	< 1.0	-	-	-	< 1.0
1,2,3-Trichlorobenzene	µg/kg	1	ISO 17025	< 1.0	-	-	-	< 1.0

SVOCs

Aniline	mg/kg	0.1	NONE	< 0.1	-	-	-	< 0.1
Phenol	mg/kg	0.2	ISO 17025	< 0.2	-	-	-	< 0.2
2-Chlorophenol	mg/kg	0.1	MCERTS	< 0.1	-	-	-	< 0.1
Bis(2-chloroethyl)ether	mg/kg	0.2	MCERTS	< 0.2	-	-	-	< 0.2
1,3-Dichlorobenzene	mg/kg	0.2	MCERTS	< 0.2	-	-	-	< 0.2
1,2-Dichlorobenzene	mg/kg	0.1	MCERTS	< 0.1	-	-	-	< 0.1
1,4-Dichlorobenzene	mg/kg	0.2	MCERTS	< 0.2	-	-	-	< 0.2
Bis(2-chloroisopropyl)ether	mg/kg	0.1	MCERTS	< 0.1	-	-	-	< 0.1
2-Methylphenol	mg/kg	0.3	MCERTS	< 0.3	-	-	-	< 0.3
Hexachloroethane	mg/kg	0.05	MCERTS	< 0.05	-	-	-	< 0.05
Nitrobenzene	mg/kg	0.3	MCERTS	< 0.3	-	-	-	< 0.3
4-Methylphenol	mg/kg	0.2	NONE	< 0.2	-	-	-	< 0.2
Isophorone	mg/kg	0.2	MCERTS	< 0.2	-	-	-	< 0.2
2-Nitrophenol	mg/kg	0.3	MCERTS	< 0.3	-	-	-	< 0.3
2,4-Dimethylphenol	mg/kg	0.3	MCERTS	< 0.3	-	-	-	< 0.3
Bis(2-chloroethoxy)methane	mg/kg	0.3	MCERTS	< 0.3	-	-	-	< 0.3
1,2,4-Trichlorobenzene	mg/kg	0.3	MCERTS	< 0.3	-	-	-	< 0.3
Naphthalene	mg/kg	0.05	MCERTS	< 0.05	-	-	-	< 0.05
2,4-Dichlorophenol	mg/kg	0.3	MCERTS	< 0.3	-	-	-	< 0.3
4-Chloroaniline	mg/kg	0.1	NONE	< 0.1	-	-	-	< 0.1
Hexachlorobutadiene	mg/kg	0.1	MCERTS	< 0.1	-	-	-	< 0.1
4-Chloro-3-methylphenol	mg/kg	0.1	NONE	< 0.1	-	-	-	< 0.1
2,4,6-Trichlorophenol	mg/kg	0.1	MCERTS	< 0.1	-	-	-	< 0.1
2,4,5-Trichlorophenol	mg/kg	0.2	MCERTS	< 0.2	-	-	-	< 0.2

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Analytical Report Number: 22-33264
Project / Site name: Cherryfield Drive
Your Order No: 15280-NG-B

Lab Sample Number				2138314	2138315	2138316	2138317	2138318
Sample Reference				WS142	TP101	TP107	TP111	TP117
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				1.60	0.10	0.70	0.10	0.70
Date Sampled				13/01/2022	10/01/2022	10/01/2022	10/01/2022	10/01/2022
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
2-Methylnaphthalene	mg/kg	0.1	NONE	< 0.1	-	-	-	< 0.1
2-Chloronaphthalene	mg/kg	0.1	MCERTS	< 0.1	-	-	-	< 0.1
Dimethylphthalate	mg/kg	0.1	MCERTS	< 0.1	-	-	-	< 0.1
2,6-Dinitrotoluene	mg/kg	0.1	MCERTS	< 0.1	-	-	-	< 0.1
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	-	-	-	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05	-	-	-	< 0.05
2,4-Dinitrotoluene	mg/kg	0.2	MCERTS	< 0.2	-	-	-	< 0.2
Dibenzofuran	mg/kg	0.2	MCERTS	< 0.2	-	-	-	< 0.2
4-Chlorophenyl phenyl ether	mg/kg	0.3	ISO 17025	< 0.3	-	-	-	< 0.3
Diethyl phthalate	mg/kg	0.2	MCERTS	< 0.2	-	-	-	< 0.2
4-Nitroaniline	mg/kg	0.2	MCERTS	< 0.2	-	-	-	< 0.2
Fluorene	mg/kg	0.05	MCERTS	< 0.05	-	-	-	< 0.05
Azobenzene	mg/kg	0.3	MCERTS	< 0.3	-	-	-	< 0.3
Bromophenyl phenyl ether	mg/kg	0.2	MCERTS	< 0.2	-	-	-	< 0.2
Hexachlorobenzene	mg/kg	0.3	MCERTS	< 0.3	-	-	-	< 0.3
Phenanthrene	mg/kg	0.05	MCERTS	< 0.05	-	-	-	0.68
Anthracene	mg/kg	0.05	MCERTS	< 0.05	-	-	-	< 0.05
Carbazole	mg/kg	0.3	MCERTS	< 0.3	-	-	-	< 0.3
Dibutyl phthalate	mg/kg	0.2	MCERTS	< 0.2	-	-	-	< 0.2
Anthraquinone	mg/kg	0.3	MCERTS	< 0.3	-	-	-	< 0.3
Fluoranthene	mg/kg	0.05	MCERTS	< 0.05	-	-	-	1.2
Pyrene	mg/kg	0.05	MCERTS	< 0.05	-	-	-	1.2
Butyl benzyl phthalate	mg/kg	0.3	ISO 17025	< 0.3	-	-	-	< 0.3
Benzo(a)anthracene	mg/kg	0.05	MCERTS	< 0.05	-	-	-	0.77
Chrysene	mg/kg	0.05	MCERTS	< 0.05	-	-	-	0.68
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	< 0.05	-	-	-	0.68
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	< 0.05	-	-	-	0.44
Benzo(a)pyrene	mg/kg	0.05	MCERTS	< 0.05	-	-	-	0.80
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	< 0.05	-	-	-	0.42
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05	-	-	-	< 0.05
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	< 0.05	-	-	-	0.51
PCBs by GC-MS								
PCB Congener 28	mg/kg	0.001	MCERTS	-	-	-	-	-
PCB Congener 52	mg/kg	0.001	MCERTS	-	-	-	-	-
PCB Congener 101	mg/kg	0.001	MCERTS	-	-	-	-	-
PCB Congener 118	mg/kg	0.001	MCERTS	-	-	-	-	-
PCB Congener 138	mg/kg	0.001	MCERTS	-	-	-	-	-
PCB Congener 153	mg/kg	0.001	MCERTS	-	-	-	-	-
PCB Congener 180	mg/kg	0.001	MCERTS	-	-	-	-	-
Total PCBs by GC-MS								
Total PCBs	mg/kg	0.007	MCERTS	-	-	-	-	-

U/S = Unsuitable Sample I/S = Insufficient Sample

Analytical Report Number: 22-33264
Project / Site name: Cherryfield Drive
Your Order No: 15280-NG-B

Lab Sample Number				2138319	2138320	2138321	2138322	2138323
Sample Reference				TP121	WS111	TP141	TP141	TP155
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				1.00	2.50	1.00	2.00	1.00
Date Sampled				10/01/2022	10/01/2022	11/01/2022	11/01/2022	12/01/2022
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Stone Content	%	0.1	NONE	< 0.1	< 0.1	54	< 0.1	46
Moisture Content	%	0.01	NONE	28	25	31	18	46
Total mass of sample received	kg	0.001	NONE	0.30	0.30	0.80	0.30	0.80
Asbestos in Soil Screen / Identification Name	Type	N/A	ISO 17025	-	-	-	-	-
Asbestos in Soil	Type	N/A	ISO 17025	Not-detected	Not-detected	Not-detected	-	Not-detected
Asbestos Quantification (Stage 2)	%	0.001	ISO 17025	-	-	-	-	-
Asbestos Quantification Total	%	0.001	ISO 17025	-	-	-	-	-
Asbestos Analyst ID	N/A	N/A	N/A	JSW	JSW	DBU		DBU
General Inorganics								
pH - Automated	pH Units	N/A	MCERTS	-	8.4	7.6	7.2	7.4
Total Cyanide	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	8.5
Total Sulphate as SO4	mg/kg	50	MCERTS	-	2300	1200	200	1500
Water Soluble SO4 (2:1 Leach. Equiv.) 1hr extraction	g/l	0.00125	MCERTS	-	0.40	0.12	0.053	0.092
Water Soluble SO4 (2:1 Leach. Equiv.) 1hr extraction	mg/kg	2.5	MCERTS	-	800	240	110	180
Water Soluble SO4 (2:1 Leach. Equiv.) 1hr extraction	mg/l	1.25	MCERTS	-	398	120	53.4	92.3
Sulphide	mg/kg	1	MCERTS	-	89	6.3	18	2.2
Total Sulphur	mg/kg	50	MCERTS	-	4600	1000	2000	1300
Total Organic Carbon (TOC) - Automated	%	0.1	MCERTS	-	3.2	3.2	1.4	5.5
Total Phenols								
Total Phenols (monohydric)	mg/kg	1	MCERTS	-	< 1.0	< 1.0	< 1.0	< 1.0
Speciated PAHs								
Naphthalene	mg/kg	0.05	MCERTS	< 0.05	-	0.22	< 0.05	-
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	-	< 0.05	< 0.05	-
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05	-	< 0.05	< 0.05	-
Fluorene	mg/kg	0.05	MCERTS	< 0.05	-	< 0.05	< 0.05	-
Phenanthrene	mg/kg	0.05	MCERTS	< 0.05	-	0.87	< 0.05	-
Anthracene	mg/kg	0.05	MCERTS	< 0.05	-	< 0.05	< 0.05	-
Fluoranthene	mg/kg	0.05	MCERTS	< 0.05	-	1.8	< 0.05	-
Pyrene	mg/kg	0.05	MCERTS	< 0.05	-	1.6	< 0.05	-
Benzo(a)anthracene	mg/kg	0.05	MCERTS	< 0.05	-	1.1	< 0.05	-
Chrysene	mg/kg	0.05	MCERTS	< 0.05	-	0.91	< 0.05	-
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	< 0.05	-	0.85	< 0.05	-
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	< 0.05	-	0.74	< 0.05	-
Benzo(a)pyrene	mg/kg	0.05	MCERTS	< 0.05	-	1.0	< 0.05	-
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	< 0.05	-	0.49	< 0.05	-
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05	-	< 0.05	< 0.05	-
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	< 0.05	-	0.61	< 0.05	-
Total PAH								
Speciated Total EPA-16 PAHs	mg/kg	0.8	MCERTS	< 0.80	-	10.2	< 0.80	-
Heavy Metals / Metalloids								
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	96	47	110	5.5	96
Barium (aqua regia extractable)	mg/kg	1	MCERTS	700	-	-	-	-
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	5.6	-	-	-	-
Boron (water soluble)	mg/kg	0.2	MCERTS	1.6	-	-	-	-
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2	13	< 0.2	< 0.2	< 0.2
Chromium (hexavalent)	mg/kg	4	NONE	< 4.0	< 4.0	< 4.0	< 4.0	< 4.0
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	-	210	40	1.9	49

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The results included within the report are representative of the samples submitted for analysis.

Analytical Report Number: 22-33264
Project / Site name: Cherryfield Drive
Your Order No: 15280-NG-B

Lab Sample Number				2138319	2138320	2138321	2138322	2138323
Sample Reference				TP121	WS111	TP141	TP141	TP155
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				1.00	2.50	1.00	2.00	1.00
Date Sampled				10/01/2022	10/01/2022	11/01/2022	11/01/2022	12/01/2022
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Copper (aqua regia extractable)	mg/kg	1	MCERTS	850	2300	350	< 1.0	980
Lead (aqua regia extractable)	mg/kg	1	MCERTS	1100	940	410	< 1.0	420
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	< 0.3	2.0	< 0.3	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	130	73	110	< 1.0	140
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	140	-	-	-	-
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	540	2100	890	7.9	1600
Monoaromatics & Oxygenates								
Benzene	µg/kg	1	MCERTS	-	< 1.0	-	-	< 1.0
Toluene	µg/kg	1	MCERTS	-	< 1.0	-	-	< 1.0
Ethylbenzene	µg/kg	1	MCERTS	-	< 1.0	-	-	< 1.0
p & m-xylene	µg/kg	1	MCERTS	-	< 1.0	-	-	< 1.0
o-xylene	µg/kg	1	MCERTS	-	< 1.0	-	-	< 1.0
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	1	MCERTS	-	< 1.0	-	-	< 1.0

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Analytical Report Number: 22-33264
Project / Site name: Cherryfield Drive
Your Order No: 15280-NG-B

Lab Sample Number				2138319	2138320	2138321	2138322	2138323
Sample Reference				TP121	WS111	TP141	TP141	TP155
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				1.00	2.50	1.00	2.00	1.00
Date Sampled				10/01/2022	10/01/2022	11/01/2022	11/01/2022	12/01/2022
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Petroleum Hydrocarbons								
TPH-CWG - Aliphatic >EC5 - EC6 $_{HS\_1D\_AL}$	mg/kg	0.001	MCERTS	-	< 0.001	-	-	< 0.001
TPH-CWG - Aliphatic >EC6 - EC8 $_{HS\_1D\_AL}$	mg/kg	0.001	MCERTS	-	< 0.001	-	-	< 0.001
TPH-CWG - Aliphatic >EC8 - EC10 $_{HS\_1D\_AL}$	mg/kg	0.001	MCERTS	-	< 0.001	-	-	< 0.001
TPH-CWG - Aliphatic >EC10 - EC12 $_{EH\_CU\_1D\_AL}$	mg/kg	1	MCERTS	-	3.7	-	-	< 1.0
TPH-CWG - Aliphatic >EC12 - EC16 $_{EH\_CU\_1D\_AL}$	mg/kg	2	MCERTS	-	9.6	-	-	< 2.0
TPH-CWG - Aliphatic >EC16 - EC21 $_{EH\_CU\_1D\_AL}$	mg/kg	8	MCERTS	-	42	-	-	< 8.0
TPH-CWG - Aliphatic >EC21 - EC35 $_{EH\_CU\_1D\_AL}$	mg/kg	8	MCERTS	-	100	-	-	< 8.0
TPH-CWG - Aliphatic (EC5 - EC35) $_{EH\_CU+HS\_1D\_AL}$	mg/kg	10	MCERTS	-	160	-	-	< 10
TPH-CWG - Aromatic >EC5 - EC7 $_{HS\_1D\_AR}$	mg/kg	0.001	MCERTS	-	< 0.001	-	-	< 0.001
TPH-CWG - Aromatic >EC7 - EC8 $_{HS\_1D\_AR}$	mg/kg	0.001	MCERTS	-	< 0.001	-	-	< 0.001
TPH-CWG - Aromatic >EC8 - EC10 $_{HS\_1D\_AR}$	mg/kg	0.001	MCERTS	-	< 0.001	-	-	< 0.001
TPH-CWG - Aromatic >EC10 - EC12 $_{EH\_CU\_1D\_AR}$	mg/kg	1	MCERTS	-	< 1.0	-	-	< 1.0
TPH-CWG - Aromatic >EC12 - EC16 $_{EH\_CU\_1D\_AR}$	mg/kg	2	MCERTS	-	< 2.0	-	-	13
TPH-CWG - Aromatic >EC16 - EC21 $_{EH\_CU\_1D\_AR}$	mg/kg	10	MCERTS	-	< 10	-	-	19
TPH-CWG - Aromatic >EC21 - EC35 $_{EH\_CU\_1D\_AR}$	mg/kg	10	MCERTS	-	12	-	-	42
TPH-CWG - Aromatic (EC5 - EC35) $_{EH\_CU+HS\_1D\_AR}$	mg/kg	10	MCERTS	-	15	-	-	74
TPH (C5 - C6) $_{HS\_1D\_TOTAL}$	mg/kg	1	NONE	< 1.0	-	< 1.0	< 1.0	-
TPH (C6 - C8) $_{HS\_1D\_TOTAL}$	mg/kg	0.1	MCERTS	< 0.1	-	< 0.1	< 0.1	-
TPH (C8 - C10) $_{HS\_1D\_TOTAL}$	mg/kg	0.1	MCERTS	< 0.1	-	< 0.1	< 0.1	-
TPH (C10 - C12) $_{EH\_CU\_1D\_TOTAL}$	mg/kg	2	MCERTS	< 2.0	-	< 2.0	< 2.0	-
TPH (C12 - C16) $_{EH\_CU\_1D\_TOTAL}$	mg/kg	4	MCERTS	< 4.0	-	< 4.0	< 4.0	-
TPH (C16 - C21) $_{EH\_CU\_1D\_TOTAL}$	mg/kg	1	MCERTS	< 1.0	-	3.3	< 1.0	-
TPH (C21 - C35) $_{EH\_CU\_1D\_TOTAL}$	mg/kg	1	MCERTS	< 1.0	-	11	< 1.0	-
TPH (C35 - C40) $_{EH\_CU\_1D\_TOTAL}$	mg/kg	10	MCERTS	< 10	-	< 10	< 10	-
TPH Total C5 - C40 $_{EH\_CU+HS\_1D\_TOTAL}$	mg/kg	10	MCERTS	< 10	-	14	< 10	-
VOCs								
Chloromethane	µg/kg	1	ISO 17025	-	< 1.0	-	-	< 1.0
Chloroethane	µg/kg	1	NONE	-	< 1.0	-	-	< 1.0
Bromomethane	µg/kg	1	ISO 17025	-	< 1.0	-	-	< 1.0
Vinyl Chloride	µg/kg	1	NONE	-	< 1.0	-	-	< 1.0
Trichlorofluoromethane	µg/kg	1	NONE	-	< 1.0	-	-	< 1.0
1,1-Dichloroethene	µg/kg	1	NONE	-	< 1.0	-	-	< 1.0
1,1,2-Trichloro 1,2,2-Trifluoroethane	µg/kg	1	ISO 17025	-	< 1.0	-	-	< 1.0
Cis-1,2-dichloroethene	µg/kg	1	MCERTS	-	< 1.0	-	-	< 1.0
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	1	MCERTS	-	< 1.0	-	-	< 1.0
1,1-Dichloroethane	µg/kg	1	MCERTS	-	< 1.0	-	-	< 1.0
2,2-Dichloropropane	µg/kg	1	MCERTS	-	< 1.0	-	-	< 1.0
Trichloromethane	µg/kg	1	MCERTS	-	< 1.0	-	-	< 1.0
1,1,1-Trichloroethane	µg/kg	1	MCERTS	-	< 1.0	-	-	< 1.0
1,2-Dichloroethane	µg/kg	1	MCERTS	-	< 1.0	-	-	< 1.0
1,1-Dichloropropene	µg/kg	1	MCERTS	-	< 1.0	-	-	< 1.0
Trans-1,2-dichloroethene	µg/kg	1	NONE	-	< 1.0	-	-	< 1.0
Benzene	µg/kg	1	MCERTS	-	< 1.0	-	-	< 1.0
Tetrachloromethane	µg/kg	1	MCERTS	-	< 1.0	-	-	< 1.0
1,2-Dichloropropane	µg/kg	1	MCERTS	-	< 1.0	-	-	< 1.0
Trichloroethene	µg/kg	1	MCERTS	-	< 1.0	-	-	< 1.0
Dibromomethane	µg/kg	1	MCERTS	-	< 1.0	-	-	< 1.0
Bromodichloromethane	µg/kg	1	MCERTS	-	< 1.0	-	-	< 1.0
Cis-1,3-dichloropropene	µg/kg	1	ISO 17025	-	< 1.0	-	-	< 1.0
Trans-1,3-dichloropropene	µg/kg	1	ISO 17025	-	< 1.0	-	-	< 1.0
Toluene	µg/kg	1	MCERTS	-	< 1.0	-	-	< 1.0
1,1,2-Trichloroethane	µg/kg	1	MCERTS	-	< 1.0	-	-	< 1.0

Analytical Report Number: 22-33264
Project / Site name: Cherryfield Drive
Your Order No: 15280-NG-B

Lab Sample Number				2138319	2138320	2138321	2138322	2138323
Sample Reference				TP121	WS111	TP141	TP141	TP155
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				1.00	2.50	1.00	2.00	1.00
Date Sampled				10/01/2022	10/01/2022	11/01/2022	11/01/2022	12/01/2022
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
1,3-Dichloropropane	µg/kg	1	ISO 17025	-	< 1.0	-	-	< 1.0
Dibromochloromethane	µg/kg	1	ISO 17025	-	< 1.0	-	-	< 1.0
Tetrachloroethene	µg/kg	1	NONE	-	< 1.0	-	-	< 1.0
1,2-Dibromoethane	µg/kg	1	ISO 17025	-	< 1.0	-	-	< 1.0
Chlorobenzene	µg/kg	1	MCERTS	-	< 1.0	-	-	< 1.0
1,1,1,2-Tetrachloroethane	µg/kg	1	MCERTS	-	< 1.0	-	-	< 1.0
Ethylbenzene	µg/kg	1	MCERTS	-	< 1.0	-	-	< 1.0
p & m-Xylene	µg/kg	1	MCERTS	-	< 1.0	-	-	< 1.0
Styrene	µg/kg	1	MCERTS	-	< 1.0	-	-	< 1.0
Tribromomethane	µg/kg	1	NONE	-	< 1.0	-	-	< 1.0
o-Xylene	µg/kg	1	MCERTS	-	< 1.0	-	-	< 1.0
1,1,2,2-Tetrachloroethane	µg/kg	1	MCERTS	-	< 1.0	-	-	< 1.0
Isopropylbenzene	µg/kg	1	MCERTS	-	< 1.0	-	-	< 1.0
Bromobenzene	µg/kg	1	MCERTS	-	< 1.0	-	-	< 1.0
n-Propylbenzene	µg/kg	1	ISO 17025	-	< 1.0	-	-	< 1.0
2-Chlorotoluene	µg/kg	1	MCERTS	-	< 1.0	-	-	< 1.0
4-Chlorotoluene	µg/kg	1	MCERTS	-	< 1.0	-	-	< 1.0
1,3,5-Trimethylbenzene	µg/kg	1	ISO 17025	-	< 1.0	-	-	< 1.0
tert-Butylbenzene	µg/kg	1	MCERTS	-	< 1.0	-	-	< 1.0
1,2,4-Trimethylbenzene	µg/kg	1	ISO 17025	-	< 1.0	-	-	< 1.0
sec-Butylbenzene	µg/kg	1	MCERTS	-	< 1.0	-	-	< 1.0
1,3-Dichlorobenzene	µg/kg	1	ISO 17025	-	< 1.0	-	-	< 1.0
p-Isopropyltoluene	µg/kg	1	ISO 17025	-	< 1.0	-	-	< 1.0
1,2-Dichlorobenzene	µg/kg	1	MCERTS	-	< 1.0	-	-	< 1.0
1,4-Dichlorobenzene	µg/kg	1	MCERTS	-	< 1.0	-	-	< 1.0
Butylbenzene	µg/kg	1	MCERTS	-	< 1.0	-	-	< 1.0
1,2-Dibromo-3-chloropropane	µg/kg	1	ISO 17025	-	< 1.0	-	-	< 1.0
1,2,4-Trichlorobenzene	µg/kg	1	MCERTS	-	< 1.0	-	-	< 1.0
Hexachlorobutadiene	µg/kg	1	MCERTS	-	< 1.0	-	-	< 1.0
1,2,3-Trichlorobenzene	µg/kg	1	ISO 17025	-	< 1.0	-	-	< 1.0

SVOCs

Aniline	mg/kg	0.1	NONE	-	< 0.1	-	-	< 0.1
Phenol	mg/kg	0.2	ISO 17025	-	< 0.2	-	-	< 0.2
2-Chlorophenol	mg/kg	0.1	MCERTS	-	< 0.1	-	-	< 0.1
Bis(2-chloroethyl)ether	mg/kg	0.2	MCERTS	-	< 0.2	-	-	< 0.2
1,3-Dichlorobenzene	mg/kg	0.2	MCERTS	-	< 0.2	-	-	< 0.2
1,2-Dichlorobenzene	mg/kg	0.1	MCERTS	-	< 0.1	-	-	< 0.1
1,4-Dichlorobenzene	mg/kg	0.2	MCERTS	-	< 0.2	-	-	< 0.2
Bis(2-chloroisopropyl)ether	mg/kg	0.1	MCERTS	-	< 0.1	-	-	< 0.1
2-Methylphenol	mg/kg	0.3	MCERTS	-	< 0.3	-	-	< 0.3
Hexachloroethane	mg/kg	0.05	MCERTS	-	< 0.05	-	-	< 0.05
Nitrobenzene	mg/kg	0.3	MCERTS	-	< 0.3	-	-	< 0.3
4-Methylphenol	mg/kg	0.2	NONE	-	< 0.2	-	-	< 0.2
Isophorone	mg/kg	0.2	MCERTS	-	< 0.2	-	-	< 0.2
2-Nitrophenol	mg/kg	0.3	MCERTS	-	< 0.3	-	-	< 0.3
2,4-Dimethylphenol	mg/kg	0.3	MCERTS	-	< 0.3	-	-	< 0.3
Bis(2-chloroethoxy)methane	mg/kg	0.3	MCERTS	-	< 0.3	-	-	< 0.3
1,2,4-Trichlorobenzene	mg/kg	0.3	MCERTS	-	< 0.3	-	-	< 0.3
Naphthalene	mg/kg	0.05	MCERTS	-	0.26	-	-	0.53
2,4-Dichlorophenol	mg/kg	0.3	MCERTS	-	< 0.3	-	-	< 0.3
4-Chloroaniline	mg/kg	0.1	NONE	-	< 0.1	-	-	< 0.1
Hexachlorobutadiene	mg/kg	0.1	MCERTS	-	< 0.1	-	-	< 0.1
4-Chloro-3-methylphenol	mg/kg	0.1	NONE	-	< 0.1	-	-	< 0.1
2,4,6-Trichlorophenol	mg/kg	0.1	MCERTS	-	< 0.1	-	-	< 0.1
2,4,5-Trichlorophenol	mg/kg	0.2	MCERTS	-	< 0.2	-	-	< 0.2

Analytical Report Number: 22-33264
Project / Site name: Cherryfield Drive
Your Order No: 15280-NG-B

Lab Sample Number				2138319	2138320	2138321	2138322	2138323
Sample Reference				TP121	WS111	TP141	TP141	TP155
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				1.00	2.50	1.00	2.00	1.00
Date Sampled				10/01/2022	10/01/2022	11/01/2022	11/01/2022	12/01/2022
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
2-Methylnaphthalene	mg/kg	0.1	NONE	-	< 0.1	-	-	< 0.1
2-Chloronaphthalene	mg/kg	0.1	MCERTS	-	< 0.1	-	-	< 0.1
Dimethylphthalate	mg/kg	0.1	MCERTS	-	< 0.1	-	-	< 0.1
2,6-Dinitrotoluene	mg/kg	0.1	MCERTS	-	< 0.1	-	-	< 0.1
Acenaphthylene	mg/kg	0.05	MCERTS	-	< 0.05	-	-	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	-	< 0.05	-	-	0.33
2,4-Dinitrotoluene	mg/kg	0.2	MCERTS	-	< 0.2	-	-	< 0.2
Dibenzofuran	mg/kg	0.2	MCERTS	-	< 0.2	-	-	< 0.2
4-Chlorophenyl phenyl ether	mg/kg	0.3	ISO 17025	-	< 0.3	-	-	< 0.3
Diethyl phthalate	mg/kg	0.2	MCERTS	-	< 0.2	-	-	< 0.2
4-Nitroaniline	mg/kg	0.2	MCERTS	-	< 0.2	-	-	< 0.2
Fluorene	mg/kg	0.05	MCERTS	-	< 0.05	-	-	0.24
Azobenzene	mg/kg	0.3	MCERTS	-	< 0.3	-	-	< 0.3
Bromophenyl phenyl ether	mg/kg	0.2	MCERTS	-	< 0.2	-	-	< 0.2
Hexachlorobenzene	mg/kg	0.3	MCERTS	-	< 0.3	-	-	< 0.3
Phenanthrene	mg/kg	0.05	MCERTS	-	0.21	-	-	2.9
Anthracene	mg/kg	0.05	MCERTS	-	< 0.05	-	-	0.51
Carbazole	mg/kg	0.3	MCERTS	-	< 0.3	-	-	< 0.3
Dibutyl phthalate	mg/kg	0.2	MCERTS	-	79	-	-	< 0.2
Anthraquinone	mg/kg	0.3	MCERTS	-	< 0.3	-	-	< 0.3
Fluoranthene	mg/kg	0.05	MCERTS	-	0.30	-	-	4.4
Pyrene	mg/kg	0.05	MCERTS	-	0.33	-	-	4.1
Butyl benzyl phthalate	mg/kg	0.3	ISO 17025	-	2.1	-	-	< 0.3
Benzo(a)anthracene	mg/kg	0.05	MCERTS	-	< 0.05	-	-	2.3
Chrysene	mg/kg	0.05	MCERTS	-	< 0.05	-	-	2.3
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	-	< 0.05	-	-	2.1
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	-	< 0.05	-	-	1.1
Benzo(a)pyrene	mg/kg	0.05	MCERTS	-	< 0.05	-	-	1.9
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	-	< 0.05	-	-	1.0
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	-	< 0.05	-	-	0.36
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	-	< 0.05	-	-	1.3
PCBs by GC-MS								
PCB Congener 28	mg/kg	0.001	MCERTS	-	-	-	-	-
PCB Congener 52	mg/kg	0.001	MCERTS	-	-	-	-	-
PCB Congener 101	mg/kg	0.001	MCERTS	-	-	-	-	-
PCB Congener 118	mg/kg	0.001	MCERTS	-	-	-	-	-
PCB Congener 138	mg/kg	0.001	MCERTS	-	-	-	-	-
PCB Congener 153	mg/kg	0.001	MCERTS	-	-	-	-	-
PCB Congener 180	mg/kg	0.001	MCERTS	-	-	-	-	-
Total PCBs by GC-MS								
Total PCBs	mg/kg	0.007	MCERTS	-	-	-	-	-

U/S = Unsuitable Sample I/S = Insufficient Sample

Analytical Report Number: 22-33264
Project / Site name: Cherryfield Drive
Your Order No: 15280-NG-B

Lab Sample Number				2138324	2138325	2138326	2138327	2138328
Sample Reference				TP169	TP171	WS131	TP185	TP199
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.80	0.10	0.10	0.70	0.10
Date Sampled				12/01/2022	12/01/2022	12/01/2022	13/01/2022	13/01/2022
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Stone Content	%	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Moisture Content	%	0.01	NONE	31	22	24	16	21
Total mass of sample received	kg	0.001	NONE	0.30	0.30	0.30	0.30	0.30
Asbestos in Soil Screen / Identification Name	Type	N/A	ISO 17025	-	-	-	-	-
Asbestos in Soil	Type	N/A	ISO 17025	Not-detected	Not-detected	Not-detected	-	Not-detected
Asbestos Quantification (Stage 2)	%	0.001	ISO 17025	-	-	-	-	-
Asbestos Quantification Total	%	0.001	ISO 17025	-	-	-	-	-
Asbestos Analyst ID	N/A	N/A	N/A	DBU	DBU	DBU		DBU
General Inorganics								
pH - Automated	pH Units	N/A	MCERTS	6.8	-	6.9	7.5	-
Total Cyanide	mg/kg	1	MCERTS	1.7	< 1.0	< 1.0	< 1.0	< 1.0
Total Sulphate as SO4	mg/kg	50	MCERTS	4400	-	520	200	-
Water Soluble SO4 (2:1 Leach. Equiv.) 1hr extraction	g/l	0.00125	MCERTS	0.83	-	0.067	0.011	-
Water Soluble SO4 (2:1 Leach. Equiv.) 1hr extraction	mg/kg	2.5	MCERTS	1700	-	130	22	-
Water Soluble SO4 (2:1 Leach. Equiv.) 1hr extraction	mg/l	1.25	MCERTS	832	-	66.5	11.1	-
Sulphide	mg/kg	1	MCERTS	1.4	-	2.0	< 1.0	-
Total Sulphur	mg/kg	50	MCERTS	2200	-	320	200	-
Total Organic Carbon (TOC) - Automated	%	0.1	MCERTS	3.8	-	2.4	1.1	-
Total Phenols								
Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0	-	< 1.0	< 1.0	-
Speciated PAHs								
Naphthalene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	0.78
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	0.82
Fluorene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	0.50
Phenanthrene	mg/kg	0.05	MCERTS	0.53	1.3	1.4	< 0.05	5.2
Anthracene	mg/kg	0.05	MCERTS	< 0.05	0.29	0.23	< 0.05	0.84
Fluoranthene	mg/kg	0.05	MCERTS	0.96	2.7	2.3	< 0.05	6.4
Pyrene	mg/kg	0.05	MCERTS	0.84	2.7	2.2	< 0.05	6.3
Benzo(a)anthracene	mg/kg	0.05	MCERTS	0.74	1.6	1.2	< 0.05	3.1
Chrysene	mg/kg	0.05	MCERTS	0.54	1.2	1.1	< 0.05	3.1
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	0.87	1.6	1.0	< 0.05	3.0
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	0.45	0.84	0.61	< 0.05	1.7
Benzo(a)pyrene	mg/kg	0.05	MCERTS	0.61	1.6	1.1	< 0.05	3.3
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	0.32	0.81	0.40	< 0.05	1.2
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05	0.21	< 0.05	< 0.05	< 0.05
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	0.37	0.99	0.57	< 0.05	1.8
Total PAH								
Speciated Total EPA-16 PAHs	mg/kg	0.8	MCERTS	6.23	15.8	12.0	< 0.80	38.0
Heavy Metals / Metalloids								
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	120	14	120	< 1.0	13
Barium (aqua regia extractable)	mg/kg	1	MCERTS	-	120	-	-	180
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	-	0.72	-	-	0.66
Boron (water soluble)	mg/kg	0.2	MCERTS	-	0.8	-	-	0.6
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2	< 0.2	0.6
Chromium (hexavalent)	mg/kg	4	NONE	< 4.0	< 4.0	< 4.0	< 4.0	< 4.0
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	23	-	17	3.5	-

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The results included within the report are representative of the samples submitted for analysis.

Analytical Report Number: 22-33264
Project / Site name: Cherryfield Drive
Your Order No: 15280-NG-B

Lab Sample Number				2138324	2138325	2138326	2138327	2138328
Sample Reference				TP169	TP171	WS131	TP185	TP199
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.80	0.10	0.10	0.70	0.10
Date Sampled				12/01/2022	12/01/2022	12/01/2022	13/01/2022	13/01/2022
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Copper (aqua regia extractable)	mg/kg	1	MCERTS	730	88	730	3.3	54
Lead (aqua regia extractable)	mg/kg	1	MCERTS	1400	170	1400	3.3	200
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	210	20	210	3.1	17
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	-	26	-	-	22
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	920	130	910	< 1.0	200
Monoaromatics & Oxygenates								
Benzene	µg/kg	1	MCERTS	-	-	-	-	-
Toluene	µg/kg	1	MCERTS	-	-	-	-	-
Ethylbenzene	µg/kg	1	MCERTS	-	-	-	-	-
p & m-xylene	µg/kg	1	MCERTS	-	-	-	-	-
o-xylene	µg/kg	1	MCERTS	-	-	-	-	-
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	1	MCERTS	-	-	-	-	-

Analytical Report Number: 22-33264
Project / Site name: Cherryfield Drive
Your Order No: 15280-NG-B

Lab Sample Number				2138324	2138325	2138326	2138327	2138328
Sample Reference				TP169	TP171	WS131	TP185	TP199
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.80	0.10	0.10	0.70	0.10
Date Sampled				12/01/2022	12/01/2022	12/01/2022	13/01/2022	13/01/2022
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Petroleum Hydrocarbons								
TPH-CWG - Aliphatic >EC5 - EC6 $_{HS\_1D\_AL}$	mg/kg	0.001	MCERTS	-	-	-	-	-
TPH-CWG - Aliphatic >EC6 - EC8 $_{HS\_1D\_AL}$	mg/kg	0.001	MCERTS	-	-	-	-	-
TPH-CWG - Aliphatic >EC8 - EC10 $_{HS\_1D\_AL}$	mg/kg	0.001	MCERTS	-	-	-	-	-
TPH-CWG - Aliphatic >EC10 - EC12 $_{EH\_CU\_1D\_AL}$	mg/kg	1	MCERTS	-	-	-	-	-
TPH-CWG - Aliphatic >EC12 - EC16 $_{EH\_CU\_1D\_AL}$	mg/kg	2	MCERTS	-	-	-	-	-
TPH-CWG - Aliphatic >EC16 - EC21 $_{EH\_CU\_1D\_AL}$	mg/kg	8	MCERTS	-	-	-	-	-
TPH-CWG - Aliphatic >EC21 - EC35 $_{EH\_CU\_1D\_AL}$	mg/kg	8	MCERTS	-	-	-	-	-
TPH-CWG - Aliphatic (EC5 - EC35) $_{EH\_CU+HS\_1D\_AL}$	mg/kg	10	MCERTS	-	-	-	-	-
TPH-CWG - Aromatic >EC5 - EC7 $_{HS\_1D\_AR}$	mg/kg	0.001	MCERTS	-	-	-	-	-
TPH-CWG - Aromatic >EC7 - EC8 $_{HS\_1D\_AR}$	mg/kg	0.001	MCERTS	-	-	-	-	-
TPH-CWG - Aromatic >EC8 - EC10 $_{HS\_1D\_AR}$	mg/kg	0.001	MCERTS	-	-	-	-	-
TPH-CWG - Aromatic >EC10 - EC12 $_{EH\_CU\_1D\_AR}$	mg/kg	1	MCERTS	-	-	-	-	-
TPH-CWG - Aromatic >EC12 - EC16 $_{EH\_CU\_1D\_AR}$	mg/kg	2	MCERTS	-	-	-	-	-
TPH-CWG - Aromatic >EC16 - EC21 $_{EH\_CU\_1D\_AR}$	mg/kg	10	MCERTS	-	-	-	-	-
TPH-CWG - Aromatic >EC21 - EC35 $_{EH\_CU\_1D\_AR}$	mg/kg	10	MCERTS	-	-	-	-	-
TPH-CWG - Aromatic (EC5 - EC35) $_{EH\_CU+HS\_1D\_AR}$	mg/kg	10	MCERTS	-	-	-	-	-
TPH (C5 - C6) $_{HS\_1D\_TOTAL}$	mg/kg	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH (C6 - C8) $_{HS\_1D\_TOTAL}$	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
TPH (C8 - C10) $_{HS\_1D\_TOTAL}$	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
TPH (C10 - C12) $_{EH\_CU\_1D\_TOTAL}$	mg/kg	2	MCERTS	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
TPH (C12 - C16) $_{EH\_CU\_1D\_TOTAL}$	mg/kg	4	MCERTS	< 4.0	< 4.0	9.2	< 4.0	6.0
TPH (C16 - C21) $_{EH\_CU\_1D\_TOTAL}$	mg/kg	1	MCERTS	3.6	10	21	< 1.0	27
TPH (C21 - C35) $_{EH\_CU\_1D\_TOTAL}$	mg/kg	1	MCERTS	10	30	54	< 1.0	120
TPH (C35 - C40) $_{EH\_CU\_1D\_TOTAL}$	mg/kg	10	MCERTS	< 10	< 10	12	< 10	58
TPH Total C5 - C40 $_{EH\_CU+HS\_1D\_TOTAL}$	mg/kg	10	MCERTS	14	40	97	< 10	210
VOCs								
Chloromethane	µg/kg	1	ISO 17025	-	-	-	-	-
Chloroethane	µg/kg	1	NONE	-	-	-	-	-
Bromomethane	µg/kg	1	ISO 17025	-	-	-	-	-
Vinyl Chloride	µg/kg	1	NONE	-	-	-	-	-
Trichlorofluoromethane	µg/kg	1	NONE	-	-	-	-	-
1,1-Dichloroethene	µg/kg	1	NONE	-	-	-	-	-
1,1,2-Trichloro 1,2,2-Trifluoroethane	µg/kg	1	ISO 17025	-	-	-	-	-
Cis-1,2-dichloroethene	µg/kg	1	MCERTS	-	-	-	-	-
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	1	MCERTS	-	-	-	-	-
1,1-Dichloroethane	µg/kg	1	MCERTS	-	-	-	-	-
2,2-Dichloropropane	µg/kg	1	MCERTS	-	-	-	-	-
Trichloromethane	µg/kg	1	MCERTS	-	-	-	-	-
1,1,1-Trichloroethane	µg/kg	1	MCERTS	-	-	-	-	-
1,2-Dichloroethane	µg/kg	1	MCERTS	-	-	-	-	-
1,1-Dichloropropene	µg/kg	1	MCERTS	-	-	-	-	-
Trans-1,2-dichloroethene	µg/kg	1	NONE	-	-	-	-	-
Benzene	µg/kg	1	MCERTS	-	-	-	-	-
Tetrachloromethane	µg/kg	1	MCERTS	-	-	-	-	-
1,2-Dichloropropane	µg/kg	1	MCERTS	-	-	-	-	-
Trichloroethene	µg/kg	1	MCERTS	-	-	-	-	-
Dibromomethane	µg/kg	1	MCERTS	-	-	-	-	-
Bromodichloromethane	µg/kg	1	MCERTS	-	-	-	-	-
Cis-1,3-dichloropropene	µg/kg	1	ISO 17025	-	-	-	-	-
Trans-1,3-dichloropropene	µg/kg	1	ISO 17025	-	-	-	-	-
Toluene	µg/kg	1	MCERTS	-	-	-	-	-
1,1,2-Trichloroethane	µg/kg	1	MCERTS	-	-	-	-	-

Analytical Report Number: 22-33264
Project / Site name: Cherryfield Drive
Your Order No: 15280-NG-B

Lab Sample Number				2138324	2138325	2138326	2138327	2138328
Sample Reference				TP169	TP171	WS131	TP185	TP199
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.80	0.10	0.10	0.70	0.10
Date Sampled				12/01/2022	12/01/2022	12/01/2022	13/01/2022	13/01/2022
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
1,3-Dichloropropane	µg/kg	1	ISO 17025	-	-	-	-	-
Dibromochloromethane	µg/kg	1	ISO 17025	-	-	-	-	-
Tetrachloroethene	µg/kg	1	NONE	-	-	-	-	-
1,2-Dibromoethane	µg/kg	1	ISO 17025	-	-	-	-	-
Chlorobenzene	µg/kg	1	MCERTS	-	-	-	-	-
1,1,1,2-Tetrachloroethane	µg/kg	1	MCERTS	-	-	-	-	-
Ethylbenzene	µg/kg	1	MCERTS	-	-	-	-	-
p & m-Xylene	µg/kg	1	MCERTS	-	-	-	-	-
Styrene	µg/kg	1	MCERTS	-	-	-	-	-
Tribromomethane	µg/kg	1	NONE	-	-	-	-	-
o-Xylene	µg/kg	1	MCERTS	-	-	-	-	-
1,1,2,2-Tetrachloroethane	µg/kg	1	MCERTS	-	-	-	-	-
Isopropylbenzene	µg/kg	1	MCERTS	-	-	-	-	-
Bromobenzene	µg/kg	1	MCERTS	-	-	-	-	-
n-Propylbenzene	µg/kg	1	ISO 17025	-	-	-	-	-
2-Chlorotoluene	µg/kg	1	MCERTS	-	-	-	-	-
4-Chlorotoluene	µg/kg	1	MCERTS	-	-	-	-	-
1,3,5-Trimethylbenzene	µg/kg	1	ISO 17025	-	-	-	-	-
tert-Butylbenzene	µg/kg	1	MCERTS	-	-	-	-	-
1,2,4-Trimethylbenzene	µg/kg	1	ISO 17025	-	-	-	-	-
sec-Butylbenzene	µg/kg	1	MCERTS	-	-	-	-	-
1,3-Dichlorobenzene	µg/kg	1	ISO 17025	-	-	-	-	-
p-Isopropyltoluene	µg/kg	1	ISO 17025	-	-	-	-	-
1,2-Dichlorobenzene	µg/kg	1	MCERTS	-	-	-	-	-
1,4-Dichlorobenzene	µg/kg	1	MCERTS	-	-	-	-	-
Butylbenzene	µg/kg	1	MCERTS	-	-	-	-	-
1,2-Dibromo-3-chloropropane	µg/kg	1	ISO 17025	-	-	-	-	-
1,2,4-Trichlorobenzene	µg/kg	1	MCERTS	-	-	-	-	-
Hexachlorobutadiene	µg/kg	1	MCERTS	-	-	-	-	-
1,2,3-Trichlorobenzene	µg/kg	1	ISO 17025	-	-	-	-	-

SVOCs

Aniline	mg/kg	0.1	NONE	-	-	-	-	-
Phenol	mg/kg	0.2	ISO 17025	-	-	-	-	-
2-Chlorophenol	mg/kg	0.1	MCERTS	-	-	-	-	-
Bis(2-chloroethyl)ether	mg/kg	0.2	MCERTS	-	-	-	-	-
1,3-Dichlorobenzene	mg/kg	0.2	MCERTS	-	-	-	-	-
1,2-Dichlorobenzene	mg/kg	0.1	MCERTS	-	-	-	-	-
1,4-Dichlorobenzene	mg/kg	0.2	MCERTS	-	-	-	-	-
Bis(2-chloroisopropyl)ether	mg/kg	0.1	MCERTS	-	-	-	-	-
2-Methylphenol	mg/kg	0.3	MCERTS	-	-	-	-	-
Hexachloroethane	mg/kg	0.05	MCERTS	-	-	-	-	-
Nitrobenzene	mg/kg	0.3	MCERTS	-	-	-	-	-
4-Methylphenol	mg/kg	0.2	NONE	-	-	-	-	-
Isophorone	mg/kg	0.2	MCERTS	-	-	-	-	-
2-Nitrophenol	mg/kg	0.3	MCERTS	-	-	-	-	-
2,4-Dimethylphenol	mg/kg	0.3	MCERTS	-	-	-	-	-
Bis(2-chloroethoxy)methane	mg/kg	0.3	MCERTS	-	-	-	-	-
1,2,4-Trichlorobenzene	mg/kg	0.3	MCERTS	-	-	-	-	-
Naphthalene	mg/kg	0.05	MCERTS	-	-	-	-	-
2,4-Dichlorophenol	mg/kg	0.3	MCERTS	-	-	-	-	-
4-Chloroaniline	mg/kg	0.1	NONE	-	-	-	-	-
Hexachlorobutadiene	mg/kg	0.1	MCERTS	-	-	-	-	-
4-Chloro-3-methylphenol	mg/kg	0.1	NONE	-	-	-	-	-
2,4,6-Trichlorophenol	mg/kg	0.1	MCERTS	-	-	-	-	-
2,4,5-Trichlorophenol	mg/kg	0.2	MCERTS	-	-	-	-	-

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The results included within the report are representative of the samples submitted for analysis.

Analytical Report Number: 22-33264
Project / Site name: Cherryfield Drive
Your Order No: 15280-NG-B

Lab Sample Number				2138324	2138325	2138326	2138327	2138328
Sample Reference				TP169	TP171	WS131	TP185	TP199
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.80	0.10	0.10	0.70	0.10
Date Sampled				12/01/2022	12/01/2022	12/01/2022	13/01/2022	13/01/2022
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
2-Methylnaphthalene	mg/kg	0.1	NONE	-	-	-	-	-
2-Chloronaphthalene	mg/kg	0.1	MCERTS	-	-	-	-	-
Dimethylphthalate	mg/kg	0.1	MCERTS	-	-	-	-	-
2,6-Dinitrotoluene	mg/kg	0.1	MCERTS	-	-	-	-	-
Acenaphthylene	mg/kg	0.05	MCERTS	-	-	-	-	-
Acenaphthene	mg/kg	0.05	MCERTS	-	-	-	-	-
2,4-Dinitrotoluene	mg/kg	0.2	MCERTS	-	-	-	-	-
Dibenzofuran	mg/kg	0.2	MCERTS	-	-	-	-	-
4-Chlorophenyl phenyl ether	mg/kg	0.3	ISO 17025	-	-	-	-	-
Diethyl phthalate	mg/kg	0.2	MCERTS	-	-	-	-	-
4-Nitroaniline	mg/kg	0.2	MCERTS	-	-	-	-	-
Fluorene	mg/kg	0.05	MCERTS	-	-	-	-	-
Azobenzene	mg/kg	0.3	MCERTS	-	-	-	-	-
Bromophenyl phenyl ether	mg/kg	0.2	MCERTS	-	-	-	-	-
Hexachlorobenzene	mg/kg	0.3	MCERTS	-	-	-	-	-
Phenanthrene	mg/kg	0.05	MCERTS	-	-	-	-	-
Anthracene	mg/kg	0.05	MCERTS	-	-	-	-	-
Carbazole	mg/kg	0.3	MCERTS	-	-	-	-	-
Dibutyl phthalate	mg/kg	0.2	MCERTS	-	-	-	-	-
Anthraquinone	mg/kg	0.3	MCERTS	-	-	-	-	-
Fluoranthene	mg/kg	0.05	MCERTS	-	-	-	-	-
Pyrene	mg/kg	0.05	MCERTS	-	-	-	-	-
Butyl benzyl phthalate	mg/kg	0.3	ISO 17025	-	-	-	-	-
Benzo(a)anthracene	mg/kg	0.05	MCERTS	-	-	-	-	-
Chrysene	mg/kg	0.05	MCERTS	-	-	-	-	-
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	-	-	-	-	-
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	-	-	-	-	-
Benzo(a)pyrene	mg/kg	0.05	MCERTS	-	-	-	-	-
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	-	-	-	-	-
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	-	-	-	-	-
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	-	-	-	-	-

PCBs by GC-MS

PCB Congener 28	mg/kg	0.001	MCERTS	-	-	-	-	-
PCB Congener 52	mg/kg	0.001	MCERTS	-	-	-	-	-
PCB Congener 101	mg/kg	0.001	MCERTS	-	-	-	-	-
PCB Congener 118	mg/kg	0.001	MCERTS	-	-	-	-	-
PCB Congener 138	mg/kg	0.001	MCERTS	-	-	-	-	-
PCB Congener 153	mg/kg	0.001	MCERTS	-	-	-	-	-
PCB Congener 180	mg/kg	0.001	MCERTS	-	-	-	-	-

Total PCBs by GC-MS

Total PCBs	mg/kg	0.007	MCERTS	-	-	-	-	-

U/S = Unsuitable Sample I/S = Insufficient Sample

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Analytical Report Number: 22-33264
Project / Site name: Cherryfield Drive
Your Order No: 15280-NG-B

Lab Sample Number				2138329	2138330	2138331	2138332
Sample Reference				TP101	TP101	WS139	WS141
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.90	1.30	0.10	1.80
Date Sampled				13/01/2022	13/01/2022	13/01/2022	13/01/2022
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**				
Stone Content	%	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1
Moisture Content	%	0.01	NONE	29	13	14	13
Total mass of sample received	kg	0.001	NONE	0.80	0.30	0.30	0.30
Asbestos in Soil Screen / Identification Name	Type	N/A	ISO 17025	-	-	-	-
Asbestos in Soil	Type	N/A	ISO 17025	Not-detected	-	Not-detected	-
Asbestos Quantification (Stage 2)	%	0.001	ISO 17025	-	-	-	-
Asbestos Quantification Total	%	0.001	ISO 17025	-	-	-	-
Asbestos Analyst ID	N/A	N/A	N/A	DBU		DBU	
General Inorganics							
pH - Automated	pH Units	N/A	MCERTS	8.2	8.4	9.0	8.1
Total Cyanide	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0
Total Sulphate as SO4	mg/kg	50	MCERTS	24000	340	1500	73
Water Soluble SO4 (2:1 Leach. Equiv.) 1hr extraction	g/l	0.00125	MCERTS	1.8	0.16	0.080	0.0043
Water Soluble SO4 (2:1 Leach. Equiv.) 1hr extraction	mg/kg	2.5	MCERTS	3700	330	160	8.6
Water Soluble SO4 (2:1 Leach. Equiv.) 1hr extraction	mg/l	1.25	MCERTS	1830	164	80.3	4.3
Sulphide	mg/kg	1	MCERTS	74	< 1.0	4.9	< 1.0
Total Sulphur	mg/kg	50	MCERTS	14000	180	630	66
Total Organic Carbon (TOC) - Automated	%	0.1	MCERTS	2.7	0.5	1.7	0.3
Total Phenols							
Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0
Speciated PAHs							
Naphthalene	mg/kg	0.05	MCERTS	-	-	0.44	< 0.05
Acenaphthylene	mg/kg	0.05	MCERTS	-	-	< 0.05	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	-	-	0.47	< 0.05
Fluorene	mg/kg	0.05	MCERTS	-	-	0.38	< 0.05
Phenanthrene	mg/kg	0.05	MCERTS	-	-	4.2	< 0.05
Anthracene	mg/kg	0.05	MCERTS	-	-	0.71	< 0.05
Fluoranthene	mg/kg	0.05	MCERTS	-	-	5.5	< 0.05
Pyrene	mg/kg	0.05	MCERTS	-	-	5.2	< 0.05
Benzo(a)anthracene	mg/kg	0.05	MCERTS	-	-	3.0	< 0.05
Chrysene	mg/kg	0.05	MCERTS	-	-	2.4	< 0.05
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	-	-	2.7	< 0.05
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	-	-	1.6	< 0.05
Benzo(a)pyrene	mg/kg	0.05	MCERTS	-	-	2.9	< 0.05
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	-	-	1.4	< 0.05
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	-	-	0.35	< 0.05
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	-	-	1.8	< 0.05
Total PAH							
Speciated Total EPA-16 PAHs	mg/kg	0.8	MCERTS	-	-	33.1	< 0.80
Heavy Metals / Metalloids							
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	11	< 1.0	14	9.1
Barium (aqua regia extractable)	mg/kg	1	MCERTS	-	-	-	-
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	-	-	-	-
Boron (water soluble)	mg/kg	0.2	MCERTS	-	-	-	-
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	0.8	0.9	1.2	< 0.2
Chromium (hexavalent)	mg/kg	4	NONE	< 4.0	< 4.0	< 4.0	< 4.0
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	17	5.0	19	35

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Analytical Report Number: 22-33264
Project / Site name: Cherryfield Drive
Your Order No: 15280-NG-B

Lab Sample Number				2138329	2138330	2138331	2138332
Sample Reference				TP101	TP101	WS139	WS141
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.90	1.30	0.10	1.80
Date Sampled				13/01/2022	13/01/2022	13/01/2022	13/01/2022
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**				
Copper (aqua regia extractable)	mg/kg	1	MCERTS	100	4.5	62	24
Lead (aqua regia extractable)	mg/kg	1	MCERTS	120	< 1.0	180	14
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	0.4	< 0.3	0.8	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	21	< 1.0	18	37
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	-	-	-	-
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	220	7.7	200	48

Monoaromatics & Oxygenates

Benzene	µg/kg	1	MCERTS	< 1.0	-	-	-
Toluene	µg/kg	1	MCERTS	< 1.0	-	-	-
Ethylbenzene	µg/kg	1	MCERTS	< 1.0	-	-	-
p & m-xylene	µg/kg	1	MCERTS	< 1.0	-	-	-
o-xylene	µg/kg	1	MCERTS	< 1.0	-	-	-
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	1	MCERTS	< 1.0	-	-	-

Analytical Report Number: 22-33264
Project / Site name: Cherryfield Drive
Your Order No: 15280-NG-B

Lab Sample Number				2138329	2138330	2138331	2138332
Sample Reference				TP101	TP101	WS139	WS141
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.90	1.30	0.10	1.80
Date Sampled				13/01/2022	13/01/2022	13/01/2022	13/01/2022
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**				
Petroleum Hydrocarbons							
TPH-CWG - Aliphatic >EC5 - EC6 $_{HS\_1D\_AL}$	mg/kg	0.001	MCERTS	< 0.001	-	-	-
TPH-CWG - Aliphatic >EC6 - EC8 $_{HS\_1D\_AL}$	mg/kg	0.001	MCERTS	< 0.001	-	-	-
TPH-CWG - Aliphatic >EC8 - EC10 $_{HS\_1D\_AL}$	mg/kg	0.001	MCERTS	< 0.001	-	-	-
TPH-CWG - Aliphatic >EC10 - EC12 $_{EH\_CU\_1D\_AL}$	mg/kg	1	MCERTS	< 1.0	-	-	-
TPH-CWG - Aliphatic >EC12 - EC16 $_{EH\_CU\_1D\_AL}$	mg/kg	2	MCERTS	11	-	-	-
TPH-CWG - Aliphatic >EC16 - EC21 $_{EH\_CU\_1D\_AL}$	mg/kg	8	MCERTS	37	-	-	-
TPH-CWG - Aliphatic >EC21 - EC35 $_{EH\_CU\_1D\_AL}$	mg/kg	8	MCERTS	230	-	-	-
TPH-CWG - Aliphatic (EC5 - EC35) $_{EH\_CU+HS\_1D\_AL}$	mg/kg	10	MCERTS	280	-	-	-
TPH-CWG - Aromatic >EC5 - EC7 $_{HS\_1D\_AR}$	mg/kg	0.001	MCERTS	< 0.001	-	-	-
TPH-CWG - Aromatic >EC7 - EC8 $_{HS\_1D\_AR}$	mg/kg	0.001	MCERTS	< 0.001	-	-	-
TPH-CWG - Aromatic >EC8 - EC10 $_{HS\_1D\_AR}$	mg/kg	0.001	MCERTS	< 0.001	-	-	-
TPH-CWG - Aromatic >EC10 - EC12 $_{EH\_CU\_1D\_AR}$	mg/kg	1	MCERTS	6.9	-	-	-
TPH-CWG - Aromatic >EC12 - EC16 $_{EH\_CU\_1D\_AR}$	mg/kg	2	MCERTS	42	-	-	-
TPH-CWG - Aromatic >EC16 - EC21 $_{EH\_CU\_1D\_AR}$	mg/kg	10	MCERTS	180	-	-	-
TPH-CWG - Aromatic >EC21 - EC35 $_{EH\_CU\_1D\_AR}$	mg/kg	10	MCERTS	470	-	-	-
TPH-CWG - Aromatic (EC5 - EC35) $_{EH\_CU+HS\_1D\_AR}$	mg/kg	10	MCERTS	710	-	-	-
TPH (C5 - C6) $_{HS\_1D\_TOTAL}$	mg/kg	1	NONE	-	< 1.0	< 1.0	< 1.0
TPH (C6 - C8) $_{HS\_1D\_TOTAL}$	mg/kg	0.1	MCERTS	-	< 0.1	< 0.1	< 0.1
TPH (C8 - C10) $_{HS\_1D\_TOTAL}$	mg/kg	0.1	MCERTS	-	< 0.1	< 0.1	< 0.1
TPH (C10 - C12) $_{EH\_CU\_1D\_TOTAL}$	mg/kg	2	MCERTS	-	< 2.0	< 2.0	< 2.0
TPH (C12 - C16) $_{EH\_CU\_1D\_TOTAL}$	mg/kg	4	MCERTS	-	< 4.0	14	< 4.0
TPH (C16 - C21) $_{EH\_CU\_1D\_TOTAL}$	mg/kg	1	MCERTS	-	< 1.0	49	< 1.0
TPH (C21 - C35) $_{EH\_CU\_1D\_TOTAL}$	mg/kg	1	MCERTS	-	< 1.0	160	< 1.0
TPH (C35 - C40) $_{EH\_CU\_1D\_TOTAL}$	mg/kg	10	MCERTS	-	< 10	62	< 10
TPH Total C5 - C40 $_{EH\_CU+HS\_1D\_TOTAL}$	mg/kg	10	MCERTS	-	< 10	290	< 10
VOCs							
Chloromethane	µg/kg	1	ISO 17025	< 1.0	< 1.0	-	-
Chloroethane	µg/kg	1	NONE	< 1.0	< 1.0	-	-
Bromomethane	µg/kg	1	ISO 17025	< 1.0	< 1.0	-	-
Vinyl Chloride	µg/kg	1	NONE	< 1.0	< 1.0	-	-
Trichlorofluoromethane	µg/kg	1	NONE	< 1.0	< 1.0	-	-
1,1-Dichloroethene	µg/kg	1	NONE	< 1.0	< 1.0	-	-
1,1,2-Trichloro 1,2,2-Trifluoroethane	µg/kg	1	ISO 17025	< 1.0	< 1.0	-	-
Cis-1,2-dichloroethene	µg/kg	1	MCERTS	< 1.0	< 1.0	-	-
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	1	MCERTS	< 1.0	< 1.0	-	-
1,1-Dichloroethane	µg/kg	1	MCERTS	< 1.0	< 1.0	-	-
2,2-Dichloropropane	µg/kg	1	MCERTS	< 1.0	< 1.0	-	-
Trichloromethane	µg/kg	1	MCERTS	< 1.0	< 1.0	-	-
1,1,1-Trichloroethane	µg/kg	1	MCERTS	< 1.0	< 1.0	-	-
1,2-Dichloroethane	µg/kg	1	MCERTS	< 1.0	< 1.0	-	-
1,1-Dichloropropene	µg/kg	1	MCERTS	< 1.0	< 1.0	-	-
Trans-1,2-dichloroethene	µg/kg	1	NONE	< 1.0	< 1.0	-	-
Benzene	µg/kg	1	MCERTS	< 1.0	< 1.0	-	-
Tetrachloromethane	µg/kg	1	MCERTS	< 1.0	< 1.0	-	-
1,2-Dichloropropane	µg/kg	1	MCERTS	< 1.0	< 1.0	-	-
Trichloroethene	µg/kg	1	MCERTS	< 1.0	< 1.0	-	-
Dibromomethane	µg/kg	1	MCERTS	< 1.0	< 1.0	-	-
Bromodichloromethane	µg/kg	1	MCERTS	< 1.0	< 1.0	-	-
Cis-1,3-dichloropropene	µg/kg	1	ISO 17025	< 1.0	< 1.0	-	-
Trans-1,3-dichloropropene	µg/kg	1	ISO 17025	< 1.0	< 1.0	-	-
Toluene	µg/kg	1	MCERTS	< 1.0	< 1.0	-	-
1,1,2-Trichloroethane	µg/kg	1	MCERTS	< 1.0	< 1.0	-	-

Analytical Report Number: 22-33264
Project / Site name: Cherryfield Drive
Your Order No: 15280-NG-B

Lab Sample Number				2138329	2138330	2138331	2138332
Sample Reference				TP101	TP101	WS139	WS141
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.90	1.30	0.10	1.80
Date Sampled				13/01/2022	13/01/2022	13/01/2022	13/01/2022
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**				
1,3-Dichloropropane	µg/kg	1	ISO 17025	< 1.0	< 1.0	-	-
Dibromochloromethane	µg/kg	1	ISO 17025	< 1.0	< 1.0	-	-
Tetrachloroethene	µg/kg	1	NONE	< 1.0	< 1.0	-	-
1,2-Dibromoethane	µg/kg	1	ISO 17025	< 1.0	< 1.0	-	-
Chlorobenzene	µg/kg	1	MCERTS	< 1.0	< 1.0	-	-
1,1,1,2-Tetrachloroethane	µg/kg	1	MCERTS	< 1.0	< 1.0	-	-
Ethylbenzene	µg/kg	1	MCERTS	< 1.0	< 1.0	-	-
p & m-Xylene	µg/kg	1	MCERTS	< 1.0	< 1.0	-	-
Styrene	µg/kg	1	MCERTS	< 1.0	< 1.0	-	-
Tribromomethane	µg/kg	1	NONE	< 1.0	< 1.0	-	-
o-Xylene	µg/kg	1	MCERTS	< 1.0	< 1.0	-	-
1,1,2,2-Tetrachloroethane	µg/kg	1	MCERTS	< 1.0	< 1.0	-	-
Isopropylbenzene	µg/kg	1	MCERTS	< 1.0	< 1.0	-	-
Bromobenzene	µg/kg	1	MCERTS	< 1.0	< 1.0	-	-
n-Propylbenzene	µg/kg	1	ISO 17025	< 1.0	< 1.0	-	-
2-Chlorotoluene	µg/kg	1	MCERTS	< 1.0	< 1.0	-	-
4-Chlorotoluene	µg/kg	1	MCERTS	< 1.0	< 1.0	-	-
1,3,5-Trimethylbenzene	µg/kg	1	ISO 17025	< 1.0	< 1.0	-	-
tert-Butylbenzene	µg/kg	1	MCERTS	< 1.0	< 1.0	-	-
1,2,4-Trimethylbenzene	µg/kg	1	ISO 17025	< 1.0	< 1.0	-	-
sec-Butylbenzene	µg/kg	1	MCERTS	< 1.0	< 1.0	-	-
1,3-Dichlorobenzene	µg/kg	1	ISO 17025	< 1.0	< 1.0	-	-
p-Isopropyltoluene	µg/kg	1	ISO 17025	< 1.0	< 1.0	-	-
1,2-Dichlorobenzene	µg/kg	1	MCERTS	< 1.0	< 1.0	-	-
1,4-Dichlorobenzene	µg/kg	1	MCERTS	< 1.0	< 1.0	-	-
Butylbenzene	µg/kg	1	MCERTS	< 1.0	< 1.0	-	-
1,2-Dibromo-3-chloropropane	µg/kg	1	ISO 17025	< 1.0	< 1.0	-	-
1,2,4-Trichlorobenzene	µg/kg	1	MCERTS	< 1.0	< 1.0	-	-
Hexachlorobutadiene	µg/kg	1	MCERTS	< 1.0	< 1.0	-	-
1,2,3-Trichlorobenzene	µg/kg	1	ISO 17025	< 1.0	< 1.0	-	-

SVOCs

Aniline	mg/kg	0.1	NONE	< 0.1	< 0.1	-	-
Phenol	mg/kg	0.2	ISO 17025	< 0.2	< 0.2	-	-
2-Chlorophenol	mg/kg	0.1	MCERTS	< 0.1	< 0.1	-	-
Bis(2-chloroethyl)ether	mg/kg	0.2	MCERTS	< 0.2	< 0.2	-	-
1,3-Dichlorobenzene	mg/kg	0.2	MCERTS	< 0.2	< 0.2	-	-
1,2-Dichlorobenzene	mg/kg	0.1	MCERTS	< 0.1	< 0.1	-	-
1,4-Dichlorobenzene	mg/kg	0.2	MCERTS	< 0.2	< 0.2	-	-
Bis(2-chloroisopropyl)ether	mg/kg	0.1	MCERTS	< 0.1	< 0.1	-	-
2-Methylphenol	mg/kg	0.3	MCERTS	< 0.3	< 0.3	-	-
Hexachloroethane	mg/kg	0.05	MCERTS	< 0.05	< 0.05	-	-
Nitrobenzene	mg/kg	0.3	MCERTS	< 0.3	< 0.3	-	-
4-Methylphenol	mg/kg	0.2	NONE	< 0.2	< 0.2	-	-
Isophorone	mg/kg	0.2	MCERTS	< 0.2	< 0.2	-	-
2-Nitrophenol	mg/kg	0.3	MCERTS	< 0.3	< 0.3	-	-
2,4-Dimethylphenol	mg/kg	0.3	MCERTS	< 0.3	< 0.3	-	-
Bis(2-chloroethoxy)methane	mg/kg	0.3	MCERTS	< 0.3	< 0.3	-	-
1,2,4-Trichlorobenzene	mg/kg	0.3	MCERTS	< 0.3	< 0.3	-	-
Naphthalene	mg/kg	0.05	MCERTS	4.1	< 0.05	-	-
2,4-Dichlorophenol	mg/kg	0.3	MCERTS	< 0.3	< 0.3	-	-
4-Chloroaniline	mg/kg	0.1	NONE	1.6	< 0.1	-	-
Hexachlorobutadiene	mg/kg	0.1	MCERTS	< 0.1	< 0.1	-	-
4-Chloro-3-methylphenol	mg/kg	0.1	NONE	< 0.1	< 0.1	-	-
2,4,6-Trichlorophenol	mg/kg	0.1	MCERTS	< 0.1	< 0.1	-	-
2,4,5-Trichlorophenol	mg/kg	0.2	MCERTS	< 0.2	< 0.2	-	-

This certificate should not be reproduced, except in full, without the express permission of the laboratory.
The results included within the report are representative of the samples submitted for analysis.

Analytical Report Number: 22-33264
Project / Site name: Cherryfield Drive
Your Order No: 15280-NG-B

Lab Sample Number				2138329	2138330	2138331	2138332
Sample Reference				TP101	TP101	WS139	WS141
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.90	1.30	0.10	1.80
Date Sampled				13/01/2022	13/01/2022	13/01/2022	13/01/2022
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**				
2-Methylnaphthalene	mg/kg	0.1	NONE	2.3	< 0.1	-	-
2-Chloronaphthalene	mg/kg	0.1	MCERTS	< 0.1	< 0.1	-	-
Dimethylphthalate	mg/kg	0.1	MCERTS	< 0.1	< 0.1	-	-
2,6-Dinitrotoluene	mg/kg	0.1	MCERTS	< 0.1	< 0.1	-	-
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	-	-
Acenaphthene	mg/kg	0.05	MCERTS	6.1	< 0.05	-	-
2,4-Dinitrotoluene	mg/kg	0.2	MCERTS	< 0.2	< 0.2	-	-
Dibenzofuran	mg/kg	0.2	MCERTS	3.1	< 0.2	-	-
4-Chlorophenyl phenyl ether	mg/kg	0.3	ISO 17025	< 0.3	< 0.3	-	-
Diethyl phthalate	mg/kg	0.2	MCERTS	< 0.2	< 0.2	-	-
4-Nitroaniline	mg/kg	0.2	MCERTS	< 0.2	< 0.2	-	-
Fluorene	mg/kg	0.05	MCERTS	5.1	< 0.05	-	-
Azobenzene	mg/kg	0.3	MCERTS	< 0.3	< 0.3	-	-
Bromophenyl phenyl ether	mg/kg	0.2	MCERTS	< 0.2	< 0.2	-	-
Hexachlorobenzene	mg/kg	0.3	MCERTS	< 0.3	< 0.3	-	-
Phenanthrene	mg/kg	0.05	MCERTS	33	< 0.05	-	-
Anthracene	mg/kg	0.05	MCERTS	6.7	< 0.05	-	-
Carbazole	mg/kg	0.3	MCERTS	2.5	< 0.3	-	-
Dibutyl phthalate	mg/kg	0.2	MCERTS	< 0.2	< 0.2	-	-
Anthraquinone	mg/kg	0.3	MCERTS	< 0.3	< 0.3	-	-
Fluoranthene	mg/kg	0.05	MCERTS	29	< 0.05	-	-
Pyrene	mg/kg	0.05	MCERTS	28	< 0.05	-	-
Butyl benzyl phthalate	mg/kg	0.3	ISO 17025	< 0.3	< 0.3	-	-
Benzo(a)anthracene	mg/kg	0.05	MCERTS	14	< 0.05	-	-
Chrysene	mg/kg	0.05	MCERTS	11	< 0.05	-	-
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	12	< 0.05	-	-
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	4.7	< 0.05	-	-
Benzo(a)pyrene	mg/kg	0.05	MCERTS	12	< 0.05	-	-
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	4.5	< 0.05	-	-
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	1.5	< 0.05	-	-
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	6.2	< 0.05	-	-

PCBs by GC-MS

PCB Congener 28	mg/kg	0.001	MCERTS	-	-	-	-
PCB Congener 52	mg/kg	0.001	MCERTS	-	-	-	-
PCB Congener 101	mg/kg	0.001	MCERTS	-	-	-	-
PCB Congener 118	mg/kg	0.001	MCERTS	-	-	-	-
PCB Congener 138	mg/kg	0.001	MCERTS	-	-	-	-
PCB Congener 153	mg/kg	0.001	MCERTS	-	-	-	-
PCB Congener 180	mg/kg	0.001	MCERTS	-	-	-	-

Total PCBs by GC-MS

Total PCBs	mg/kg	0.007	MCERTS	-	-	-	-

U/S = Unsuitable Sample I/S = Insufficient Sample

Analytical Report Number: 22-33264
Project / Site name: Cherryfield Drive
Your Order No: 15280-NG-B

Certificate of Analysis - Asbestos Quantification

Methods:

Qualitative Analysis

The samples were analysed qualitatively for asbestos by polarising light and dispersion staining as described by the Health and Safety Executive in HSG 248.

Quantitative Analysis

The analysis was carried out using our documented in-house method A006-PL based on HSE Contract Research Report No: 83/1996: Development and Validation of an analytical method to determine the amount of asbestos in soils and loose aggregates (Davies et al, 1996) and HSG 248. Our method includes initial examination of the entire representative sample, then fractionation and detailed analysis of each fraction, with quantification by hand picking and weighing.

The limit of detection (reporting limit) of this method is 0.001 %.

The method has been validated using samples of at least 100 g, results for samples smaller than this should be interpreted with caution.

Both Qualitative and Quantitative Analyses are UKAS accredited.

Sample Number	Sample ID	Sample Depth (m)	Sample Weight (g)	Asbestos Containing Material Types Detected (ACM)	PLM Results	Asbestos by hand picking/weighing (%)	Total % Asbestos in Sample
2138299	TP118	0.50	105	Loose Fibres	**Amosite**	0.002	**0.002**
2138303	TP132	0.20	140	Loose Fibres	**Chrysotile & Crocidolite**	< 0.001	**< 0.001**
2138305	TP140	0.10	155	Loose Fibrous Debris	**Chrysotile**	0.005	**0.005**

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

Analytical Report Number: 22-33264
Project / Site name: Cherryfield Drive

Your Order No: 15280-NG-B

Lab Sample Number				2138333	2138334	2138335	2138336	2138337
Sample Reference				TP118	TP166	TP117	TP155	TP101
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.50	0.40	2.40	1.00	0.90
Date Sampled				10/01/2022	12/01/2022	12/01/2022	12/01/2022	13/01/2022
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Leachate Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
General Inorganics								
pH (automated)	pH Units	N/A	ISO 17025	7.6	9.5	7.6	7.5	7.3
Total Cyanide (Low Level 1 µg/l)	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Total Phenols								
Total Phenols (monohydric)	µg/l	1	ISO 17025	2.1	7.6	6.8	7.0	7.8
Speciated PAHs								
Naphthalene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	2.0
Acenaphthylene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Acenaphthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	0.81	< 0.01	1.6
Fluorene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	0.48	< 0.01	0.72
Phenanthrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	0.38	< 0.01	0.80
Anthracene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Pyrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(a)anthracene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Chrysene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(b)fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(k)fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(a)pyrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Indeno(1,2,3-cd)pyrene	µg/l	0.01	NONE	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Dibenz(a,h)anthracene	µg/l	0.01	NONE	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(ghi)perylene	µg/l	0.01	NONE	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Total PAH								
Total EPA-16 PAHs	µg/l	0.2	NONE	< 0.2	< 0.2	1.7	< 0.2	5.1
Heavy Metals / Metalloids								
Arsenic (dissolved)	µg/l	1	ISO 17025	16	14	19	5.7	10
Cadmium (dissolved)	µg/l	0.08	ISO 17025	0.12	0.24	0.25	0.16	< 0.08
Chromium (hexavalent)	µg/l	5	ISO 17025	< 5.0	U/S*	< 5.0	< 5.0	< 5.0
Chromium (dissolved)	µg/l	0.4	ISO 17025	0.8	17	0.6	1.6	0.4
Copper (dissolved)	µg/l	0.7	ISO 17025	6.6	12	< 0.7	< 0.7	< 0.7
Lead (dissolved)	µg/l	1	ISO 17025	2.3	4.2	3.8	4.2	1.9
Mercury (dissolved)	µg/l	0.5	ISO 17025	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Nickel (dissolved)	µg/l	0.3	ISO 17025	5.9	6.7	7.0	3.7	9.4
Selenium (dissolved)	µg/l	4	ISO 17025	5.9	8.8	6.3	4.9	< 4.0
Zinc (dissolved)	µg/l	0.4	ISO 17025	7.7	10	4.9	35	11

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The results included within the report are representative of the samples submitted for analysis.

Analytical Report Number: 22-33264
Project / Site name: Cherryfield Drive

Your Order No: 15280-NG-B

Lab Sample Number				2138333	2138334	2138335	2138336	2138337
Sample Reference				TP118	TP166	TP117	TP155	TP101
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.50	0.40	2.40	1.00	0.90
Date Sampled				10/01/2022	12/01/2022	12/01/2022	12/01/2022	13/01/2022
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Leachate Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Monoaromatics & Oxygenates								
Benzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Toluene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Ethylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
p & m-xylene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
o-xylene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
MTBE (Methyl Tertiary Butyl Ether)	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
Petroleum Hydrocarbons								
TPH1 (C10 - C40) $_{EH\_1D\_TOTAL\_\#1\_\#2\_MS}$	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aliphatic >C5 - C6 $_{HS\_1D\_AL}$	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aliphatic >C6 - C8 $_{HS\_1D\_AL}$	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aliphatic >C8 - C10 $_{HS\_1D\_AL}$	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aliphatic >C10 - C12 $_{EH\_1D\_AL\_\#1\_\#2\_MS}$	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aliphatic >C12 - C16 $_{EH\_1D\_AL\_\#1\_\#2\_MS}$	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aliphatic >C16 - C21 $_{EH\_1D\_AL\_\#1\_\#2\_MS}$	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aliphatic >C21 - C35 $_{EH\_1D\_AL\_\#1\_\#2\_MS}$	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aliphatic (C5 - C35) $_{HS+EH\_1D\_AL\_\#1\_\#2\_MS}$	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic >C5 - C7 $_{HS\_1D\_AR}$	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aromatic >C7 - C8 $_{HS\_1D\_AR}$	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aromatic >C8 - C10 $_{HS\_1D\_AR}$	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aromatic >C10 - C12 $_{EH\_1D\_AR\_\#1\_\#2\_MS}$	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic >C12 - C16 $_{EH\_1D\_AR\_\#1\_\#2\_MS}$	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic >C16 - C21 $_{EH\_1D\_AR\_\#1\_\#2\_MS}$	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic >C21 - C35 $_{EH\_1D\_AR\_\#1\_\#2\_MS}$	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic (C5 - C35) $_{HS+EH\_1D\_AR\_\#1\_\#2\_MS}$	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10

U/S = Unsuitable Sample I/S = Insufficient Sample
*U/S due to high variances between chromium (hexavalent) and chromium (dissolved) caused by method differences.

Analytical Report Number : 22-33264
Project / Site name: Cherryfield Drive

* These descriptions are only intended to act as a cross check if sample identities are questioned. The major constituent of the sample is intended to act with respect to MCERTS validation. The laboratory is accredited for sand, clay and loam (MCERTS) soil types. Data for unaccredited types of solid should be interpreted with care.

Stone content of a sample is calculated as the % weight of the stones not passing a 10 mm sieve. Results are not corrected for stone content.

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
2138294	TP102	None Supplied	0.2	Brown loam and clay with vegetation.
2138295	TP104	None Supplied	1	Brown clay and sand with gravel.
2138296	WS106	None Supplied	0.5	Brown clay and sand with gravel and vegetation.
2138297	TP112	None Supplied	0.2	Brown clay and sand with gravel and vegetation.
2138298	WS110	None Supplied	1.2	Brown clay and sand with vegetation.
2138299	TP118	None Supplied	0.5	Brown loam and clay with gravel and glass.
2138300	TP120	None Supplied	0.1	Brown loam and clay with gravel and vegetation.
2138301	WS114	None Supplied	0.5	Brown clay and sand with vegetation.
2138302	TP128	None Supplied	0.7	Brown clay and sand with gravel.
2138303	TP132	None Supplied	0.2	Brown clay and sand with vegetation.
2138304	TP136	None Supplied	0.1	Brown clay and loam with gravel and vegetation.
2138305	TP140	None Supplied	0.1	Brown clay and sand with gravel.
2138306	WS124	None Supplied	1.9	Brown clay and sand with gravel and vegetation.
2138307	TP142	None Supplied	1	Brown clay and sand with gravel and vegetation.
2138308	TP154	None Supplied	0.8	Brown clay and sand with stones and vegetation.
2138309	WS130	None Supplied	0.5	Brown clay and sand.
2138310	TP162	None Supplied	0.1	Brown loam and clay with vegetation.
2138311	TP164	None Supplied	0.3	Brown loam and sand with vegetation and stones.
2138312	TP166	None Supplied	0.4	Brown sand with gravel.
2138313	WS140	None Supplied	0.5	Brown loam and sand with gravel and stones.
2138314	WS142	None Supplied	1.6	Brown loam and sand.
2138315	TP101	None Supplied	0.1	Brown loam and clay with vegetation.
2138316	TP107	None Supplied	0.7	Brown clay and sand with gravel.
2138317	TP111	None Supplied	0.1	Brown loam and clay with vegetation.
2138318	TP117	None Supplied	0.7	Brown loam and clay with vegetation and gravel
2138319	TP121	None Supplied	1	Brown clay and sand with vegetation and gravel
2138320	WS111	None Supplied	2.5	Brown clay and sand with vegetation.
2138321	TP141	None Supplied	1	Brown clay and sand with vegetation and stones.
2138322	TP141	None Supplied	2	Brown clay and sand.
2138323	TP155	None Supplied	1	Brown clay and sand with stones and vegetation.
2138324	TP169	None Supplied	0.8	Brown clay and sand with rubble and glass.
2138325	TP171	None Supplied	0.1	Brown loam and clay with gravel and vegetation.
2138326	WS131	None Supplied	0.1	Brown loam and clay with gravel and vegetation.
2138327	TP185	None Supplied	0.7	Brown sandy clay with gravel.
2138328	TP199	None Supplied	0.1	Brown loam and clay with gravel and vegetation.
2138329	TP101	None Supplied	0.9	Brown clay and loam with vegetation and plastic.
2138330	TP101	None Supplied	1.3	Brown sandy clay with gravel.
2138331	WS139	None Supplied	0.1	Brown loam and clay with gravel and glass.
2138332	WS141	None Supplied	1.8	Brown clay with gravel and vegetation.

Analytical Report Number : 22-33264
Project / Site name: Cherryfield Drive

Water matrix abbreviations:
Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Sulphate, water soluble, in soil (16hr extraction)	Determination of water soluble sulphate by ICP-OES. Results reported directly (leachate equivalent) and corrected for extraction ratio (soil equivalent).	In house method.	L038-PL	D	MCERTS
Metals in soil by ICP-OES	Determination of metals in soil by aqua-regia digestion followed by ICP-OES.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L038-PL	D	MCERTS
BS EN 12457-1 (2:1) Leachate Prep	2:1 (as recieved, moisture adjusted) end over end extraction with water for 24 hours. Eluate filtered prior to analysis.	In-house method based on BSEN12457-1.	L043-PL	W	NONE
Asbestos identification in soil	Asbestos Identification with the use of polarised light microscopy in conjunction with disperion staining techniques.	In house method based on HSG 248	A001-PL	D	ISO 17025
Metals by ICP-OES in leachate	Determination of metals in leachate by acidification followed by ICP-OES.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L039-PL	W	ISO 17025
Boron, water soluble, in soil	Determination of water soluble boron in soil by hot water extract followed by ICP-OES.	In-house method based on Second Site Properties version 3	L038-PL	D	MCERTS
Hexavalent chromium in leachate	Determination of hexavalent chromium in leachate by acidification, addition of 1,5 diphenylcarbazide followed by colorimetry.	In-house method	L080-PL	W	ISO 17025
Hexavalent chromium in soil	Determination of hexavalent chromium in soil by extraction in water then by acidification, addition of 1,5 diphenylcarbazide followed by colorimetry.	In-house method	L080-PL	W	NONE
Moisture Content	Moisture content, determined gravimetrically. (30 oC)	In house method.	L019-UK/PL	W	NONE
Monohydric phenols in leachate - LOW LEVEL 1 ug/l	Determination of phenols in leachate by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (skalar)	L080-PL	W	ISO 17025
Monohydric phenols in soil	Determination of phenols in soil by extraction with sodium hydroxide followed by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (skalar)	L080-PL	W	MCERTS
Speciated EPA-16 PAHs in leachate	Determination of PAH compounds in leachate by extraction in dichloromethane followed by GC-MS with the use of surrogate and internal standards.	In-house method based on USEPA 8270	L102B-PL	W	NONE
Speciated EPA-16 PAHs in soil	Determination of PAH compounds in soil by extraction in dichloromethane and hexane followed by GC-MS with the use of surrogate and internal standards.	In-house method based on USEPA 8270	L064-PL	D	MCERTS
PCB's By GC-MS in soil	Determination of PCB by extraction with acetone and hexane followed by GC-MS.	In-house method based on USEPA 8082	L027-PL	D	MCERTS
pH in soil (automated)	Determination of pH in soil by addition of water followed by automated electrometric measurement.	In house method.	L099-PL	D	MCERTS
pH at 20oC in leachate (automated)	Determination of pH in leachate by electrometric measurement.	In house method.	L099B	W	ISO 17025
Sulphide in soil	Determination of sulphide in soil by acidification and heating to liberate hydrogen sulphide, trapped in an alkaline solution then assayed by ion selective electrode.	In-house method	L010-PL	D	MCERTS

Analytical Report Number : 22-33264
Project / Site name: Cherryfield Drive

Water matrix abbreviations:
Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Total sulphate (as SO4 in soil)	Determination of total sulphate in soil by extraction with 10% HCl followed by ICP-OES.	In house method.	L038-PL	D	MCERTS
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight.	In-house method based on British Standard Methods and MCERTS requirements.	L019-UK/PL	D	NONE
Total Sulphur in soil	Determination of total sulphur in soil by extraction with aqua-regia, potassium bromide/bromate followed by ICP-OES.	In house method.	L038-PL	D	MCERTS
Semi-volatile organic compounds in soil	Determination of semi-volatile organic compounds in soil by extraction in dichloromethane and hexane followed by GC-MS.	In-house method based on USEPA 8270	L064-PL	D	MCERTS
TPH1 (Leachates)	Determination of dichloromethane extractable hydrocarbons in leachate by GC-MS.	In-house method	L070-PL	W	NONE
TPHCWG (Leachates)	Determination of dichloromethane extractable hydrocarbons in leachate by GC-MS.	In-house method	L070-PL	W	NONE
Total cyanide in soil	Determination of total cyanide by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar)	L080-PL	W	MCERTS
Total organic carbon (Automated) in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate.	In house method.	L009-PL	D	MCERTS
Volatile organic compounds in soil	Determination of volatile organic compounds in soil by headspace GC-MS.	In-house method based on USEPA8260	L073B-PL	W	MCERTS
BTEX and MTBE in soil (Monoaromatics)	Determination of BTEX in soil by headspace GC-MS.	In-house method based on USEPA8260	L073B-PL	W	MCERTS
BTEX and MTBE in leachates (Monoaromatics)	Determination of BTEX and MTBE in leachates by headspace GC-MS.	In-house method based on USEPA8260	L073B-PL	W	ISO 17025
TPHCWG (Soil)	Determination of hexane extractable hydrocarbons in soil by GC-MS/GC-FID.	In-house method with silica gel split/clean up.	L088/76-PL	W	MCERTS
TPH in (Soil)	Determination of TPH bands by HS-GC-MS/GC-FID	In-house method, TPH with carbon banding and silica gel split/cleanup.	L076-PL	D	MCERTS
Total cyanide in leachate - 1µg/l	Determination of total cyanide by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L080-PL	W	ISO 17025
Asbestos Quantification - Gravimetric	Asbestos quantification by gravimetric method - in house method based on references.	HSE Report No: 83/1996, HSG 248, HSG 264 & SCA Blue Book (draft).	A006-PL	D	ISO 17025
D.O. for Gravimetric Quant if Screen/ID positive	Dependent option for Gravimetric Quant if Screen/ID positive scheduled.	In house asbestos methods A001 & A006.	A006-PL	D	NONE
Sulphate, water soluble, in soil (1hr extraction)	Sulphate, water soluble, in soil (1hr extraction)	In-house method	L038-PL	D	MCERTS

Analytical Report Number : 22-33264
Project / Site name: Cherryfield Drive

Water matrix abbreviations:
Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status

For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom.
For method numbers ending in 'PL' analysis have been carried out in our laboratory in Poland.
Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.

Unless otherwise indicated, site information, order number, project number, sampling date, time, sample reference and depth are provided by the client. The instructed on date indicates the date on which this information was provided to the laboratory.

Information in Support of Analytical Results

List of HWOL Acronyms and Operators

Acronym	Descriptions
HS	Headspace Analysis
MS	Mass spectrometry
FID	Flame Ionisation Detector
GC	Gas Chromatography
EH	Extractable Hydrocarbons (i.e. everything extracted by the solvent(s))
CU	Clean-up - e.g. by Florisil®, silica gel
1D	GC - Single coil/column gas chromatography
2D	GC-GC - Double coil/column gas chromatography
Total	Aliphatics & Aromatics
AL	Aliphatics
AR	Aromatics
#1	EH_2D_Total but with humics mathematically subtracted
#2	EH_2D_Total but with fatty acids mathematically subtracted
_	Operator - understore to separate acronyms (exception for +)
+	Operator to indicate cumulative e.g. EH+HS_Total or EH_CU+HS_Total

Analytical Report Number : 22-33264
Project / Site name: Cherryfield Drive

Sample ID	Other ID	Sample Type	Lab Sample Number	Sample Deviation	Test Name	Test Ref	Test Deviation
TP101	None Supplied	S	2138315	c	Total cyanide in soil	L080-PL	c
TP102	None Supplied	S	2138294	c	Total cyanide in soil	L080-PL	c
TP104	None Supplied	S	2138295	c	Total cyanide in soil	L080-PL	c
TP107	None Supplied	S	2138316	c	Sulphide in soil	L010-PL	c
TP107	None Supplied	S	2138316	c	Total cyanide in soil	L080-PL	c
TP111	None Supplied	S	2138317	c	Total cyanide in soil	L080-PL	c
TP112	None Supplied	S	2138297	c	Total cyanide in soil	L080-PL	c
TP117	None Supplied	S	2138318	c	Sulphide in soil	L010-PL	c
TP117	None Supplied	S	2138318	c	Total cyanide in soil	L080-PL	c
TP118	None Supplied	S	2138299	c	Sulphide in soil	L010-PL	c
TP118	None Supplied	S	2138299	c	Total cyanide in soil	L080-PL	c
TP120	None Supplied	S	2138300	c	Total cyanide in soil	L080-PL	c
TP121	None Supplied	S	2138319	c	Total cyanide in soil	L080-PL	c
WS106	None Supplied	S	2138296	c	Sulphide in soil	L010-PL	c
WS106	None Supplied	S	2138296	c	Total cyanide in soil	L080-PL	c
WS110	None Supplied	S	2138298	c	Sulphide in soil	L010-PL	c
WS110	None Supplied	S	2138298	c	Total cyanide in soil	L080-PL	c
WS111	None Supplied	S	2138320	c	Sulphide in soil	L010-PL	c
WS111	None Supplied	S	2138320	c	Total cyanide in soil	L080-PL	c
WS114	None Supplied	S	2138301	c	Sulphide in soil	L010-PL	c
WS114	None Supplied	S	2138301	c	Total cyanide in soil	L080-PL	c

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Analytical Report Number : 22-33380

Project / Site name:	Cherryfield Drive	**Samples received on:**	18/01/2022
Your job number:	15-280	**Samples instructed on/ Analysis started on:**	18/01/2022
Your order number:	15280-NG-B	**Analysis completed by:**	24/01/2022
Report Issue Number:	1	**Report issued on:**	24/01/2022
Samples Analysed:	1 soil sample		

Signed: Izabela Wójcik

Izabela Wójcik
Technical Reviewer (Reporting Team)
For & on behalf of i2 Analytical Ltd.

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41 -711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

Standard sample disposal times, unless otherwise agreed with the laboratory, are :

soils	- 4 weeks from reporting
leachates	- 2 weeks from reporting
waters	- 2 weeks from reporting
asbestos	- 6 months from reporting

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Any assessments of compliance with specifications are based on actual analytical results with no contribution from uncertainty of measurement.
Application of uncertainty of measurement would provide a range within which the true result lies.
An estimate of measurement uncertainty can be provided on request.

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The results included within the report are representative of the samples submitted for analysis.

Analytical Report Number: 22-33380
Project / Site name: Cherryfield Drive
Your Order No: 15280-NG-B

Lab Sample Number				2138870
Sample Reference				TP184
Sample Number				None Supplied
Depth (m)				0.10
Date Sampled				10/01/2022
Time Taken				None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**	
Stone Content	%	0.1	NONE	< 0.1
Moisture Content	%	0.01	NONE	16
Total mass of sample received	kg	0.001	NONE	0.50

Asbestos in Soil	Type	N/A	ISO 17025	Not-detected
Asbestos Analyst ID	N/A	N/A	N/A	MDB

General Inorganics

pH - Automated	pH Units	N/A	MCERTS	8.4
Total Cyanide	mg/kg	1	MCERTS	< 1.0
Total Sulphate as SO4	mg/kg	50	MCERTS	900
Water Soluble SO4 (2:1 Leach. Equiv.) 1hr extraction	g/l	0.00125	MCERTS	0.082
Water Soluble SO4 (2:1 Leach. Equiv.) 1hr extraction	mg/kg	2.5	MCERTS	160
Water Soluble SO4 (2:1 Leach. Equiv.) 1hr extraction	mg/l	1.25	MCERTS	81.7
Sulphide	mg/kg	1	MCERTS	8.3
Total Sulphur	mg/kg	50	MCERTS	420
Total Organic Carbon (TOC) - Automated	%	0.1	MCERTS	1.2

Total Phenols

Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0

Speciated PAHs

Naphthalene	mg/kg	0.05	MCERTS	0.28
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	0.95
Fluorene	mg/kg	0.05	MCERTS	0.68
Phenanthrene	mg/kg	0.05	MCERTS	5.2
Anthracene	mg/kg	0.05	MCERTS	1.0
Fluoranthene	mg/kg	0.05	MCERTS	8.1
Pyrene	mg/kg	0.05	MCERTS	8.1
Benzo(a)anthracene	mg/kg	0.05	MCERTS	4.0
Chrysene	mg/kg	0.05	MCERTS	3.8
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	3.9
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	1.7
Benzo(a)pyrene	mg/kg	0.05	MCERTS	4.3
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	2.1
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	0.51
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	2.5

Total PAH

Speciated Total EPA-16 PAHs	mg/kg	0.8	MCERTS	47.1

Analytical Report Number: 22-33380
Project / Site name: Cherryfield Drive
Your Order No: 15280-NG-B

Lab Sample Number				2138870
Sample Reference				TP184
Sample Number				None Supplied
Depth (m)				0.10
Date Sampled				10/01/2022
Time Taken				None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**	
Heavy Metals / Metalloids				
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	10
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	0.3
Chromium (hexavalent)	mg/kg	4	NONE	< 4.0
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	21
Copper (aqua regia extractable)	mg/kg	1	MCERTS	60
Lead (aqua regia extractable)	mg/kg	1	MCERTS	150
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	20
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	180
Petroleum Hydrocarbons				
TPH (C5 - C6) $_{HS\_1D\_TOTAL}$	mg/kg	1	NONE	< 1.0
TPH (C6 - C8) $_{HS\_1D\_TOTAL}$	mg/kg	0.1	MCERTS	< 0.1
TPH (C8 - C10) $_{HS\_1D\_TOTAL}$	mg/kg	0.1	MCERTS	< 0.1
TPH (C10 - C12) $_{EH\_CU\_1D\_TOTAL}$	mg/kg	2	MCERTS	< 2.0
TPH (C12 - C16) $_{EH\_CU\_1D\_TOTAL}$	mg/kg	4	MCERTS	7.5
TPH (C16 - C21) $_{EH\_CU\_1D\_TOTAL}$	mg/kg	1	MCERTS	30
TPH (C21 - C35) $_{EH\_CU\_1D\_TOTAL}$	mg/kg	1	MCERTS	110
TPH (C35 - C40) $_{EH\_CU\_1D\_TOTAL}$	mg/kg	10	MCERTS	54
TPH Total C5 - C40 $_{EH\_CU+HS\_1D\_TOTAL}$	mg/kg	10	MCERTS	200

U/S = Unsuitable Sample I/S = Insufficient Sample

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Analytical Report Number : 22-33380
Project / Site name: Cherryfield Drive

* These descriptions are only intended to act as a cross check if sample identities are questioned. The major constituent of the sample is intended to act with respect to MCERTS validation. The laboratory is accredited for sand, clay and loam (MCERTS) soil types. Data for unaccredited types of solid should be interpreted with care.

Stone content of a sample is calculated as the % weight of the stones not passing a 10 mm sieve. Results are not corrected for stone content.

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
2138870	TP184	None Supplied	0.1	Brown clay and loam with gravel.

Analytical Report Number : 22-33380
Project / Site name: Cherryfield Drive

Water matrix abbreviations:
Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Metals in soil by ICP-OES	Determination of metals in soil by aqua-regia digestion followed by ICP-OES.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L038-PL	D	MCERTS
Sulphate, water soluble, in soil (16hr extraction)	Determination of water soluble sulphate by ICP-OES. Results reported directly (leachate equivalent) and corrected for extraction ratio (soil equivalent).	In house method.	L038-PL	D	MCERTS
Asbestos identification in soil	Asbestos Identification with the use of polarised light microscopy in conjunction with disperion staining techniques.	In house method based on HSG 248	A001-PL	D	ISO 17025
Hexavalent chromium in soil	Determination of hexavalent chromium in soil by extraction in water then by acidification, addition of 1,5 diphenylcarbazide followed by colorimetry.	In-house method	L080-PL	W	NONE
Moisture Content	Moisture content, determined gravimetrically. (30 oC)	In house method.	L019-UK/PL	W	NONE
Monohydric phenols in soil	Determination of phenols in soil by extraction with sodium hydroxide followed by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (skalar)	L080-PL	W	MCERTS
Speciated EPA-16 PAHs in soil	Determination of PAH compounds in soil by extraction in dichloromethane and hexane followed by GC-MS with the use of surrogate and internal standards.	In-house method based on USEPA 8270	L064-PL	D	MCERTS
pH in soil (automated)	Determination of pH in soil by addition of water followed by automated electrometric measurement.	In house method.	L099-PL	D	MCERTS
Sulphide in soil	Determination of sulphide in soil by acidification and heating to liberate hydrogen sulphide, trapped in an alkaline solution then assayed by ion selective electrode.	In-house method	L010-PL	D	MCERTS
Total sulphate (as SO4 in soil)	Determination of total sulphate in soil by extraction with 10% HCl followed by ICP-OES.	In house method.	L038-PL	D	MCERTS
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight.	In-house method based on British Standard Methods and MCERTS requirements.	L019-UK/PL	D	NONE
Total Sulphur in soil	Determination of total sulphur in soil by extraction with aqua-regia, potassium bromide/bromate followed by ICP-OES.	In house method.	L038-PL	D	MCERTS
Total cyanide in soil	Determination of total cyanide by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar)	L080-PL	W	MCERTS
Total organic carbon (Automated) in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate.	In house method.	L009-PL	D	MCERTS
TPH in (Soil)	Determination of TPH bands by HS-GC-MS/GC-FID	In-house method, TPH with carbon banding and silica gel split/cleanup.	L076-PL	D	MCERTS
D.O. for Gravimetric Quant if Screen/ID positive	Dependent option for Gravimetric Quant if Screen/ID positive scheduled.	In house asbestos methods A001 & A006.	A006-PL	D	NONE
Sulphate, water soluble, in soil (1hr extraction)	Sulphate, water soluble, in soil (1hr extraction)	In-house method	L038-PL	D	MCERTS

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Analytical Report Number : 22-33380
Project / Site name: Cherryfield Drive

Water matrix abbreviations:
Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status

For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom.
For method numbers ending in 'PL' analysis have been carried out in our laboratory in Poland.
Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.

Unless otherwise indicated, site information, order number, project number, sampling date, time, sample reference and depth are provided by the client. The instructed on date indicates the date on which this information was provided to the laboratory.

Analytical Report Number : 22-33380
Project / Site name: Cherryfield Drive

Water matrix abbreviations:
Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status

Information in Support of Analytical Results

List of HWOL Acronyms and Operators

Acronym	Descriptions
HS	Headspace Analysis
MS	Mass spectrometry
FID	Flame Ionisation Detector
GC	Gas Chromatography
EH	Extractable Hydrocarbons (i.e. everything extracted by the solvent(s))
CU	Clean-up - e.g. by Florisil®, silica gel
1D	GC - Single coil/column gas chromatography
2D	GC-GC - Double coil/column gas chromatography
Total	Aliphatics & Aromatics
AL	Aliphatics
AR	Aromatics
#1	EH_2D_Total but with humics mathematically subtracted
#2	EH_2D_Total but with fatty acids mathematically subtracted
_	Operator - understore to separate acronyms (exception for +)
+	Operator to indicate cumulative e.g. EH+HS_Total or EH_CU+HS_Total

Analytical Report Number : 22-33380
Project / Site name: Cherryfield Drive

Sample ID	Other ID	Sample Type	Lab Sample Number	Sample Deviation	Test Name	Test Ref	Test Deviation
TP184	None Supplied	S	2138870	c	Sulphide in soil	L010-PL	c
TP184	None Supplied	S	2138870	c	Total cyanide in soil	L080-PL	c

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Analytical Report Number : 22-35680

Replaces Analytical Report Number: 22-35680, issue no. 1
Client references/information amended.

Project / Site name:	Cherryfield Drive	**Samples received on:**	26/01/2022
Your job number:	15-280	**Samples instructed on/ Analysis started on:**	26/01/2022
Your order number:	000 422	**Analysis completed by:**	19/04/2022
Report Issue Number:	2	**Report issued on:**	19/04/2022
Samples Analysed:	1 leachate sample - 11 soil samples		

Signed:

Adam Fenwick
Technical Reviewer
For & on behalf of i2 Analytical Ltd.

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41 -711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

Standard sample disposal times, unless otherwise agreed with the laboratory, are :

soils - 4 weeks from reporting
leachates - 2 weeks from reporting
waters - 2 weeks from reporting
asbestos - 6 months from reporting

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Application of uncertainty of measurement would provide a range within which the true result lies.
An estimate of measurement uncertainty can be provided on request.

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The results included within the report are representative of the samples submitted for analysis.

Analytical Report Number: 22-35680
Project / Site name: Cherryfield Drive
Your Order No: 000 422

Lab Sample Number				2151413	2151414	2151415	2151416	2151417
Sample Reference				TP1115	TP1117	TP1121	TP1125	WS148
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				1.50	0.40	0.10	0.10	0.80
Date Sampled				24/01/2022	24/01/2022	24/01/2022	24/01/2022	24/01/2022
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Stone Content	%	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Moisture Content	%	0.01	NONE	15	14	20	21	12
Total mass of sample received	kg	0.001	NONE	0.4	0.4	0.4	0.4	0.4
Asbestos in Soil	Type	N/A	ISO 17025	-	Not-detected	Not-detected	Not-detected	-
Asbestos Analyst ID	N/A	N/A	N/A	N/A	DBU	BPA	DBU	N/A

General Inorganics

pH - Automated	pH Units	N/A	MCERTS	8.1	-	-	-	7.0
Total Cyanide	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Total Sulphate as SO4	mg/kg	50	MCERTS	240	-	-	-	200
Water Soluble SO4 (2:1 Leach. Equiv.) 1hr extraction	g/l	0.00125	MCERTS	0.08	-	-	-	0.016
Water Soluble SO4 (2:1 Leach. Equiv.) 1hr extraction	mg/kg	2.5	MCERTS	160	-	-	-	32
Water Soluble SO4 (2:1 Leach. Equiv.) 1hr extraction	mg/l	1.25	MCERTS	79.8	-	-	-	16.2
Sulphide	mg/kg	1	MCERTS	6.7	-	-	-	8.9
Total Sulphur	mg/kg	50	MCERTS	180	-	-	-	410
Total Organic Carbon (TOC) - Automated	%	0.1	MCERTS	0.4	-	-	-	1.5

Total Phenols

Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0	-	-	-	< 1.0

Speciated PAHs

Naphthalene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	0.21	0.68	-
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	1.2	-
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	0.26	-
Fluorene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	0.23	-
Phenanthrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	0.37	2.5	-
Anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	1.3	-
Fluoranthene	mg/kg	0.05	MCERTS	0.33	0.41	0.96	21	-
Pyrene	mg/kg	0.05	MCERTS	0.35	0.51	1.1	24	-
Benzo(a)anthracene	mg/kg	0.05	MCERTS	< 0.05	0.59	0.65	20	-
Chrysene	mg/kg	0.05	MCERTS	< 0.05	0.46	0.59	19	-
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	< 0.05	0.79	0.83	33	-
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	< 0.05	0.33	0.38	11	-
Benzo(a)pyrene	mg/kg	0.05	MCERTS	< 0.05	0.74	0.76	30	-
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	< 0.05	0.44	0.35	15	-
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	3.8	-
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	< 0.05	0.45	0.34	17	-

Total PAH

Speciated Total EPA-16 PAHs	mg/kg	0.8	MCERTS	< 0.80	4.72	6.51	199	-

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Analytical Report Number: 22-35680
Project / Site name: Cherryfield Drive
Your Order No: 000 422

Lab Sample Number				2151413	2151414	2151415	2151416	2151417
Sample Reference				TP1115	TP1117	TP1121	TP1125	WS148
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				1.50	0.40	0.10	0.10	0.80
Date Sampled				24/01/2022	24/01/2022	24/01/2022	24/01/2022	24/01/2022
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Heavy Metals / Metalloids								
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	5.3	9.5	14	130	5.2
Barium (aqua regia extractable)	mg/kg	1	MCERTS	-	110	88	240	-
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	-	0.77	0.81	0.71	-
Boron (water soluble)	mg/kg	0.2	MCERTS	-	1	0.3	5.6	-
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2	6.3	< 0.2
Chromium (hexavalent)	mg/kg	4	NONE	< 4.0	< 4.0	< 4.0	< 4.0	< 4.0
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	42	-	-	-	17
Copper (aqua regia extractable)	mg/kg	1	MCERTS	22	35	49	690	15
Lead (aqua regia extractable)	mg/kg	1	MCERTS	13	50	93	1200	20
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	37	35	20	45	15
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	-	32	27	44	-
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	44	150	76	4200	38
Petroleum Hydrocarbons								
TPH (C5 - C6) $_{HS\_1D\_TOTAL}$	mg/kg	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH (C6 - C8) $_{HS\_1D\_TOTAL}$	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
TPH (C8 - C10) $_{HS\_1D\_TOTAL}$	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
TPH (C10 - C12) $_{EH\_CU\_1D\_TOTAL}$	mg/kg	2	MCERTS	< 2.0	< 2.0	< 2.0	7.1	< 2.0
TPH (C12 - C16) $_{EH\_CU\_1D\_TOTAL}$	mg/kg	4	MCERTS	< 4.0	< 4.0	< 4.0	52	< 4.0
TPH (C16 - C21) $_{EH\_CU\_1D\_TOTAL}$	mg/kg	1	MCERTS	< 1.0	< 1.0	6.5	110	< 1.0
TPH (C21 - C35) $_{EH\_CU\_1D\_TOTAL}$	mg/kg	1	MCERTS	< 1.0	< 1.0	14	310	< 1.0
TPH (C35 - C40) $_{EH\_CU\_1D\_TOTAL}$	mg/kg	10	MCERTS	< 10	< 10	< 10	44	< 10
TPH Total C5 - C40 $_{EH\_CU+HS\_1D\_TOTAL}$	mg/kg	10	MCERTS	< 10	< 10	20	520	< 10

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Analytical Report Number: 22-35680
Project / Site name: Cherryfield Drive
Your Order No: 000 422

Lab Sample Number				2151413	2151414	2151415	2151416	2151417
Sample Reference				TP1115	TP1117	TP1121	TP1125	WS148
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				1.50	0.40	0.10	0.10	0.80
Date Sampled				24/01/2022	24/01/2022	24/01/2022	24/01/2022	24/01/2022
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
VOCs								
Chloromethane	µg/kg	1	ISO 17025	-	-	-	-	< 1.0
Chloroethane	µg/kg	1	NONE	-	-	-	-	< 1.0
Bromomethane	µg/kg	1	ISO 17025	-	-	-	-	< 1.0
Vinyl Chloride	µg/kg	1	NONE	-	-	-	-	< 1.0
Trichlorofluoromethane	µg/kg	1	NONE	-	-	-	-	< 1.0
1,1-Dichloroethene	µg/kg	1	NONE	-	-	-	-	< 1.0
1,1,2-Trichloro 1,2,2-Trifluoroethane	µg/kg	1	ISO 17025	-	-	-	-	< 1.0
Cis-1,2-dichloroethene	µg/kg	1	MCERTS	-	-	-	-	< 1.0
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	1	MCERTS	-	-	-	-	< 1.0
1,1-Dichloroethane	µg/kg	1	MCERTS	-	-	-	-	< 1.0
2,2-Dichloropropane	µg/kg	1	MCERTS	-	-	-	-	< 1.0
Trichloromethane	µg/kg	1	MCERTS	-	-	-	-	< 1.0
1,1,1-Trichloroethane	µg/kg	1	MCERTS	-	-	-	-	< 1.0
1,2-Dichloroethane	µg/kg	1	MCERTS	-	-	-	-	< 1.0
1,1-Dichloropropene	µg/kg	1	MCERTS	-	-	-	-	< 1.0
Trans-1,2-dichloroethene	µg/kg	1	NONE	-	-	-	-	< 1.0
Benzene	µg/kg	1	MCERTS	-	-	-	-	< 1.0
Tetrachloromethane	µg/kg	1	MCERTS	-	-	-	-	< 1.0
1,2-Dichloropropane	µg/kg	1	MCERTS	-	-	-	-	< 1.0
Trichloroethene	µg/kg	1	MCERTS	-	-	-	-	< 1.0
Dibromomethane	µg/kg	1	MCERTS	-	-	-	-	< 1.0
Bromodichloromethane	µg/kg	1	MCERTS	-	-	-	-	< 1.0
Cis-1,3-dichloropropene	µg/kg	1	ISO 17025	-	-	-	-	< 1.0
Trans-1,3-dichloropropene	µg/kg	1	ISO 17025	-	-	-	-	< 1.0
Toluene	µg/kg	1	MCERTS	-	-	-	-	< 1.0
1,1,2-Trichloroethane	µg/kg	1	MCERTS	-	-	-	-	< 1.0
1,3-Dichloropropane	µg/kg	1	ISO 17025	-	-	-	-	< 1.0
Dibromochloromethane	µg/kg	1	ISO 17025	-	-	-	-	< 1.0
Tetrachloroethene	µg/kg	1	NONE	-	-	-	-	< 1.0
1,2-Dibromoethane	µg/kg	1	ISO 17025	-	-	-	-	< 1.0
Chlorobenzene	µg/kg	1	MCERTS	-	-	-	-	< 1.0
1,1,1,2-Tetrachloroethane	µg/kg	1	MCERTS	-	-	-	-	< 1.0
Ethylbenzene	µg/kg	1	MCERTS	-	-	-	-	< 1.0
p & m-Xylene	µg/kg	1	MCERTS	-	-	-	-	< 1.0
Styrene	µg/kg	1	MCERTS	-	-	-	-	< 1.0
Tribromomethane	µg/kg	1	NONE	-	-	-	-	< 1.0
o-Xylene	µg/kg	1	MCERTS	-	-	-	-	< 1.0
1,1,2,2-Tetrachloroethane	µg/kg	1	MCERTS	-	-	-	-	< 1.0
Isopropylbenzene	µg/kg	1	MCERTS	-	-	-	-	< 1.0
Bromobenzene	µg/kg	1	MCERTS	-	-	-	-	< 1.0
n-Propylbenzene	µg/kg	1	ISO 17025	-	-	-	-	< 1.0
2-Chlorotoluene	µg/kg	1	MCERTS	-	-	-	-	< 1.0
4-Chlorotoluene	µg/kg	1	MCERTS	-	-	-	-	< 1.0
1,3,5-Trimethylbenzene	µg/kg	1	ISO 17025	-	-	-	-	< 1.0
tert-Butylbenzene	µg/kg	1	MCERTS	-	-	-	-	< 1.0
1,2,4-Trimethylbenzene	µg/kg	1	ISO 17025	-	-	-	-	< 1.0
sec-Butylbenzene	µg/kg	1	MCERTS	-	-	-	-	< 1.0
1,3-Dichlorobenzene	µg/kg	1	ISO 17025	-	-	-	-	< 1.0
p-Isopropyltoluene	µg/kg	1	ISO 17025	-	-	-	-	< 1.0
1,2-Dichlorobenzene	µg/kg	1	MCERTS	-	-	-	-	< 1.0
1,4-Dichlorobenzene	µg/kg	1	MCERTS	-	-	-	-	< 1.0
Butylbenzene	µg/kg	1	MCERTS	-	-	-	-	< 1.0
1,2-Dibromo-3-chloropropane	µg/kg	1	ISO 17025	-	-	-	-	< 1.0
1,2,4-Trichlorobenzene	µg/kg	1	MCERTS	-	-	-	-	< 1.0
Hexachlorobutadiene	µg/kg	1	MCERTS	-	-	-	-	< 1.0

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Analytical Report Number: 22-35680
Project / Site name: Cherryfield Drive
Your Order No: 000 422

Lab Sample Number				2151413	2151414	2151415	2151416	2151417
Sample Reference				TP1115	TP1117	TP1121	TP1125	WS148
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				1.50	0.40	0.10	0.10	0.80
Date Sampled				24/01/2022	24/01/2022	24/01/2022	24/01/2022	24/01/2022
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
1,2,3-Trichlorobenzene	µg/kg	1	ISO 17025	-	-	-	-	< 1.0
SVOCs								
Aniline	mg/kg	0.1	NONE	-	-	-	-	< 0.1
Phenol	mg/kg	0.2	ISO 17025	-	-	-	-	< 0.2
2-Chlorophenol	mg/kg	0.1	MCERTS	-	-	-	-	< 0.1
Bis(2-chloroethyl)ether	mg/kg	0.2	MCERTS	-	-	-	-	< 0.2
1,3-Dichlorobenzene	mg/kg	0.2	MCERTS	-	-	-	-	< 0.2
1,2-Dichlorobenzene	mg/kg	0.1	MCERTS	-	-	-	-	< 0.1
1,4-Dichlorobenzene	mg/kg	0.2	MCERTS	-	-	-	-	< 0.2
Bis(2-chloroisopropyl)ether	mg/kg	0.1	MCERTS	-	-	-	-	< 0.1
2-Methylphenol	mg/kg	0.3	MCERTS	-	-	-	-	< 0.3
Hexachloroethane	mg/kg	0.05	MCERTS	-	-	-	-	< 0.05
Nitrobenzene	mg/kg	0.3	MCERTS	-	-	-	-	< 0.3
4-Methylphenol	mg/kg	0.2	NONE	-	-	-	-	< 0.2
Isophorone	mg/kg	0.2	MCERTS	-	-	-	-	< 0.2
2-Nitrophenol	mg/kg	0.3	MCERTS	-	-	-	-	< 0.3
2,4-Dimethylphenol	mg/kg	0.3	MCERTS	-	-	-	-	< 0.3
Bis(2-chloroethoxy)methane	mg/kg	0.3	MCERTS	-	-	-	-	< 0.3
1,2,4-Trichlorobenzene	mg/kg	0.3	MCERTS	-	-	-	-	< 0.3
Naphthalene	mg/kg	0.05	MCERTS	-	-	-	-	< 0.05
2,4-Dichlorophenol	mg/kg	0.3	MCERTS	-	-	-	-	< 0.3
4-Chloroaniline	mg/kg	0.1	NONE	-	-	-	-	< 0.1
Hexachlorobutadiene	mg/kg	0.1	MCERTS	-	-	-	-	< 0.1
4-Chloro-3-methylphenol	mg/kg	0.1	NONE	-	-	-	-	< 0.1
2,4,6-Trichlorophenol	mg/kg	0.1	MCERTS	-	-	-	-	< 0.1
2,4,5-Trichlorophenol	mg/kg	0.2	MCERTS	-	-	-	-	< 0.2
2-Methylnaphthalene	mg/kg	0.1	NONE	-	-	-	-	< 0.1
2-Chloronaphthalene	mg/kg	0.1	MCERTS	-	-	-	-	< 0.1
Dimethylphthalate	mg/kg	0.1	MCERTS	-	-	-	-	< 0.1
2,6-Dinitrotoluene	mg/kg	0.1	MCERTS	-	-	-	-	< 0.1
Acenaphthylene	mg/kg	0.05	MCERTS	-	-	-	-	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	-	-	-	-	< 0.05
2,4-Dinitrotoluene	mg/kg	0.2	MCERTS	-	-	-	-	< 0.2
Dibenzofuran	mg/kg	0.2	MCERTS	-	-	-	-	< 0.2
4-Chlorophenyl phenyl ether	mg/kg	0.3	ISO 17025	-	-	-	-	< 0.3
Diethyl phthalate	mg/kg	0.2	MCERTS	-	-	-	-	< 0.2
4-Nitroaniline	mg/kg	0.2	MCERTS	-	-	-	-	< 0.2
Fluorene	mg/kg	0.05	MCERTS	-	-	-	-	< 0.05
Azobenzene	mg/kg	0.3	MCERTS	-	-	-	-	< 0.3
Bromophenyl phenyl ether	mg/kg	0.2	MCERTS	-	-	-	-	< 0.2
Hexachlorobenzene	mg/kg	0.3	MCERTS	-	-	-	-	< 0.3
Phenanthrene	mg/kg	0.05	MCERTS	-	-	-	-	< 0.05
Anthracene	mg/kg	0.05	MCERTS	-	-	-	-	< 0.05
Carbazole	mg/kg	0.3	MCERTS	-	-	-	-	< 0.3
Dibutyl phthalate	mg/kg	0.2	MCERTS	-	-	-	-	< 0.2
Anthraquinone	mg/kg	0.3	MCERTS	-	-	-	-	< 0.3
Fluoranthene	mg/kg	0.05	MCERTS	-	-	-	-	< 0.05
Pyrene	mg/kg	0.05	MCERTS	-	-	-	-	< 0.05
Butyl benzyl phthalate	mg/kg	0.3	ISO 17025	-	-	-	-	< 0.3
Benzo(a)anthracene	mg/kg	0.05	MCERTS	-	-	-	-	< 0.05
Chrysene	mg/kg	0.05	MCERTS	-	-	-	-	< 0.05
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	-	-	-	-	< 0.05
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	-	-	-	-	< 0.05
Benzo(a)pyrene	mg/kg	0.05	MCERTS	-	-	-	-	< 0.05
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	-	-	-	-	< 0.05
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	-	-	-	-	< 0.05

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Analytical Report Number: 22-35680
Project / Site name: Cherryfield Drive
Your Order No: 000 422

Lab Sample Number				2151413	2151414	2151415	2151416	2151417
Sample Reference				TP1115	TP1117	TP1121	TP1125	WS148
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				1.50	0.40	0.10	0.10	0.80
Date Sampled				24/01/2022	24/01/2022	24/01/2022	24/01/2022	24/01/2022
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	-	-	-	-	< 0.05

U/S = Unsuitable Sample I/S = Insufficient Sample

Analytical Report Number: 22-35680
Project / Site name: Cherryfield Drive
Your Order No: 000 422

Lab Sample Number				2151418	2151419	2151420	2151421	2151422
Sample Reference				TP194	TP1104	TP1114	TP1118	TP1122
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.80	0.50	0.10	0.70	0.20
Date Sampled				24/01/2022	25/01/2022	25/01/2022	25/01/2022	25/01/2022
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Stone Content	%	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Moisture Content	%	0.01	NONE	35	14	17	12	13
Total mass of sample received	kg	0.001	NONE	1	1	0.4	0.4	0.4
Asbestos in Soil	Type	N/A	ISO 17025	Not-detected	Not-detected	Not-detected	-	Not-detected
Asbestos Analyst ID	N/A	N/A	N/A	BPA	BPA	DBU	N/A	BPA
General Inorganics								
pH - Automated	pH Units	N/A	MCERTS	7.5	8.4	-	7.7	7.8
Total Cyanide	mg/kg	1	MCERTS	1.6	< 1.0	< 1.0	< 1.0	< 1.0
Total Sulphate as SO4	mg/kg	50	MCERTS	3400	380	-	180	400
Water Soluble SO4 (2:1 Leach. Equiv.) 1hr extraction	g/l	0.00125	MCERTS	0.18	0.035	-	0.037	0.032
Water Soluble SO4 (2:1 Leach. Equiv.) 1hr extraction	mg/kg	2.5	MCERTS	370	70	-	73	65
Water Soluble SO4 (2:1 Leach. Equiv.) 1hr extraction	mg/l	1.25	MCERTS	184	35.2	-	36.5	32.3
Sulphide	mg/kg	1	MCERTS	2.5	2.8	-	5.9	3.1
Total Sulphur	mg/kg	50	MCERTS	1500	230	-	270	240
Total Organic Carbon (TOC) - Automated	%	0.1	MCERTS	5.3	0.6	-	0.3	1.9
Total Phenols								
Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0	< 1.0	-	< 1.0	< 1.0
Speciated PAHs								
Naphthalene	mg/kg	0.05	MCERTS	0.25	< 0.05	< 0.05	< 0.05	< 0.05
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Fluorene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Phenanthrene	mg/kg	0.05	MCERTS	0.37	< 0.05	0.65	< 0.05	1.4
Anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	0.21	< 0.05	0.42
Fluoranthene	mg/kg	0.05	MCERTS	0.57	0.83	1.8	< 0.05	3.5
Pyrene	mg/kg	0.05	MCERTS	0.53	1.1	1.5	< 0.05	3
Benzo(a)anthracene	mg/kg	0.05	MCERTS	0.52	0.77	1	< 0.05	1.9
Chrysene	mg/kg	0.05	MCERTS	0.36	0.65	0.73	< 0.05	1.4
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	0.66	1.3	0.89	< 0.05	1.8
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	0.2	0.38	0.53	< 0.05	0.89
Benzo(a)pyrene	mg/kg	0.05	MCERTS	0.4	1.2	0.94	< 0.05	1.7
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	< 0.05	0.56	0.55	< 0.05	0.73
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	0.25
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	< 0.05	0.61	0.53	< 0.05	0.79
Total PAH								
Speciated Total EPA-16 PAHs	mg/kg	0.8	MCERTS	3.86	7.32	9.36	< 0.80	17.9

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Analytical Report Number: 22-35680
Project / Site name: Cherryfield Drive
Your Order No: 000 422

Lab Sample Number				2151418	2151419	2151420	2151421	2151422
Sample Reference				TP194	TP1104	TP1114	TP1118	TP1122
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.80	0.50	0.10	0.70	0.20
Date Sampled				24/01/2022	25/01/2022	25/01/2022	25/01/2022	25/01/2022
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Heavy Metals / Metalloids								
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	110	6.6	10	5.6	13
Barium (aqua regia extractable)	mg/kg	1	MCERTS	-	-	76	-	-
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	-	-	0.49	-	-
Boron (water soluble)	mg/kg	0.2	MCERTS	-	-	0.3	-	-
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
Chromium (hexavalent)	mg/kg	4	NONE	< 4.0	< 4.0	< 4.0	< 4.0	< 4.0
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	90	20	-	15	20
Copper (aqua regia extractable)	mg/kg	1	MCERTS	760	14	21	7.3	26
Lead (aqua regia extractable)	mg/kg	1	MCERTS	1000	16	27	6.4	58
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	0.4	0.6
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	140	18	14	17	18
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	-	-	18	-	-
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	1800	64	45	26	58
Petroleum Hydrocarbons								
TPH (C5 - C6) $_{HS\_1D\_TOTAL}$	mg/kg	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH (C6 - C8) $_{HS\_1D\_TOTAL}$	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
TPH (C8 - C10) $_{HS\_1D\_TOTAL}$	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
TPH (C10 - C12) $_{EH\_CU\_1D\_TOTAL}$	mg/kg	2	MCERTS	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
TPH (C12 - C16) $_{EH\_CU\_1D\_TOTAL}$	mg/kg	4	MCERTS	< 4.0	< 4.0	< 4.0	< 4.0	< 4.0
TPH (C16 - C21) $_{EH\_CU\_1D\_TOTAL}$	mg/kg	1	MCERTS	3.6	7.4	12	< 1.0	42
TPH (C21 - C35) $_{EH\_CU\_1D\_TOTAL}$	mg/kg	1	MCERTS	31	18	24	< 1.0	370
TPH (C35 - C40) $_{EH\_CU\_1D\_TOTAL}$	mg/kg	10	MCERTS	20	< 10	< 10	< 10	360
TPH Total C5 - C40 $_{EH\_CU+HS\_1D\_TOTAL}$	mg/kg	10	MCERTS	55	25	36	< 10	770

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Analytical Report Number: 22-35680
Project / Site name: Cherryfield Drive
Your Order No: 000 422

Lab Sample Number				2151418	2151419	2151420	2151421	2151422
Sample Reference				TP194	TP1104	TP1114	TP1118	TP1122
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.80	0.50	0.10	0.70	0.20
Date Sampled				24/01/2022	25/01/2022	25/01/2022	25/01/2022	25/01/2022
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
VOCs								
Chloromethane	µg/kg	1	ISO 17025	-	-	-	-	-
Chloroethane	µg/kg	1	NONE	-	-	-	-	-
Bromomethane	µg/kg	1	ISO 17025	-	-	-	-	-
Vinyl Chloride	µg/kg	1	NONE	-	-	-	-	-
Trichlorofluoromethane	µg/kg	1	NONE	-	-	-	-	-
1,1-Dichloroethene	µg/kg	1	NONE	-	-	-	-	-
1,1,2-Trichloro 1,2,2-Trifluoroethane	µg/kg	1	ISO 17025	-	-	-	-	-
Cis-1,2-dichloroethene	µg/kg	1	MCERTS	-	-	-	-	-
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	1	MCERTS	-	-	-	-	-
1,1-Dichloroethane	µg/kg	1	MCERTS	-	-	-	-	-
2,2-Dichloropropane	µg/kg	1	MCERTS	-	-	-	-	-
Trichloromethane	µg/kg	1	MCERTS	-	-	-	-	-
1,1,1-Trichloroethane	µg/kg	1	MCERTS	-	-	-	-	-
1,2-Dichloroethane	µg/kg	1	MCERTS	-	-	-	-	-
1,1-Dichloropropene	µg/kg	1	MCERTS	-	-	-	-	-
Trans-1,2-dichloroethene	µg/kg	1	NONE	-	-	-	-	-
Benzene	µg/kg	1	MCERTS	-	-	-	-	-
Tetrachloromethane	µg/kg	1	MCERTS	-	-	-	-	-
1,2-Dichloropropane	µg/kg	1	MCERTS	-	-	-	-	-
Trichloroethene	µg/kg	1	MCERTS	-	-	-	-	-
Dibromomethane	µg/kg	1	MCERTS	-	-	-	-	-
Bromodichloromethane	µg/kg	1	MCERTS	-	-	-	-	-
Cis-1,3-dichloropropene	µg/kg	1	ISO 17025	-	-	-	-	-
Trans-1,3-dichloropropene	µg/kg	1	ISO 17025	-	-	-	-	-
Toluene	µg/kg	1	MCERTS	-	-	-	-	-
1,1,2-Trichloroethane	µg/kg	1	MCERTS	-	-	-	-	-
1,3-Dichloropropane	µg/kg	1	ISO 17025	-	-	-	-	-
Dibromochloromethane	µg/kg	1	ISO 17025	-	-	-	-	-
Tetrachloroethene	µg/kg	1	NONE	-	-	-	-	-
1,2-Dibromoethane	µg/kg	1	ISO 17025	-	-	-	-	-
Chlorobenzene	µg/kg	1	MCERTS	-	-	-	-	-
1,1,1,2-Tetrachloroethane	µg/kg	1	MCERTS	-	-	-	-	-
Ethylbenzene	µg/kg	1	MCERTS	-	-	-	-	-
p & m-Xylene	µg/kg	1	MCERTS	-	-	-	-	-
Styrene	µg/kg	1	MCERTS	-	-	-	-	-
Tribromomethane	µg/kg	1	NONE	-	-	-	-	-
o-Xylene	µg/kg	1	MCERTS	-	-	-	-	-
1,1,2,2-Tetrachloroethane	µg/kg	1	MCERTS	-	-	-	-	-
Isopropylbenzene	µg/kg	1	MCERTS	-	-	-	-	-
Bromobenzene	µg/kg	1	MCERTS	-	-	-	-	-
n-Propylbenzene	µg/kg	1	ISO 17025	-	-	-	-	-
2-Chlorotoluene	µg/kg	1	MCERTS	-	-	-	-	-
4-Chlorotoluene	µg/kg	1	MCERTS	-	-	-	-	-
1,3,5-Trimethylbenzene	µg/kg	1	ISO 17025	-	-	-	-	-
tert-Butylbenzene	µg/kg	1	MCERTS	-	-	-	-	-
1,2,4-Trimethylbenzene	µg/kg	1	ISO 17025	-	-	-	-	-
sec-Butylbenzene	µg/kg	1	MCERTS	-	-	-	-	-
1,3-Dichlorobenzene	µg/kg	1	ISO 17025	-	-	-	-	-
p-Isopropyltoluene	µg/kg	1	ISO 17025	-	-	-	-	-
1,2-Dichlorobenzene	µg/kg	1	MCERTS	-	-	-	-	-
1,4-Dichlorobenzene	µg/kg	1	MCERTS	-	-	-	-	-
Butylbenzene	µg/kg	1	MCERTS	-	-	-	-	-
1,2-Dibromo-3-chloropropane	µg/kg	1	ISO 17025	-	-	-	-	-
1,2,4-Trichlorobenzene	µg/kg	1	MCERTS	-	-	-	-	-
Hexachlorobutadiene	µg/kg	1	MCERTS	-	-	-	-	-

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Analytical Report Number: 22-35680
Project / Site name: Cherryfield Drive
Your Order No: 000 422

Lab Sample Number				2151418	2151419	2151420	2151421	2151422
Sample Reference				TP194	TP1104	TP1114	TP1118	TP1122
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.80	0.50	0.10	0.70	0.20
Date Sampled				24/01/2022	25/01/2022	25/01/2022	25/01/2022	25/01/2022
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
1,2,3-Trichlorobenzene	µg/kg	1	ISO 17025	-	-	-	-	-
SVOCs								
Aniline	mg/kg	0.1	NONE	-	-	-	-	-
Phenol	mg/kg	0.2	ISO 17025	-	-	-	-	-
2-Chlorophenol	mg/kg	0.1	MCERTS	-	-	-	-	-
Bis(2-chloroethyl)ether	mg/kg	0.2	MCERTS	-	-	-	-	-
1,3-Dichlorobenzene	mg/kg	0.2	MCERTS	-	-	-	-	-
1,2-Dichlorobenzene	mg/kg	0.1	MCERTS	-	-	-	-	-
1,4-Dichlorobenzene	mg/kg	0.2	MCERTS	-	-	-	-	-
Bis(2-chloroisopropyl)ether	mg/kg	0.1	MCERTS	-	-	-	-	-
2-Methylphenol	mg/kg	0.3	MCERTS	-	-	-	-	-
Hexachloroethane	mg/kg	0.05	MCERTS	-	-	-	-	-
Nitrobenzene	mg/kg	0.3	MCERTS	-	-	-	-	-
4-Methylphenol	mg/kg	0.2	NONE	-	-	-	-	-
Isophorone	mg/kg	0.2	MCERTS	-	-	-	-	-
2-Nitrophenol	mg/kg	0.3	MCERTS	-	-	-	-	-
2,4-Dimethylphenol	mg/kg	0.3	MCERTS	-	-	-	-	-
Bis(2-chloroethoxy)methane	mg/kg	0.3	MCERTS	-	-	-	-	-
1,2,4-Trichlorobenzene	mg/kg	0.3	MCERTS	-	-	-	-	-
Naphthalene	mg/kg	0.05	MCERTS	-	-	-	-	-
2,4-Dichlorophenol	mg/kg	0.3	MCERTS	-	-	-	-	-
4-Chloroaniline	mg/kg	0.1	NONE	-	-	-	-	-
Hexachlorobutadiene	mg/kg	0.1	MCERTS	-	-	-	-	-
4-Chloro-3-methylphenol	mg/kg	0.1	NONE	-	-	-	-	-
2,4,6-Trichlorophenol	mg/kg	0.1	MCERTS	-	-	-	-	-
2,4,5-Trichlorophenol	mg/kg	0.2	MCERTS	-	-	-	-	-
2-Methylnaphthalene	mg/kg	0.1	NONE	-	-	-	-	-
2-Chloronaphthalene	mg/kg	0.1	MCERTS	-	-	-	-	-
Dimethylphthalate	mg/kg	0.1	MCERTS	-	-	-	-	-
2,6-Dinitrotoluene	mg/kg	0.1	MCERTS	-	-	-	-	-
Acenaphthylene	mg/kg	0.05	MCERTS	-	-	-	-	-
Acenaphthene	mg/kg	0.05	MCERTS	-	-	-	-	-
2,4-Dinitrotoluene	mg/kg	0.2	MCERTS	-	-	-	-	-
Dibenzofuran	mg/kg	0.2	MCERTS	-	-	-	-	-
4-Chlorophenyl phenyl ether	mg/kg	0.3	ISO 17025	-	-	-	-	-
Diethyl phthalate	mg/kg	0.2	MCERTS	-	-	-	-	-
4-Nitroaniline	mg/kg	0.2	MCERTS	-	-	-	-	-
Fluorene	mg/kg	0.05	MCERTS	-	-	-	-	-
Azobenzene	mg/kg	0.3	MCERTS	-	-	-	-	-
Bromophenyl phenyl ether	mg/kg	0.2	MCERTS	-	-	-	-	-
Hexachlorobenzene	mg/kg	0.3	MCERTS	-	-	-	-	-
Phenanthrene	mg/kg	0.05	MCERTS	-	-	-	-	-
Anthracene	mg/kg	0.05	MCERTS	-	-	-	-	-
Carbazole	mg/kg	0.3	MCERTS	-	-	-	-	-
Dibutyl phthalate	mg/kg	0.2	MCERTS	-	-	-	-	-
Anthraquinone	mg/kg	0.3	MCERTS	-	-	-	-	-
Fluoranthene	mg/kg	0.05	MCERTS	-	-	-	-	-
Pyrene	mg/kg	0.05	MCERTS	-	-	-	-	-
Butyl benzyl phthalate	mg/kg	0.3	ISO 17025	-	-	-	-	-
Benzo(a)anthracene	mg/kg	0.05	MCERTS	-	-	-	-	-
Chrysene	mg/kg	0.05	MCERTS	-	-	-	-	-
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	-	-	-	-	-
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	-	-	-	-	-
Benzo(a)pyrene	mg/kg	0.05	MCERTS	-	-	-	-	-
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	-	-	-	-	-
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	-	-	-	-	-

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Analytical Report Number: 22-35680
Project / Site name: Cherryfield Drive
Your Order No: 000 422

Lab Sample Number				2151418	2151419	2151420	2151421	2151422
Sample Reference				TP194	TP1104	TP1114	TP1118	TP1122
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.80	0.50	0.10	0.70	0.20
Date Sampled				24/01/2022	25/01/2022	25/01/2022	25/01/2022	25/01/2022
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	-	-	-	-	-

U/S = Unsuitable Sample I/S = Insufficient Sample

Analytical Report Number: 22-35680
Project / Site name: Cherryfield Drive
Your Order No: 000 422

Lab Sample Number				2151423
Sample Reference				TP1128
Sample Number				None Supplied
Depth (m)				0.50
Date Sampled				25/01/2022
Time Taken				None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**	
Stone Content	%	0.1	NONE	< 0.1
Moisture Content	%	0.01	NONE	22
Total mass of sample received	kg	0.001	NONE	0.4

Asbestos in Soil	Type	N/A	ISO 17025	Not-detected
Asbestos Analyst ID	N/A	N/A	N/A	DBU

General Inorganics

pH - Automated	pH Units	N/A	MCERTS	7.7
Total Cyanide	mg/kg	1	MCERTS	2
Total Sulphate as SO4	mg/kg	50	MCERTS	850
Water Soluble SO4 (2:1 Leach. Equiv.) 1hr extraction	g/l	0.00125	MCERTS	0.1
Water Soluble SO4 (2:1 Leach. Equiv.) 1hr extraction	mg/kg	2.5	MCERTS	210
Water Soluble SO4 (2:1 Leach. Equiv.) 1hr extraction	mg/l	1.25	MCERTS	103
Sulphide	mg/kg	1	MCERTS	61
Total Sulphur	mg/kg	50	MCERTS	1800
Total Organic Carbon (TOC) - Automated	%	0.1	MCERTS	1.8

Total Phenols

Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0

Speciated PAHs

Naphthalene	mg/kg	0.05	MCERTS	-
Acenaphthylene	mg/kg	0.05	MCERTS	-
Acenaphthene	mg/kg	0.05	MCERTS	-
Fluorene	mg/kg	0.05	MCERTS	-
Phenanthrene	mg/kg	0.05	MCERTS	-
Anthracene	mg/kg	0.05	MCERTS	-
Fluoranthene	mg/kg	0.05	MCERTS	-
Pyrene	mg/kg	0.05	MCERTS	-
Benzo(a)anthracene	mg/kg	0.05	MCERTS	-
Chrysene	mg/kg	0.05	MCERTS	-
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	-
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	-
Benzo(a)pyrene	mg/kg	0.05	MCERTS	-
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	-
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	-
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	-

Total PAH

Speciated Total EPA-16 PAHs	mg/kg	0.8	MCERTS	-

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Analytical Report Number: 22-35680
Project / Site name: Cherryfield Drive
Your Order No: 000 422

Lab Sample Number				2151423
Sample Reference				TP1128
Sample Number				None Supplied
Depth (m)				0.50
Date Sampled				25/01/2022
Time Taken				None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**	
Heavy Metals / Metalloids				
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	61
Barium (aqua regia extractable)	mg/kg	1	MCERTS	-
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	-
Boron (water soluble)	mg/kg	0.2	MCERTS	-
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2
Chromium (hexavalent)	mg/kg	4	NONE	< 4.0
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	35
Copper (aqua regia extractable)	mg/kg	1	MCERTS	120
Lead (aqua regia extractable)	mg/kg	1	MCERTS	200
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	51
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	-
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	280

Petroleum Hydrocarbons

TPH (C5 - C6) $_{HS\_1D\_TOTAL}$	mg/kg	1	NONE	< 1.0
TPH (C6 - C8) $_{HS\_1D\_TOTAL}$	mg/kg	0.1	MCERTS	< 0.1
TPH (C8 - C10) $_{HS\_1D\_TOTAL}$	mg/kg	0.1	MCERTS	< 0.1
TPH (C10 - C12) $_{EH\_CU\_1D\_TOTAL}$	mg/kg	2	MCERTS	< 2.0
TPH (C12 - C16) $_{EH\_CU\_1D\_TOTAL}$	mg/kg	4	MCERTS	< 4.0
TPH (C16 - C21) $_{EH\_CU\_1D\_TOTAL}$	mg/kg	1	MCERTS	3.5
TPH (C21 - C35) $_{EH\_CU\_1D\_TOTAL}$	mg/kg	1	MCERTS	40
TPH (C35 - C40) $_{EH\_CU\_1D\_TOTAL}$	mg/kg	10	MCERTS	< 10
TPH Total C5 - C40 $_{EH\_CU+HS\_1D\_TOTAL}$	mg/kg	10	MCERTS	44

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Analytical Report Number: 22-35680
Project / Site name: Cherryfield Drive
Your Order No: 000 422

Lab Sample Number				2151423
Sample Reference				TP1128
Sample Number				None Supplied
Depth (m)				0.50
Date Sampled				25/01/2022
Time Taken				None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**	
VOCs				
Chloromethane	µg/kg	1	ISO 17025	< 1.0
Chloroethane	µg/kg	1	NONE	< 1.0
Bromomethane	µg/kg	1	ISO 17025	< 1.0
Vinyl Chloride	µg/kg	1	NONE	< 1.0
Trichlorofluoromethane	µg/kg	1	NONE	< 1.0
1,1-Dichloroethene	µg/kg	1	NONE	< 1.0
1,1,2-Trichloro 1,2,2-Trifluoroethane	µg/kg	1	ISO 17025	< 1.0
Cis-1,2-dichloroethene	µg/kg	1	MCERTS	< 1.0
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	1	MCERTS	< 1.0
1,1-Dichloroethane	µg/kg	1	MCERTS	< 1.0
2,2-Dichloropropane	µg/kg	1	MCERTS	< 1.0
Trichloromethane	µg/kg	1	MCERTS	< 1.0
1,1,1-Trichloroethane	µg/kg	1	MCERTS	< 1.0
1,2-Dichloroethane	µg/kg	1	MCERTS	< 1.0
1,1-Dichloropropene	µg/kg	1	MCERTS	< 1.0
Trans-1,2-dichloroethene	µg/kg	1	NONE	< 1.0
Benzene	µg/kg	1	MCERTS	< 1.0
Tetrachloromethane	µg/kg	1	MCERTS	< 1.0
1,2-Dichloropropane	µg/kg	1	MCERTS	< 1.0
Trichloroethene	µg/kg	1	MCERTS	< 1.0
Dibromomethane	µg/kg	1	MCERTS	< 1.0
Bromodichloromethane	µg/kg	1	MCERTS	< 1.0
Cis-1,3-dichloropropene	µg/kg	1	ISO 17025	< 1.0
Trans-1,3-dichloropropene	µg/kg	1	ISO 17025	< 1.0
Toluene	µg/kg	1	MCERTS	< 1.0
1,1,2-Trichloroethane	µg/kg	1	MCERTS	< 1.0
1,3-Dichloropropane	µg/kg	1	ISO 17025	< 1.0
Dibromochloromethane	µg/kg	1	ISO 17025	< 1.0
Tetrachloroethene	µg/kg	1	NONE	< 1.0
1,2-Dibromoethane	µg/kg	1	ISO 17025	< 1.0
Chlorobenzene	µg/kg	1	MCERTS	< 1.0
1,1,1,2-Tetrachloroethane	µg/kg	1	MCERTS	< 1.0
Ethylbenzene	µg/kg	1	MCERTS	< 1.0
p & m-Xylene	µg/kg	1	MCERTS	< 1.0
Styrene	µg/kg	1	MCERTS	< 1.0
Tribromomethane	µg/kg	1	NONE	< 1.0
o-Xylene	µg/kg	1	MCERTS	< 1.0
1,1,2,2-Tetrachloroethane	µg/kg	1	MCERTS	< 1.0
Isopropylbenzene	µg/kg	1	MCERTS	< 1.0
Bromobenzene	µg/kg	1	MCERTS	< 1.0
n-Propylbenzene	µg/kg	1	ISO 17025	< 1.0
2-Chlorotoluene	µg/kg	1	MCERTS	< 1.0
4-Chlorotoluene	µg/kg	1	MCERTS	< 1.0
1,3,5-Trimethylbenzene	µg/kg	1	ISO 17025	< 1.0
tert-Butylbenzene	µg/kg	1	MCERTS	< 1.0
1,2,4-Trimethylbenzene	µg/kg	1	ISO 17025	< 1.0
sec-Butylbenzene	µg/kg	1	MCERTS	< 1.0
1,3-Dichlorobenzene	µg/kg	1	ISO 17025	< 1.0
p-Isopropyltoluene	µg/kg	1	ISO 17025	< 1.0
1,2-Dichlorobenzene	µg/kg	1	MCERTS	< 1.0
1,4-Dichlorobenzene	µg/kg	1	MCERTS	< 1.0
Butylbenzene	µg/kg	1	MCERTS	< 1.0
1,2-Dibromo-3-chloropropane	µg/kg	1	ISO 17025	< 1.0
1,2,4-Trichlorobenzene	µg/kg	1	MCERTS	< 1.0
Hexachlorobutadiene	µg/kg	1	MCERTS	< 1.0

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Analytical Report Number: 22-35680
Project / Site name: Cherryfield Drive
Your Order No: 000 422

Lab Sample Number				2151423
Sample Reference				TP1128
Sample Number				None Supplied
Depth (m)				0.50
Date Sampled				25/01/2022
Time Taken				None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**	
1,2,3-Trichlorobenzene	µg/kg	1	ISO 17025	< 1.0
SVOCs				
Aniline	mg/kg	0.1	NONE	< 0.1
Phenol	mg/kg	0.2	ISO 17025	< 0.2
2-Chlorophenol	mg/kg	0.1	MCERTS	< 0.1
Bis(2-chloroethyl)ether	mg/kg	0.2	MCERTS	< 0.2
1,3-Dichlorobenzene	mg/kg	0.2	MCERTS	< 0.2
1,2-Dichlorobenzene	mg/kg	0.1	MCERTS	< 0.1
1,4-Dichlorobenzene	mg/kg	0.2	MCERTS	< 0.2
Bis(2-chloroisopropyl)ether	mg/kg	0.1	MCERTS	< 0.1
2-Methylphenol	mg/kg	0.3	MCERTS	< 0.3
Hexachloroethane	mg/kg	0.05	MCERTS	< 0.05
Nitrobenzene	mg/kg	0.3	MCERTS	< 0.3
4-Methylphenol	mg/kg	0.2	NONE	< 0.2
Isophorone	mg/kg	0.2	MCERTS	< 0.2
2-Nitrophenol	mg/kg	0.3	MCERTS	< 0.3
2,4-Dimethylphenol	mg/kg	0.3	MCERTS	< 0.3
Bis(2-chloroethoxy)methane	mg/kg	0.3	MCERTS	< 0.3
1,2,4-Trichlorobenzene	mg/kg	0.3	MCERTS	< 0.3
Naphthalene	mg/kg	0.05	MCERTS	0.3
2,4-Dichlorophenol	mg/kg	0.3	MCERTS	< 0.3
4-Chloroaniline	mg/kg	0.1	NONE	< 0.1
Hexachlorobutadiene	mg/kg	0.1	MCERTS	< 0.1
4-Chloro-3-methylphenol	mg/kg	0.1	NONE	< 0.1
2,4,6-Trichlorophenol	mg/kg	0.1	MCERTS	< 0.1
2,4,5-Trichlorophenol	mg/kg	0.2	MCERTS	< 0.2
2-Methylnaphthalene	mg/kg	0.1	NONE	< 0.1
2-Chloronaphthalene	mg/kg	0.1	MCERTS	< 0.1
Dimethylphthalate	mg/kg	0.1	MCERTS	< 0.1
2,6-Dinitrotoluene	mg/kg	0.1	MCERTS	< 0.1
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05
2,4-Dinitrotoluene	mg/kg	0.2	MCERTS	< 0.2
Dibenzofuran	mg/kg	0.2	MCERTS	< 0.2
4-Chlorophenyl phenyl ether	mg/kg	0.3	ISO 17025	< 0.3
Diethyl phthalate	mg/kg	0.2	MCERTS	< 0.2
4-Nitroaniline	mg/kg	0.2	MCERTS	< 0.2
Fluorene	mg/kg	0.05	MCERTS	< 0.05
Azobenzene	mg/kg	0.3	MCERTS	< 0.3
Bromophenyl phenyl ether	mg/kg	0.2	MCERTS	< 0.2
Hexachlorobenzene	mg/kg	0.3	MCERTS	< 0.3
Phenanthrene	mg/kg	0.05	MCERTS	0.54
Anthracene	mg/kg	0.05	MCERTS	< 0.05
Carbazole	mg/kg	0.3	MCERTS	< 0.3
Dibutyl phthalate	mg/kg	0.2	MCERTS	< 0.2
Anthraquinone	mg/kg	0.3	MCERTS	< 0.3
Fluoranthene	mg/kg	0.05	MCERTS	0.63
Pyrene	mg/kg	0.05	MCERTS	0.54
Butyl benzyl phthalate	mg/kg	0.3	ISO 17025	< 0.3
Benzo(a)anthracene	mg/kg	0.05	MCERTS	0.37
Chrysene	mg/kg	0.05	MCERTS	0.34
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	0.44
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	0.16
Benzo(a)pyrene	mg/kg	0.05	MCERTS	0.35
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	< 0.05
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05

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Analytical Report Number: 22-35680
Project / Site name: Cherryfield Drive
Your Order No: 000 422

Lab Sample Number				2151423
Sample Reference				TP1128
Sample Number				None Supplied
Depth (m)				0.50
Date Sampled				25/01/2022
Time Taken				None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**	
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	< 0.05

U/S = Unsuitable Sample I/S = Insufficient Sample

Analytical Report Number: 22-35680
Project / Site name: Cherryfield Drive

Your Order No: 000 422

Lab Sample Number				2151424
Sample Reference				TP1104
Sample Number				None Supplied
Depth (m)				0.50
Date Sampled				25/01/2022
Time Taken				None Supplied
Analytical Parameter (Leachate Analysis)	**Units**	**Limit of detection**	**Accreditation Status**	
General Inorganics				
pH (automated)	pH Units	N/A	ISO 17025	7.7
Total Cyanide (Low Level 1 µg/l)	µg/l	1	ISO 17025	< 1.0
Total Phenols				
Total Phenols (monohydric)	µg/l	1	ISO 17025	1.9
Speciated PAHs				
Naphthalene	µg/l	0.01	ISO 17025	< 0.01
Acenaphthylene	µg/l	0.01	ISO 17025	< 0.01
Acenaphthene	µg/l	0.01	ISO 17025	< 0.01
Fluorene	µg/l	0.01	ISO 17025	< 0.01
Phenanthrene	µg/l	0.01	ISO 17025	< 0.01
Anthracene	µg/l	0.01	ISO 17025	< 0.01
Fluoranthene	µg/l	0.01	ISO 17025	< 0.01
Pyrene	µg/l	0.01	ISO 17025	< 0.01
Benzo(a)anthracene	µg/l	0.01	ISO 17025	< 0.01
Chrysene	µg/l	0.01	ISO 17025	< 0.01
Benzo(b)fluoranthene	µg/l	0.01	ISO 17025	< 0.01
Benzo(k)fluoranthene	µg/l	0.01	ISO 17025	< 0.01
Benzo(a)pyrene	µg/l	0.01	ISO 17025	< 0.01
Indeno(1,2,3-cd)pyrene	µg/l	0.01	NONE	< 0.01
Dibenz(a,h)anthracene	µg/l	0.01	NONE	< 0.01
Benzo(ghi)perylene	µg/l	0.01	NONE	< 0.01
Total PAH				
Total EPA-16 PAHs	µg/l	0.2	NONE	< 0.2
Heavy Metals / Metalloids				
Arsenic (dissolved)	µg/l	1	ISO 17025	2.8
Cadmium (dissolved)	µg/l	0.08	ISO 17025	0.24
Chromium (hexavalent)	µg/l	5	ISO 17025	< 5.0
Chromium (dissolved)	µg/l	0.4	ISO 17025	3.5
Copper (dissolved)	µg/l	0.7	ISO 17025	5.8
Lead (dissolved)	µg/l	1	ISO 17025	6.7
Mercury (dissolved)	µg/l	0.5	ISO 17025	< 0.5
Nickel (dissolved)	µg/l	0.3	ISO 17025	5.8
Selenium (dissolved)	µg/l	4	ISO 17025	< 4.0
Zinc (dissolved)	µg/l	0.4	ISO 17025	13
Monoaromatics & Oxygenates				
Benzene	µg/l	1	ISO 17025	< 1.0
Toluene	µg/l	1	ISO 17025	< 1.0
Ethylbenzene	µg/l	1	ISO 17025	< 1.0
p & m-xylene	µg/l	1	ISO 17025	< 1.0
o-xylene	µg/l	1	ISO 17025	< 1.0
MTBE (Methyl Tertiary Butyl Ether)	µg/l	10	NONE	< 10

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Analytical Report Number: 22-35680
Project / Site name: Cherryfield Drive

Your Order No: 000 422

Lab Sample Number				2151424
Sample Reference				TP1104
Sample Number				None Supplied
Depth (m)				0.50
Date Sampled				25/01/2022
Time Taken				None Supplied
Analytical Parameter (Leachate Analysis)	**Units**	**Limit of detection**	**Accreditation Status**	
Petroleum Hydrocarbons				
TPH1 (C10 - C40) EH_1D_TOTAL_#1_#2_MS	µg/l	10	NONE	< 10
TPH-CWG - Aliphatic >C5 - C6 HS_1D_AL	µg/l	1	ISO 17025	< 1.0
TPH-CWG - Aliphatic >C6 - C8 HS_1D_AL	µg/l	1	ISO 17025	< 1.0
TPH-CWG - Aliphatic >C8 - C10 HS_1D_AL	µg/l	1	ISO 17025	< 1.0
TPH-CWG - Aliphatic >C10 - C12 EH_1D_AL_#1_#2_MS	µg/l	10	NONE	< 10
TPH-CWG - Aliphatic >C12 - C16 EH_1D_AL_#1_#2_MS	µg/l	10	NONE	< 10
TPH-CWG - Aliphatic >C16 - C21 EH_1D_AL_#1_#2_MS	µg/l	10	NONE	< 10
TPH-CWG - Aliphatic >C21 - C35 EH_1D_AL_#1_#2_MS	µg/l	10	NONE	< 10
TPH-CWG - Aliphatic (C5 - C35) HS+EH_1D_AL_#1_#2_MS	µg/l	10	NONE	< 10
TPH-CWG - Aromatic >C5 - C7 HS_1D_AR	µg/l	1	ISO 17025	< 1.0
TPH-CWG - Aromatic >C7 - C8 HS_1D_AR	µg/l	1	ISO 17025	< 1.0
TPH-CWG - Aromatic >C8 - C10 HS_1D_AR	µg/l	1	ISO 17025	< 1.0
TPH-CWG - Aromatic >C10 - C12 EH_1D_AR_#1_#2_MS	µg/l	10	NONE	< 10
TPH-CWG - Aromatic >C12 - C16 EH_1D_AR_#1_#2_MS	µg/l	10	NONE	< 10
TPH-CWG - Aromatic >C16 - C21 EH_1D_AR_#1_#2_MS	µg/l	10	NONE	< 10
TPH-CWG - Aromatic >C21 - C35 EH_1D_AR_#1_#2_MS	µg/l	10	NONE	< 10
TPH-CWG - Aromatic (C5 - C35) HS+EH_1D_AR_#1_#2_MS	µg/l	10	NONE	< 10

U/S = Unsuitable Sample I/S = Insufficient Sample

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Analytical Report Number : 22-35680
Project / Site name: Cherryfield Drive

* These descriptions are only intended to act as a cross check if sample identities are questioned. The major constituent of the sample is intended to act with respect to MCERTS validation. The laboratory is accredited for sand, clay and loam (MCERTS) soil types. Data for unaccredited types of solid should be interpreted with care.

Stone content of a sample is calculated as the % weight of the stones not passing a 10 mm sieve. Results are not corrected for stone content.

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
2151413	TP1115	None Supplied	1.5	Brown clay and sand with gravel.
2151414	TP1117	None Supplied	0.4	Brown clay and sand with gravel.
2151415	TP1121	None Supplied	0.1	Brown loam and clay with vegetation and gravel
2151416	TP1125	None Supplied	0.1	Brown clay and sand with vegetation and gravel
2151417	WS148	None Supplied	0.8	Brown loam and clay with gravel.
2151418	TP194	None Supplied	0.8	Brown clay and sand with glass and clinker
2151419	TP1104	None Supplied	0.5	4.4.3.17
2151420	TP1114	None Supplied	0.1	Brown loam and clay with vegetation and gravel
2151421	TP1118	None Supplied	0.7	Brown sand with gravel.
2151422	TP1122	None Supplied	0.2	Brown clay and sand with brick and tar.
2151423	TP1128	None Supplied	0.5	Brown clay and sand with gravel and vegetation.

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Analytical Report Number : 22-35680
Project / Site name: Cherryfield Drive

Water matrix abbreviations:
Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Sulphate, water soluble, in soil (16hr extraction)	Determination of water soluble sulphate by ICP-OES. Results reported directly (leachate equivalent) and corrected for extraction ratio (soil equivalent).	In house method.	L038-PL	D	MCERTS
Metals in soil by ICP-OES	Determination of metals in soil by aqua-regia digestion followed by ICP-OES.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L038-PL	D	MCERTS
BS EN 12457-1 (2:1) Leachate Prep	2:1 (as recieved, moisture adjusted) end over end extraction with water for 24 hours. Eluate filtered prior to analysis.	In-house method based on BSEN12457-1.	L043-PL	W	NONE
Asbestos identification in soil	Asbestos Identification with the use of polarised light microscopy in conjunction with disperion staining techniques.	In house method based on HSG 248	A001-PL	D	ISO 17025
Metals by ICP-OES in leachate	Determination of metals in leachate by acidification followed by ICP-OES.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L039-PL	W	ISO 17025
Boron, water soluble, in soil	Determination of water soluble boron in soil by hot water extract followed by ICP-OES.	In-house method based on Second Site Properties version 3	L038-PL	D	MCERTS
Hexavalent chromium in leachate	Determination of hexavalent chromium in leachate by acidification, addition of 1,5 diphenylcarbazide followed by colorimetry.	In-house method	L080-PL	W	ISO 17025
Hexavalent chromium in soil	Determination of hexavalent chromium in soil by extraction in water then by acidification, addition of 1,5 diphenylcarbazide followed by colorimetry.	In-house method	L080-PL	W	NONE
Moisture Content	Moisture content, determined gravimetrically. (30 oC)	In house method.	L019-UK/PL	W	NONE
Monohydric phenols in leachate - LOW LEVEL 1 ug/l	Determination of phenols in leachate by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (skalar)	L080-PL	W	ISO 17025
Monohydric phenols in soil	Determination of phenols in soil by extraction with sodium hydroxide followed by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (skalar)	L080-PL	W	MCERTS
Speciated EPA-16 PAHs in leachate	Determination of PAH compounds in leachate by extraction in dichloromethane followed by GC-MS with the use of surrogate and internal standards.	In-house method based on USEPA 8270	L102B-PL	W	ISO 17025
Speciated EPA-16 PAHs in soil	Determination of PAH compounds in soil by extraction in dichloromethane and hexane followed by GC-MS with the use of surrogate and internal standards.	In-house method based on USEPA 8270	L064-PL	D	MCERTS
pH in soil (automated)	Determination of pH in soil by addition of water followed by automated electrometric measurement.	In house method.	L099-PL	D	MCERTS
pH at 20oC in leachate (automated)	Determination of pH in leachate by electrometric measurement.	In house method.	L099B	W	ISO 17025
Sulphide in soil	Determination of sulphide in soil by acidification and heating to liberate hydrogen sulphide, trapped in an alkaline solution then assayed by ion selective electrode.	In-house method	L010-PL	D	MCERTS
Total sulphate (as SO4 in soil)	Determination of total sulphate in soil by extraction with 10% HCl followed by ICP-OES.	In house method.	L038-PL	D	MCERTS

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Analytical Report Number : 22-35680
Project / Site name: Cherryfield Drive

Water matrix abbreviations:
Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight.	In-house method based on British Standard Methods and MCERTS requirements.	L019-UK/PL	D	NONE
Total Sulphur in soil	Determination of total sulphur in soil by extraction with aqua-regia, potassium bromide/bromate followed by ICP-OES.	In house method.	L038-PL	D	MCERTS
Semi-volatile organic compounds in soil	Determination of semi-volatile organic compounds in soil by extraction in dichloromethane and hexane followed by GC-MS.	In-house method based on USEPA 8270	L064-PL	D	MCERTS
TPH1 (Leachates)	Determination of dichloromethane extractable hydrocarbons in leachate by GC-MS.	In-house method	L070-PL	W	NONE
TPHCWG (Leachates)	Determination of dichloromethane extractable hydrocarbons in leachate by GC-MS.	In-house method	L070-PL	W	ISO 17025
Total cyanide in soil	Determination of total cyanide by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar)	L080-PL	W	MCERTS
Total organic carbon (Automated) in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate.	In house method.	L009-PL	D	MCERTS
Volatile organic compounds in soil	Determination of volatile organic compounds in soil by headspace GC-MS.	In-house method based on USEPA8260	L073B-PL	W	MCERTS
BTEX and MTBE in leachates (Monoaromatics)	Determination of BTEX and MTBE in leachates by headspace GC-MS.	In-house method based on USEPA8260	L073B-PL	W	ISO 17025
TPH in (Soil)	Determination of TPH bands by HS-GC-MS/GC-FID	In-house method, TPH with carbon banding and silica gel split/cleanup.	L076-PL	D	MCERTS
Total cyanide in leachate - 1µg/l	Determination of total cyanide by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L080-PL	W	ISO 17025
D.O. for Gravimetric Quant if Screen/ID positive	Dependent option for Gravimetric Quant if Screen/ID positive scheduled.	In house asbestos methods A001 & A006.	A006-PL	D	NONE
Sulphate, water soluble, in soil (1hr extraction)	Sulphate, water soluble, in soil (1hr extraction)	In-house method	L038-PL	D	MCERTS

For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom.
For method numbers ending in 'PL' analysis have been carried out in our laboratory in Poland.
Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.

Unless otherwise indicated, site information, order number, project number, sampling date, time, sample reference and depth are provided by the client. The instructed on date indicates the date on which this information was provided to the laboratory.

Information in Support of Analytical Results

List of HWOL Acronyms and Operators

Acronym	Descriptions
HS	Headspace Analysis
MS	Mass spectrometry
FID	Flame Ionisation Detector

Analytical Report Number : 22-35680
Project / Site name: Cherryfield Drive

Water matrix abbreviations:
Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
GC	Gas Chromatography				
EH	Extractable Hydrocarbons (i.e. everything extracted by the solvent(s))				
CU	Clean-up - e.g. by Florisil®, silica gel				
1D	GC - Single coil/column gas chromatography				
2D	GC-GC - Double coil/column gas chromatography				
Total	Aliphatics & Aromatics				
AL	Aliphatics				
AR	Aromatics				
#1	EH_2D_Total but with humics mathematically subtracted				
#2	EH_2D_Total but with fatty acids mathematically subtracted				
_	Operator - understore to separate acronyms (exception for +)				
+	Operator to indicate cumulative e.g. EH+HS_Total or EH_CU+HS_Total				

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Analytical Report Number : 22-40844

Project / Site name:	Cherryfield Drive	**Samples received on:**	18/02/2022
Your job number:	15 280	**Samples instructed on/ Analysis started on:**	18/02/2022
Your order number:	000697	**Analysis completed by:**	25/02/2022
Report Issue Number:	1	**Report issued on:**	25/02/2022
Samples Analysed:	7 water samples		

Signed: Karolina Marek

Karolina Marek
PL Head of Reporting Team
For & on behalf of i2 Analytical Ltd.

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41 -711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

Standard sample disposal times, unless otherwise agreed with the laboratory, are :

soils	- 4 weeks from reporting
leachates	- 2 weeks from reporting
waters	- 2 weeks from reporting
asbestos	- 6 months from reporting

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Any assessments of compliance with specifications are based on actual analytical results with no contribution from uncertainty of measurement.
Application of uncertainty of measurement would provide a range within which the true result lies.
An estimate of measurement uncertainty can be provided on request.

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The results included within the report are representative of the samples submitted for analysis.

Analytical Report Number: 22-40844
Project / Site name: Cherryfield Drive

Your Order No: 000697

Lab Sample Number				2179406	2179407	2179408	2179409	2179410
Sample Reference				WS161	WS142	WS124	WS106	CP103
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Date Sampled				17/02/2022	17/02/2022	17/02/2022	17/02/2022	17/02/2022
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Water Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
General Inorganics								
pH	pH Units	N/A	ISO 17025	7.8	7.4	7.1	7.2	7.3
Total Cyanide (Low Level 1 µg/l)	µg/l	1	ISO 17025	1.9	< 1.0	< 1.0	< 1.0	2.8
Dissolved Organic Carbon (DOC)	mg/l	0.1	ISO 17025	11.0	14.1	18.0	26.3	18.9
Total Phenols								
Total Phenols (monohydric)	µg/l	1	ISO 17025	2.4	2.5	2.9	5.2	1.9
Heavy Metals / Metalloids								
Calcium (dissolved)	mg/l	0.012	ISO 17025	110	94	93	260	160
Chromium (hexavalent)	µg/l	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Arsenic (dissolved)	µg/l	0.15	ISO 17025	1.03	1.89	3.87	2.42	6.36
Cadmium (dissolved)	µg/l	0.02	ISO 17025	0.02	< 0.02	< 0.02	0.04	0.07
Chromium (dissolved)	µg/l	0.2	ISO 17025	2.9	2.5	3.2	4.6	3.6
Copper (dissolved)	µg/l	0.5	ISO 17025	6.0	3.5	1.4	4.3	8.8
Lead (dissolved)	µg/l	0.2	ISO 17025	< 0.2	1.7	< 0.2	< 0.2	< 0.2
Manganese (dissolved)	µg/l	0.05	ISO 17025	27	130	3600	1900	3200
Mercury (dissolved)	µg/l	0.05	ISO 17025	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Nickel (dissolved)	µg/l	0.5	ISO 17025	7.0	4.0	3.9	8.1	26
Selenium (dissolved)	µg/l	0.6	ISO 17025	4.4	1.6	1.1	1.3	1.6
Zinc (dissolved)	µg/l	0.5	ISO 17025	12	6.1	650	21	60
Monoaromatics & Oxygenates								
Benzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Toluene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Ethylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
p & m-xylene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
o-xylene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
MTBE (Methyl Tertiary Butyl Ether)	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0

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Analytical Report Number: 22-40844
Project / Site name: Cherryfield Drive

Your Order No: 000697

Lab Sample Number				2179406	2179407	2179408	2179409	2179410
Sample Reference				WS161	WS142	WS124	WS106	CP103
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Date Sampled				17/02/2022	17/02/2022	17/02/2022	17/02/2022	17/02/2022
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Water Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Petroleum Hydrocarbons								
TPH1 (C10 - C40) EH_2D_TOTAL_#1_#2	µg/l	10	NONE	< 10	50	< 10	< 10	< 10
TPH-CWG - Aliphatic >C5 - C6 HS_1D_AL	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aliphatic >C6 - C8 HS_1D_AL	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aliphatic >C8 - C10 HS_1D_AL	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aliphatic >C10 - C12 EH_1D_AL_#1_#2_MS	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aliphatic >C12 - C16 EH_1D_AL_#1_#2_MS	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aliphatic >C16 - C21 EH_1D_AL_#1_#2_MS	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aliphatic >C21 - C35 EH_1D_AL_#1_#2_MS	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aliphatic (C5 - C35) HS+EH_1D_AL_#1_#2_MS	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic >C5 - C7 HS_1D_AR	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aromatic >C7 - C8 HS_1D_AR	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aromatic >C8 - C10 HS_1D_AR	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aromatic >C10 - C12 EH_1D_AR_#1_#2_MS	µg/l	10	NONE	< 10	50	< 10	< 10	< 10
TPH-CWG - Aromatic >C12 - C16 EH_1D_AR_#1_#2_MS	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic >C16 - C21 EH_1D_AR_#1_#2_MS	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic >C21 - C35 EH_1D_AR_#1_#2_MS	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic (C5 - C35) HS+EH_1D_AR_#1_#2_MS	µg/l	10	NONE	< 10	50	< 10	< 10	< 10
VOCs								
Chloromethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Chloroethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Bromomethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Vinyl Chloride	µg/l	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Trichlorofluoromethane	µg/l	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1-Dichloroethene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1,2-Trichloro-1,2,2-trifluoroethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Cis-1,2-dichloroethene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
MTBE (Methyl Tertiary Butyl Ether)	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1-Dichloroethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
2,2-Dichloropropane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Trichloromethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1,1-Trichloroethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2-Dichloroethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1-Dichloropropene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Trans-1,2-dichloroethene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Benzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Tetrachloromethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2-Dichloropropane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Trichloroethene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Dibromomethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Bromodichloromethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Cis-1,3-dichloropropene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Trans-1,3-dichloropropene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Toluene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1,2-Trichloroethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,3-Dichloropropane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Dibromochloromethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Tetrachloroethene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2-Dibromoethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Chlorobenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1,1,2-Tetrachloroethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Ethylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
p & m-Xylene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0

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The results included within the report are representative of the samples submitted for analysis.

Analytical Report Number: 22-40844
Project / Site name: Cherryfield Drive

Your Order No: 000697

Lab Sample Number				2179406	2179407	2179408	2179409	2179410
Sample Reference				WS161	WS142	WS124	WS106	CP103
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Date Sampled				17/02/2022	17/02/2022	17/02/2022	17/02/2022	17/02/2022
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Water Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Styrene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Tribromomethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
o-Xylene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1,2,2-Tetrachloroethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Isopropylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Bromobenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
n-Propylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
2-Chlorotoluene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
4-Chlorotoluene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,3,5-Trimethylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
tert-Butylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2,4-Trimethylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
sec-Butylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,3-Dichlorobenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
p-Isopropyltoluene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2-Dichlorobenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,4-Dichlorobenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Butylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2-Dibromo-3-chloropropane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2,4-Trichlorobenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Hexachlorobutadiene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2,3-Trichlorobenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
SVOCs								
Aniline	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Phenol	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
2-Chlorophenol	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Bis(2-chloroethyl)ether	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
1,3-Dichlorobenzene	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
1,2-Dichlorobenzene	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
1,4-Dichlorobenzene	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Bis(2-chloroisopropyl)ether	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
2-Methylphenol	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Hexachloroethane	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Nitrobenzene	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
4-Methylphenol	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Isophorone	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
2-Nitrophenol	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
2,4-Dimethylphenol	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Bis(2-chloroethoxy)methane	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
1,2,4-Trichlorobenzene	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Naphthalene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
2,4-Dichlorophenol	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
4-Chloroaniline	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Hexachlorobutadiene	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
4-Chloro-3-methylphenol	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
2,4,6-Trichlorophenol	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
2,4,5-Trichlorophenol	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
2-Methylnaphthalene	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
2-Chloronaphthalene	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Dimethylphthalate	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
2,6-Dinitrotoluene	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Acenaphthylene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Acenaphthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
2,4-Dinitrotoluene	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Dibenzofuran	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05

Analytical Report Number: 22-40844
Project / Site name: Cherryfield Drive

Your Order No: 000697

Lab Sample Number				2179406	2179407	2179408	2179409	2179410
Sample Reference				WS161	WS142	WS124	WS106	CP103
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Date Sampled				17/02/2022	17/02/2022	17/02/2022	17/02/2022	17/02/2022
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Water Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
4-Chlorophenyl phenyl ether	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Diethyl phthalate	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
4-Nitroaniline	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Fluorene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Azobenzene	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Bromophenyl phenyl ether	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Hexachlorobenzene	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Phenanthrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Anthracene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Carbazole	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Dibutyl phthalate	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Anthraquinone	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Pyrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Butyl benzyl phthalate	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(a)anthracene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Chrysene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(b)fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(k)fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(a)pyrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Indeno(1,2,3-cd)pyrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Dibenz(a,h)anthracene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(ghi)perylene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
3&4-Methylphenol	µg/l	0.1	NONE	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10

U/S = Unsuitable Sample I/S = Insufficient Sample

Analytical Report Number: 22-40844
Project / Site name: Cherryfield Drive

Your Order No: 000697

Lab Sample Number				2179411	2179412
Sample Reference				CP102	CP101
Sample Number				None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied
Date Sampled				17/02/2022	17/02/2022
Time Taken				None Supplied	None Supplied
Analytical Parameter (Water Analysis)	**Units**	**Limit of detection**	**Accreditation Status**		
General Inorganics					
pH	pH Units	N/A	ISO 17025	7.1	7.4
Total Cyanide (Low Level 1 µg/l)	µg/l	1	ISO 17025	< 1.0	< 1.0
Dissolved Organic Carbon (DOC)	mg/l	0.1	ISO 17025	11.7	16.2
Total Phenols					
Total Phenols (monohydric)	µg/l	1	ISO 17025	2.6	2.5
Heavy Metals / Metalloids					
Calcium (dissolved)	mg/l	0.012	ISO 17025	280	180
Chromium (hexavalent)	µg/l	5	ISO 17025	< 5.0	< 5.0
Arsenic (dissolved)	µg/l	0.15	ISO 17025	1.29	3.68
Cadmium (dissolved)	µg/l	0.02	ISO 17025	0.50	0.07
Chromium (dissolved)	µg/l	0.2	ISO 17025	5.2	3.9
Copper (dissolved)	µg/l	0.5	ISO 17025	15	2.4
Lead (dissolved)	µg/l	0.2	ISO 17025	0.2	1.5
Manganese (dissolved)	µg/l	0.05	ISO 17025	240	1100
Mercury (dissolved)	µg/l	0.05	ISO 17025	< 0.05	< 0.05
Nickel (dissolved)	µg/l	0.5	ISO 17025	22	5.6
Selenium (dissolved)	µg/l	0.6	ISO 17025	2.0	1.0
Zinc (dissolved)	µg/l	0.5	ISO 17025	1100	19
Monoaromatics & Oxygenates					
Benzene	µg/l	1	ISO 17025	< 1.0	< 1.0
Toluene	µg/l	1	ISO 17025	< 1.0	< 1.0
Ethylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0
p & m-xylene	µg/l	1	ISO 17025	< 1.0	< 1.0
o-xylene	µg/l	1	ISO 17025	< 1.0	< 1.0
MTBE (Methyl Tertiary Butyl Ether)	µg/l	1	ISO 17025	< 1.0	< 1.0

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Analytical Report Number: 22-40844
Project / Site name: Cherryfield Drive

Your Order No: 000697

Lab Sample Number				2179411	2179412
Sample Reference				CP102	CP101
Sample Number				None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied
Date Sampled				17/02/2022	17/02/2022
Time Taken				None Supplied	None Supplied
Analytical Parameter (Water Analysis)	**Units**	**Limit of detection**	**Accreditation Status**		
Petroleum Hydrocarbons					
TPH1 (C10 - C40) EH_2D_TOTAL_#1_#2	µg/l	10	NONE	< 10	< 10
TPH-CWG - Aliphatic >C5 - C6 HS_1D_AL	µg/l	1	ISO 17025	< 1.0	< 1.0
TPH-CWG - Aliphatic >C6 - C8 HS_1D_AL	µg/l	1	ISO 17025	< 1.0	< 1.0
TPH-CWG - Aliphatic >C8 - C10 HS_1D_AL	µg/l	1	ISO 17025	< 1.0	< 1.0
TPH-CWG - Aliphatic >C10 - C12 EH_1D_AL_#1_#2_MS	µg/l	10	NONE	< 10	< 10
TPH-CWG - Aliphatic >C12 - C16 EH_1D_AL_#1_#2_MS	µg/l	10	NONE	< 10	< 10
TPH-CWG - Aliphatic >C16 - C21 EH_1D_AL_#1_#2_MS	µg/l	10	NONE	< 10	< 10
TPH-CWG - Aliphatic >C21 - C35 EH_1D_AL_#1_#2_MS	µg/l	10	NONE	< 10	< 10
TPH-CWG - Aliphatic (C5 - C35) HS+EH_1D_AL_#1_#2_MS	µg/l	10	NONE	< 10	< 10
TPH-CWG - Aromatic >C5 - C7 HS_1D_AR	µg/l	1	ISO 17025	< 1.0	< 1.0
TPH-CWG - Aromatic >C7 - C8 HS_1D_AR	µg/l	1	ISO 17025	< 1.0	< 1.0
TPH-CWG - Aromatic >C8 - C10 HS_1D_AR	µg/l	1	ISO 17025	< 1.0	< 1.0
TPH-CWG - Aromatic >C10 - C12 EH_1D_AR_#1_#2_MS	µg/l	10	NONE	< 10	< 10
TPH-CWG - Aromatic >C12 - C16 EH_1D_AR_#1_#2_MS	µg/l	10	NONE	< 10	< 10
TPH-CWG - Aromatic >C16 - C21 EH_1D_AR_#1_#2_MS	µg/l	10	NONE	< 10	< 10
TPH-CWG - Aromatic >C21 - C35 EH_1D_AR_#1_#2_MS	µg/l	10	NONE	< 10	< 10
TPH-CWG - Aromatic (C5 - C35) HS+EH_1D_AR_#1_#2_MS	µg/l	10	NONE	< 10	< 10
VOCs					
Chloromethane	µg/l	1	ISO 17025	< 1.0	< 1.0
Chloroethane	µg/l	1	ISO 17025	< 1.0	< 1.0
Bromomethane	µg/l	1	ISO 17025	< 1.0	< 1.0
Vinyl Chloride	µg/l	1	NONE	< 1.0	< 1.0
Trichlorofluoromethane	µg/l	1	NONE	< 1.0	< 1.0
1,1-Dichloroethene	µg/l	1	ISO 17025	< 1.0	< 1.0
1,1,2-Trichloro-1,2,2-trifluoroethane	µg/l	1	ISO 17025	< 1.0	< 1.0
Cis-1,2-dichloroethene	µg/l	1	ISO 17025	< 1.0	< 1.0
MTBE (Methyl Tertiary Butyl Ether)	µg/l	1	ISO 17025	< 1.0	< 1.0
1,1-Dichloroethane	µg/l	1	ISO 17025	< 1.0	< 1.0
2,2-Dichloropropane	µg/l	1	ISO 17025	< 1.0	< 1.0
Trichloromethane	µg/l	1	ISO 17025	< 1.0	< 1.0
1,1,1-Trichloroethane	µg/l	1	ISO 17025	< 1.0	< 1.0
1,2-Dichloroethane	µg/l	1	ISO 17025	< 1.0	< 1.0
1,1-Dichloropropene	µg/l	1	ISO 17025	< 1.0	< 1.0
Trans-1,2-dichloroethene	µg/l	1	ISO 17025	< 1.0	< 1.0
Benzene	µg/l	1	ISO 17025	< 1.0	< 1.0
Tetrachloromethane	µg/l	1	ISO 17025	< 1.0	< 1.0
1,2-Dichloropropane	µg/l	1	ISO 17025	< 1.0	< 1.0
Trichloroethene	µg/l	1	ISO 17025	< 1.0	< 1.0
Dibromomethane	µg/l	1	ISO 17025	< 1.0	< 1.0
Bromodichloromethane	µg/l	1	ISO 17025	< 1.0	< 1.0
Cis-1,3-dichloropropene	µg/l	1	ISO 17025	< 1.0	< 1.0
Trans-1,3-dichloropropene	µg/l	1	ISO 17025	< 1.0	< 1.0
Toluene	µg/l	1	ISO 17025	< 1.0	< 1.0
1,1,2-Trichloroethane	µg/l	1	ISO 17025	< 1.0	< 1.0
1,3-Dichloropropane	µg/l	1	ISO 17025	< 1.0	< 1.0
Dibromochloromethane	µg/l	1	ISO 17025	< 1.0	< 1.0
Tetrachloroethene	µg/l	1	ISO 17025	< 1.0	< 1.0
1,2-Dibromoethane	µg/l	1	ISO 17025	< 1.0	< 1.0
Chlorobenzene	µg/l	1	ISO 17025	< 1.0	< 1.0
1,1,1,2-Tetrachloroethane	µg/l	1	ISO 17025	< 1.0	< 1.0
Ethylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0
p & m-Xylene	µg/l	1	ISO 17025	< 1.0	< 1.0

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The results included within the report are representative of the samples submitted for analysis.

Analytical Report Number: 22-40844
Project / Site name: Cherryfield Drive

Your Order No: 000697

Lab Sample Number				2179411	2179412
Sample Reference				CP102	CP101
Sample Number				None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied
Date Sampled				17/02/2022	17/02/2022
Time Taken				None Supplied	None Supplied
Analytical Parameter (Water Analysis)	**Units**	**Limit of detection**	**Accreditation Status**		
Styrene	µg/l	1	ISO 17025	< 1.0	< 1.0
Tribromomethane	µg/l	1	ISO 17025	< 1.0	< 1.0
o-Xylene	µg/l	1	ISO 17025	< 1.0	< 1.0
1,1,2,2-Tetrachloroethane	µg/l	1	ISO 17025	< 1.0	< 1.0
Isopropylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0
Bromobenzene	µg/l	1	ISO 17025	< 1.0	< 1.0
n-Propylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0
2-Chlorotoluene	µg/l	1	ISO 17025	< 1.0	< 1.0
4-Chlorotoluene	µg/l	1	ISO 17025	< 1.0	< 1.0
1,3,5-Trimethylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0
tert-Butylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0
1,2,4-Trimethylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0
sec-Butylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0
1,3-Dichlorobenzene	µg/l	1	ISO 17025	< 1.0	< 1.0
p-Isopropyltoluene	µg/l	1	ISO 17025	< 1.0	< 1.0
1,2-Dichlorobenzene	µg/l	1	ISO 17025	< 1.0	< 1.0
1,4-Dichlorobenzene	µg/l	1	ISO 17025	< 1.0	< 1.0
Butylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0
1,2-Dibromo-3-chloropropane	µg/l	1	ISO 17025	< 1.0	< 1.0
1,2,4-Trichlorobenzene	µg/l	1	ISO 17025	< 1.0	< 1.0
Hexachlorobutadiene	µg/l	1	ISO 17025	< 1.0	< 1.0
1,2,3-Trichlorobenzene	µg/l	1	ISO 17025	< 1.0	< 1.0

SVOCs

Aniline	µg/l	0.05	NONE	< 0.05	< 0.05
Phenol	µg/l	0.05	NONE	< 0.05	< 0.05
2-Chlorophenol	µg/l	0.05	NONE	< 0.05	< 0.05
Bis(2-chloroethyl)ether	µg/l	0.05	NONE	< 0.05	< 0.05
1,3-Dichlorobenzene	µg/l	0.05	NONE	< 0.05	< 0.05
1,2-Dichlorobenzene	µg/l	0.05	NONE	< 0.05	< 0.05
1,4-Dichlorobenzene	µg/l	0.05	NONE	< 0.05	< 0.05
Bis(2-chloroisopropyl)ether	µg/l	0.05	NONE	< 0.05	< 0.05
2-Methylphenol	µg/l	0.05	NONE	< 0.05	< 0.05
Hexachloroethane	µg/l	0.05	NONE	< 0.05	< 0.05
Nitrobenzene	µg/l	0.05	NONE	< 0.05	< 0.05
4-Methylphenol	µg/l	0.05	NONE	< 0.05	< 0.05
Isophorone	µg/l	0.05	NONE	< 0.05	< 0.05
2-Nitrophenol	µg/l	0.05	NONE	< 0.05	< 0.05
2,4-Dimethylphenol	µg/l	0.05	NONE	< 0.05	< 0.05
Bis(2-chloroethoxy)methane	µg/l	0.05	NONE	< 0.05	< 0.05
1,2,4-Trichlorobenzene	µg/l	0.05	NONE	< 0.05	< 0.05
Naphthalene	µg/l	0.01	ISO 17025	< 0.01	< 0.01
2,4-Dichlorophenol	µg/l	0.05	NONE	< 0.05	< 0.05
4-Chloroaniline	µg/l	0.05	NONE	< 0.05	< 0.05
Hexachlorobutadiene	µg/l	0.05	NONE	< 0.05	< 0.05
4-Chloro-3-methylphenol	µg/l	0.05	NONE	< 0.05	< 0.05
2,4,6-Trichlorophenol	µg/l	0.05	NONE	< 0.05	< 0.05
2,4,5-Trichlorophenol	µg/l	0.05	NONE	< 0.05	< 0.05
2-Methylnaphthalene	µg/l	0.05	NONE	< 0.05	< 0.05
2-Chloronaphthalene	µg/l	0.05	NONE	< 0.05	< 0.05
Dimethylphthalate	µg/l	0.05	NONE	< 0.05	< 0.05
2,6-Dinitrotoluene	µg/l	0.05	NONE	< 0.05	< 0.05
Acenaphthylene	µg/l	0.01	ISO 17025	< 0.01	< 0.01
Acenaphthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01
2,4-Dinitrotoluene	µg/l	0.05	NONE	< 0.05	< 0.05
Dibenzofuran	µg/l	0.05	NONE	< 0.05	< 0.05

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Analytical Report Number: 22-40844
Project / Site name: Cherryfield Drive

Your Order No: 000697

Lab Sample Number				2179411	2179412
Sample Reference				CP102	CP101
Sample Number				None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied
Date Sampled				17/02/2022	17/02/2022
Time Taken				None Supplied	None Supplied
Analytical Parameter (Water Analysis)	**Units**	**Limit of detection**	**Accreditation Status**		
4-Chlorophenyl phenyl ether	µg/l	0.05	NONE	< 0.05	< 0.05
Diethyl phthalate	µg/l	0.05	NONE	< 0.05	< 0.05
4-Nitroaniline	µg/l	0.05	NONE	< 0.05	< 0.05
Fluorene	µg/l	0.01	ISO 17025	< 0.01	< 0.01
Azobenzene	µg/l	0.05	NONE	< 0.05	< 0.05
Bromophenyl phenyl ether	µg/l	0.05	NONE	< 0.05	< 0.05
Hexachlorobenzene	µg/l	0.05	NONE	< 0.05	< 0.05
Phenanthrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01
Anthracene	µg/l	0.01	ISO 17025	< 0.01	< 0.01
Carbazole	µg/l	0.05	NONE	< 0.05	< 0.05
Dibutyl phthalate	µg/l	0.05	NONE	< 0.05	< 0.05
Anthraquinone	µg/l	0.05	NONE	< 0.05	< 0.05
Fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01
Pyrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01
Butyl benzyl phthalate	µg/l	0.05	NONE	< 0.05	< 0.05
Benzo(a)anthracene	µg/l	0.01	ISO 17025	< 0.01	< 0.01
Chrysene	µg/l	0.01	ISO 17025	< 0.01	< 0.01
Benzo(b)fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01
Benzo(k)fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01
Benzo(a)pyrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01
Indeno(1,2,3-cd)pyrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01
Dibenz(a,h)anthracene	µg/l	0.01	ISO 17025	< 0.01	< 0.01
Benzo(ghi)perylene	µg/l	0.01	ISO 17025	< 0.01	< 0.01

3&4-Methylphenol	µg/l	0.1	NONE	< 0.10	< 0.10

U/S = Unsuitable Sample I/S = Insufficient Sample

Analytical Report Number : 22-40844
Project / Site name: Cherryfield Drive

Water matrix abbreviations:
Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Metals in water by ICP-MS (dissolved)	Determination of metals in water by acidification followed by ICP-MS. Accredited Matrices: SW, GW, PW except B=SW,GW, Hg=SW,PW, Al=SW,PW.	In-house method based on USEPA Method 6020 & 200.8 "for the determination of trace elements in water by ICP-MS.	L012-PL	W	ISO 17025
Metals in water by ICP-OES (dissolved)	Determination of metals in water by acidification followed by ICP-OES. Accredited Matrices SW, GW, PW, PrW.(Al, Cu,Fe,Zn).	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L039-PL	W	ISO 17025
Hexavalent chromium in water	Determination of hexavalent chromium in water by acidification, addition of 1,5 diphenylcarbazide followed by colorimetry.	In-house method by continuous flow analyser. Accredited Matrices SW, GW, PW.	L080-PL	W	ISO 17025
Monohydric phenols in water - LOW LEVEL 1 ug/l	Determination of phenols in water by continuous flow analyser. Accredited matrices: SW PW GW	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (skalar)	L080-PL	W	ISO 17025
Semi-volatile organic compounds in water	Determination of semi-volatile organic compounds in leachate by extraction in dichloromethane followed by GC-MS.	In-house method based on USEPA 8270	L102B-PL	W	NONE
TPHCWG (Waters)	Determination of dichloromethane extractable hydrocarbons in water by GC-MS, speciation by interpretation.	In-house method	L070-PL	W	NONE
Volatile organic compounds in water	Determination of volatile organic compounds in water by headspace GC-MS. Accredited matrices: SW PW GW	In-house method based on USEPA8260	L073B-PL	W	ISO 17025
Dissolved Organic Carbon in water	Determination of dissolved inorganic carbon in water by TOC/DOC NDIR Analyser.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L037-PL	W	ISO 17025
BTEX and MTBE in water (Monoaromatics)	Determination of BTEX and MTBE in water by headspace GC-MS. Accredited matrices: SW PW GW	In-house method based on USEPA8260	L073B-PL	W	ISO 17025
Low level total cyanide in water	Determination of total cyanide by distillation followed by colorimetry. Accredited matrices: SW PW GW	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar)	L080-PL	W	ISO 17025
pH at 20oC in water (automated)	Determination of pH in water by electrometric measurement. Accredited matrices: SW PW GW	In house method.	L099-PL	W	ISO 17025
TPH1 (Waters)	Determination of dichloromethane extractable hydrocarbons in water by GC-MS.	In-house method	L070-PL	W	NONE

For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom.
For method numbers ending in 'PL' analysis have been carried out in our laboratory in Poland.
Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.

Unless otherwise indicated, site information, order number, project number, sampling date, time, sample reference and depth are provided by the client. The instructed on date indicates the date on which this information was provided to the laboratory.

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Analytical Report Number : 22-40844
Project / Site name: Cherryfield Drive

Water matrix abbreviations:
Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status

Information in Support of Analytical Results

List of HWOL Acronyms and Operators

Acronym	Descriptions
HS	Headspace Analysis
MS	Mass spectrometry
FID	Flame Ionisation Detector
GC	Gas Chromatography
EH	Extractable Hydrocarbons (i.e. everything extracted by the solvent(s))
CU	Clean-up - e.g. by Florisil®, silica gel
1D	GC - Single coil/column gas chromatography
2D	GC-GC - Double coil/column gas chromatography
Total	Aliphatics & Aromatics
AL	Aliphatics
AR	Aromatics
#1	EH_2D_Total but with humics mathematically subtracted
#2	EH_2D_Total but with fatty acids mathematically subtracted
_	Operator - understore to separate acronyms (exception for +)
+	Operator to indicate cumulative e.g. EH+HS_Total or EH_CU+HS_Total

Analytical Report Number : 22-40844
Project / Site name: Cherryfield Drive

This deviation report indicates the sample and test deviations that apply to the samples submitted for analysis.Please note that the associated result(s) may be unreliable and should be interpreted with care.

Sample ID	Other ID	Sample Type	Lab Sample Number	Sample Deviation	Test Name	Test Ref	Test Deviation
CP101	None Supplied	W	2179412	c	pH at 20oC in water (automated)	L099-PL	c
CP102	None Supplied	W	2179411	c	pH at 20oC in water (automated)	L099-PL	c
CP103	None Supplied	W	2179410	c	pH at 20oC in water (automated)	L099-PL	c
WS106	None Supplied	W	2179409	c	pH at 20oC in water (automated)	L099-PL	c
WS124	None Supplied	W	2179408	c	pH at 20oC in water (automated)	L099-PL	c
WS142	None Supplied	W	2179407	c	pH at 20oC in water (automated)	L099-PL	c
WS161	None Supplied	W	2179406	c	pH at 20oC in water (automated)	L099-PL	c

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Analytical Report Number : 22-44551

Project / Site name:	Cherryfield Drive	**Samples received on:**	09/03/2022
Your job number:	15-280	**Samples instructed on/ Analysis started on:**	09/03/2022
Your order number:	000910	**Analysis completed by:**	16/03/2022
Report Issue Number:	1	**Report issued on:**	16/03/2022
Samples Analysed:	4 water samples		

Signed:

Anna Goc
Technical Reviewer (Reporting Team)
For & on behalf of i2 Analytical Ltd.

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41 -711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

Standard sample disposal times, unless otherwise agreed with the laboratory, are :

soils - 4 weeks from reporting
leachates - 2 weeks from reporting
waters - 2 weeks from reporting
asbestos - 6 months from reporting

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Any assessments of compliance with specifications are based on actual analytical results with no contribution from uncertainty of measurement.
Application of uncertainty of measurement would provide a range within which the true result lies.
An estimate of measurement uncertainty can be provided on request.

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Analytical Report Number: 22-44551
Project / Site name: Cherryfield Drive

Your Order No: 000910

Lab Sample Number				2199768	2199769	2199770	2199771
Sample Reference				WS142	WS124	CP102	CP101
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied	None Supplied	None Supplied
Date Sampled				09/03/2022	09/03/2022	09/03/2022	09/03/2022
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Water Analysis)	**Units**	**Limit of detection**	**Accreditation Status**				
General Inorganics							
pH	pH Units	N/A	ISO 17025	7.1	6.8	6.8	6.8
Total Cyanide (Low Level 1 µg/l)	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
Dissolved Organic Carbon (DOC)	mg/l	0.1	ISO 17025	12.4	9.12	10.6	13.9
Total Phenols							
Total Phenols (monohydric)	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
Heavy Metals / Metalloids							
Calcium (dissolved)	mg/l	0.012	ISO 17025	89	91	250	270
Chromium (hexavalent)	µg/l	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0
Arsenic (dissolved)	µg/l	0.15	ISO 17025	2.3	0.27	< 0.15	1.79
Cadmium (dissolved)	µg/l	0.02	ISO 17025	0.07	< 0.02	0.55	0.07
Chromium (dissolved)	µg/l	0.2	ISO 17025	3.7	3.7	5.3	7.7
Copper (dissolved)	µg/l	0.5	ISO 17025	10	2	16	1.1
Lead (dissolved)	µg/l	0.2	ISO 17025	0.4	< 0.2	0.3	< 0.2
Manganese (dissolved)	µg/l	0.05	ISO 17025	34	2800	340	1400
Mercury (dissolved)	µg/l	0.05	ISO 17025	< 0.05	< 0.05	< 0.05	< 0.05
Nickel (dissolved)	µg/l	0.5	ISO 17025	5.3	3.4	26	13
Selenium (dissolved)	µg/l	0.6	ISO 17025	2.4	< 0.6	4	1
Zinc (dissolved)	µg/l	0.5	ISO 17025	5.5	150	1200	10
Monoaromatics & Oxygenates							
Benzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
Toluene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
Ethylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
p & m-xylene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
o-xylene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
MTBE (Methyl Tertiary Butyl Ether)	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
Petroleum Hydrocarbons							
TPH1 (C10 - C40) EH_2D_TOTAL_#1_#2	µg/l	10	NONE	< 10	< 10	< 10	< 10
TPH-CWG - Aliphatic >C5 - C6 HS_1D_AL	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aliphatic >C6 - C8 HS_1D_AL	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aliphatic >C8 - C10 HS_1D_AL	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aliphatic >C10 - C12 EH_1D_AL_#1_#2_MS	µg/l	10	NONE	< 10	< 10	< 10	< 10
TPH-CWG - Aliphatic >C12 - C16 EH_1D_AL_#1_#2_MS	µg/l	10	NONE	< 10	< 10	< 10	< 10
TPH-CWG - Aliphatic >C16 - C21 EH_1D_AL_#1_#2_MS	µg/l	10	NONE	< 10	< 10	< 10	< 10
TPH-CWG - Aliphatic >C21 - C35 EH_1D_AL_#1_#2_MS	µg/l	10	NONE	< 10	< 10	< 10	< 10
TPH-CWG - Aliphatic (C5 - C35) HS+EH_1D_AL_#1_#2_MS	µg/l	10	NONE	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic >C5 - C7 HS_1D_AR	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aromatic >C7 - C8 HS_1D_AR	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aromatic >C8 - C10 HS_1D_AR	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aromatic >C10 - C12 EH_1D_AR_#1_#2_MS	µg/l	10	NONE	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic >C12 - C16 EH_1D_AR_#1_#2_MS	µg/l	10	NONE	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic >C16 - C21 EH_1D_AR_#1_#2_MS	µg/l	10	NONE	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic >C21 - C35 EH_1D_AR_#1_#2_MS	µg/l	10	NONE	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic (C5 - C35) HS+EH_1D_AR_#1_#2_MS	µg/l	10	NONE	< 10	< 10	< 10	< 10

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Analytical Report Number: 22-44551
Project / Site name: Cherryfield Drive

Your Order No: 000910

Lab Sample Number				2199768	2199769	2199770	2199771
Sample Reference				WS142	WS124	CP102	CP101
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied	None Supplied	None Supplied
Date Sampled				09/03/2022	09/03/2022	09/03/2022	09/03/2022
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Water Analysis)	**Units**	**Limit of detection**	**Accreditation Status**				
VOCs							
Chloromethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
Chloroethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
Bromomethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
Vinyl Chloride	µg/l	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0
Trichlorofluoromethane	µg/l	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0
1,1-Dichloroethene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
1,1,2-Trichloro-1,2,2-trifluoroethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
Cis-1,2-dichloroethene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
MTBE (Methyl Tertiary Butyl Ether)	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
1,1-Dichloroethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
2,2-Dichloropropane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
Trichloromethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
1,1,1-Trichloroethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
1,2-Dichloroethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
1,1-Dichloropropene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
Trans-1,2-dichloroethene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
Benzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
Tetrachloromethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
1,2-Dichloropropane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
Trichloroethene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
Dibromomethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
Bromodichloromethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
Cis-1,3-dichloropropene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
Trans-1,3-dichloropropene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
Toluene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
1,1,2-Trichloroethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
1,3-Dichloropropane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
Dibromochloromethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
Tetrachloroethene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
1,2-Dibromoethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
Chlorobenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
1,1,1,2-Tetrachloroethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
Ethylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
p & m-Xylene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
Styrene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
Tribromomethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
o-Xylene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
1,1,2,2-Tetrachloroethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
Isopropylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
Bromobenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
n-Propylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
2-Chlorotoluene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
4-Chlorotoluene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
1,3,5-Trimethylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
tert-Butylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
1,2,4-Trimethylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
sec-Butylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
1,3-Dichlorobenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
p-Isopropyltoluene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
1,2-Dichlorobenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
1,4-Dichlorobenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
Butylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0

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The results included within the report relate only to the sample(s) submitted for testing.

Analytical Report Number: 22-44551
Project / Site name: Cherryfield Drive

Your Order No: 000910

Lab Sample Number				2199768	2199769	2199770	2199771
Sample Reference				WS142	WS124	CP102	CP101
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied	None Supplied	None Supplied
Date Sampled				09/03/2022	09/03/2022	09/03/2022	09/03/2022
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Water Analysis)	**Units**	**Limit of detection**	**Accreditation Status**				
1,2-Dibromo-3-chloropropane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
1,2,4-Trichlorobenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
Hexachlorobutadiene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
1,2,3-Trichlorobenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
SVOCs							
Aniline	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05
Phenol	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05
2-Chlorophenol	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05
Bis(2-chloroethyl)ether	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05
1,3-Dichlorobenzene	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05
1,2-Dichlorobenzene	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05
1,4-Dichlorobenzene	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05
Bis(2-chloroisopropyl)ether	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05
2-Methylphenol	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05
Hexachloroethane	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05
Nitrobenzene	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05
4-Methylphenol	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05
Isophorone	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05
2-Nitrophenol	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05
2,4-Dimethylphenol	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05
Bis(2-chloroethoxy)methane	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05
1,2,4-Trichlorobenzene	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05
Naphthalene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01
2,4-Dichlorophenol	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05
4-Chloroaniline	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05
Hexachlorobutadiene	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05
4-Chloro-3-methylphenol	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05
2,4,6-Trichlorophenol	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05
2,4,5-Trichlorophenol	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05
2-Methylnaphthalene	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05
2-Chloronaphthalene	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05
Dimethylphthalate	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05
2,6-Dinitrotoluene	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05
Acenaphthylene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01
Acenaphthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01
2,4-Dinitrotoluene	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05
Dibenzofuran	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05
4-Chlorophenyl phenyl ether	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05
Diethyl phthalate	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05
4-Nitroaniline	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05
Fluorene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01
Azobenzene	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05
Bromophenyl phenyl ether	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05
Hexachlorobenzene	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05
Phenanthrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01
Anthracene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01
Carbazole	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05
Dibutyl phthalate	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05
Anthraquinone	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05
Fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01
Pyrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01
Butyl benzyl phthalate	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05

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Analytical Report Number: 22-44551
Project / Site name: Cherryfield Drive

Your Order No: 000910

Lab Sample Number				2199768	2199769	2199770	2199771
Sample Reference				WS142	WS124	CP102	CP101
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied	None Supplied	None Supplied
Date Sampled				09/03/2022	09/03/2022	09/03/2022	09/03/2022
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Water Analysis)	**Units**	**Limit of detection**	**Accreditation Status**				
Benzo(a)anthracene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01
Chrysene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(b)fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(k)fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(a)pyrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01
Indeno(1,2,3-cd)pyrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01
Dibenz(a,h)anthracene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(ghi)perylene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01
3&4-Methylphenol	µg/l	0.1	NONE	< 0.10	< 0.10	< 0.10	< 0.10

U/S = Unsuitable Sample I/S = Insufficient Sample

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Analytical Report Number : 22-44551
Project / Site name: Cherryfield Drive

Water matrix abbreviations:
Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Metals in water by ICP-OES (dissolved)	Determination of metals in water by acidification followed by ICP-OES. Accredited Matrices SW, GW, PW, PrW.(Al, Cu,Fe,Zn).	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L039-PL	W	ISO 17025
Metals in water by ICP-MS (dissolved)	Determination of metals in water by acidification followed by ICP-MS. Accredited Matrices: SW, GW, PW except B=SW,GW, Hg=SW,PW, Al=SW,PW.	In-house method based on USEPA Method 6020 & 200.8 "for the determination of trace elements in water by ICP-MS.	L012-PL	W	ISO 17025
Hexavalent chromium in water	Determination of hexavalent chromium in water by acidification, addition of 1,5 diphenylcarbazide followed by colorimetry.	In-house method by continuous flow analyser. Accredited Matrices SW, GW, PW.	L080-PL	W	ISO 17025
Monohydric phenols in water - LOW LEVEL 1 ug/l	Determination of phenols in water by continuous flow analyser. Accredited matrices: SW PW GW	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (skalar)	L080-PL	W	ISO 17025
Semi-volatile organic compounds in water	Determination of semi-volatile organic compounds in leachate by extraction in dichloromethane followed by GC-MS.	In-house method based on USEPA 8270	L102B-PL	W	ISO 17025
TPHCWG (Waters)	Determination of dichloromethane extractable hydrocarbons in water by GC-MS, speciation by interpretation.	In-house method	L070-PL	W	ISO 17025
Volatile organic compounds in water	Determination of volatile organic compounds in water by headspace GC-MS. Accredited matrices: SW PW GW	In-house method based on USEPA8260	L073B-PL	W	ISO 17025
Dissolved Organic Carbon in water	Determination of dissolved inorganic carbon in water by TOC/DOC NDIR Analyser.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L037-PL	W	ISO 17025
BTEX and MTBE in water (Monoaromatics)	Determination of BTEX and MTBE in water by headspace GC-MS. Accredited matrices: SW PW GW	In-house method based on USEPA8260	L073B-PL	W	ISO 17025
Low level total cyanide in water	Determination of total cyanide by distillation followed by colorimetry. Accredited matrices: SW PW GW	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar)	L080-PL	W	ISO 17025
pH at 20oC in water (automated)	Determination of pH in water by electrometric measurement. Accredited matrices: SW PW GW	In house method.	L099-PL	W	ISO 17025
TPH1 (Waters)	Determination of dichloromethane extractable hydrocarbons in water by GC-MS.	In-house method	L070-PL	W	NONE

For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom.
For method numbers ending in 'PL' analysis have been carried out in our laboratory in Poland.
Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.

Unless otherwise indicated, site information, order number, project number, sampling date, time, sample reference and depth are provided by the client. The instructed on date indicates the date on which this information was provided to the laboratory.

Information in Support of Analytical Results

List of HWOL Acronyms and Operators

Acronym	Descriptions
HS	Headspace Analysis
MS	Mass spectrometry
FID	Flame Ionisation Detector

Analytical Report Number : 22-44551
Project / Site name: Cherryfield Drive

Water matrix abbreviations:
Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
GC	Gas Chromatography				
EH	Extractable Hydrocarbons (i.e. everything extracted by the solvent(s))				
CU	Clean-up - e.g. by Florisil®, silica gel				
1D	GC - Single coil/column gas chromatography				
2D	GC-GC - Double coil/column gas chromatography				
Total	Aliphatics & Aromatics				
AL	Aliphatics				
AR	Aromatics				
#1	EH_2D_Total but with humics mathematically subtracted				
#2	EH_2D_Total but with fatty acids mathematically subtracted				
_	Operator - understore to separate acronyms (exception for +)				
+	Operator to indicate cumulative e.g. EH+HS_Total or EH_CU+HS_Total				

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Analytical Report Number : 22-46802

Project / Site name:	Cherryfield Drive	**Samples received on:**	18/03/2022
Your job number:	15 280	**Samples instructed on/ Analysis started on:**	21/03/2022
Your order number:	001020	**Analysis completed by:**	28/03/2022
Report Issue Number:	1	**Report issued on:**	28/03/2022
Samples Analysed:	2 water samples		

Signed:

Joanna Wawrzeczko
Technical Reviewer (Reporting Team)
For & on behalf of i2 Analytical Ltd.

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41 -711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

Standard sample disposal times, unless otherwise agreed with the laboratory, are :

soils - 4 weeks from reporting
leachates - 2 weeks from reporting
waters - 2 weeks from reporting
asbestos - 6 months from reporting

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Any assessments of compliance with specifications are based on actual analytical results with no contribution from uncertainty of measurement.
Application of uncertainty of measurement would provide a range within which the true result lies.
An estimate of measurement uncertainty can be provided on request.

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The results included within the report are representative of the samples submitted for analysis.

Analytical Report Number: 22-46802
Project / Site name: Cherryfield Drive

Your Order No: 001020

Lab Sample Number				2211477	2211478
Sample Reference				WS161	WS106
Sample Number				None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied
Date Sampled				17/03/2022	17/03/2022
Time Taken				None Supplied	None Supplied
Analytical Parameter (Water Analysis)	**Units**	**Limit of detection**	**Accreditation Status**		
General Inorganics					
pH	pH Units	N/A	ISO 17025	6.9	7.4
Total Cyanide (Low Level 1 µg/l)	µg/l	1	ISO 17025	< 1.0	< 1.0
Dissolved Organic Carbon (DOC)	mg/l	0.1	ISO 17025	11.4	4.74
Total Phenols					
Total Phenols (monohydric)	µg/l	1	ISO 17025	< 1.0	< 1.0
Heavy Metals / Metalloids					
Calcium (dissolved)	mg/l	0.012	ISO 17025	260	120
Chromium (hexavalent)	µg/l	5	ISO 17025	< 5.0	< 5.0
Arsenic (dissolved)	µg/l	0.15	ISO 17025	1.36	0.48
Cadmium (dissolved)	µg/l	0.02	ISO 17025	< 0.02	0.03
Chromium (dissolved)	µg/l	0.2	ISO 17025	7.5	3.7
Copper (dissolved)	µg/l	0.5	ISO 17025	< 0.5	1.2
Lead (dissolved)	µg/l	0.2	ISO 17025	0.3	< 0.2
Manganese (dissolved)	µg/l	0.05	ISO 17025	1700	12
Mercury (dissolved)	µg/l	0.05	ISO 17025	< 0.05	< 0.05
Nickel (dissolved)	µg/l	0.5	ISO 17025	13	6
Selenium (dissolved)	µg/l	0.6	ISO 17025	1.6	3.2
Zinc (dissolved)	µg/l	0.5	ISO 17025	11	6.9

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Analytical Report Number: 22-46802
Project / Site name: Cherryfield Drive

Your Order No: 001020

Lab Sample Number				2211477	2211478
Sample Reference				WS161	WS106
Sample Number				None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied
Date Sampled				17/03/2022	17/03/2022
Time Taken				None Supplied	None Supplied
Analytical Parameter (Water Analysis)	**Units**	**Limit of detection**	**Accreditation Status**		
Monoaromatics & Oxygenates					
Benzene	µg/l	1	ISO 17025	< 1.0	< 1.0
Toluene	µg/l	1	ISO 17025	< 1.0	< 1.0
Ethylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0
p & m-xylene	µg/l	1	ISO 17025	< 1.0	< 1.0
o-xylene	µg/l	1	ISO 17025	< 1.0	< 1.0
MTBE (Methyl Tertiary Butyl Ether)	µg/l	1	ISO 17025	< 1.0	< 1.0
Petroleum Hydrocarbons					
TPH1 (C10 - C40) EH_2D_TOTAL_#1_#2	µg/l	10	NONE	< 10	< 10
TPH-CWG - Aliphatic >C5 - C6 HS_1D_AL	µg/l	1	ISO 17025	< 1.0	< 1.0
TPH-CWG - Aliphatic >C6 - C8 HS_1D_AL	µg/l	1	ISO 17025	< 1.0	< 1.0
TPH-CWG - Aliphatic >C8 - C10 HS_1D_AL	µg/l	1	ISO 17025	< 1.0	< 1.0
TPH-CWG - Aliphatic >C10 - C12 EH_1D_AL_#1_#2_MS	µg/l	10	NONE	< 10	< 10
TPH-CWG - Aliphatic >C12 - C16 EH_1D_AL_#1_#2_MS	µg/l	10	NONE	< 10	< 10
TPH-CWG - Aliphatic >C16 - C21 EH_1D_AL_#1_#2_MS	µg/l	10	NONE	< 10	< 10
TPH-CWG - Aliphatic >C21 - C35 EH_1D_AL_#1_#2_MS	µg/l	10	NONE	< 10	< 10
TPH-CWG - Aliphatic (C5 - C35) HS+EH_1D_AL_#1_#2_MS	µg/l	10	NONE	< 10	< 10
TPH-CWG - Aromatic >C5 - C7 HS_1D_AR	µg/l	1	ISO 17025	< 1.0	< 1.0
TPH-CWG - Aromatic >C7 - C8 HS_1D_AR	µg/l	1	ISO 17025	< 1.0	< 1.0
TPH-CWG - Aromatic >C8 - C10 HS_1D_AR	µg/l	1	ISO 17025	< 1.0	< 1.0
TPH-CWG - Aromatic >C10 - C12 EH_1D_AR_#1_#2_MS	µg/l	10	NONE	< 10	< 10
TPH-CWG - Aromatic >C12 - C16 EH_1D_AR_#1_#2_MS	µg/l	10	NONE	< 10	< 10
TPH-CWG - Aromatic >C16 - C21 EH_1D_AR_#1_#2_MS	µg/l	10	NONE	< 10	< 10
TPH-CWG - Aromatic >C21 - C35 EH_1D_AR_#1_#2_MS	µg/l	10	NONE	< 10	< 10
TPH-CWG - Aromatic (C5 - C35) HS+EH_1D_AR_#1_#2_MS	µg/l	10	NONE	< 10	< 10

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Analytical Report Number: 22-46802
Project / Site name: Cherryfield Drive

Your Order No: 001020

Lab Sample Number				2211477	2211478
Sample Reference				WS161	WS106
Sample Number				None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied
Date Sampled				17/03/2022	17/03/2022
Time Taken				None Supplied	None Supplied
Analytical Parameter (Water Analysis)	**Units**	**Limit of detection**	**Accreditation Status**		
VOCs					
Chloromethane	µg/l	1	ISO 17025	< 1.0	< 1.0
Chloroethane	µg/l	1	ISO 17025	< 1.0	< 1.0
Bromomethane	µg/l	1	ISO 17025	< 1.0	< 1.0
Vinyl Chloride	µg/l	1	NONE	< 1.0	< 1.0
Trichlorofluoromethane	µg/l	1	NONE	< 1.0	< 1.0
1,1-Dichloroethene	µg/l	1	ISO 17025	< 1.0	< 1.0
1,1,2-Trichloro-1,2,2-trifluoroethane	µg/l	1	ISO 17025	< 1.0	< 1.0
Cis-1,2-dichloroethene	µg/l	1	ISO 17025	< 1.0	< 1.0
MTBE (Methyl Tertiary Butyl Ether)	µg/l	1	ISO 17025	< 1.0	< 1.0
1,1-Dichloroethane	µg/l	1	ISO 17025	< 1.0	< 1.0
2,2-Dichloropropane	µg/l	1	ISO 17025	< 1.0	< 1.0
Trichloromethane	µg/l	1	ISO 17025	< 1.0	< 1.0
1,1,1-Trichloroethane	µg/l	1	ISO 17025	< 1.0	< 1.0
1,2-Dichloroethane	µg/l	1	ISO 17025	< 1.0	< 1.0
1,1-Dichloropropene	µg/l	1	ISO 17025	< 1.0	< 1.0
Trans-1,2-dichloroethene	µg/l	1	ISO 17025	< 1.0	< 1.0
Benzene	µg/l	1	ISO 17025	< 1.0	< 1.0
Tetrachloromethane	µg/l	1	ISO 17025	< 1.0	< 1.0
1,2-Dichloropropane	µg/l	1	ISO 17025	< 1.0	< 1.0
Trichloroethene	µg/l	1	ISO 17025	< 1.0	< 1.0
Dibromomethane	µg/l	1	ISO 17025	< 1.0	< 1.0
Bromodichloromethane	µg/l	1	ISO 17025	< 1.0	< 1.0
Cis-1,3-dichloropropene	µg/l	1	ISO 17025	< 1.0	< 1.0
Trans-1,3-dichloropropene	µg/l	1	ISO 17025	< 1.0	< 1.0
Toluene	µg/l	1	ISO 17025	< 1.0	< 1.0
1,1,2-Trichloroethane	µg/l	1	ISO 17025	< 1.0	< 1.0
1,3-Dichloropropane	µg/l	1	ISO 17025	< 1.0	< 1.0
Dibromochloromethane	µg/l	1	ISO 17025	< 1.0	< 1.0
Tetrachloroethene	µg/l	1	ISO 17025	< 1.0	< 1.0
1,2-Dibromoethane	µg/l	1	ISO 17025	< 1.0	< 1.0
Chlorobenzene	µg/l	1	ISO 17025	< 1.0	< 1.0
1,1,1,2-Tetrachloroethane	µg/l	1	ISO 17025	< 1.0	< 1.0
Ethylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0
p & m-Xylene	µg/l	1	ISO 17025	< 1.0	< 1.0
Styrene	µg/l	1	ISO 17025	< 1.0	< 1.0
Tribromomethane	µg/l	1	ISO 17025	< 1.0	< 1.0
o-Xylene	µg/l	1	ISO 17025	< 1.0	< 1.0
1,1,2,2-Tetrachloroethane	µg/l	1	ISO 17025	< 1.0	< 1.0
Isopropylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0
Bromobenzene	µg/l	1	ISO 17025	< 1.0	< 1.0
n-Propylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0
2-Chlorotoluene	µg/l	1	ISO 17025	< 1.0	< 1.0
4-Chlorotoluene	µg/l	1	ISO 17025	< 1.0	< 1.0
1,3,5-Trimethylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0
tert-Butylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0
1,2,4-Trimethylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0
sec-Butylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0
1,3-Dichlorobenzene	µg/l	1	ISO 17025	< 1.0	< 1.0
p-Isopropyltoluene	µg/l	1	ISO 17025	< 1.0	< 1.0
1,2-Dichlorobenzene	µg/l	1	ISO 17025	< 1.0	< 1.0
1,4-Dichlorobenzene	µg/l	1	ISO 17025	< 1.0	< 1.0
Butylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0
1,2-Dibromo-3-chloropropane	µg/l	1	ISO 17025	< 1.0	< 1.0
1,2,4-Trichlorobenzene	µg/l	1	ISO 17025	< 1.0	< 1.0
Hexachlorobutadiene	µg/l	1	ISO 17025	< 1.0	< 1.0

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Analytical Report Number: 22-46802
Project / Site name: Cherryfield Drive

Your Order No: 001020

Lab Sample Number				2211477	2211478
Sample Reference				WS161	WS106
Sample Number				None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied
Date Sampled				17/03/2022	17/03/2022
Time Taken				None Supplied	None Supplied
Analytical Parameter (Water Analysis)	**Units**	**Limit of detection**	**Accreditation Status**		
1,2,3-Trichlorobenzene	µg/l	1	ISO 17025	< 1.0	< 1.0

Analytical Report Number: 22-46802
Project / Site name: Cherryfield Drive

Your Order No: 001020

Lab Sample Number				2211477	2211478
Sample Reference				WS161	WS106
Sample Number				None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied
Date Sampled				17/03/2022	17/03/2022
Time Taken				None Supplied	None Supplied
Analytical Parameter (Water Analysis)	**Units**	**Limit of detection**	**Accreditation Status**		
SVOCs					
Aniline	µg/l	0.05	NONE	< 0.05	< 0.05
Phenol	µg/l	0.05	NONE	< 0.05	< 0.05
2-Chlorophenol	µg/l	0.05	NONE	< 0.05	< 0.05
Bis(2-chloroethyl)ether	µg/l	0.05	NONE	< 0.05	< 0.05
1,3-Dichlorobenzene	µg/l	0.05	NONE	< 0.05	< 0.05
1,2-Dichlorobenzene	µg/l	0.05	NONE	< 0.05	< 0.05
1,4-Dichlorobenzene	µg/l	0.05	NONE	< 0.05	< 0.05
Bis(2-chloroisopropyl)ether	µg/l	0.05	NONE	< 0.05	< 0.05
2-Methylphenol	µg/l	0.05	NONE	< 0.05	< 0.05
Hexachloroethane	µg/l	0.05	NONE	< 0.05	< 0.05
Nitrobenzene	µg/l	0.05	NONE	< 0.05	< 0.05
4-Methylphenol	µg/l	0.05	NONE	< 0.05	< 0.05
Isophorone	µg/l	0.05	NONE	< 0.05	< 0.05
2-Nitrophenol	µg/l	0.05	NONE	< 0.05	< 0.05
2,4-Dimethylphenol	µg/l	0.05	NONE	< 0.05	< 0.05
Bis(2-chloroethoxy)methane	µg/l	0.05	NONE	< 0.05	< 0.05
1,2,4-Trichlorobenzene	µg/l	0.05	NONE	< 0.05	< 0.05
Naphthalene	µg/l	0.01	ISO 17025	< 0.01	< 0.01
2,4-Dichlorophenol	µg/l	0.05	NONE	< 0.05	< 0.05
4-Chloroaniline	µg/l	0.05	NONE	< 0.05	< 0.05
Hexachlorobutadiene	µg/l	0.05	NONE	< 0.05	< 0.05
4-Chloro-3-methylphenol	µg/l	0.05	NONE	< 0.05	< 0.05
2,4,6-Trichlorophenol	µg/l	0.05	NONE	< 0.05	< 0.05
2,4,5-Trichlorophenol	µg/l	0.05	NONE	< 0.05	< 0.05
2-Methylnaphthalene	µg/l	0.05	NONE	< 0.05	< 0.05
2-Chloronaphthalene	µg/l	0.05	NONE	< 0.05	< 0.05
Dimethylphthalate	µg/l	0.05	NONE	< 0.05	< 0.05
2,6-Dinitrotoluene	µg/l	0.05	NONE	< 0.05	< 0.05
Acenaphthylene	µg/l	0.01	ISO 17025	< 0.01	< 0.01
Acenaphthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01
2,4-Dinitrotoluene	µg/l	0.05	NONE	< 0.05	< 0.05
Dibenzofuran	µg/l	0.05	NONE	< 0.05	< 0.05
4-Chlorophenyl phenyl ether	µg/l	0.05	NONE	< 0.05	< 0.05
Diethyl phthalate	µg/l	0.05	NONE	< 0.05	< 0.05
4-Nitroaniline	µg/l	0.05	NONE	< 0.05	< 0.05
Fluorene	µg/l	0.01	ISO 17025	< 0.01	< 0.01
Azobenzene	µg/l	0.05	NONE	< 0.05	< 0.05
Bromophenyl phenyl ether	µg/l	0.05	NONE	< 0.05	< 0.05
Hexachlorobenzene	µg/l	0.05	NONE	< 0.05	< 0.05
Phenanthrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01
Anthracene	µg/l	0.01	ISO 17025	< 0.01	< 0.01
Carbazole	µg/l	0.05	NONE	< 0.05	< 0.05
Dibutyl phthalate	µg/l	0.05	NONE	< 0.05	< 0.05
Anthraquinone	µg/l	0.05	NONE	< 0.05	< 0.05
Fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01
Pyrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01
Butyl benzyl phthalate	µg/l	0.05	NONE	< 0.05	< 0.05
Benzo(a)anthracene	µg/l	0.01	ISO 17025	< 0.01	< 0.01
Chrysene	µg/l	0.01	ISO 17025	< 0.01	< 0.01
Benzo(b)fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01
Benzo(k)fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01
Benzo(a)pyrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01
Indeno(1,2,3-cd)pyrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01
Dibenz(a,h)anthracene	µg/l	0.01	ISO 17025	< 0.01	< 0.01
Benzo(ghi)perylene	µg/l	0.01	ISO 17025	< 0.01	< 0.01

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Analytical Report Number: 22-46802
Project / Site name: Cherryfield Drive

Your Order No: 001020

Lab Sample Number				2211477	2211478
Sample Reference				WS161	WS106
Sample Number				None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied
Date Sampled				17/03/2022	17/03/2022
Time Taken				None Supplied	None Supplied
Analytical Parameter (Water Analysis)	**Units**	**Limit of detection**	**Accreditation Status**		
3&4-Methylphenol	µg/l	0.1	NONE	< 0.10	< 0.10

U/S = Unsuitable Sample I/S = Insufficient Sample

Analytical Report Number : 22-46802
Project / Site name: Cherryfield Drive

Water matrix abbreviations:
Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Metals in water by ICP-OES (dissolved)	Determination of metals in water by acidification followed by ICP-OES. Accredited Matrices SW, GW, PW, PrW.(Al, Cu,Fe,Zn).	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L039-PL	W	ISO 17025
Metals in water by ICP-MS (dissolved)	Determination of metals in water by acidification followed by ICP-MS. Accredited Matrices: SW, GW, PW except B=SW,GW, Hg=SW,PW, Al=SW,PW.	In-house method based on USEPA Method 6020 & 200.8 "for the determination of trace elements in water by ICP-MS.	L012-PL	W	ISO 17025
Hexavalent chromium in water	Determination of hexavalent chromium in water by acidification, addition of 1,5 diphenylcarbazide followed by colorimetry.	In-house method by continuous flow analyser. Accredited Matrices SW, GW, PW.	L080-PL	W	ISO 17025
Monohydric phenols in water - LOW LEVEL 1 ug/l	Determination of phenols in water by continuous flow analyser. Accredited matrices: SW PW GW	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (skalar)	L080-PL	W	ISO 17025
Semi-volatile organic compounds in water	Determination of semi-volatile organic compounds in leachate by extraction in dichloromethane followed by GC-MS.	In-house method based on USEPA 8270	L102B-PL	W	ISO 17025
TPHCWG (Waters)	Determination of dichloromethane extractable hydrocarbons in water by GC-MS, speciation by interpretation.	In-house method	L070-PL	W	ISO 17025
Volatile organic compounds in water	Determination of volatile organic compounds in water by headspace GC-MS. Accredited matrices: SW PW GW	In-house method based on USEPA8260	L073B-PL	W	ISO 17025
Dissolved Organic Carbon in water	Determination of dissolved inorganic carbon in water by TOC/DOC NDIR Analyser.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L037-PL	W	ISO 17025
BTEX and MTBE in water (Monoaromatics)	Determination of BTEX and MTBE in water by headspace GC-MS. Accredited matrices: SW PW GW	In-house method based on USEPA8260	L073B-PL	W	ISO 17025
Low level total cyanide in water	Determination of total cyanide by distillation followed by colorimetry. Accredited matrices: SW PW GW	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar)	L080-PL	W	ISO 17025
pH at 20oC in water (automated)	Determination of pH in water by electrometric measurement. Accredited matrices: SW PW GW	In house method.	L099-PL	W	ISO 17025
TPH1 (Waters)	Determination of dichloromethane extractable hydrocarbons in water by GC-MS.	In-house method	L070-PL	W	NONE

For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom.
For method numbers ending in 'PL' analysis have been carried out in our laboratory in Poland.
Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.

Unless otherwise indicated, site information, order number, project number, sampling date, time, sample reference and depth are provided by the client. The instructed on date indicates the date on which this information was provided to the laboratory.

Information in Support of Analytical Results

List of HWOL Acronyms and Operators

Acronym	Descriptions
HS	Headspace Analysis
MS	Mass spectrometry
FID	Flame Ionisation Detector
GC	Gas Chromatography
EH	Extractable Hydrocarbons (i.e. everything extracted by the solvent(s))
CU	Clean-up - e.g. by Florisil®, silica gel

Analytical Report Number : 22-46802
Project / Site name: Cherryfield Drive

Water matrix abbreviations:
Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
1D	GC - Single coil/column gas chromatography				
2D	GC-GC - Double coil/column gas chromatography				
Total	Aliphatics & Aromatics				
AL	Aliphatics				
AR	Aromatics				
#1	EH_2D_Total but with humics mathematically subtracted				
#2	EH_2D_Total but with fatty acids mathematically subtracted				
_	Operator - understore to separate acronyms (exception for +)				
+	Operator to indicate cumulative e.g. EH+HS_Total or EH_CU+HS_Total				

Analytical Report Number : 22-46802
Project / Site name: Cherryfield Drive

This deviation report indicates the sample and test deviations that apply to the samples submitted for analysis.Please note that the associated result(s) may be unreliable and should be interpreted with care.

Sample ID	Other ID	Sample Type	Lab Sample Number	Sample Deviation	Test Name	Test Ref	Test Deviation
WS106	None Supplied	W	2211478	c	pH at 20oC in water (automated)	L099-PL	c
WS161	None Supplied	W	2211477	c	pH at 20oC in water (automated)	L099-PL	c

APPENDIX VII
ORIGIN OF TIER I GENERIC ASSESSMENT CRITERIA

CONSTITUENT	ORIGIN OF RISK ASSESSMENT VALUE
Arsenic	2014 LQM/CIEH S4ULs
Cadmium	2014 LQM/CIEH S4ULs
Chromium	2014 LQM/CIEH S4ULs
Lead	2014 LQM/CIEH S4ULs
Mercury	2014 LQM/CIEH S4ULs – methylmercury
Nickel	2014 LQM/CIEH S4ULs
Selenium	2014 LQM/CIEH S4ULs
Copper	2014 LQM/CIEH S4ULs
Zinc	2014 LQM/CIEH S4ULs
Cyanide – Total	2014 LQM/CIEH S4ULs
Phenols – Total	2014 LQM/CIEH S4ULs
Naphthalene	General assessment criteria (GAC) developed by CIEH/LQM Suitable 4 Use Levels with supporting data from SR3, SR7 and existing Tox report where applicable. 1% SOM.
Acenaphthylene	
Acenaphthene	
Fluorene	
Phenanthrene	
Anthracene	
Fluoranthene	
Pyrene	
Benzo(a)Anthracene	
Chrysene	
Benzo(b/k)Fluoranthene [iii]	
Benzo(a)Pyrene	
Indeno(123-cd)Pyrene	
Dibenzo(a,h)Anthracene	
Benzo(ghi)Perylene	
TPH C_5-C_6 (aliphatic)	
TPH C_6-C_8 (aliphatic)	
TPH C_8-C_{10} (aliphatic)	
TPH C_{10}-C_{12} (aliphatic)	
TPH C_{12}-C_{16} (aromatic)	
TPH C_{16}-C_{21} (aromatic)	
TPH C_{21}-C_{35} (aromatic)	

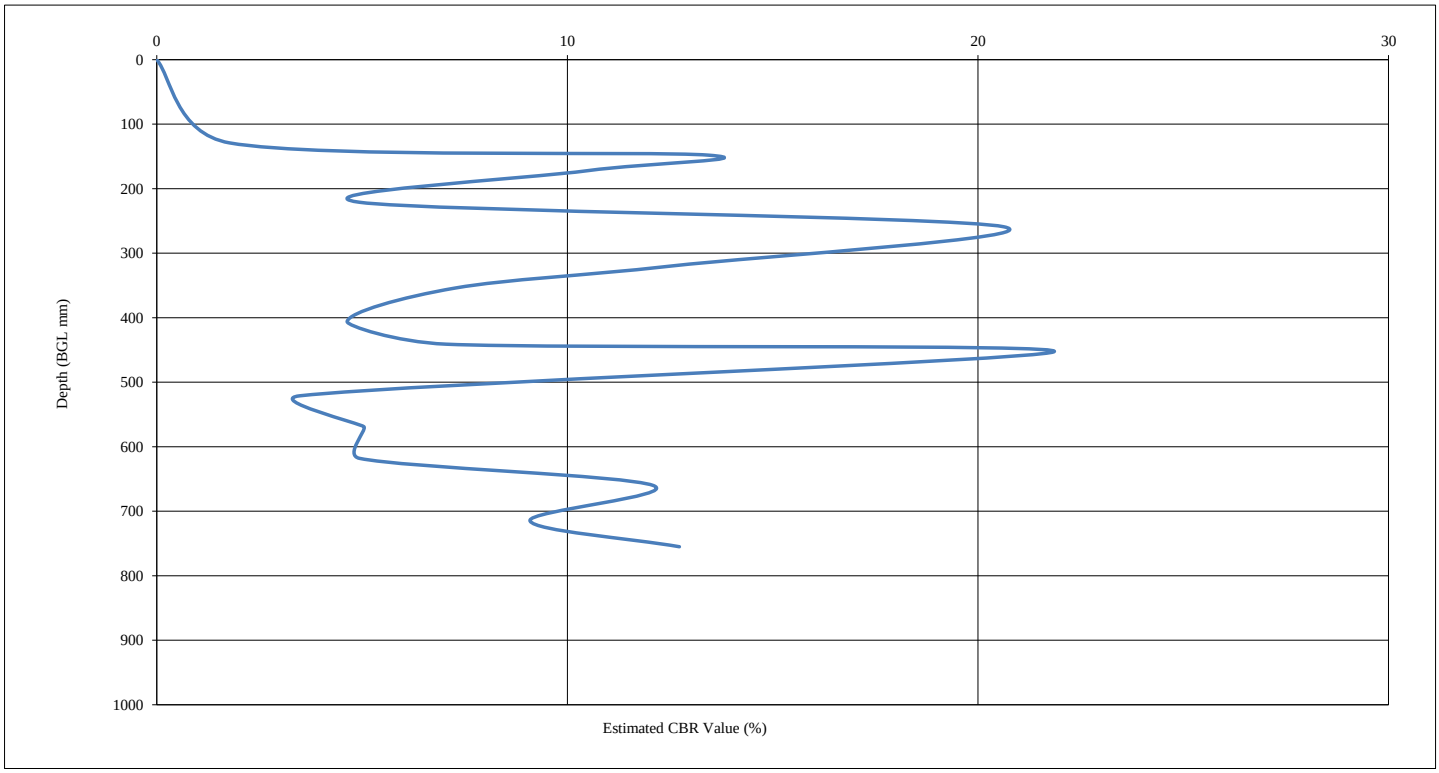
APPENDIX VIII
DYNAMIC CONE PENETROMETER TEST CERTIFICATES

Determination of Dynamic Cone Penetrometer - Estimated CBR Value (%)

In Accordance with TRL Report PR/INT/277/04

Site Name	Cherryfield Drive	**Test Date:**	07/02/2022
Site Ref	15-280	**Test Location:**	Cherryfield Drive
Test No.:	DCP146	**Easting:**	0
Initial Depth (mm BGL):	0	**Northing:**	0
Final Depth (mm BGL):	755		

Estimated California Bearing Ratio Graph



Start Depth (mm) BGL	Finish Depth (mm) BGL	No. of Blows	Blows Per Layer	DCP mm/Blows	Ave Estimated Layer (CBR %)
0	129	1	1	129.00	1.77
129	521	15	14	28.00	8.92
521	755	23	8	29.25	8.52

Comments

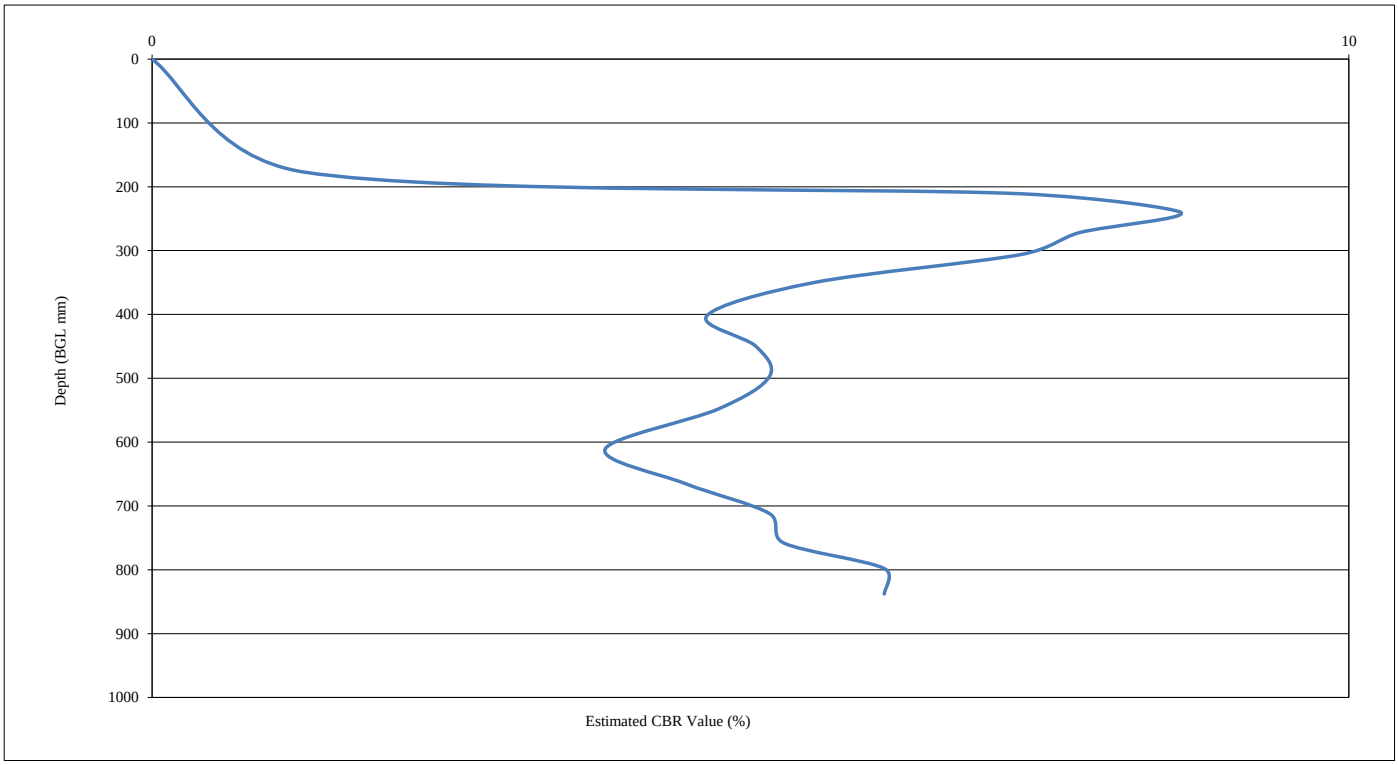
Site Engineer:	Checked By:	Date:	Approved By:	Date:
JJ	NG	08.02.2022	BH	19/04/2022

Determination of Dynamic Cone Penetrometer - Estimated CBR Value (%)

In Accordance with TRL Report PR/INT/277/04

Site Name	Cherryfield Drive	**Test Date:**	25/02/2022
Site Ref	15-280	**Test Location:**	Cherryfield Drive
Test No.:	DCP101	**Easting:**	0
Initial Depth (mm BGL):	0	**Northing:**	0
Final Depth (mm BGL):	838		

Estimated California Bearing Ratio Graph



Start Depth (mm) BGL	Finish Depth (mm) BGL	No. of Blows	Blows Per Layer	DCP mm/Blows	Ave Estimated Layer (CBR %)
0	177	1	1	177.00	1.27
177	402	7	6	37.50	6.55
402	611	11	4	52.25	4.61
611	838	16	5	45.40	5.35

Comments

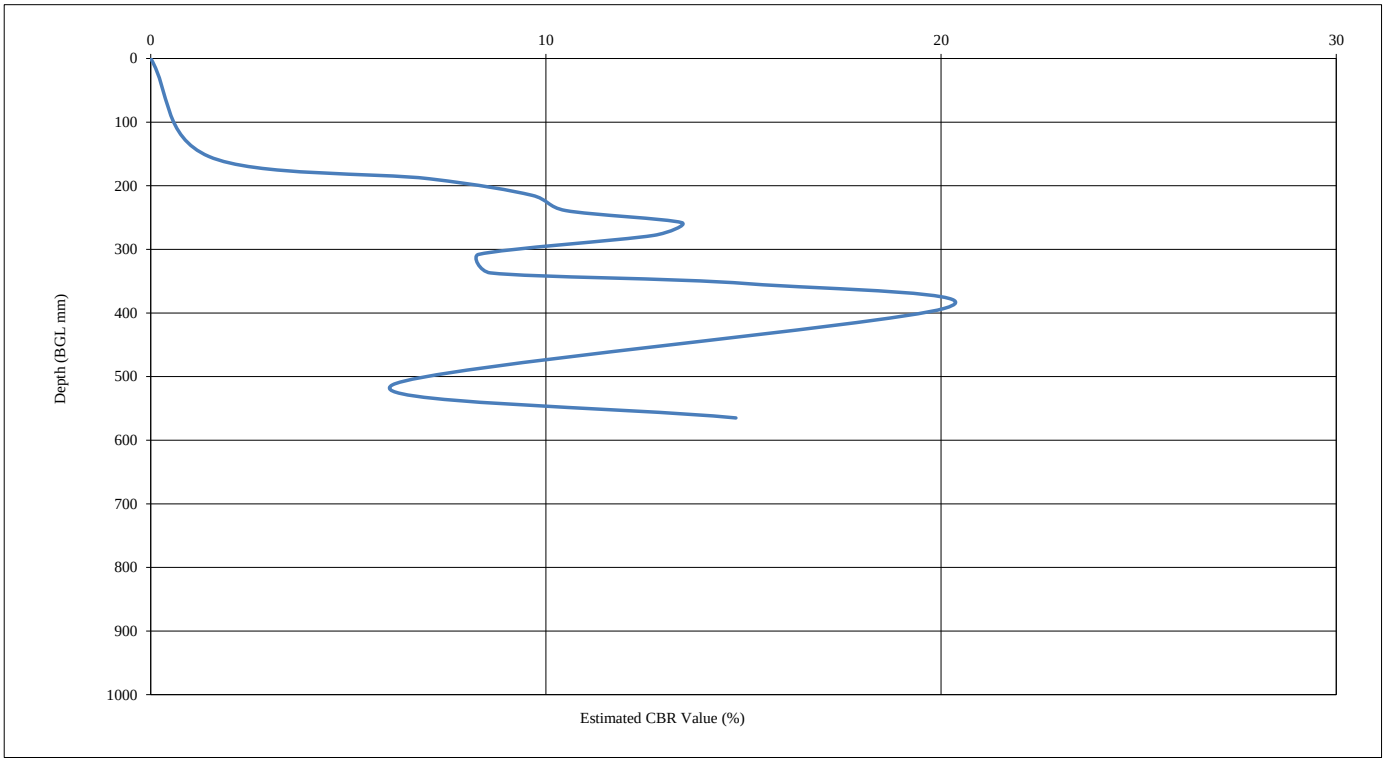
Site Engineer:	Checked By:	Date:	Approved By:	Date:
RW	NG	07.02.2022	BH	19/04/2022

Determination of Dynamic Cone Penetrometer - Estimated CBR Value (%)

In Accordance with TRL Report PR/INT/277/04

Site Name	Cherryfield Drive	**Test Date:**	25/02/2022
Site Ref	15-280	**Test Location:**	Cherryfield Drive
Test No.:	DCP102	**Easting:**	0
Initial Depth (mm BGL):	0	**Northing:**	0
Final Depth (mm BGL):	565		

Estimated California Bearing Ratio Graph



Start Depth (mm) BGL	Finish Depth (mm) BGL	No. of Blows	Blows Per Layer	DCP mm/Blows	Ave Estimated Layer (CBR %)
0	189	2	2	94.50	2.47
189	513	15	13	24.92	10.09
513	565	18	3	17.33	14.81

Comments

Terminated on obstruction

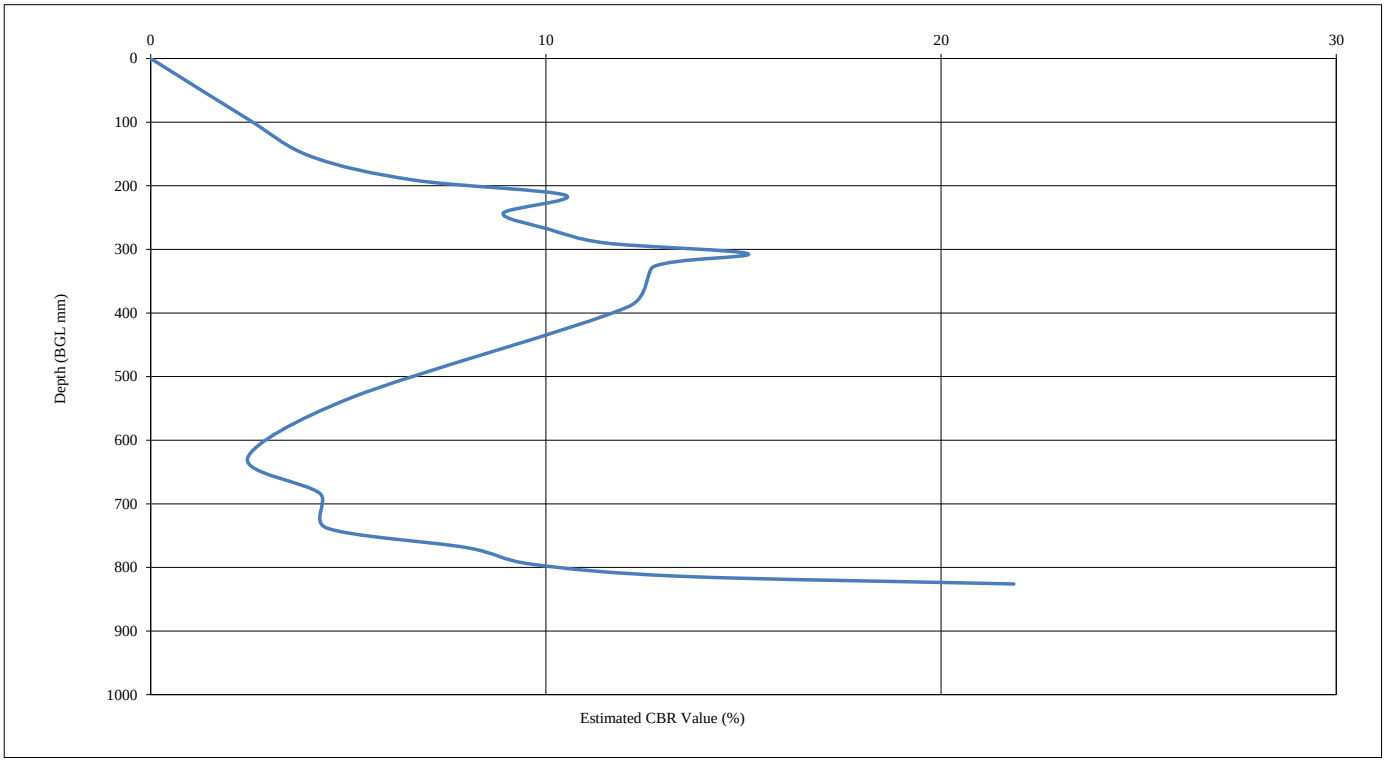
Site Engineer:	Checked By:	Date:	Approved By:	Date:
RW	NG	07.02.2022	BH	19/04/2022

Determination of Dynamic Cone Penetrometer - Estimated CBR Value (%)

In Accordance with TRL Report PR/INT/277/04

Site Name	Cherryfield Drive	**Test Date:**	25/02/2022
Site Ref	15-280	**Test Location:**	Cherryfield Drive
Test No.:	DCP103	**Easting:**	0
Initial Depth (mm BGL):	0	**Northing:**	0
Final Depth (mm BGL):	826		

Estimated California Bearing Ratio Graph



Start Depth (mm) BGL	Finish Depth (mm) BGL	No. of Blows	Blows Per Layer	DCP mm/Blows	Ave Estimated Layer (CBR %)
0	154	2	2	77.00	3.06
154	243	5	3	29.67	8.39
243	628	16	11	35.00	7.05
628	826	22	6	33.00	7.50

Comments

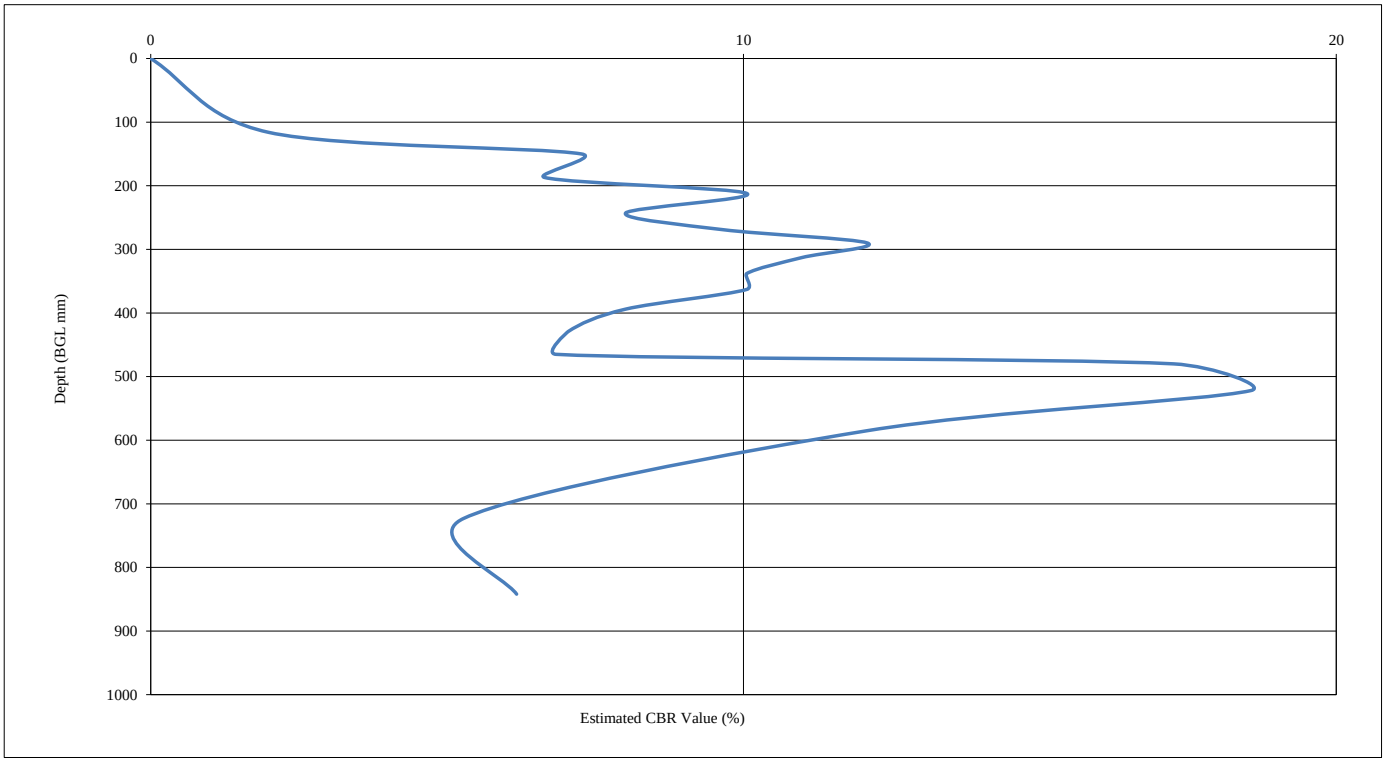
Site Engineer:	Checked By:	Date:	Approved By:	Date:
RW	NG	07.02.2022	BH	19/04/2022

Determination of Dynamic Cone Penetrometer - Estimated CBR Value (%)

In Accordance with TRL Report PR/INT/277/04

Site Name	Cherryfield Drive	**Test Date:**	25/01/2022
Site Ref	15-280	**Test Location:**	Cherryfield Drive
Test No.:	DCP104	**Easting:**	0
Initial Depth (mm BGL):	0	**Northing:**	0
Final Depth (mm BGL):	842		

Estimated California Bearing Ratio Graph



Start Depth (mm) BGL	Finish Depth (mm) BGL	No. of Blows	Blows Per Layer	DCP mm/Blows	Ave Estimated Layer (CBR %)
0	187	3	3	62.33	3.83
187	243	5	2	28.00	8.92
243	465	13	8	27.75	9.00
465	723	23	10	25.80	9.73
723	842	26	3	39.67	6.17

Comments

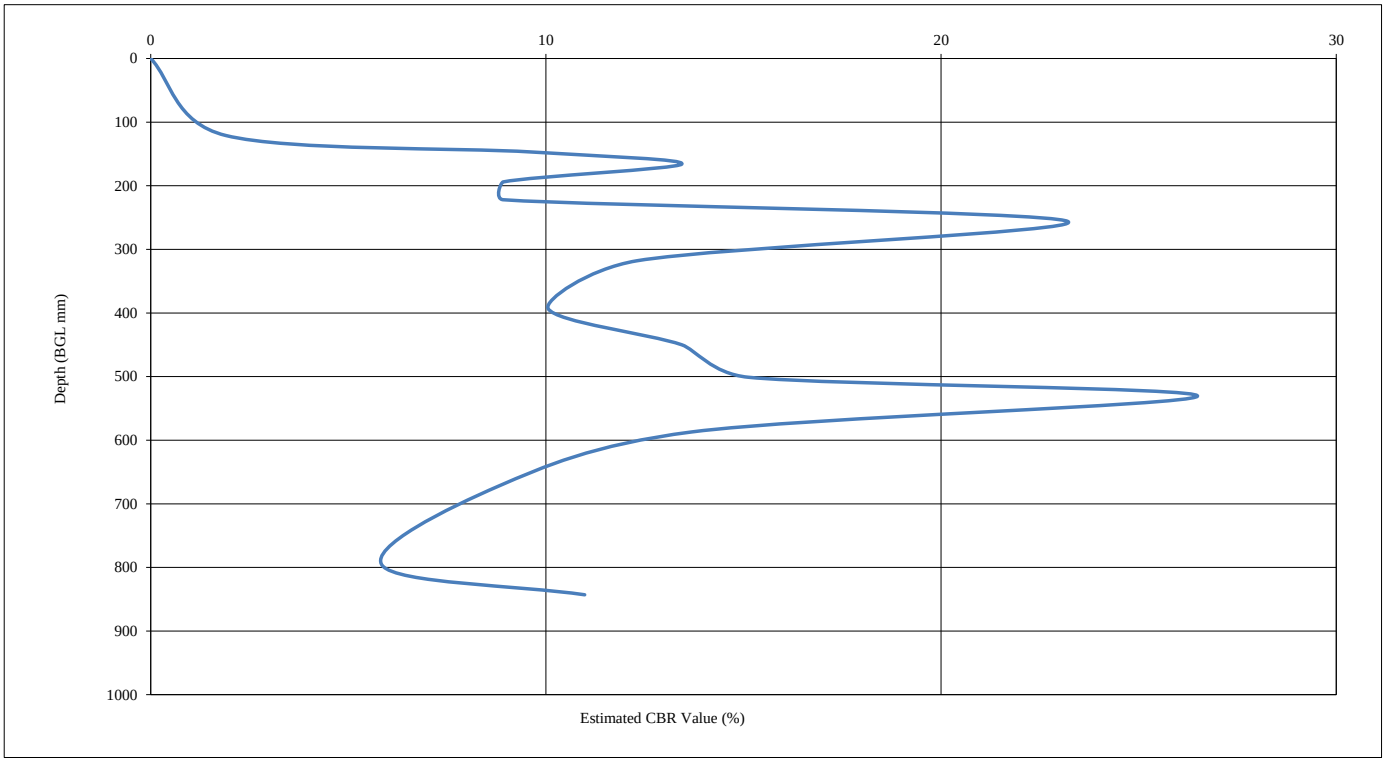
Site Engineer:	Checked By:	Date:	Approved By:	Date:
RW	NG	07.02.2022		

Determination of Dynamic Cone Penetrometer - Estimated CBR Value (%)

In Accordance with TRL Report PR/INT/277/04

Site Name	Cherryfield Drive	**Test Date:**	25/01/2022
Site Ref	15-280	**Test Location:**	Cherryfield Drive
Test No.:	DCP105	**Easting:**	0
Initial Depth (mm BGL):	0	**Northing:**	0
Final Depth (mm BGL):	843		

Estimated California Bearing Ratio Graph



Start Depth (mm) BGL	Finish Depth (mm) BGL	No. of Blows	Blows Per Layer	DCP mm/Blows	Ave Estimated Layer (CBR %)
0	121	1	1	121.00	1.90
121	222	5	4	25.25	9.95
222	393	14	9	19.00	13.44
393	797	32	18	22.44	11.27
797	843	34	2	23.00	10.98

Comments

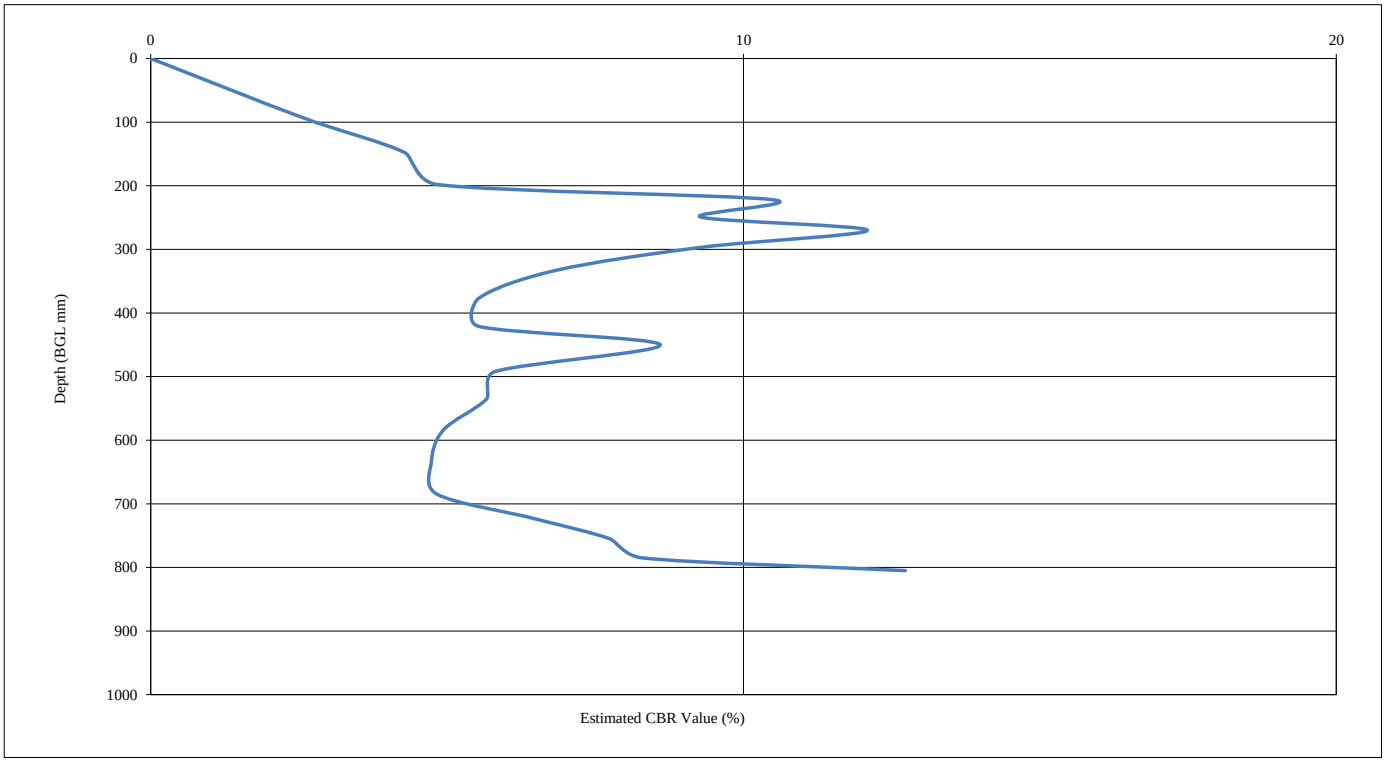
Site Engineer:	Checked By:	Date:	Approved By:	Date:
RW	NG	07.02.2022	BH	19/04/2022

Determination of Dynamic Cone Penetrometer - Estimated CBR Value (%)

In Accordance with TRL Report PR/INT/277/04

Site Name	Cherryfield Drive	**Test Date:**	25/01/2022
Site Ref	15-280	**Test Location:**	Cherryfield Drive
Test No.:	DCP106	**Easting:**	0
Initial Depth (mm BGL):	0	**Northing:**	0
Final Depth (mm BGL):	805		

Estimated California Bearing Ratio Graph



Start Depth (mm) BGL	Finish Depth (mm) BGL	No. of Blows	Blows Per Layer	DCP mm/Blows	Ave Estimated Layer (CBR %)
0	198	3	3	66.00	3.60
198	377	9	6	29.83	8.34
377	535	13	4	39.50	6.20
535	805	20	7	38.57	6.36

Comments

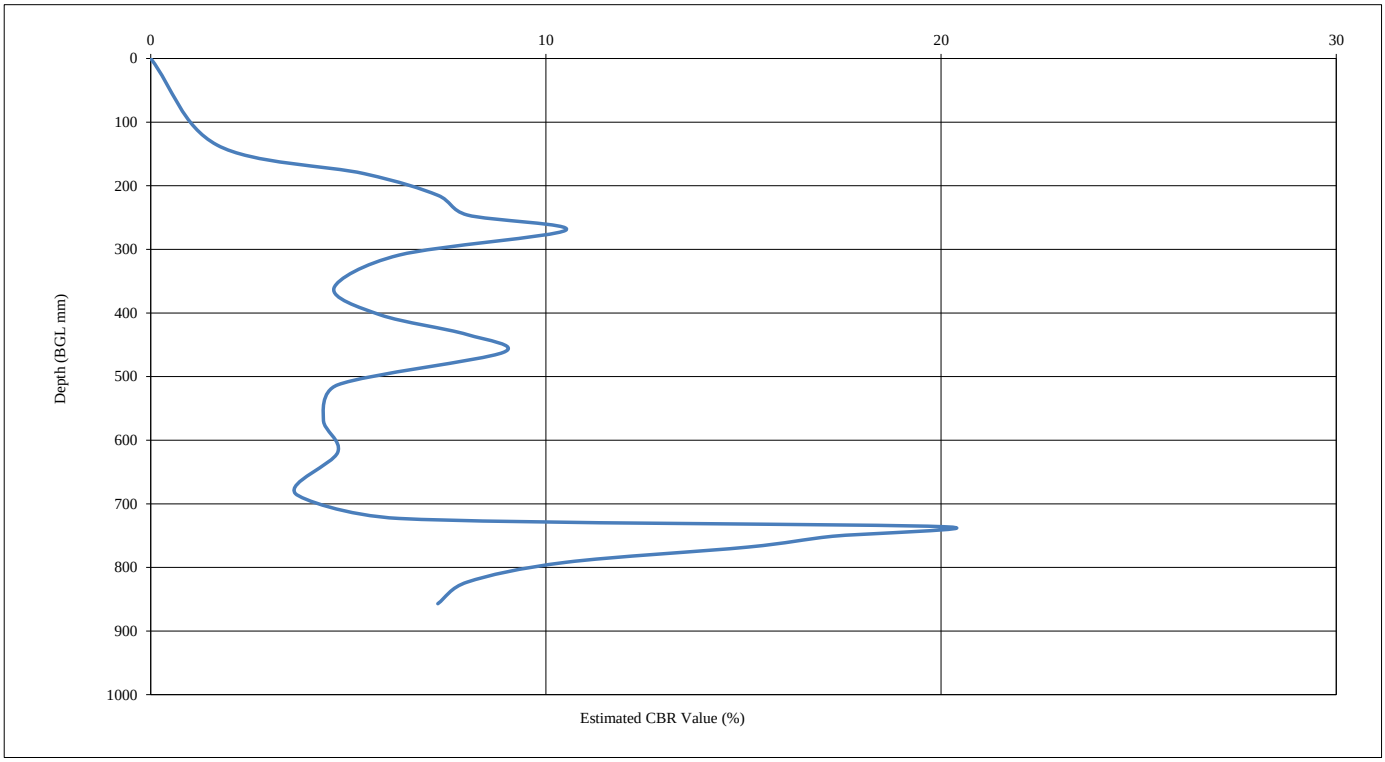
Site Engineer:	Checked By:	Date:	Approved By:	Date:
RW	NG	07.02.2022	BH	19/04/2022

Determination of Dynamic Cone Penetrometer - Estimated CBR Value (%)

In Accordance with TRL Report PR/INT/277/04

Site Name	Cherryfield Drive	**Test Date:**	25/01/2022
Site Ref	15-280	**Test Location:**	Cherryfield Drive
Test No.:	DCP107	**Easting:**	0
Initial Depth (mm BGL):	0	**Northing:**	0
Final Depth (mm BGL):	857		

Estimated California Bearing Ratio Graph



Start Depth (mm) BGL	Finish Depth (mm) BGL	No. of Blows	Blows Per Layer	DCP mm/Blows	Ave Estimated Layer (CBR %)
0	136	1	1	136.00	1.68
136	361	7	6	37.50	6.55
361	568	12	5	41.40	5.90
568	684	14	2	58.00	4.13
684	857	21	7	24.71	10.18

Comments

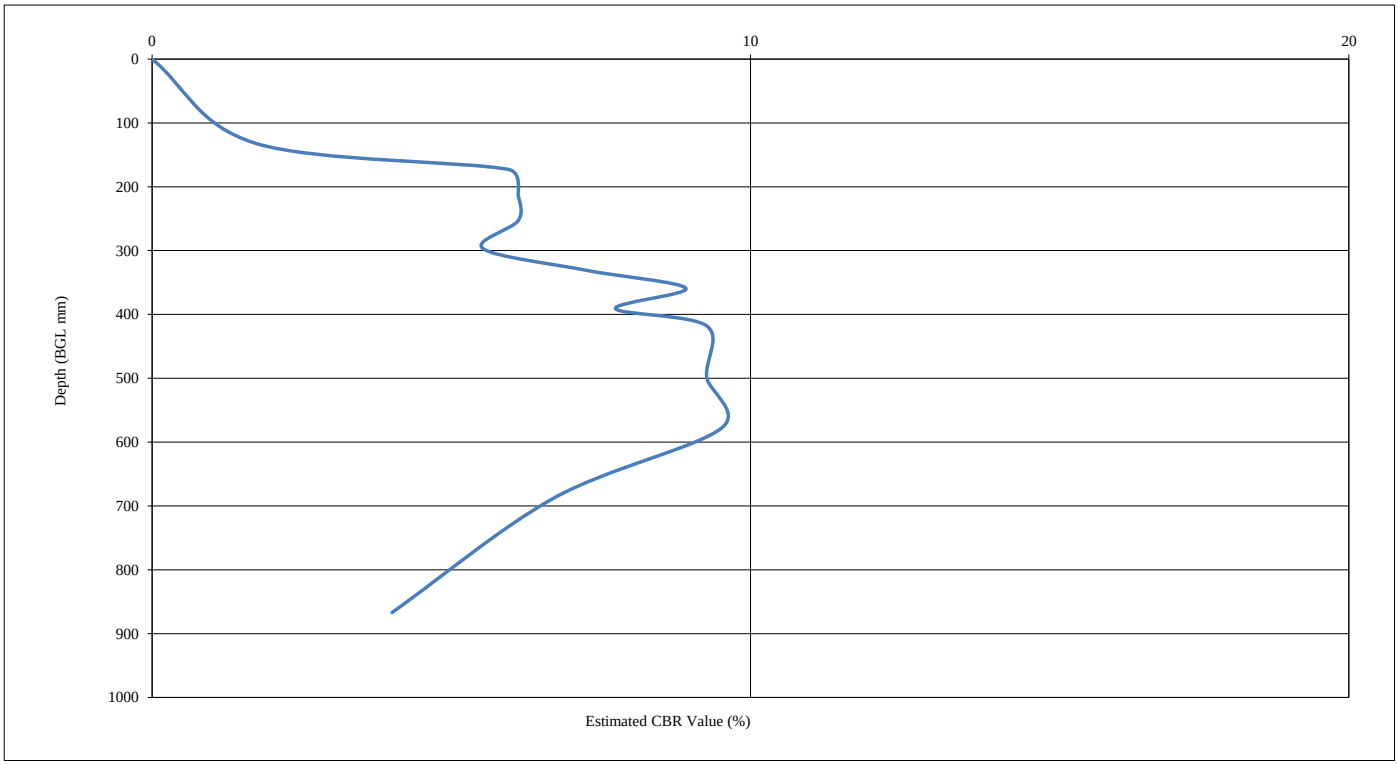
Site Engineer:	Checked By:	Date:	Approved By:	Date:
RW	NG	07.02.2022		

Determination of Dynamic Cone Penetrometer - Estimated CBR Value (%)

In Accordance with TRL Report PR/INT/277/04

Site Name	Cherryfield Drive	**Test Date:**	25/01/2022
Site Ref	15-280	**Test Location:**	Cherryfield Drive
Test No.:	DCP108	**Easting:**	0
Initial Depth (mm BGL):	0	**Northing:**	0
Final Depth (mm BGL):	867		

Estimated California Bearing Ratio Graph



Start Depth (mm) BGL	Finish Depth (mm) BGL	No. of Blows	Blows Per Layer	DCP mm/Blows	Ave Estimated Layer (CBR %)
0	132	1	1	132.00	1.73
132	297	5	4	41.25	5.92
297	391	8	3	31.33	7.92
391	867	21	13	36.62	6.72

Comments

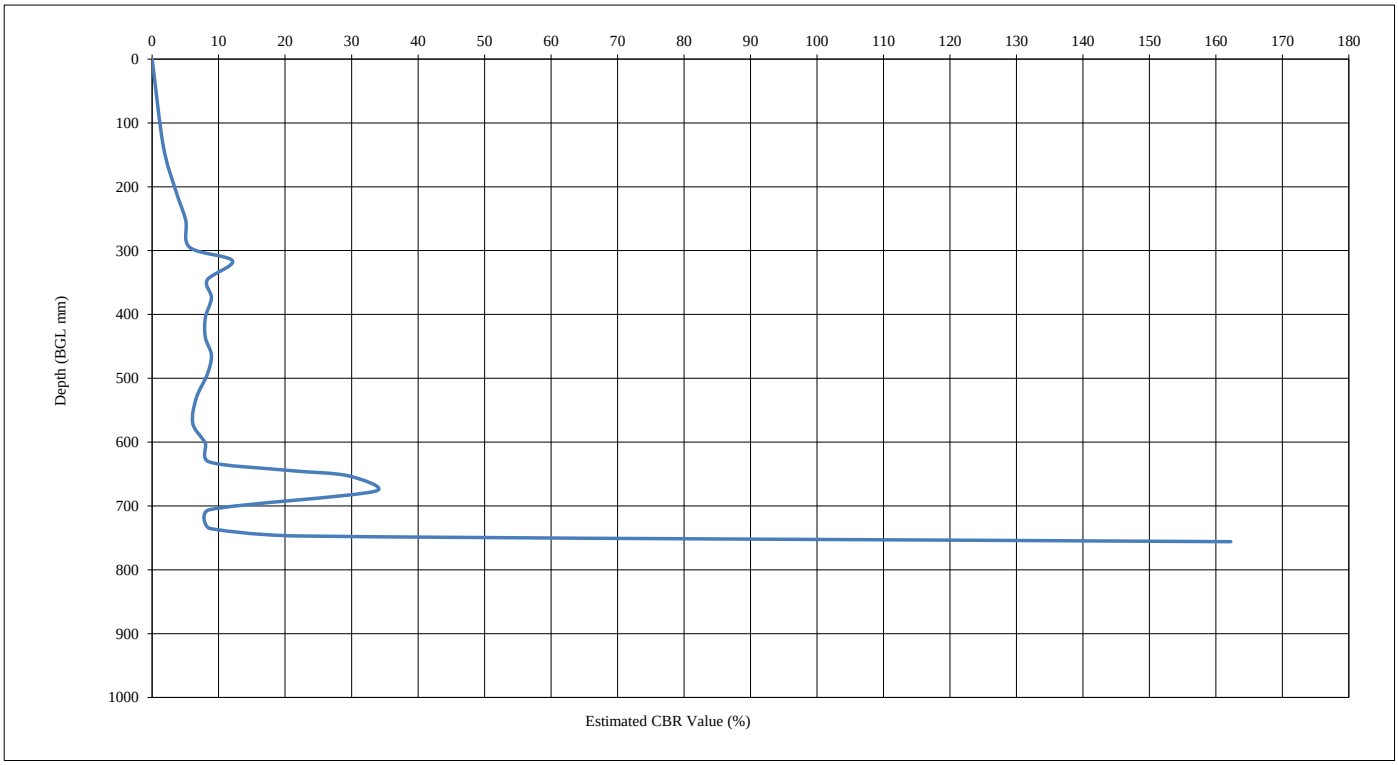
Site Engineer:	Checked By:	Date:	Approved By:	Date:
RW	NG	07.02.2022	BH	19/04/2022

Determination of Dynamic Cone Penetrometer - Estimated CBR Value (%)

In Accordance with TRL Report PR/INT/277/04

Site Name	Cherryfield Drive	**Test Date:**	25/01/2022
Site Ref	15-280	**Test Location:**	Cherryfield Drive
Test No.:	DCP109	**Easting:**	0
Initial Depth (mm BGL):	0	**Northing:**	0
Final Depth (mm BGL):	756		

Estimated California Bearing Ratio Graph



Start Depth (mm) BGL	Finish Depth (mm) BGL	No. of Blows	Blows Per Layer	DCP mm/Blows	Ave Estimated Layer (CBR %)
0	295	4	4	73.75	3.20
295	346	6	2	25.50	9.85
346	631	15	9	31.67	7.83
631	735	22	7	14.86	17.43
735	756	28	6	3.50	80.34

Comments

Terminated on obstruction

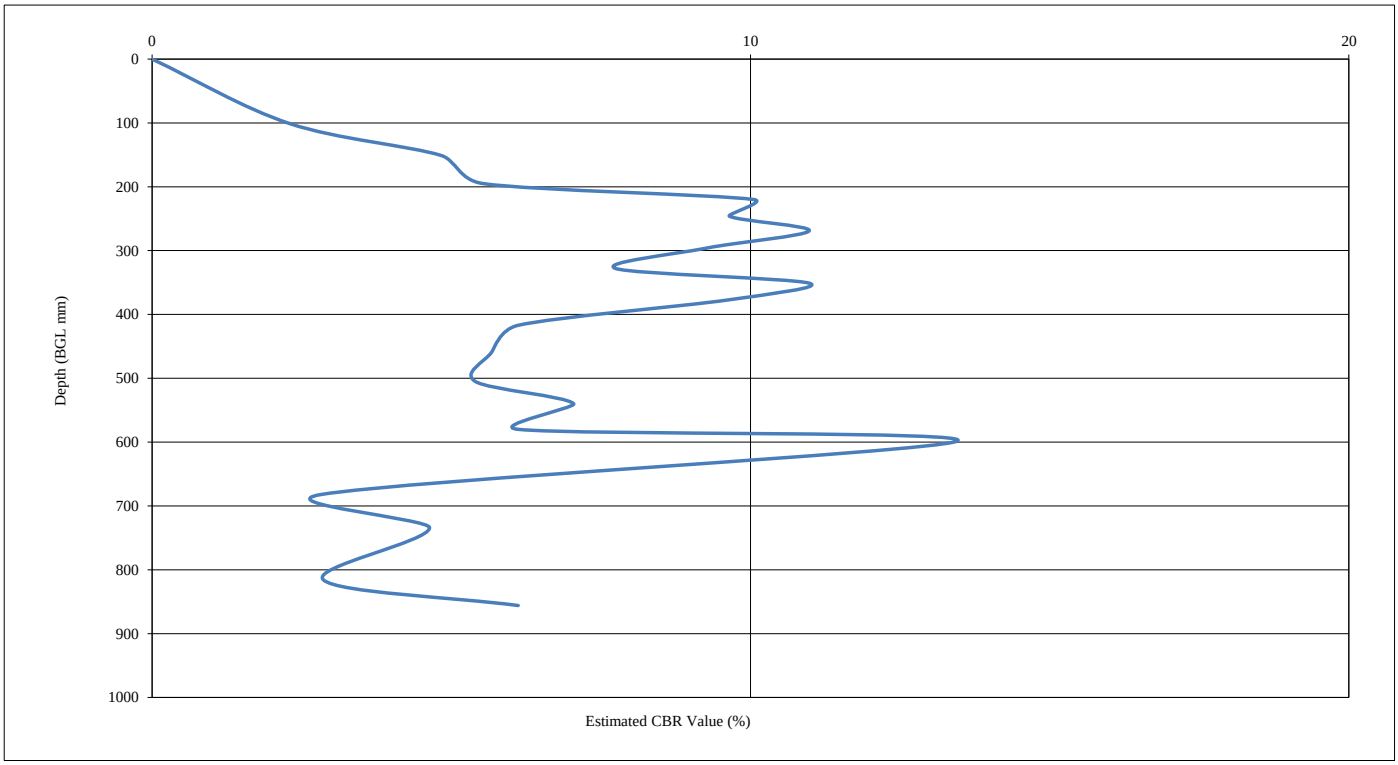
Site Engineer:	Checked By:	Date:	Approved By:	Date:
RW	NG	07.02.2022	BH	19/04/2022

Determination of Dynamic Cone Penetrometer - Estimated CBR Value (%)

In Accordance with TRL Report PR/INT/277/04

Site Name	Cherryfield Drive	**Test Date:**	25/01/2022
Site Ref	15-280	**Test Location:**	Cherryfield Drive
Test No.:	DCP110	**Easting:**	0
Initial Depth (mm BGL):	0	**Northing:**	0
Final Depth (mm BGL):	856		

Estimated California Bearing Ratio Graph



Start Depth (mm) BGL	Finish Depth (mm) BGL	No. of Blows	Blows Per Layer	DCP mm/Blows	Ave Estimated Layer (CBR %)
0	195	3	3	65.00	3.66
195	580	15	12	32.08	7.72
580	682	17	2	51.00	4.73
682	856	20	3	58.00	4.13

Comments

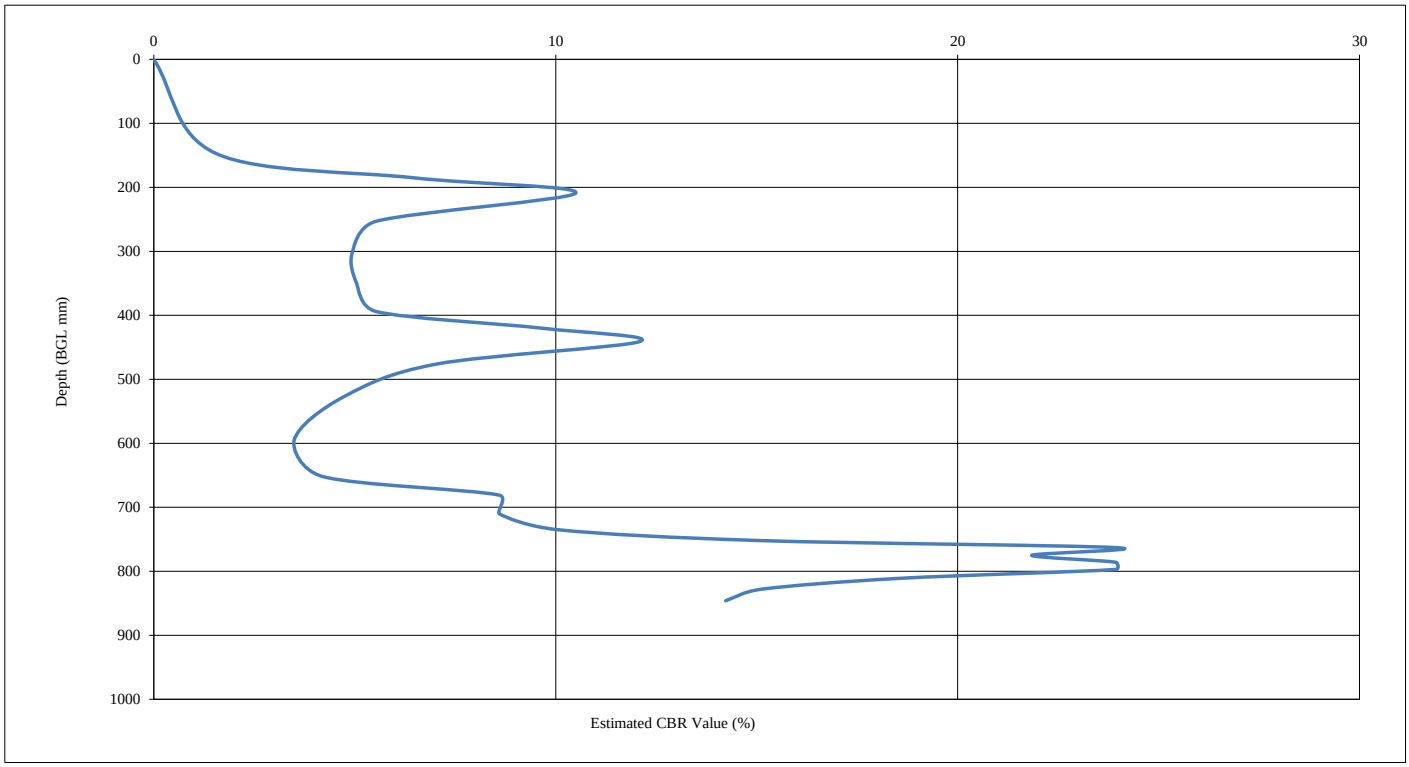
Site Engineer:	Checked By:	Date:	Approved By:	Date:
RW	NG	07.02.2022	BH	19/04/2022

Determination of Dynamic Cone Penetrometer - Estimated CBR Value (%)

In Accordance with TRL Report PR/INT/277/04

Site Name	Cherryfield Drive	**Test Date:**	25/01/2022
Site Ref	15-280	**Test Location:**	Cherryfield Drive
Test No.:	DCP111	**Easting:**	0
Initial Depth (mm BGL):	0	**Northing:**	0
Final Depth (mm BGL):	846		

Estimated California Bearing Ratio Graph



Start Depth (mm) BGL	Finish Depth (mm) BGL	No. of Blows	Blows Per Layer	DCP mm/Blows	Ave Estimated Layer (CBR %)
0	147	1	1	147.00	1.55
147	350	6	5	40.60	6.02
350	595	12	6	40.83	5.99
595	710	15	3	38.33	6.40
710	846	24	9	15.11	17.12

Comments

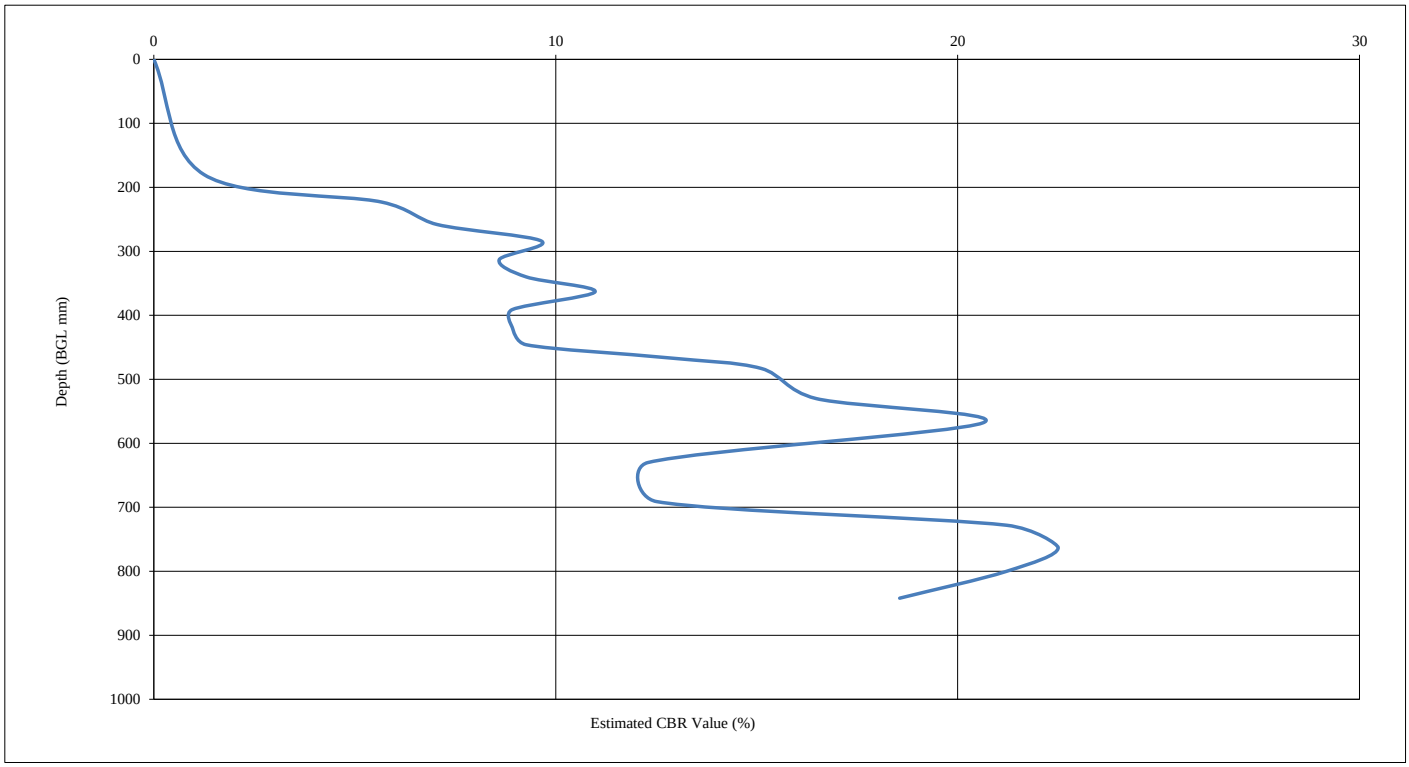
Site Engineer:	Checked By:	Date:	Approved By:	Date:
RW	NG	07.02.2022		

Determination of Dynamic Cone Penetrometer - Estimated CBR Value (%)

In Accordance with TRL Report PR/INT/277/04

Site Name	Cherryfield Drive	**Test Date:**	25/01/2022
Site Ref	15-280	**Test Location:**	Cherryfield Drive
Test No.:	DCP112	**Easting:**	0
Initial Depth (mm BGL):	0	**Northing:**	0
Final Depth (mm BGL):	842		

Estimated California Bearing Ratio Graph



Start Depth (mm) BGL	Finish Depth (mm) BGL	No. of Blows	Blows Per Layer	DCP mm/Blows	Ave Estimated Layer (CBR %)
0	223	2	2	111.50	2.07
223	446	10	8	27.88	8.96
446	691	24	14	17.50	14.66
691	842	36	12	12.58	20.77

Comments

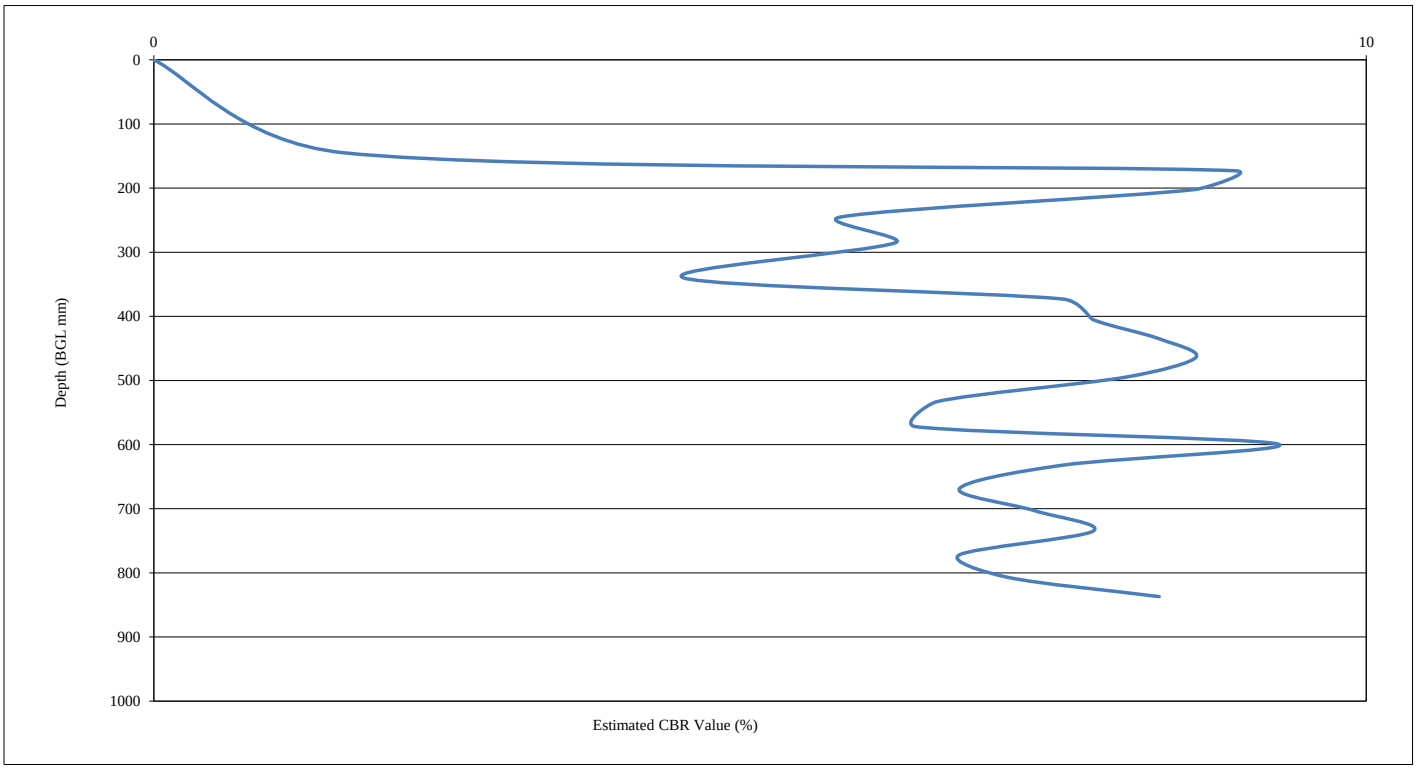
Site Engineer:	Checked By:	Date:	Approved By:	Date:
RW	NG	07.02.2022	BH	19/04/2022

Determination of Dynamic Cone Penetrometer - Estimated CBR Value (%)

In Accordance with TRL Report PR/INT/277/04

Site Name	Cherryfield Drive	**Test Date:**	25/01/2022
Site Ref	15-280	**Test Location:**	Cherryfield Drive
Test No.:	DCP113	**Easting:**	0
Initial Depth (mm BGL):	0	**Northing:**	0
Final Depth (mm BGL):	837		

Estimated California Bearing Ratio Graph



Start Depth (mm) BGL	Finish Depth (mm) BGL	No. of Blows	Blows Per Layer	DCP mm/Blows	Ave Estimated Layer (CBR %)
0	145	1	1	145.00	1.57
145	340	6	5	39.00	6.28
340	572	13	7	33.14	7.46
572	669	16	3	32.33	7.66
669	837	21	5	33.60	7.36

Comments

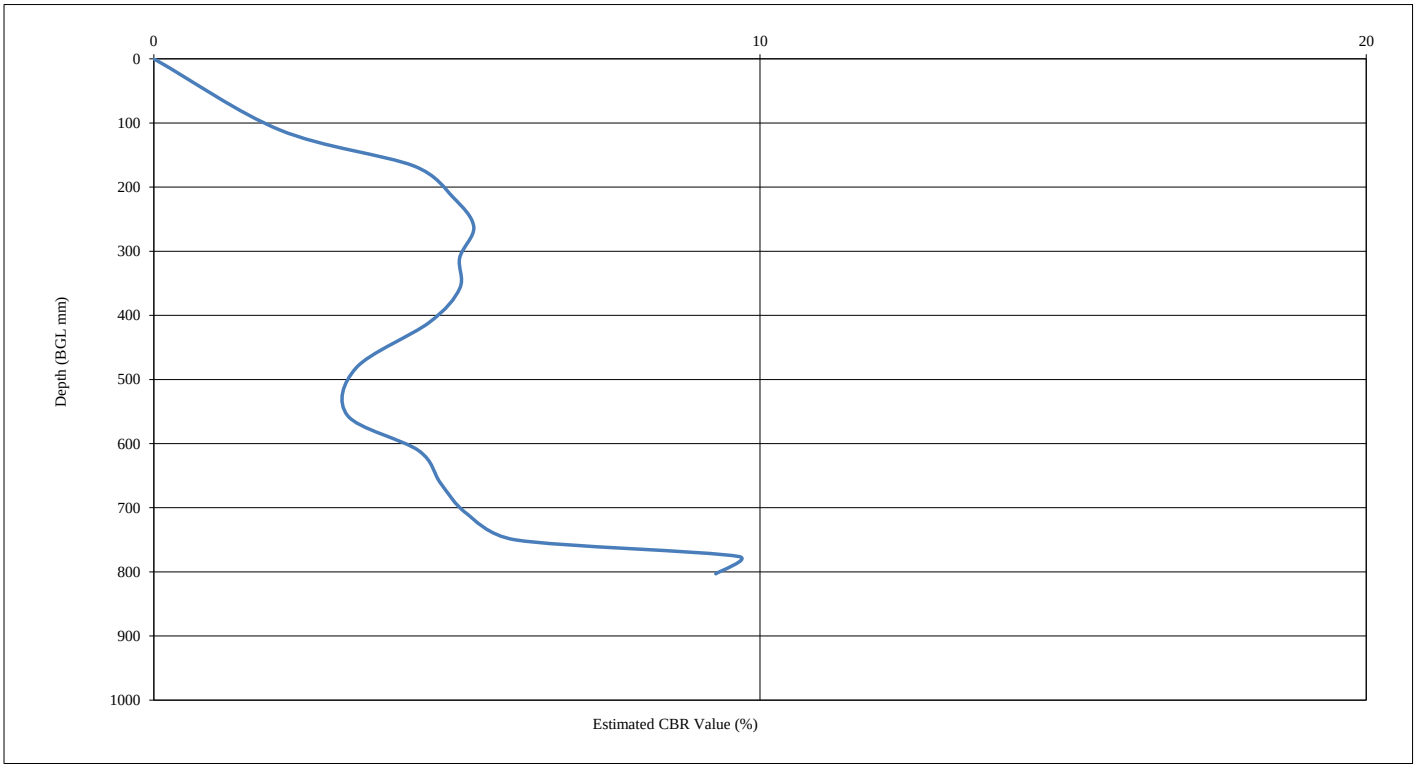
Site Engineer:	Checked By:	Date:	Approved By:	Date:
RW	NG	07.02.2022	BH	19/04/2021

Determination of Dynamic Cone Penetrometer - Estimated CBR Value (%)

In Accordance with TRL Report PR/INT/277/04

Site Name	Cherryfield Drive	**Test Date:**	25/01/2022
Site Ref	15-280	**Test Location:**	Cherryfield Drive
Test No.:	DCP114	**Easting:**	0
Initial Depth (mm BGL):	0	**Northing:**	0
Final Depth (mm BGL):	803		

Estimated California Bearing Ratio Graph



Start Depth (mm) BGL	Finish Depth (mm) BGL	No. of Blows	Blows Per Layer	DCP mm/Blows	Ave Estimated Layer (CBR %)
0	111	1	1	111.00	2.08
111	556	9	8	55.63	4.32
556	750	13	4	48.50	4.99
750	803	15	2	26.50	9.45

Comments

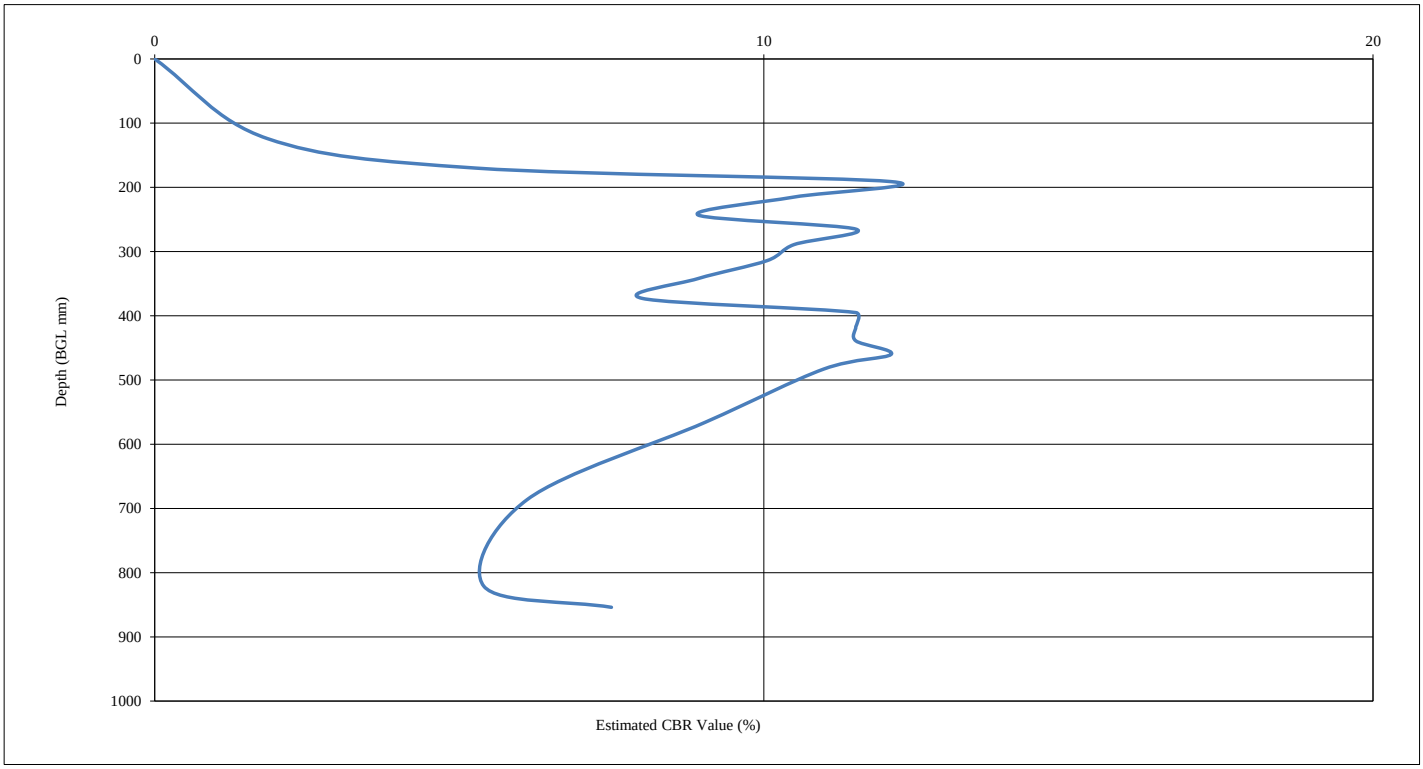
Site Engineer:	Checked By:	Date:	Approved By:	Date:
RW	NG	07.02.2022	BH	19/04/2022

Determination of Dynamic Cone Penetrometer - Estimated CBR Value (%)

In Accordance with TRL Report PR/INT/277/04

Site Name	Cherryfield Drive	**Test Date:**	25/01/2022
Site Ref	15-280	**Test Location:**	Cherryfield Drive
Test No.:	DCP115	**Easting:**	0
Initial Depth (mm BGL):	0	**Northing:**	0
Final Depth (mm BGL):	854		

Estimated California Bearing Ratio Graph



Start Depth (mm) BGL	Finish Depth (mm) BGL	No. of Blows	Blows Per Layer	DCP mm/Blows	Ave Estimated Layer (CBR %)
0	124	1	1	124.00	1.85
124	243	5	4	29.75	8.37
243	373	10	5	26.00	9.65
373	821	24	14	32.00	7.75
821	854	25	1	33.00	7.50

Comments

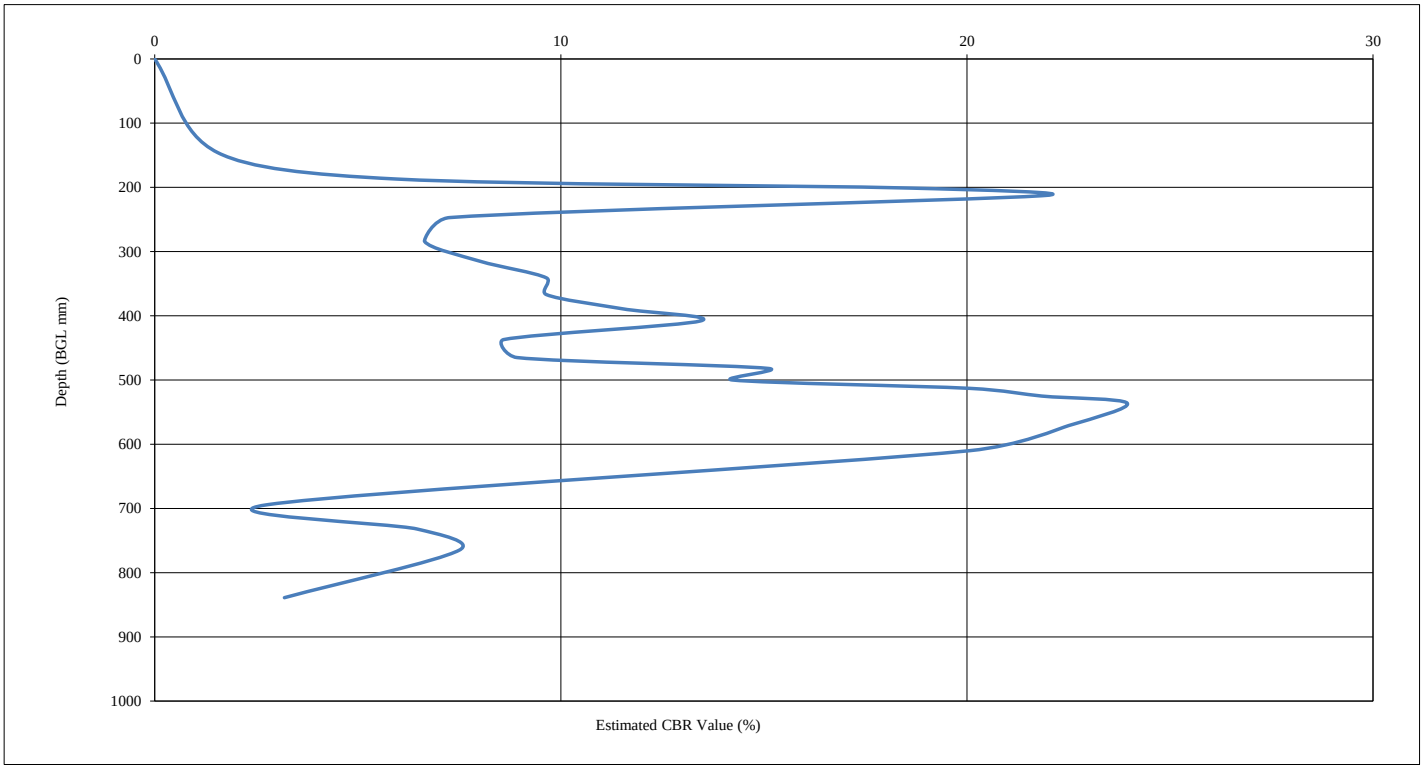
Site Engineer:	Checked By:	Date:	Approved By:	Date:
RW	NG	07.02.2022	BH	19/04/2022

Determination of Dynamic Cone Penetrometer - Estimated CBR Value (%)

In Accordance with TRL Report PR/INT/277/04

Site Name	Cherryfield Drive	**Test Date:**	25/01/2022
Site Ref	15-280	**Test Location:**	Cherryfield Drive
Test No.:	DCP116	**Easting:**	341036
Initial Depth (mm BGL):	0	**Northing:**	398360
Final Depth (mm BGL):	839		

Estimated California Bearing Ratio Graph



Start Depth (mm) BGL	Finish Depth (mm) BGL	No. of Blows	Blows Per Layer	DCP mm/Blows	Ave Estimated Layer (CBR %)
0	187	2	2	93.50	2.49
187	284	6	4	24.25	10.38
284	437	12	6	25.50	9.85
437	694	25	13	19.77	12.89
694	839	28	3	48.33	5.01

Comments

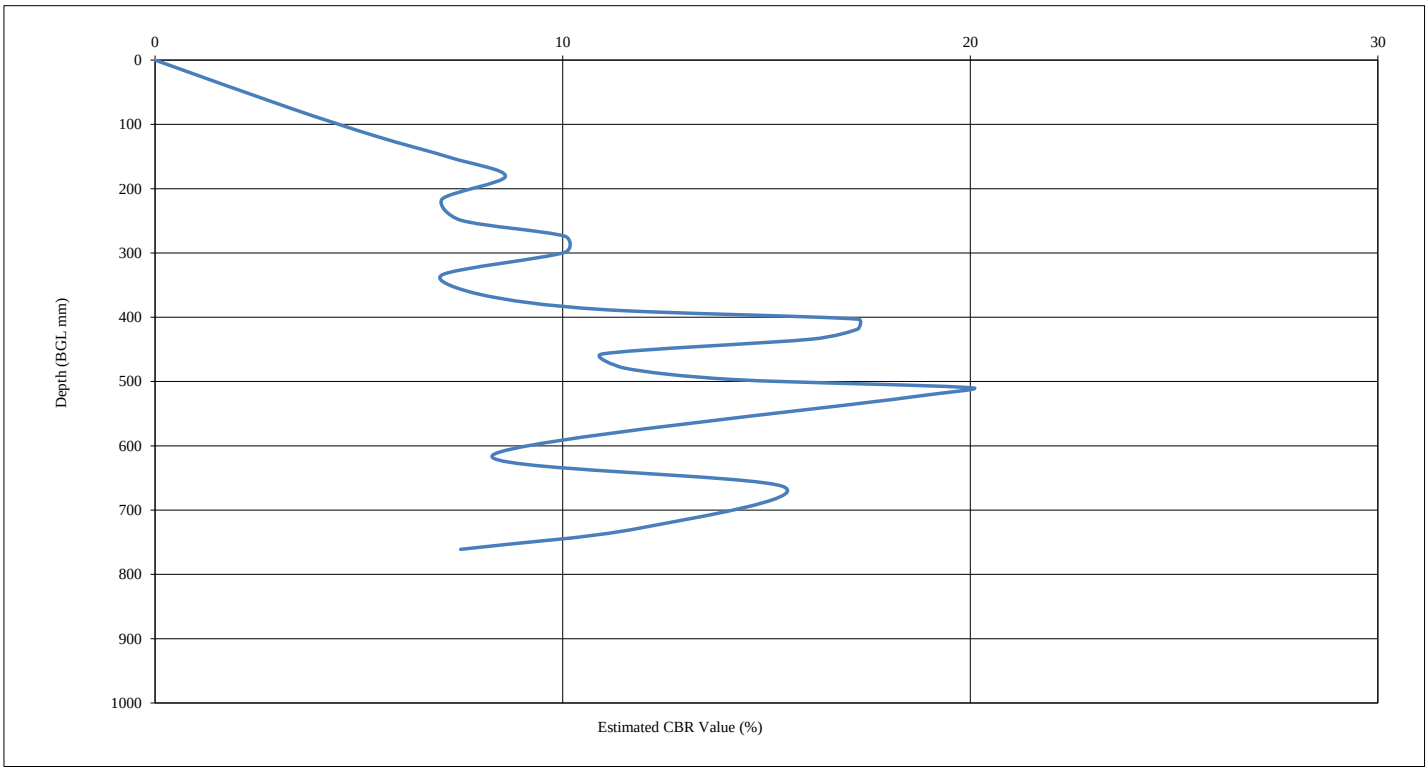
Site Engineer:	Checked By:	Date:	Approved By:	Date:
RW	NG	07.02.2022	BH	19/04/2022

Determination of Dynamic Cone Penetrometer - Estimated CBR Value (%)

In Accordance with TRL Report PR/INT/277/04

Site Name	Cherryfield Drive	**Test Date:**	25/01/2022
Site Ref	15-280	**Test Location:**	Cherryfield Drive
Test No.:	DCP117	**Easting:**	0
Initial Depth (mm BGL):	0	**Northing:**	0
Final Depth (mm BGL):	761		

Estimated California Bearing Ratio Graph



Start Depth (mm) BGL	Finish Depth (mm) BGL	No. of Blows	Blows Per Layer	DCP mm/Blows	Ave Estimated Layer (CBR %)
0	249	6	6	41.50	5.88
249	334	9	3	28.33	8.81
334	614	22	13	21.54	11.77
614	761	29	7	21.00	12.09

Comments

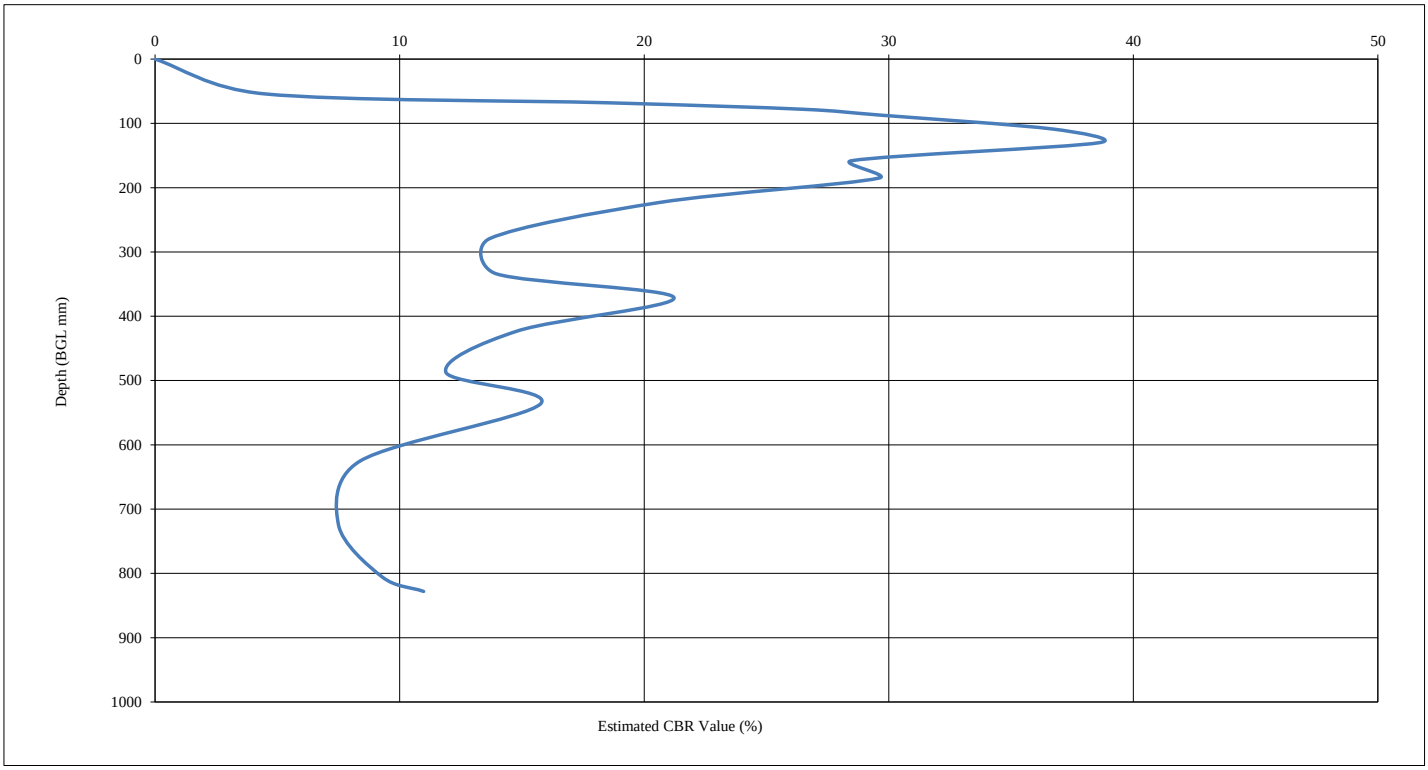
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RW	NG	07.02.2022	BH	19/04/2022

Determination of Dynamic Cone Penetrometer - Estimated CBR Value (%)

In Accordance with TRL Report PR/INT/277/04

Site Name	Cherryfield Drive	**Test Date:**	25/01/2022
Site Ref	15-280	**Test Location:**	Cherryfield Drive
Test No.:	DCP118	**Easting:**	0
Initial Depth (mm BGL):	0	**Northing:**	0
Final Depth (mm BGL):	828		

Estimated California Bearing Ratio Graph



Start Depth (mm) BGL	Finish Depth (mm) BGL	No. of Blows	Blows Per Layer	DCP mm/Blows	Ave Estimated Layer (CBR %)
0	158	13	13	12.15	21.55
158	334	25	12	14.67	17.67
334	487	34	9	17.00	15.12
487	828	47	13	26.23	9.56

Comments

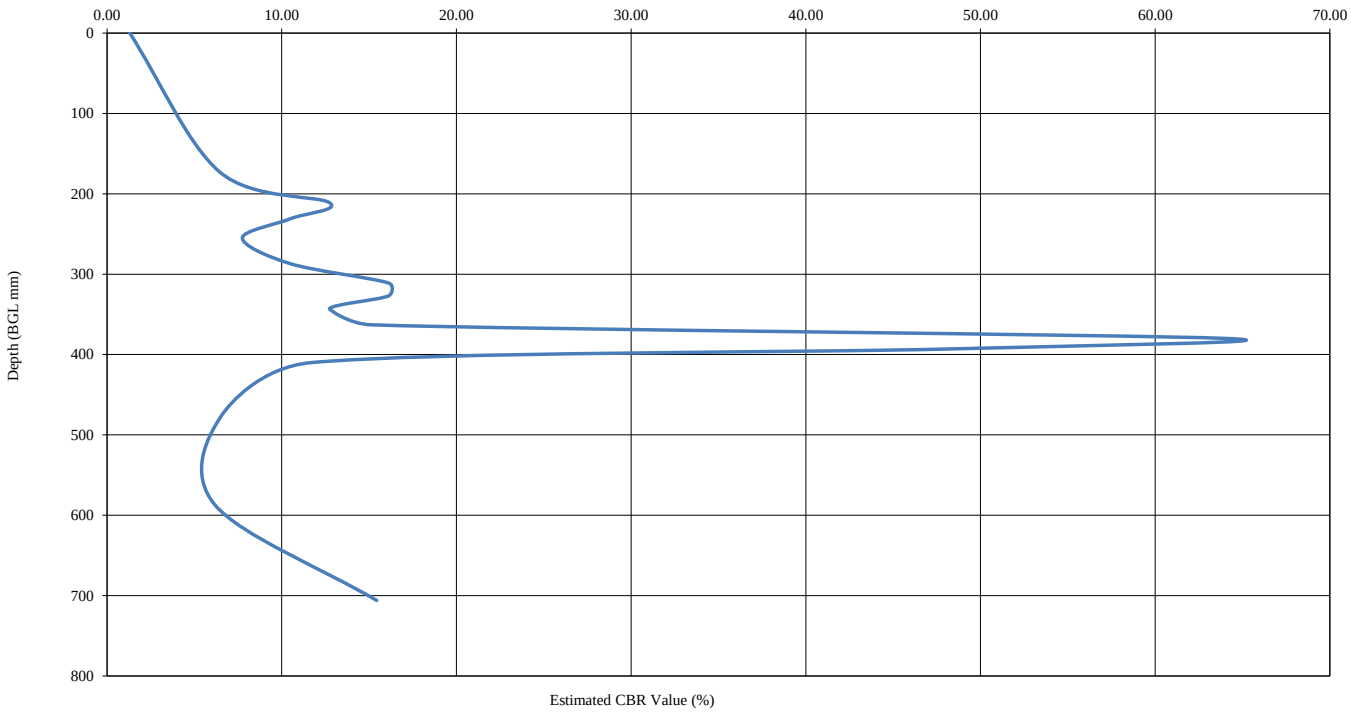
Site Engineer:	Checked By:	Date:	Approved By:	Date:
RW	NG	07.02.2022	BH	19/04/2022

Determination of Dynamic Cone Penetrometer - Estimated CBR Value (%)

In Accordance with TRL Report PR/INT/277/04

Site Name	Cherryfield Drive	**Test Date:**	25/01/2022
Site Ref	15-280	**Test Location:**	Cherryfield Drive
Test No.:	DCP119	**Easting:**	0
Initial Depth (mm BGL):	0	**Northing:**	0
Final Depth (mm BGL):	756		

Estimated California Bearing Ratio Graph



Start Depth (mm) BGL	Finish Depth (mm) BGL	No. of Blows	Blows Per Layer	DCP mm/Blows	Ave Estimated Layer (CBR %)
0	211	2	2	105.50	2.19
211	343	8	6	22.00	11.51
343	410	16	8	8.38	31.95
410	756	28	12	28.83	8.65

Comments

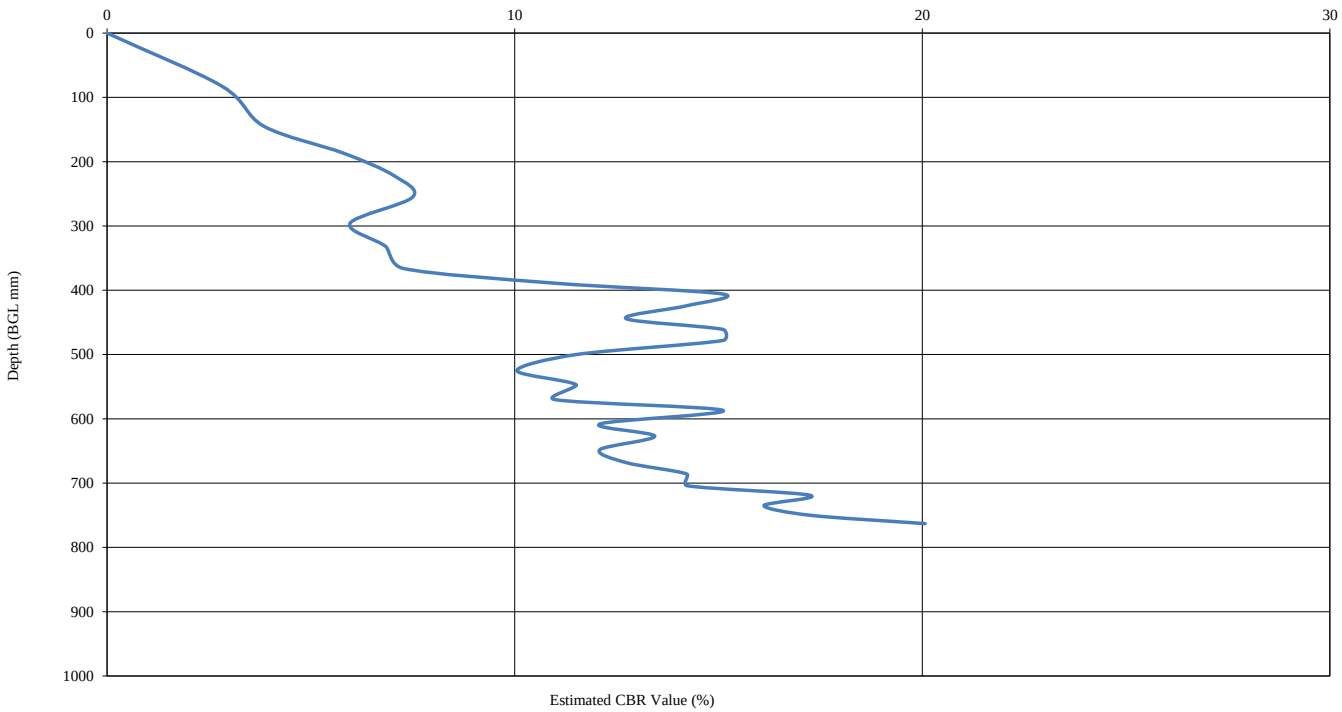
Site Engineer:	Checked By:	Date:	Approved By:	Date:
RW	NG	07.02.2022	BH	19/04/2022

Determination of Dynamic Cone Penetrometer - Estimated CBR Value (%)

In Accordance with TRL Report PR/INT/277/04

Site Name	Cherryfield Drive	**Test Date:**	25/01/2022
Site Ref	15-280	**Test Location:**	Cherryfield Drive
Test No.:	DCP120	**Easting:**	0
Initial Depth (mm BGL):	0	**Northing:**	0
Final Depth (mm BGL):	763		

Estimated California Bearing Ratio Graph



Start Depth (mm) BGL	Finish Depth (mm) BGL	No. of Blows	Blows Per Layer	DCP mm/Blows	Ave Estimated Layer (CBR %)
0	296	6	6	49.33	4.90
296	525	16	10	22.90	11.03
525	668	23	7	20.43	12.45
668	763	29	6	15.83	16.29

Comments

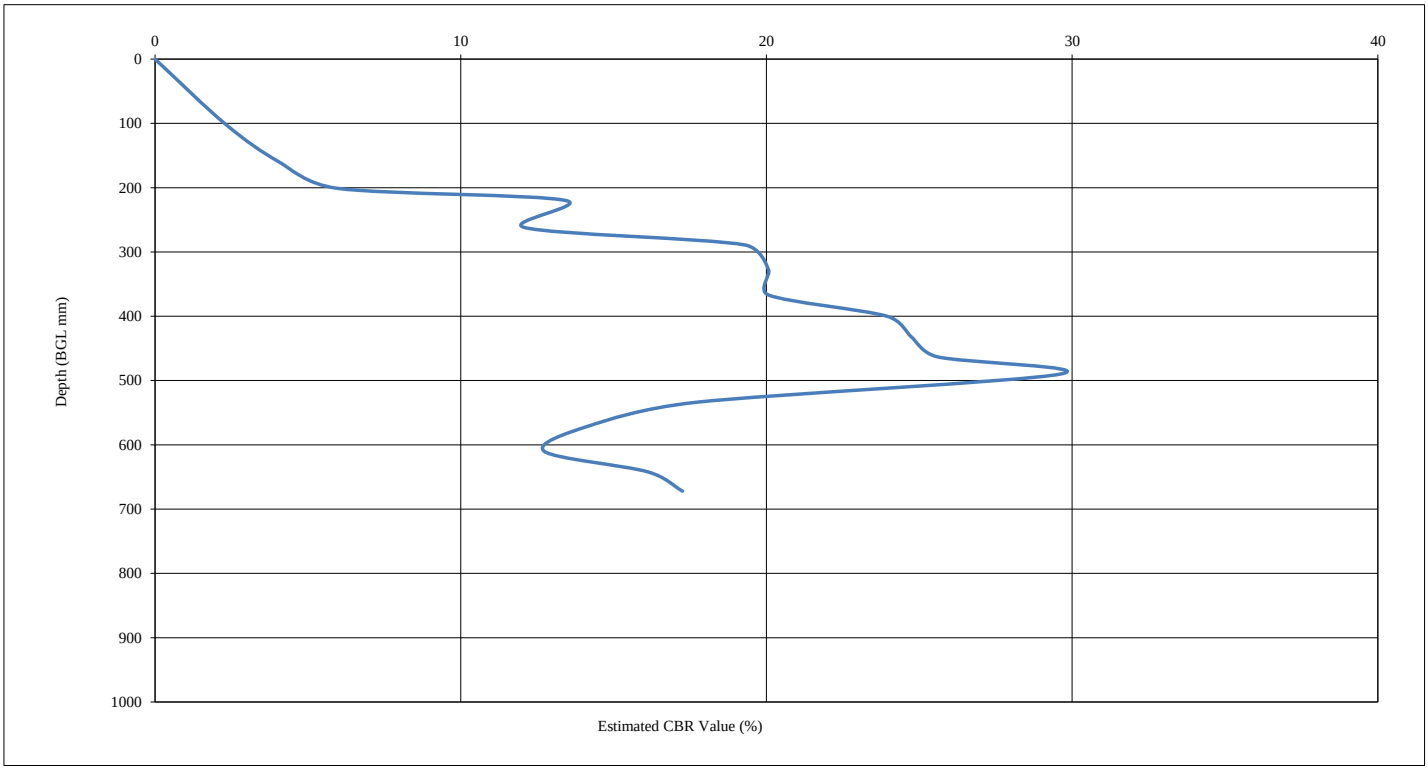
Site Engineer:	Checked By:	Date:	Approved By:	Date:
RW	NG	07.02.2022	BH	19/04/2022

Determination of Dynamic Cone Penetrometer - Estimated CBR Value (%)

In Accordance with TRL Report PR/INT/277/04

Site Name	Cherryfield Drive	**Test Date:**	08/02/2022
Site Ref	15-280	**Test Location:**	Cherryfield Drive
Test No.:	DCP121	**Easting:**	0
Initial Depth (mm BGL):	0	**Northing:**	0
Final Depth (mm BGL):	672		

Estimated California Bearing Ratio Graph



Start Depth (mm) BGL	Finish Depth (mm) BGL	No. of Blows	Blows Per Layer	DCP mm/Blows	Ave Estimated Layer (CBR %)
0	201	3	3	67.00	3.55
201	262	6	3	20.33	12.51
262	610	33	27	12.89	20.25
610	672	37	4	15.50	16.67

Comments

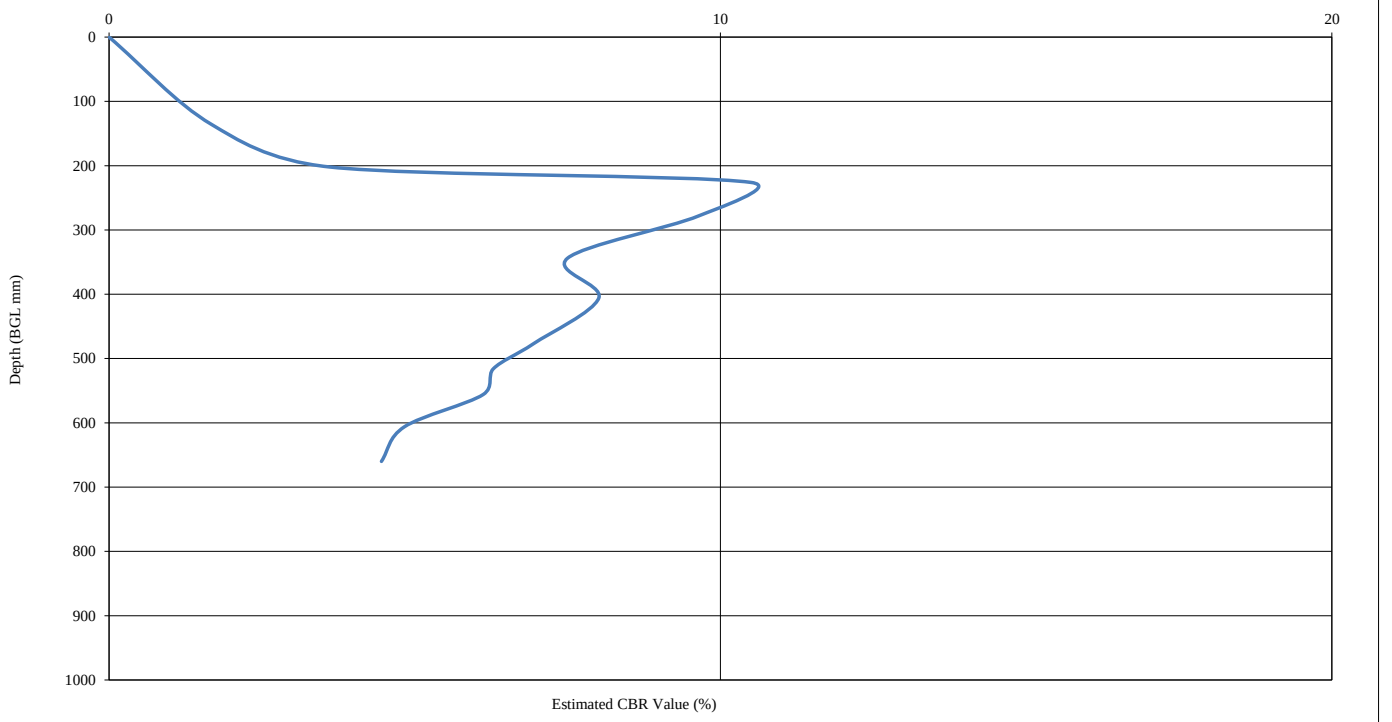
Site Engineer:	Checked By:	Date:	Approved By:	Date:
RW	NG	07.02.2022	BH	19/04/2022

Determination of Dynamic Cone Penetrometer - Estimated CBR Value (%)

In Accordance with TRL Report PR/INT/277/04

Site Name	Cherryfield Drive	**Test Date:**	07/02/2022
Site Ref	15-280	**Test Location:**	Cherryfield Drive
Test No.:	DCP122	**Easting:**	0
Initial Depth (mm BGL):	0	**Northing:**	0
Final Depth (mm BGL):	660		

Estimated California Bearing Ratio Graph



Start Depth (mm) BGL	Finish Depth (mm) BGL	No. of Blows	Blows Per Layer	DCP mm/Blows	Ave Estimated Layer (CBR %)
0	202	2	2	101.00	2.30
202	344	7	5	28.40	8.79
344	516	12	5	34.40	7.18
516	660	15	3	48.00	5.05

Comments

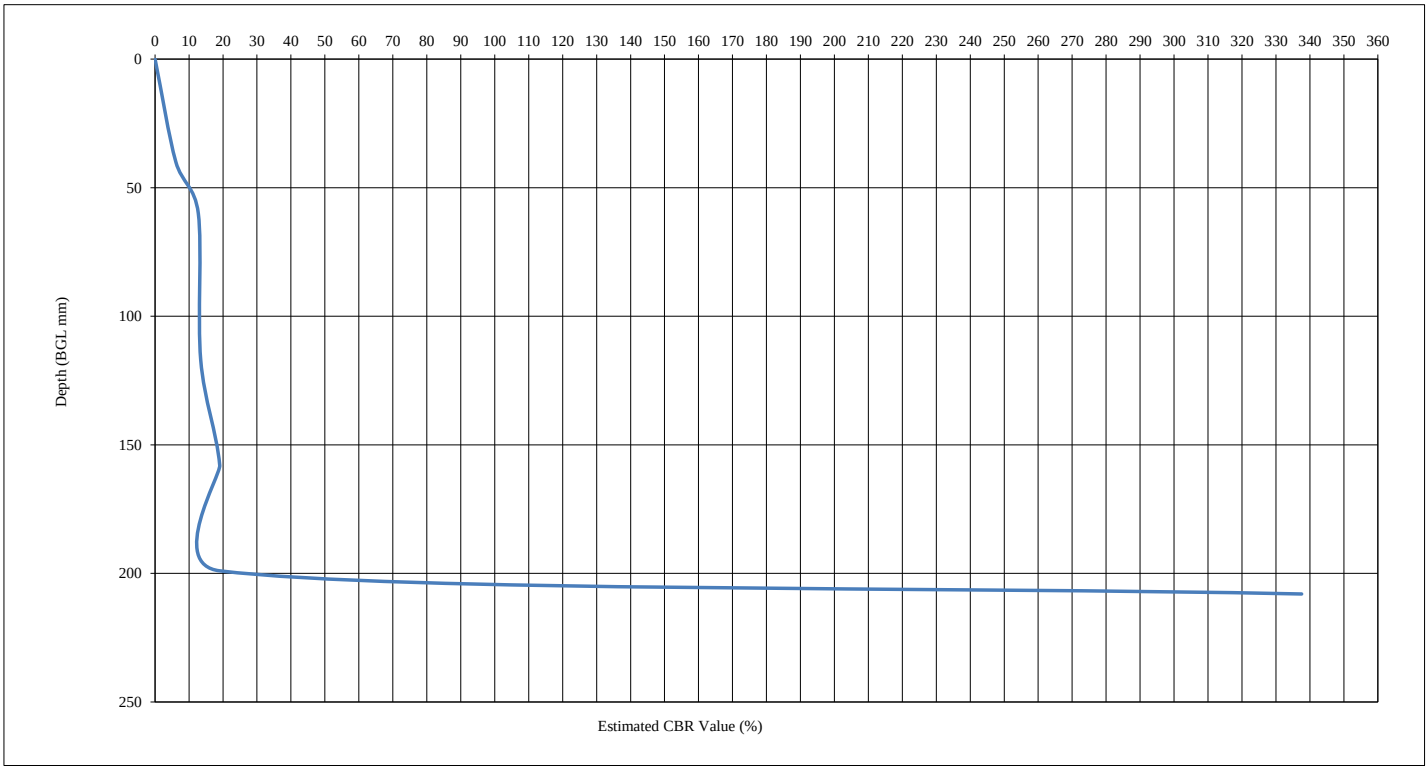
Site Engineer:	Checked By:	Date:	Approved By:	Date:
JJ	NG	08.02.2022	BH	19/04/2022

Determination of Dynamic Cone Penetrometer - Estimated CBR Value (%)

In Accordance with TRL Report PR/INT/277/04

Site Name	Cherryfield Drive	**Test Date:**	08/02/2022
Site Ref	15-280	**Test Location:**	Cherryfield Drive
Test No.:	DCP123	**Easting:**	0
Initial Depth (mm BGL):	0	**Northing:**	0
Final Depth (mm BGL):	208		

Estimated California Bearing Ratio Graph



Start Depth (mm) BGL	Finish Depth (mm) BGL	No. of Blows	Blows Per Layer	DCP mm/Blows	Ave Estimated Layer (CBR %)
0	40	1	1	40.00	6.12
40	117	5	4	19.25	13.25
117	199	11	6	13.67	19.04
199	208	21	10	0.90	337.57

Comments

Terminated on obstruction

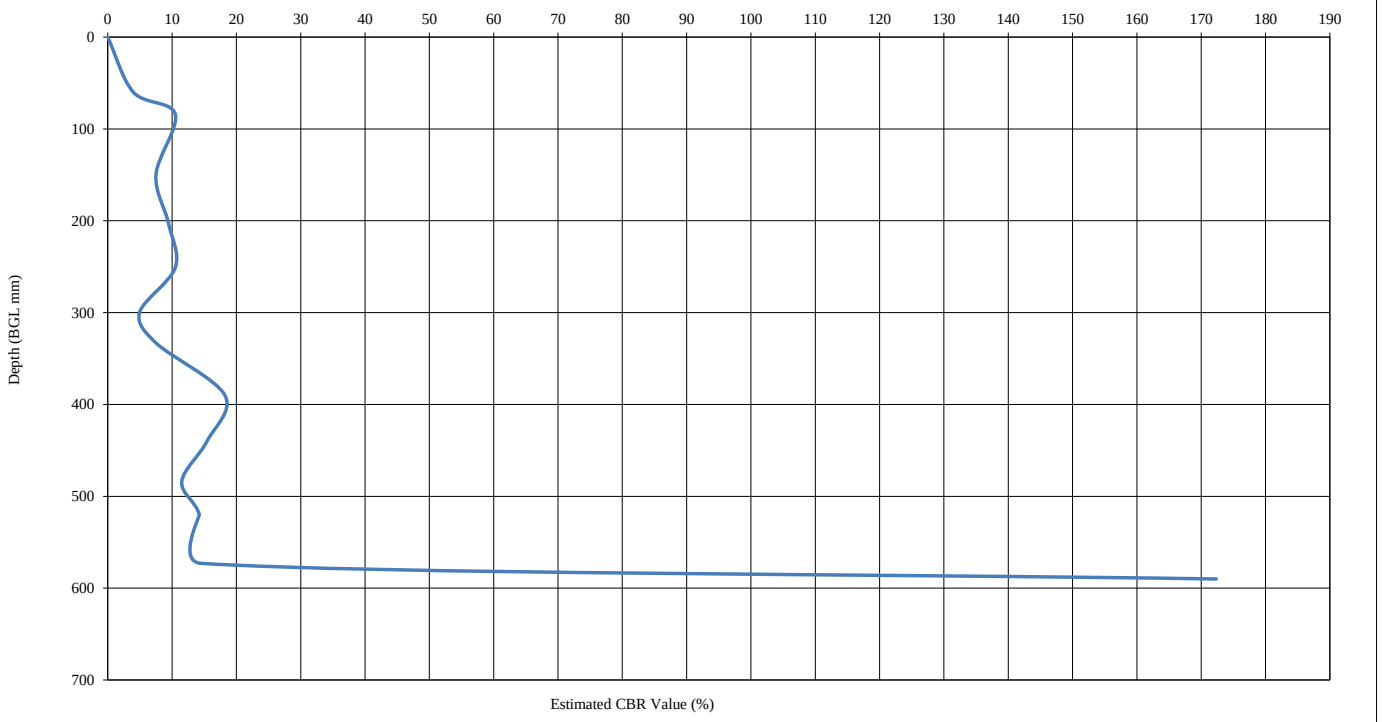
Site Engineer:	Checked By:	Date:	Approved By:	Date:
JJ	NG	08.02.2022	BH	19/04/2022

Determination of Dynamic Cone Penetrometer - Estimated CBR Value (%)

In Accordance with TRL Report PR/INT/277/04

Site Name	Cherryfield Drive	**Test Date:**	07/02/2022
Site Ref	15-280	**Test Location:**	Cherryfield Drive
Test No.:	DCP124	**Easting:**	0
Initial Depth (mm BGL):	0	**Northing:**	0
Final Depth (mm BGL):	590		

Estimated California Bearing Ratio Graph



Start Depth (mm) BGL	Finish Depth (mm) BGL	No. of Blows	Blows Per Layer	DCP mm/Blows	Ave Estimated Layer (CBR %)
0	60	1	1	60.00	3.99
60	300	9	8	30.00	8.29
300	573	24	15	18.20	14.06
573	590	34	10	1.70	172.35

Comments

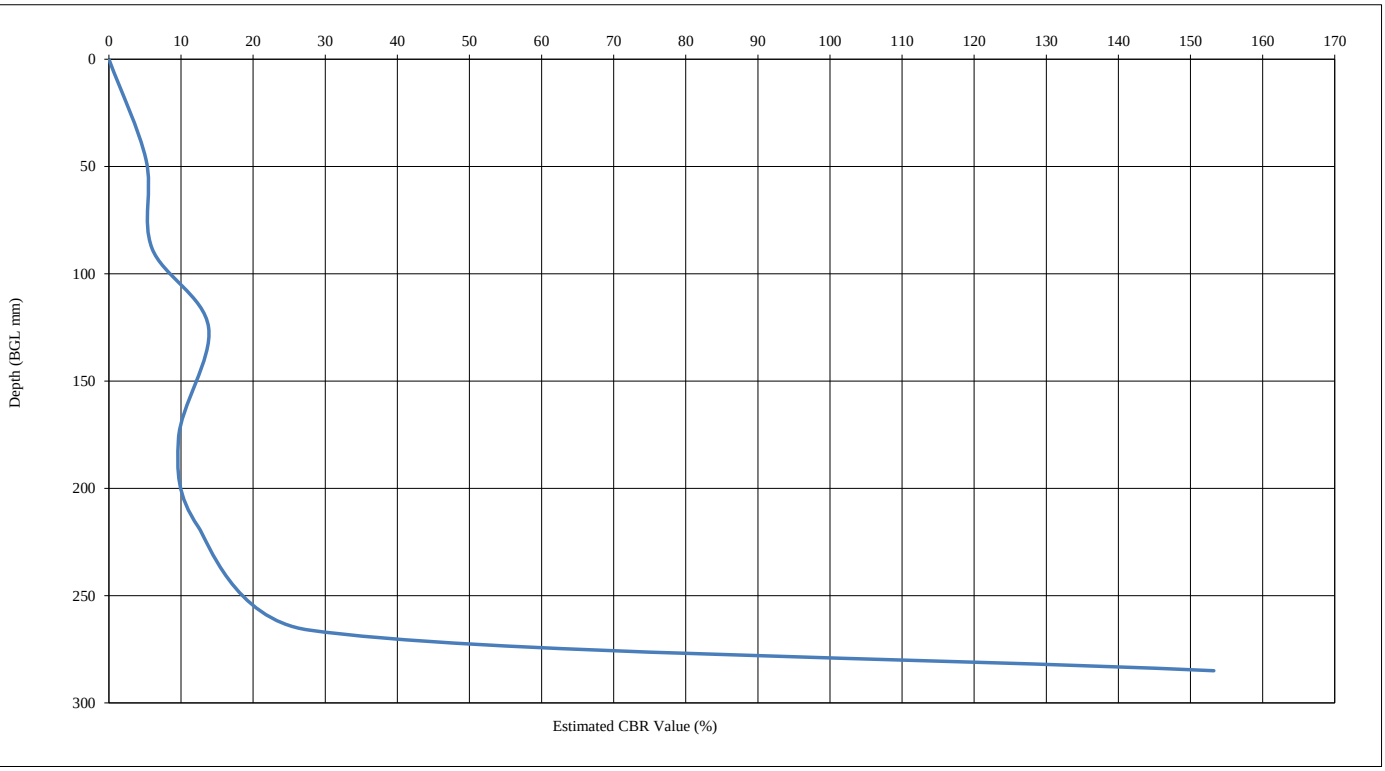
Site Engineer:	Checked By:	Date:	Approved By:	Date:
JJ	NG	08.02.2022	BH	19/04/2022

Determination of Dynamic Cone Penetrometer - Estimated CBR Value (%)

In Accordance with TRL Report PR/INT/277/04

Site Name	Cherryfield Drive	**Test Date:**	07/02/2022
Site Ref	15-280	**Test Location:**	Cherryfield Drive
Test No.:	DCP125	**Easting:**	0
Initial Depth (mm BGL):	0	**Northing:**	0
Final Depth (mm BGL):	285		

Estimated California Bearing Ratio Graph



Start Depth (mm) BGL	Finish Depth (mm) BGL	No. of Blows	Blows Per Layer	DCP mm/Blows	Ave Estimated Layer (CBR %)
0	88	2	2	44.00	5.53
88	218	8	6	21.67	11.70
218	285	23	15	4.47	62.08

Comments

Terminated on obstruction

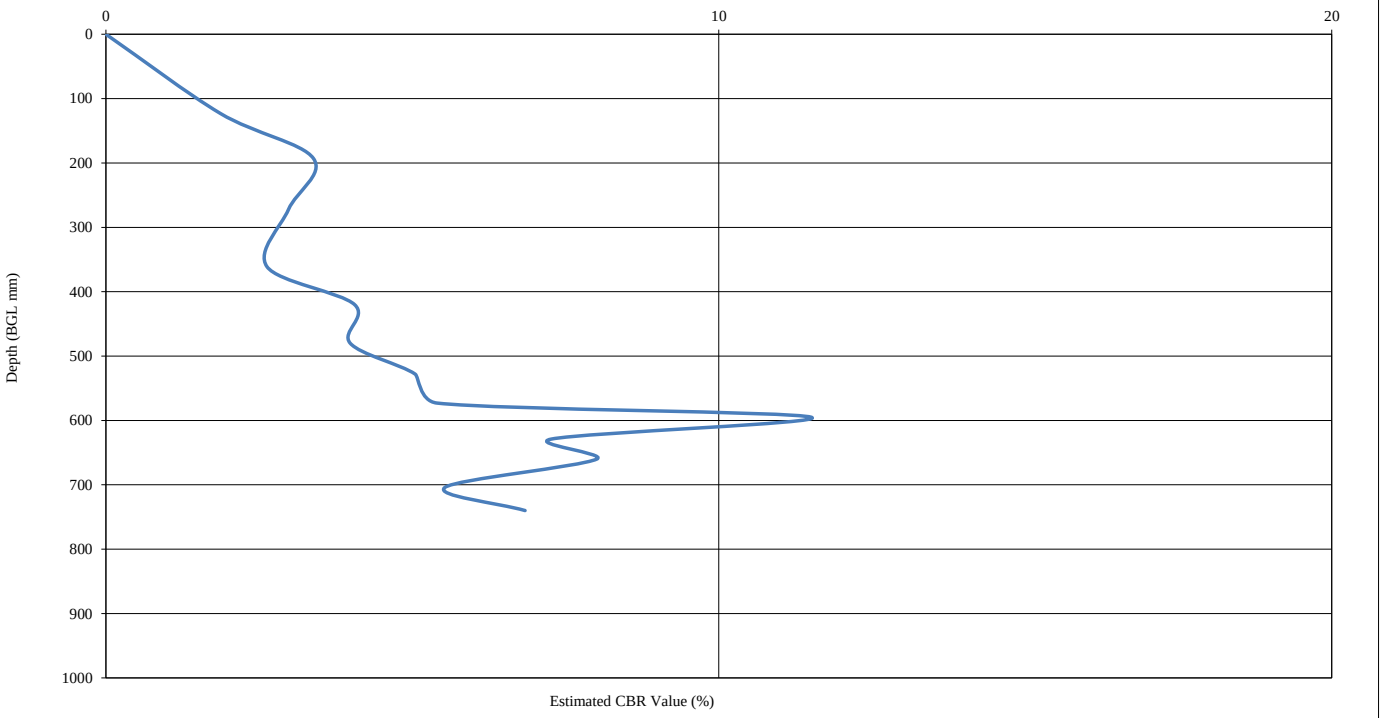
Site Engineer:	Checked By:	Date:	Approved By:	Date:
JJ	NG	08.02.2022	BH	19/04/2022

Determination of Dynamic Cone Penetrometer - Estimated CBR Value (%)

In Accordance with TRL Report PR/INT/277/04

Site Name	Cherryfield Drive	**Test Date:**	07/02/2022
Site Ref	15-280	**Test Location:**	Cherryfield Drive
Test No.:	DCP126	**Easting:**	0
Initial Depth (mm BGL):	0	**Northing:**	0
Final Depth (mm BGL):	740		

Estimated California Bearing Ratio Graph



Start Depth (mm) BGL	Finish Depth (mm) BGL	No. of Blows	Blows Per Layer	DCP mm/Blows	Ave Estimated Layer (CBR %)
0	361	4	4	90.25	2.59
361	573	8	4	53.00	4.54
573	704	12	4	32.75	7.56
704	740	13	1	36.00	6.84

Comments

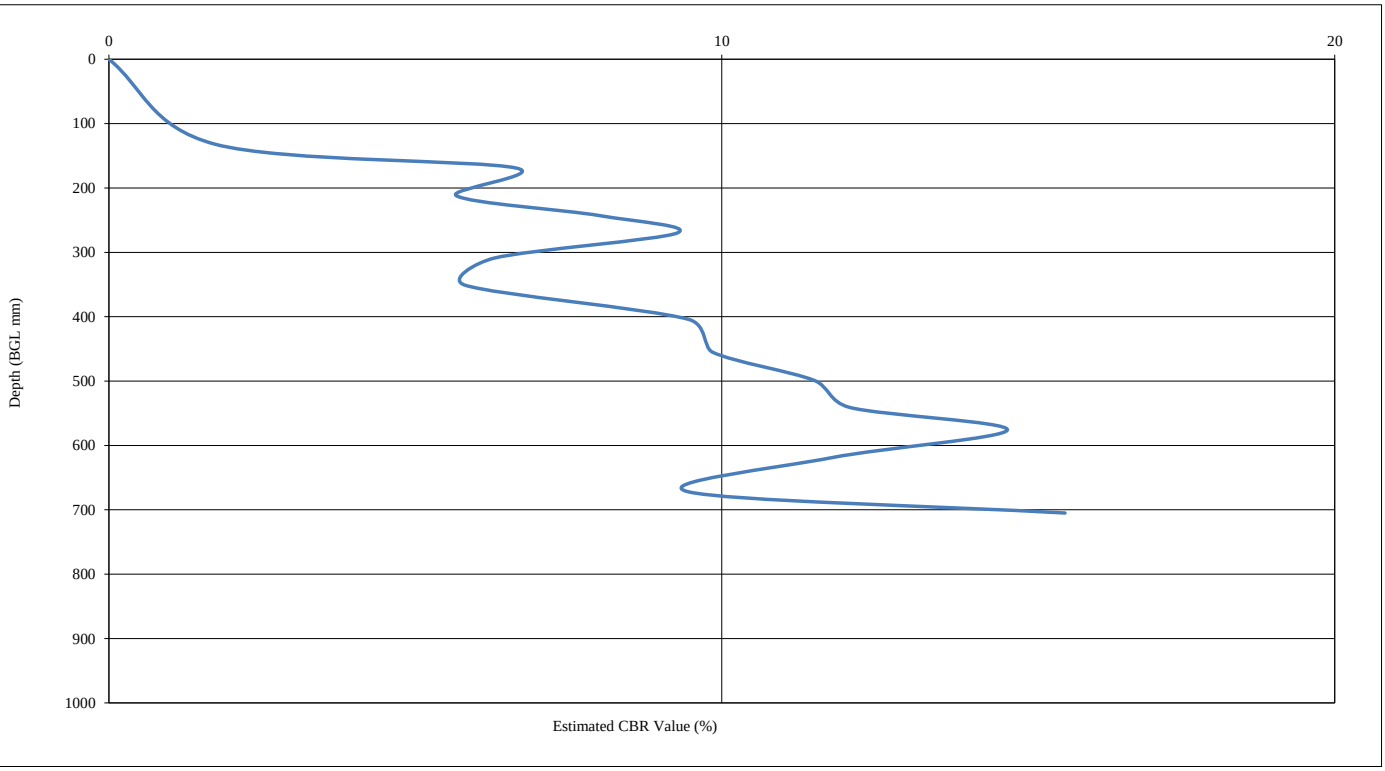
Site Engineer:	Checked By:	Date:	Approved By:	Date:
JJ	NG	08.02.2022	BH	19/04/2022

Determination of Dynamic Cone Penetrometer - Estimated CBR Value (%)

In Accordance with TRL Report PR/INT/277/04

Site Name	Cherryfield Drive	**Test Date:**	07/02/2022
Site Ref	15-280	**Test Location:**	Cherryfield Drive
Test No.:	DCP127	**Easting:**	0
Initial Depth (mm BGL):	0	**Northing:**	0
Final Depth (mm BGL):	705		

Estimated California Bearing Ratio Graph



Start Depth (mm) BGL	Finish Depth (mm) BGL	No. of Blows	Blows Per Layer	DCP mm/Blows	Ave Estimated Layer (CBR %)
0	132	1	1	132.00	1.73
132	212	3	2	40.00	6.12
212	351	7	4	34.75	7.10
351	705	23	16	22.13	11.44

Comments

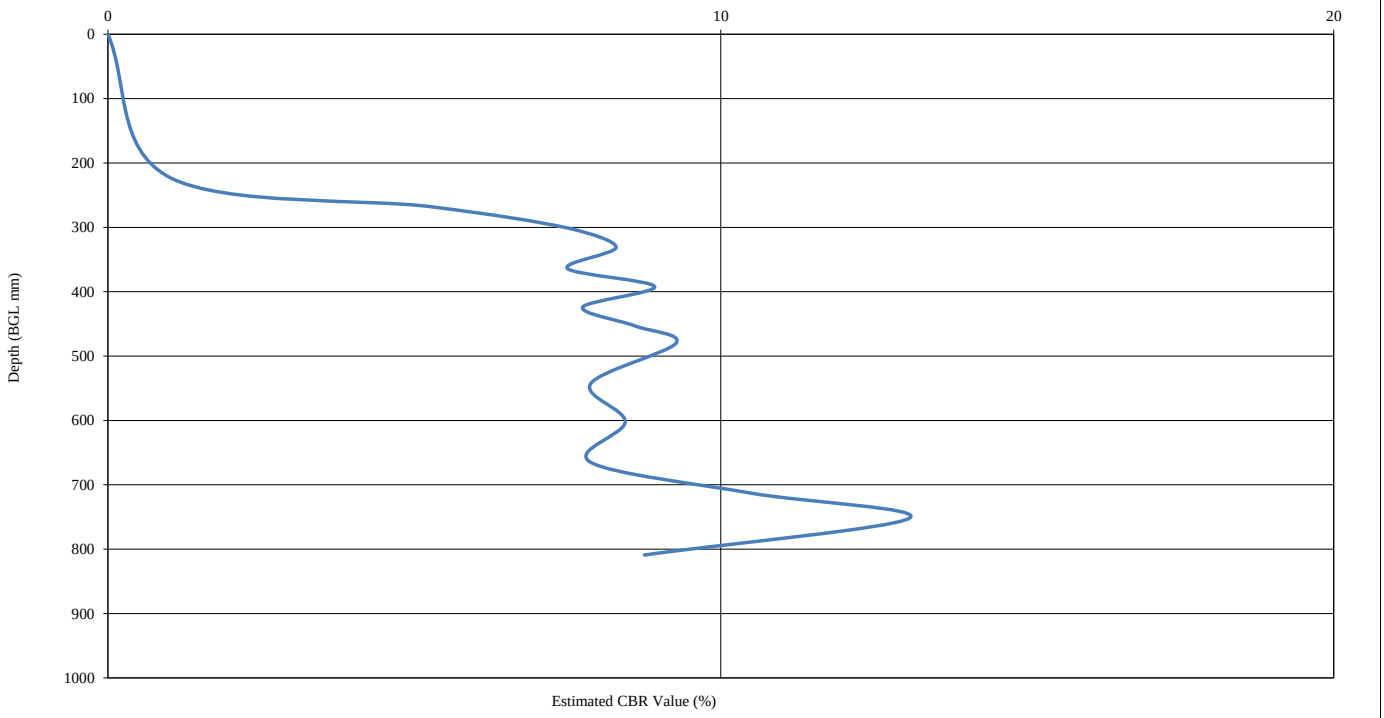
Site Engineer:	Checked By:	Date:	Approved By:	Date:
JJ	NG	08.02.2022	BH	19/04/2022

Determination of Dynamic Cone Penetrometer - Estimated CBR Value (%)

In Accordance with TRL Report PR/INT/277/04

Site Name	Cherryfield Drive	**Test Date:**	07/02/2022
Site Ref	15-280	**Test Location:**	Cherryfield Drive
Test No.:	DCP128	**Easting:**	0
Initial Depth (mm BGL):	0	**Northing:**	0
Final Depth (mm BGL):	809		

Estimated California Bearing Ratio Graph



Start Depth (mm) BGL	Finish Depth (mm) BGL	No. of Blows	Blows Per Layer	DCP mm/Blows	Ave Estimated Layer (CBR %)
0	222	1	1	222.00	1.00
222	665	15	14	31.64	7.84
665	809	21	6	24.00	10.50

Comments

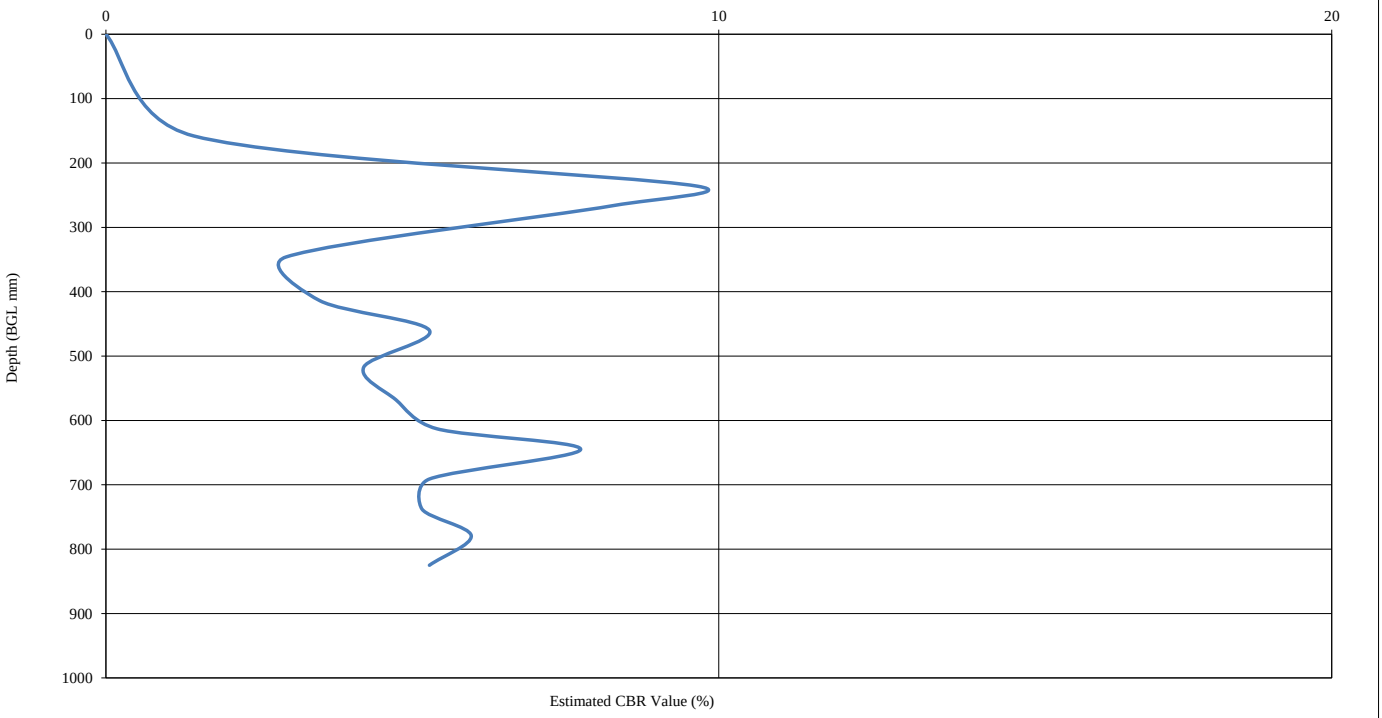
Site Engineer:	Checked By:	Date:	Approved By:	Date:
JJ	NG	08.02.2022	BH	19/04/2022

Determination of Dynamic Cone Penetrometer - Estimated CBR Value (%)

In Accordance with TRL Report PR/INT/277/04

Site Name	Cherryfield Drive	**Test Date:**	07/02/2022
Site Ref	15-280	**Test Location:**	Cherryfield Drive
Test No.:	DCP129	**Easting:**	0
Initial Depth (mm BGL):	0	**Northing:**	0
Final Depth (mm BGL):	825		

Estimated California Bearing Ratio Graph



Start Depth (mm) BGL	Finish Depth (mm) BGL	No. of Blows	Blows Per Layer	DCP mm/Blows	Ave Estimated Layer (CBR %)
0	158	1	1	158.00	1.43
158	346	6	5	37.60	6.53
346	825	16	10	47.90	5.06

Comments

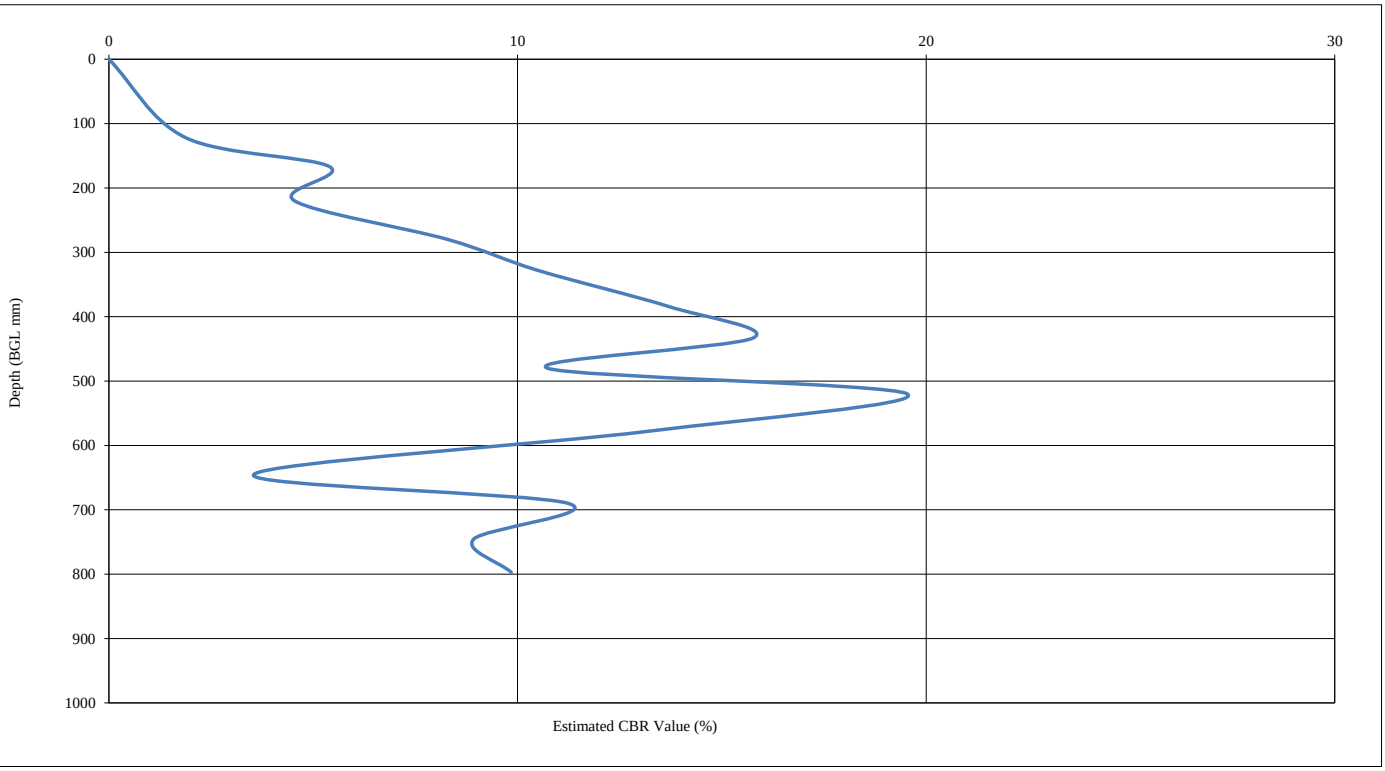
Site Engineer:	Checked By:	Date:	Approved By:	Date:
JJ	NG	08.02.2022	BH	19/04/2022

Determination of Dynamic Cone Penetrometer - Estimated CBR Value (%)

In Accordance with TRL Report PR/INT/277/04

Site Name	Cherryfield Drive	**Test Date:**	07/02/2022
Site Ref	15-280	**Test Location:**	Cherryfield Drive
Test No.:	DCP130	**Easting:**	0
Initial Depth (mm BGL):	0	**Northing:**	0
Final Depth (mm BGL):	840		

Estimated California Bearing Ratio Graph



Start Depth (mm) BGL	Finish Depth (mm) BGL	No. of Blows	Blows Per Layer	DCP mm/Blows	Ave Estimated Layer (CBR %)
0	122	1	13	9.38	28.32
122	645	22	21	24.90	10.10
645	840	30	8	24.38	10.33

Comments

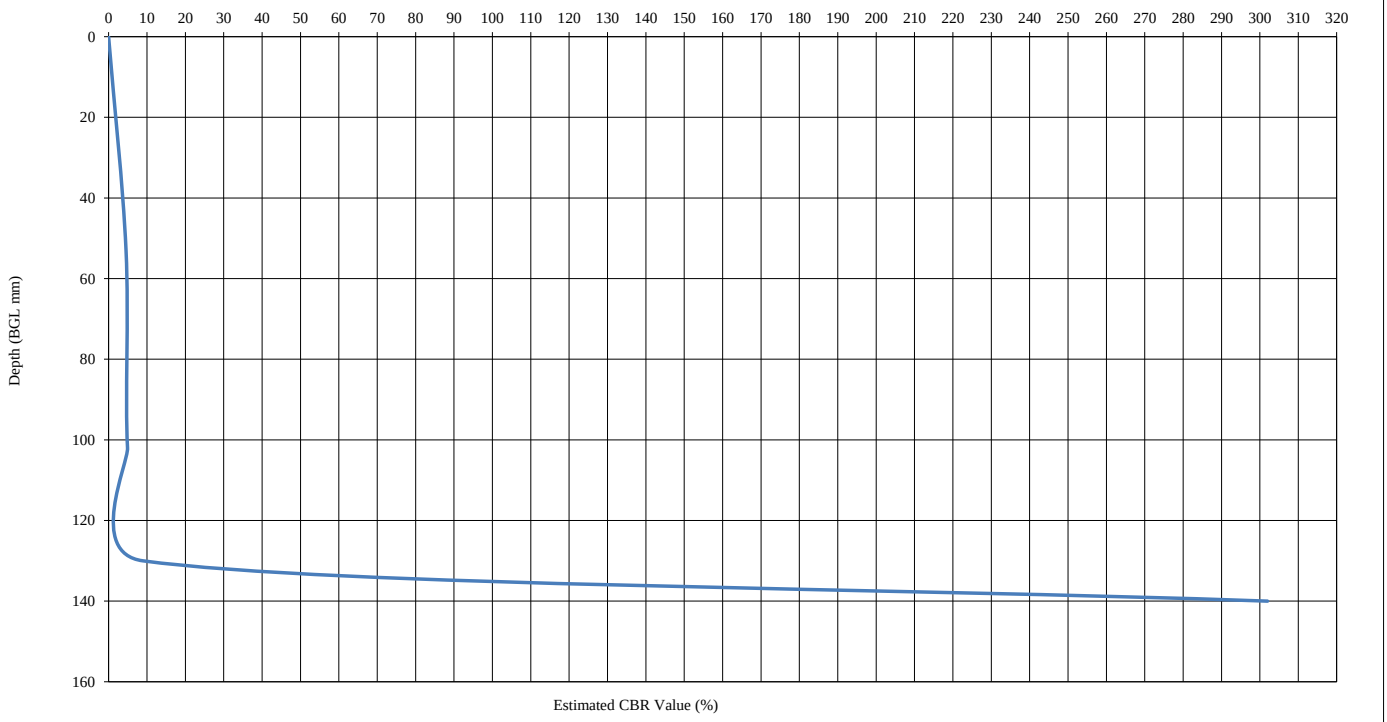
Site Engineer:	Checked By:	Date:	Approved By:	Date:
JJ	NG	08.02.2022	BH	19/04/2022

Determination of Dynamic Cone Penetrometer - Estimated CBR Value (%)

In Accordance with TRL Report PR/INT/277/04

Site Name	Cherryfield Drive	**Test Date:**	07/02/2022
Site Ref	15-280	**Test Location:**	Cherryfield Drive
Test No.:	DCP131	**Easting:**	0
Initial Depth (mm BGL):	0	**Northing:**	0
Final Depth (mm BGL):	140		

Estimated California Bearing Ratio Graph



Start Depth (mm) BGL	Finish Depth (mm) BGL	No. of Blows	Blows Per Layer	DCP mm/Blows	Ave Estimated Layer (CBR %)
0	130	3	3	43.33	5.62
130	140	13	10	1.00	302.00

Comments

Terminated on obstruction

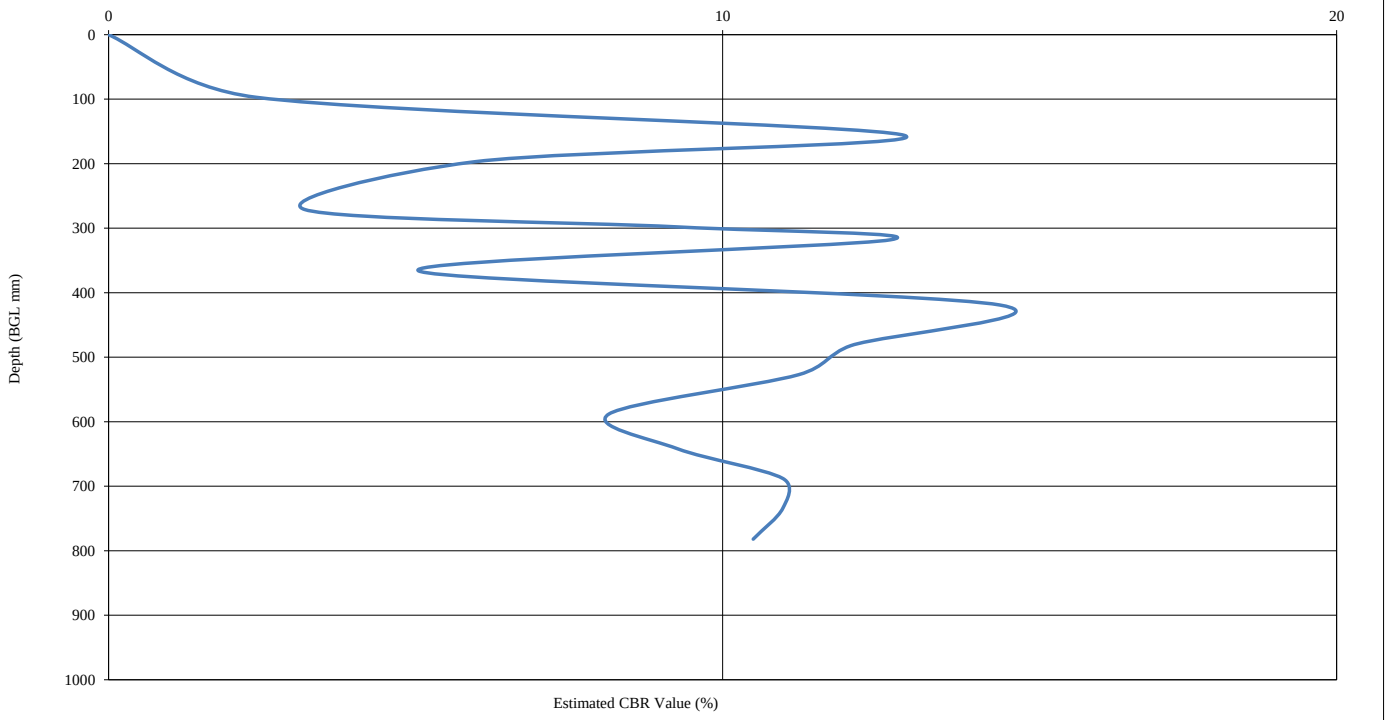
Site Engineer:	Checked By:	Date:	Approved By:	Date:
JJ	NG	08.02.2022	BH	19/04/2022

Determination of Dynamic Cone Penetrometer - Estimated CBR Value (%)

In Accordance with TRL Report PR/INT/277/04

Site Name	Cherryfield Drive	**Test Date:**	07/02/2022
Site Ref	15-280	**Test Location:**	Cherryfield Drive
Test No.:	DCP132	**Easting:**	0
Initial Depth (mm BGL):	0	**Northing:**	0
Final Depth (mm BGL):	782		

Estimated California Bearing Ratio Graph



Start Depth (mm) BGL	Finish Depth (mm) BGL	No. of Blows	Blows Per Layer	DCP mm/Blows	Ave Estimated Layer (CBR %)
0	271	6	6	45.17	5.38
271	366	9	3	31.67	7.83
366	588	19	10	22.20	11.40
588	782	27	8	24.25	10.38

Comments

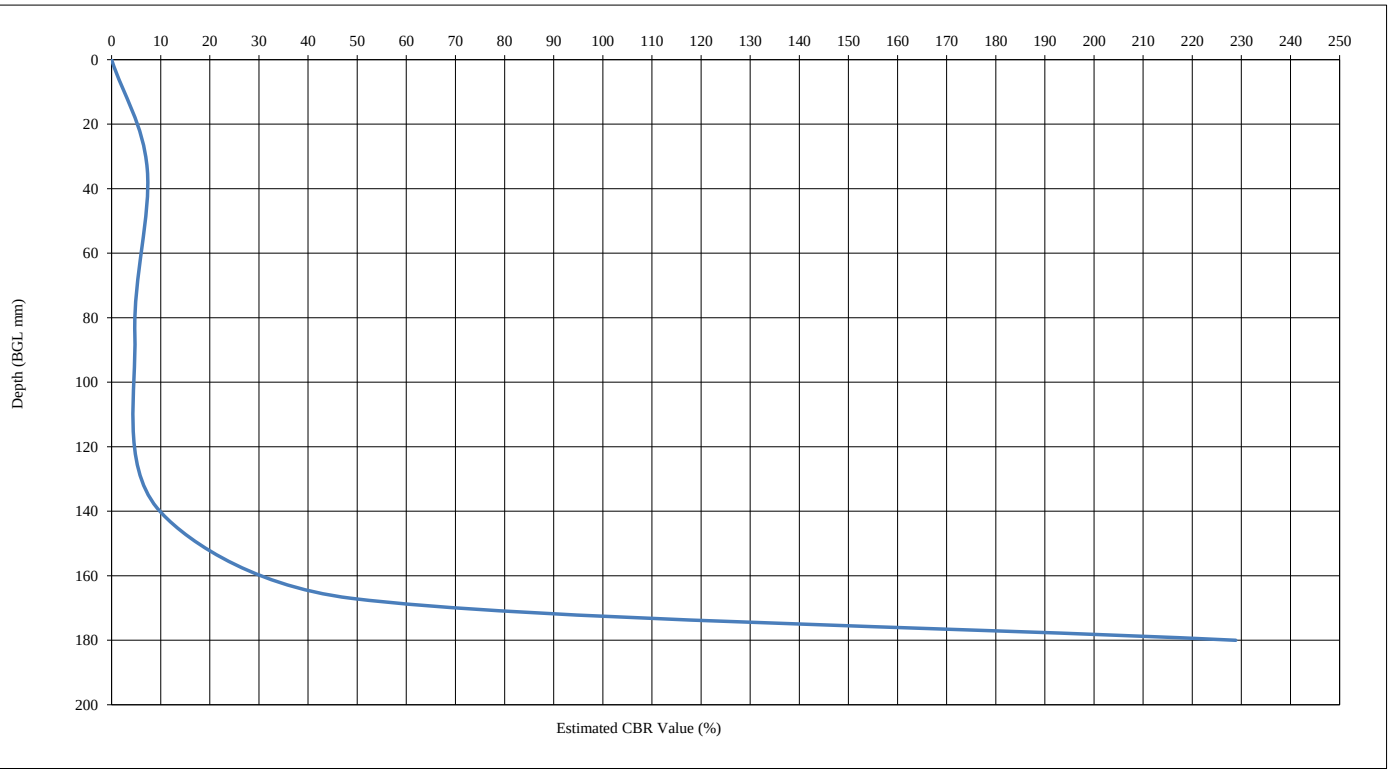
Site Engineer:	Checked By:	Date:	Approved By:	Date:
JJ	NG	08.02.2022	BH	19/04/2022

Determination of Dynamic Cone Penetrometer - Estimated CBR Value (%)

In Accordance with TRL Report PR/INT/277/04

Site Name	Cherryfield Drive	**Test Date:**	07/02/2022
Site Ref	15-280	**Test Location:**	Cherryfield Drive
Test No.:	DCP133	**Easting:**	0
Initial Depth (mm BGL):	0	**Northing:**	0
Final Depth (mm BGL):	180		

Estimated California Bearing Ratio Graph



Start Depth (mm) BGL	Finish Depth (mm) BGL	No. of Blows	Blows Per Layer	DCP mm/Blows	Ave Estimated Layer (CBR %)
0	139	4	4	34.75	7.10
139	180	19	15	2.73	104.33

Comments

Terminated on obstruction

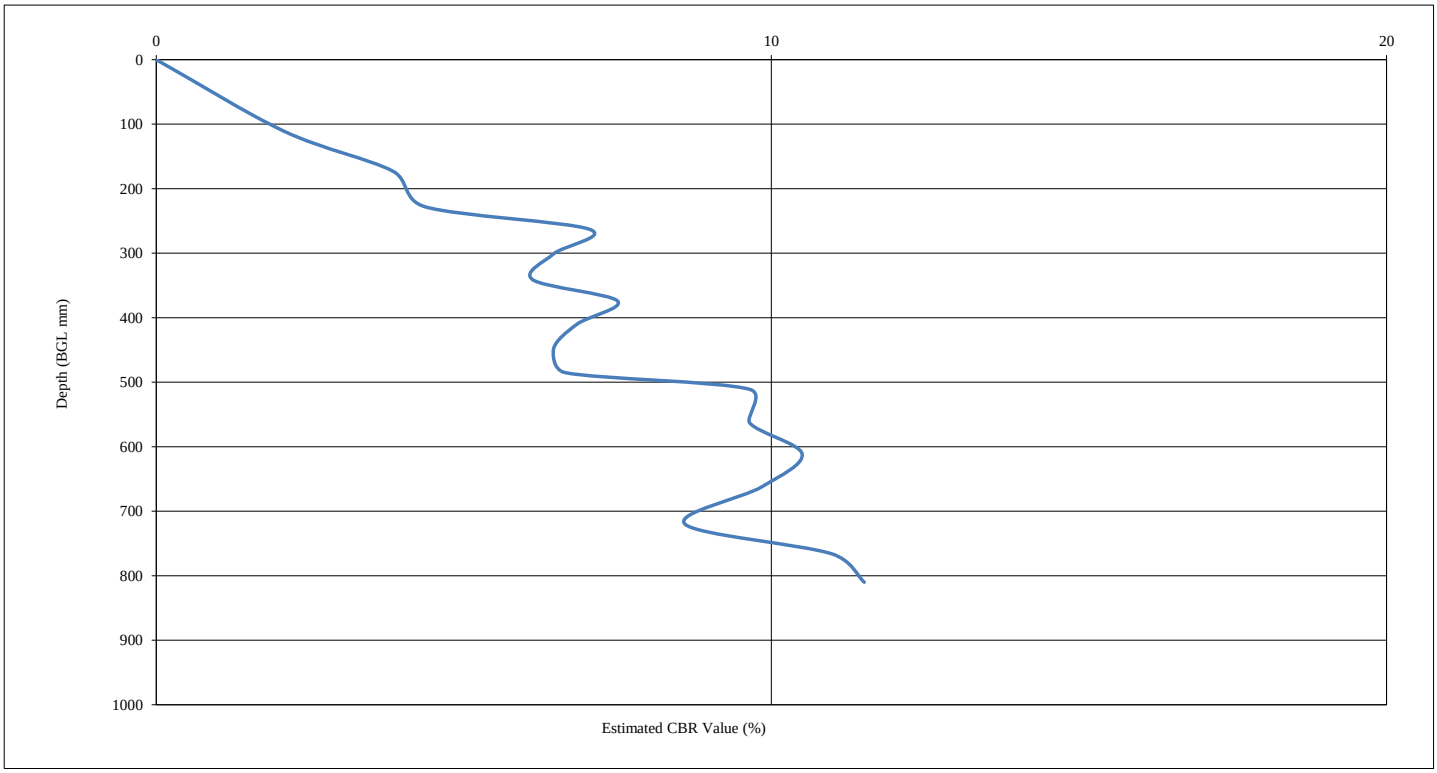
Site Engineer:	Checked By:	Date:	Approved By:	Date:
JJ	NG	08.02.2022	BH	19/04/2022

Determination of Dynamic Cone Penetrometer - Estimated CBR Value (%)

In Accordance with TRL Report PR/INT/277/04

Site Name	Cherryfield Drive	**Test Date:**	07/02/2022
Site Ref	15-280	**Test Location:**	Cherryfield Drive
Test No.:	DCP134	**Easting:**	0
Initial Depth (mm BGL):	0	**Northing:**	0
Final Depth (mm BGL):	810		

Estimated California Bearing Ratio Graph



Start Depth (mm) BGL	Finish Depth (mm) BGL	No. of Blows	Blows Per Layer	DCP mm/Blows	Ave Estimated Layer (CBR %)
0	341	6	6	56.83	4.22
341	485	10	4	36.00	6.84
485	720	19	9	26.11	9.60
720	810	23	4	22.50	11.24

Comments

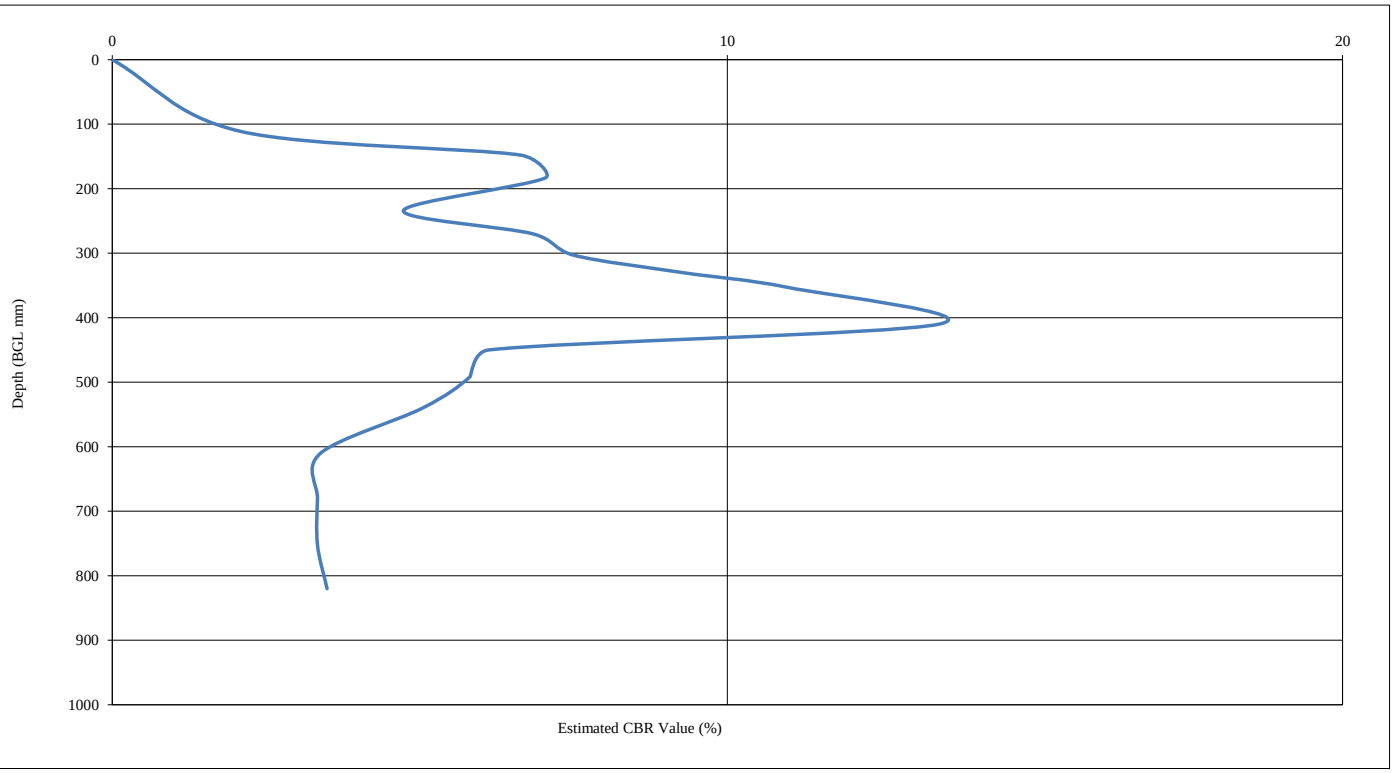
Site Engineer:	Checked By:	Date:	Approved By:	Date:
JJ	NG	08.02.2022	BH	19/04/2022

Determination of Dynamic Cone Penetrometer - Estimated CBR Value (%)

In Accordance with TRL Report PR/INT/277/04

Site Name	Cherryfield Drive	**Test Date:**	07/02/2022
Site Ref	15-280	**Test Location:**	Cherryfield Drive
Test No.:	DCP135	**Easting:**	0
Initial Depth (mm BGL):	0	**Northing:**	0
Final Depth (mm BGL):	820		

Estimated California Bearing Ratio Graph



Start Depth (mm) BGL	Finish Depth (mm) BGL	No. of Blows	Blows Per Layer	DCP mm/Blows	Ave Estimated Layer (CBR %)
0	111	1	1	111.00	2.08
111	234	4	3	41.00	5.96
234	610	15	11	34.18	7.22
610	820	18	3	70.00	3.39

Comments

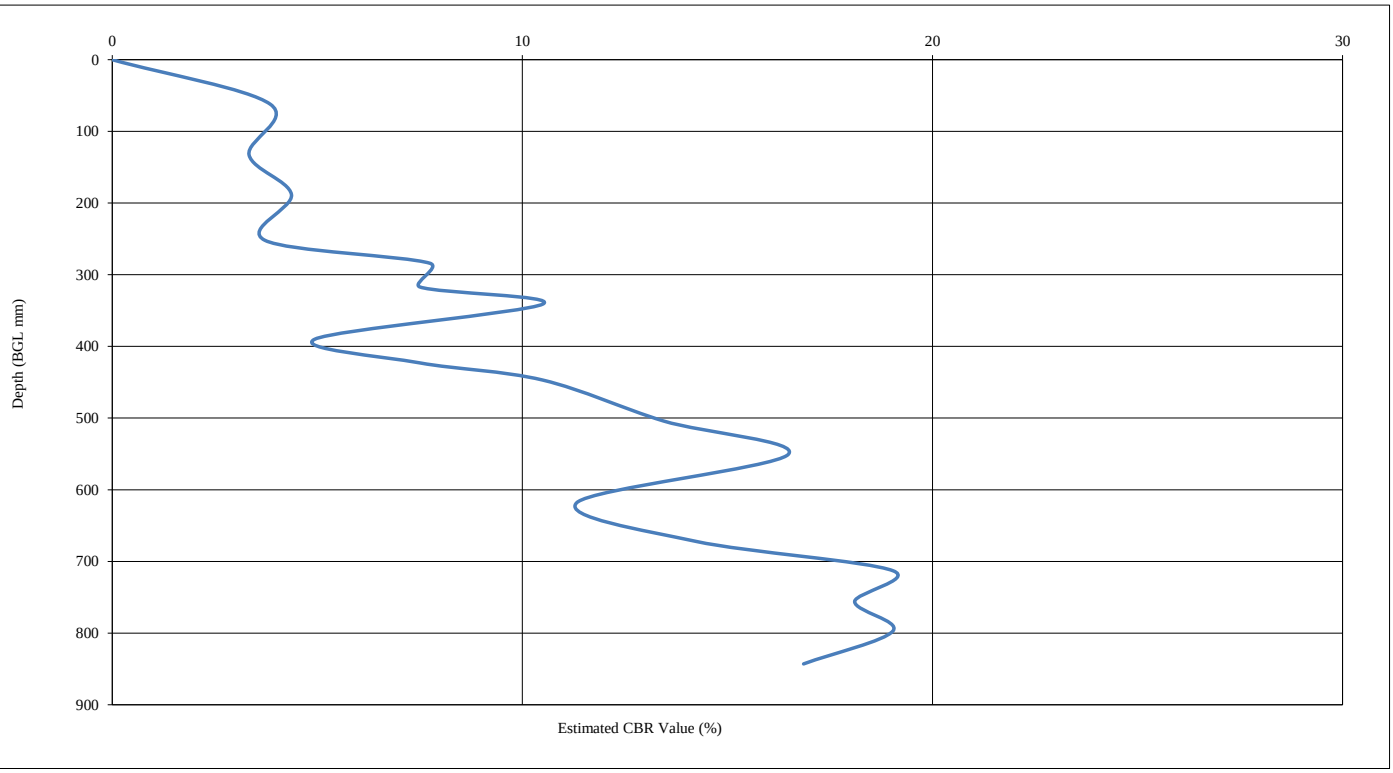
Site Engineer:	Checked By:	Date:	Approved By:	Date:
JJ	NG	08.02.2022	BH	19/04/2022

Determination of Dynamic Cone Penetrometer - Estimated CBR Value (%)

In Accordance with TRL Report PR/INT/277/04

Site Name	Cherryfield Drive	**Test Date:**	07/02/2022
Site Ref	15-280	**Test Location:**	Cherryfield Drive
Test No.:	DCP136	**Easting:**	0
Initial Depth (mm BGL):	0	**Northing:**	0
Final Depth (mm BGL):	843		

Estimated California Bearing Ratio Graph



Start Depth (mm) BGL	Finish Depth (mm) BGL	No. of Blows	Blows Per Layer	DCP mm/Blows	Ave Estimated Layer (CBR %)
0	252	4	4	63.00	3.79
252	390	8	4	34.50	7.15
390	618	19	11	20.73	12.26
618	843	34	15	15.00	17.25

Comments

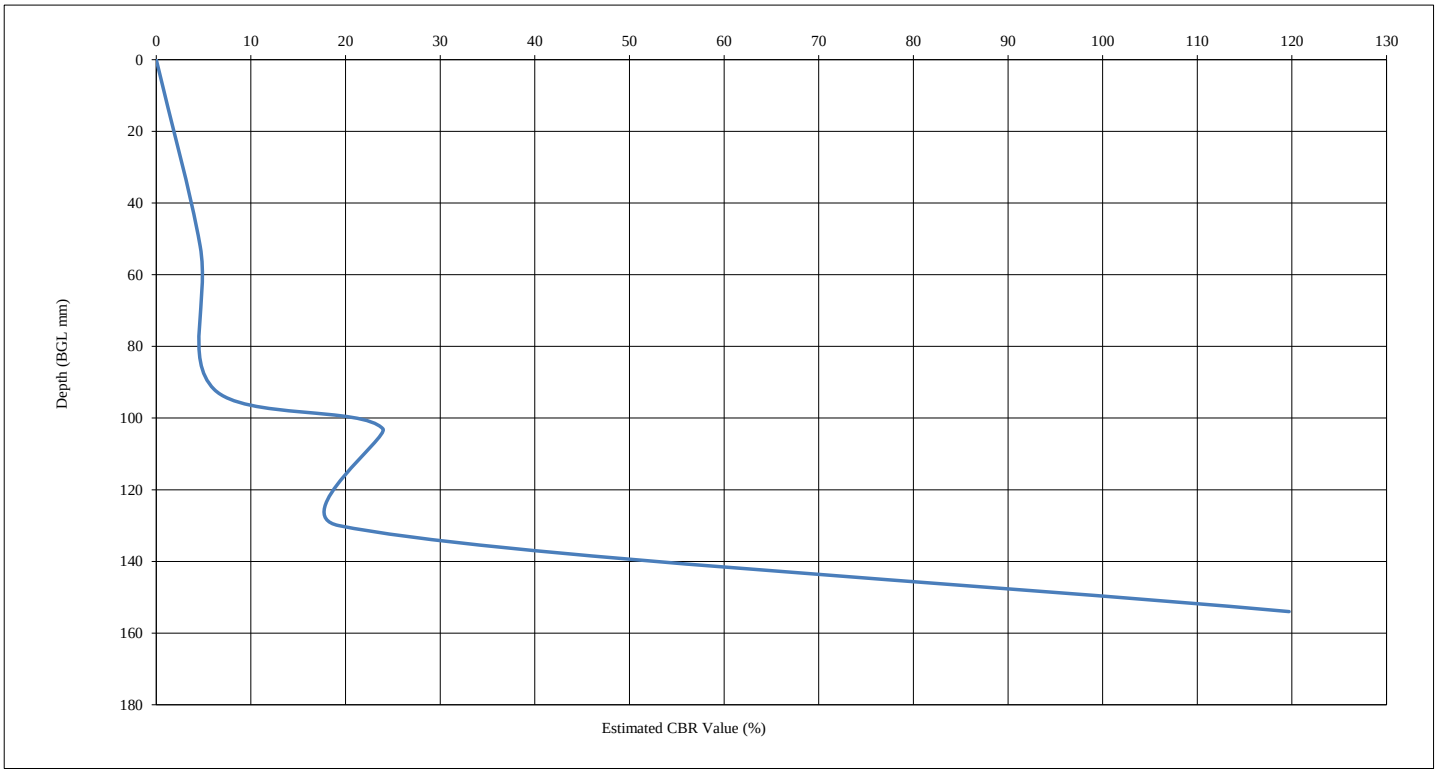
Site Engineer:	Checked By:	Date:	Approved By:	Date:
JJ	NG	08.02.2022	BH	19/04/2022

Determination of Dynamic Cone Penetrometer - Estimated CBR Value (%)

In Accordance with TRL Report PR/INT/277/04

Site Name	Cherryfield Drive	**Test Date:**	07/02/2022
Site Ref	15-280	**Test Location:**	Cherryfield Drive
Test No.:	DCP137	**Easting:**	0
Initial Depth (mm BGL):	0	**Northing:**	0
Final Depth (mm BGL):	154		

Estimated California Bearing Ratio Graph



Start Depth (mm) BGL	Finish Depth (mm) BGL	No. of Blows	Blows Per Layer	DCP mm/Blows	Ave Estimated Layer (CBR %)
0	92	2	2	46.00	5.28
92	130	5	3	12.67	20.63
130	154	15	10	2.40	119.71

Comments

Terminated on obstruction

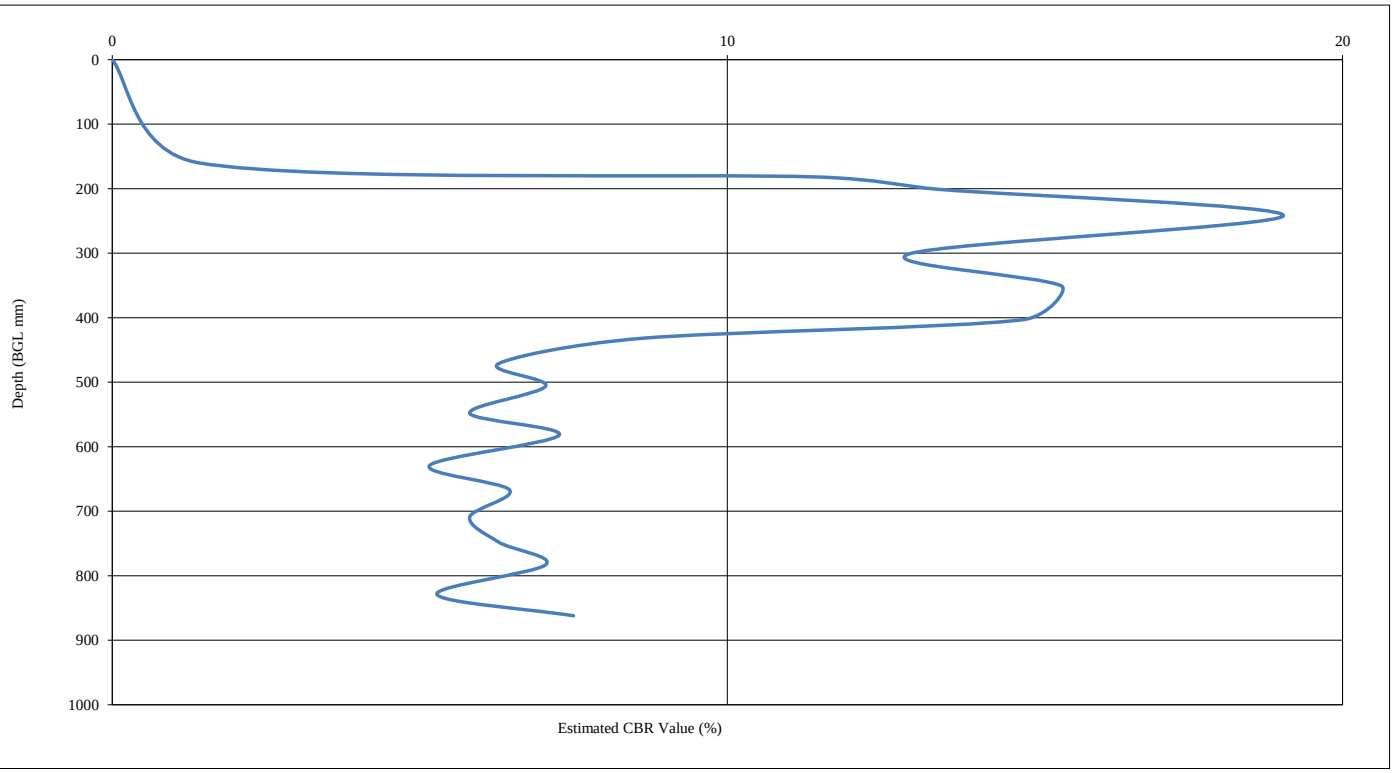
Site Engineer:	Checked By:	Date:	Approved By:	Date:
JJ	NG	08.02.2022	BH	19/04/2022

Determination of Dynamic Cone Penetrometer - Estimated CBR Value (%)

In Accordance with TRL Report PR/INT/277/04

Site Name	Cherryfield Drive	**Test Date:**	07/02/2022
Site Ref	15-280	**Test Location:**	Cherryfield Drive
Test No.:	DCP138	**Easting:**	0
Initial Depth (mm BGL):	0	**Northing:**	0
Final Depth (mm BGL):	862		

Estimated California Bearing Ratio Graph



Start Depth (mm) BGL	Finish Depth (mm) BGL	No. of Blows	Blows Per Layer	DCP mm/Blows	Ave Estimated Layer (CBR %)
0	160	1	1	160.00	1.41
160	471	17	16	19.44	13.12
471	862	27	10	39.10	6.27

Comments

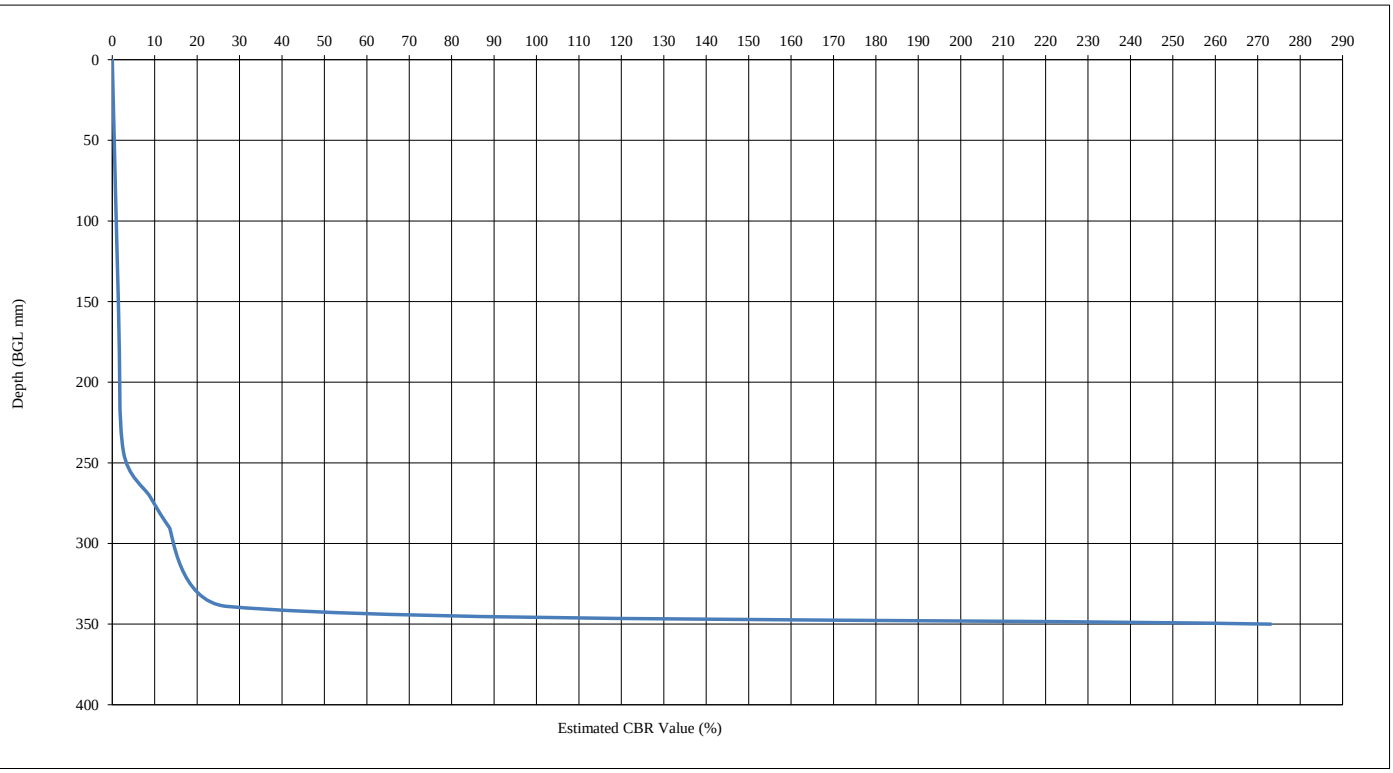
Site Engineer:	Checked By:	Date:	Approved By:	Date:
JJ	NG	08.02.2022	BH	19/04/2022

Determination of Dynamic Cone Penetrometer - Estimated CBR Value (%)

In Accordance with TRL Report PR/INT/277/04

Site Name	Cherryfield Drive	**Test Date:**	07/02/2022
Site Ref	15-280	**Test Location:**	Cherryfield Drive
Test No.:	DCP139	**Easting:**	0
Initial Depth (mm BGL):	0	**Northing:**	0
Final Depth (mm BGL):	350		

Estimated California Bearing Ratio Graph



Start Depth (mm) BGL	Finish Depth (mm) BGL	No. of Blows	Blows Per Layer	DCP mm/Blows	Ave Estimated Layer (CBR %)
0	243	2	2	121.50	1.89
243	339	9	7	13.71	18.97
339	350	19	10	1.10	273.05

Comments

Terminated on obstruction

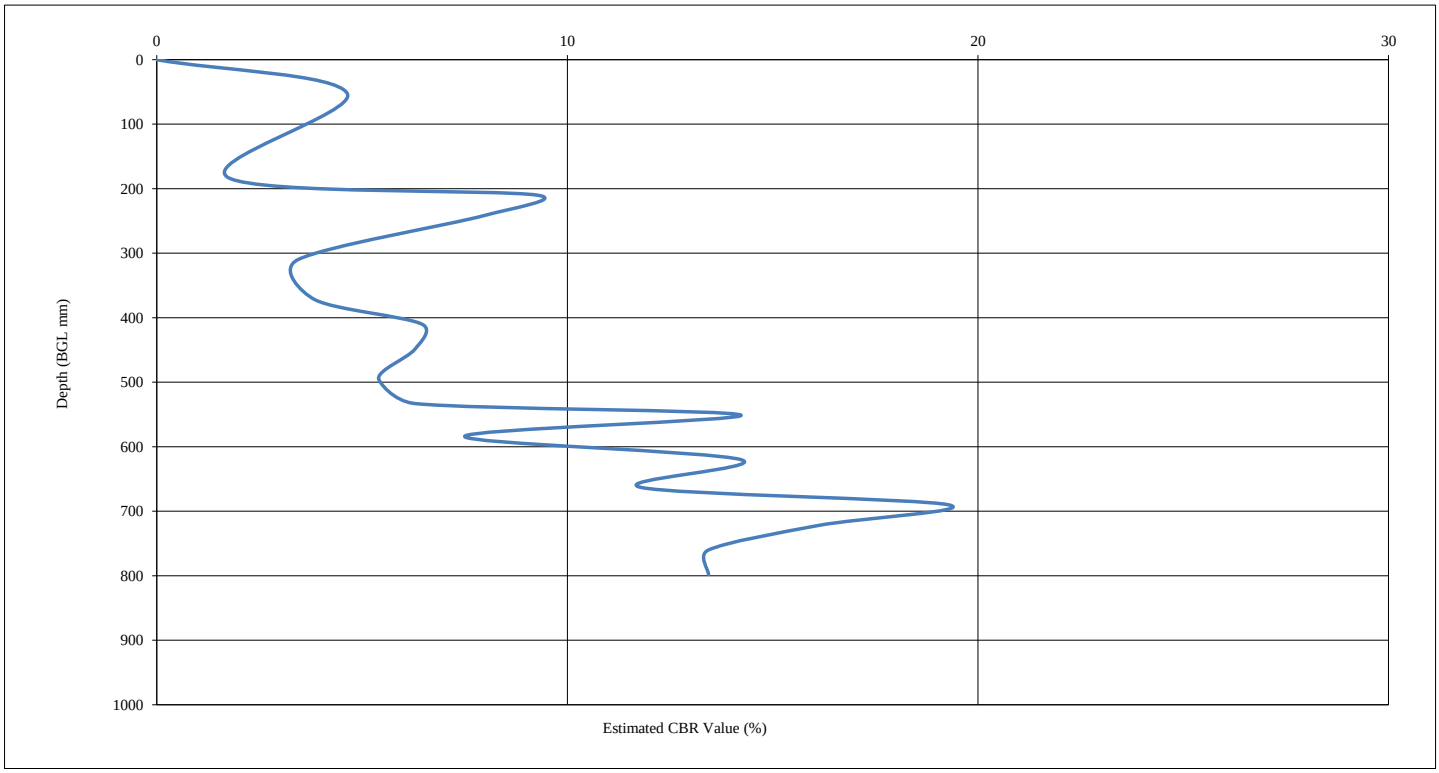
Site Engineer:	Checked By:	Date:	Approved By:	Date:
JJ	NG	08.02.2022	BH	20/04/2022

Determination of Dynamic Cone Penetrometer - Estimated CBR Value (%)

In Accordance with TRL Report PR/INT/277/04

Site Name	Cherryfield Drive	**Test Date:**	07/02/2022
Site Ref	15-280	**Test Location:**	Cherryfield Drive
Test No.:	DCP140	**Easting:**	0
Initial Depth (mm BGL):	0	**Northing:**	0
Final Depth (mm BGL):	798		

Estimated California Bearing Ratio Graph



Start Depth (mm) BGL	Finish Depth (mm) BGL	No. of Blows	Blows Per Layer	DCP mm/Blows	Ave Estimated Layer (CBR %)
0	183	2	2	91.50	2.55
183	372	6	4	47.25	5.13
372	533	10	4	40.25	6.08
533	798	24	14	18.93	13.49

Comments

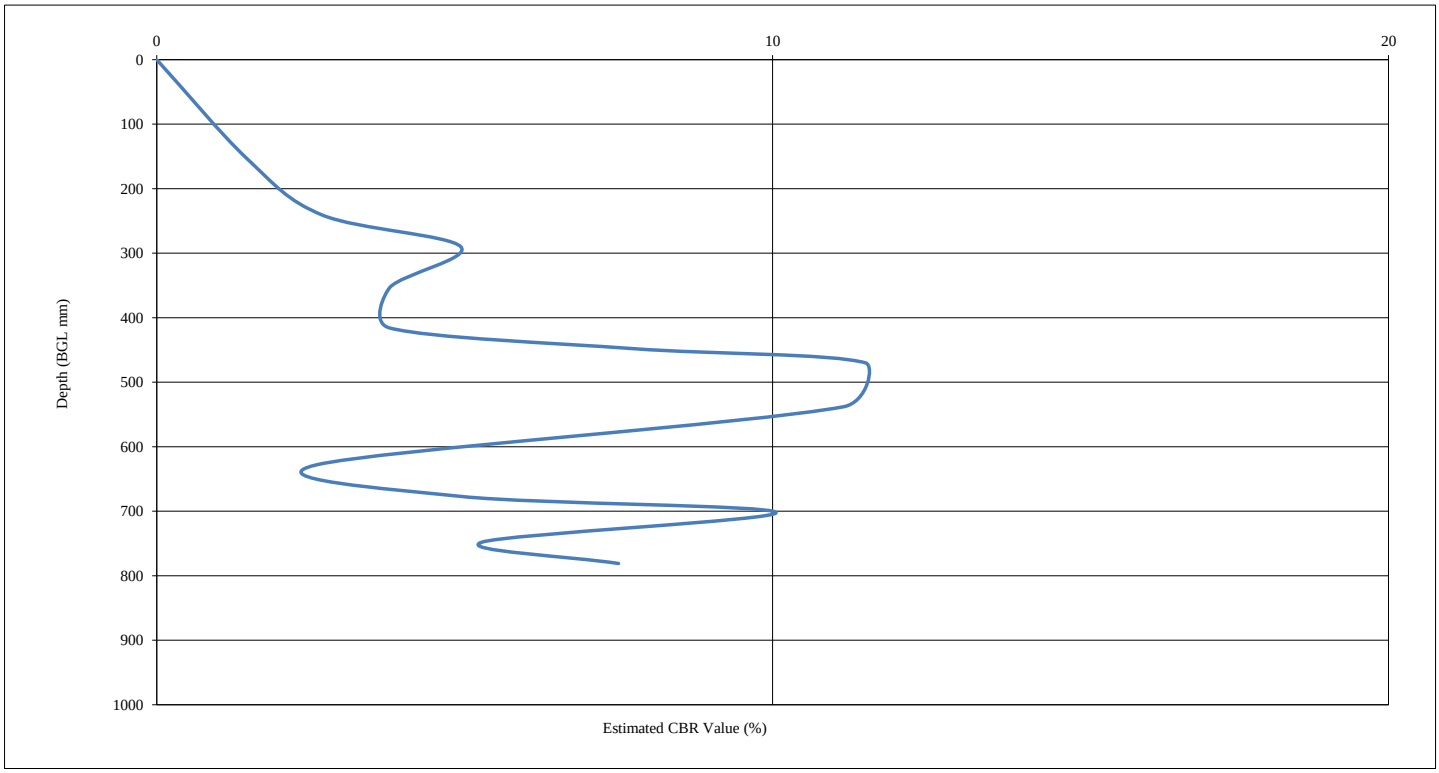
Site Engineer:	Checked By:	Date:	Approved By:	Date:
JJ	NG	08.02.2022	BH	19/04/2022

Determination of Dynamic Cone Penetrometer - Estimated CBR Value (%)

In Accordance with TRL Report PR/INT/277/04

Site Name	Cherryfield Drive	**Test Date:**	07/02/2022
Site Ref	15-280	**Test Location:**	Cherryfield Drive
Test No.:	DCP141	**Easting:**	0
Initial Depth (mm BGL):	0	**Northing:**	0
Final Depth (mm BGL):	781		

Estimated California Bearing Ratio Graph



Start Depth (mm) BGL	Finish Depth (mm) BGL	No. of Blows	Blows Per Layer	DCP mm/Blows	Ave Estimated Layer (CBR %)
0	241	2	2	120.50	1.91
241	416	5	3	58.33	4.11
416	628	11	6	35.33	6.98
628	781	15	4	38.25	6.41

Comments

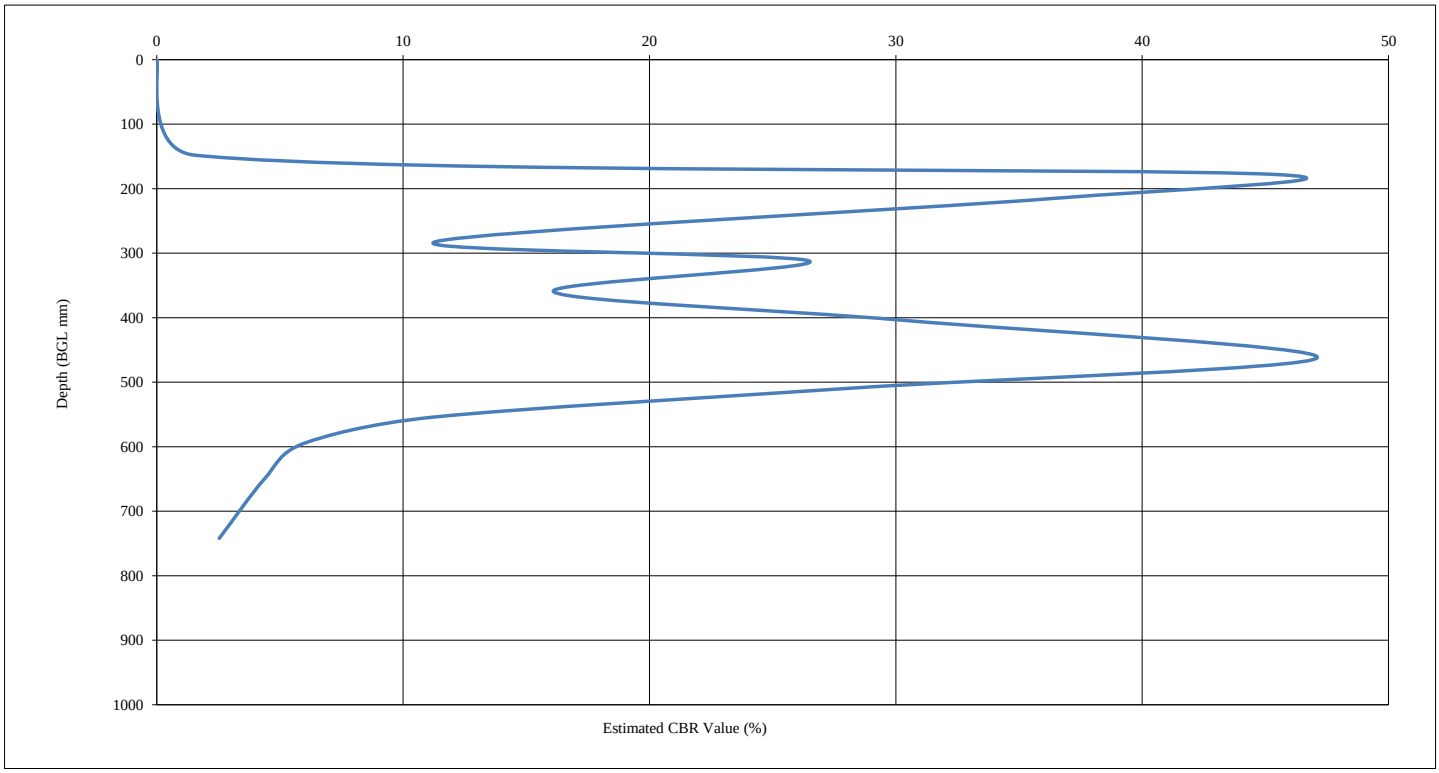
Site Engineer:	Checked By:	Date:	Approved By:	Date:
JJ	NG	08.02.2022	BH	19/04/2022

Determination of Dynamic Cone Penetrometer - Estimated CBR Value (%)

In Accordance with TRL Report PR/INT/277/04

Site Name	Cherryfield Drive	**Test Date:**	07/02/2022
Site Ref	15-280	**Test Location:**	Cherryfield Drive
Test No.:	DCP142	**Easting:**	0
Initial Depth (mm BGL):	0	**Northing:**	0
Final Depth (mm BGL):	742		

Estimated California Bearing Ratio Graph



Start Depth (mm) BGL	Finish Depth (mm) BGL	No. of Blows	Blows Per Layer	DCP mm/Blows	Ave Estimated Layer (CBR %)
0	148	1	1	148.00	1.53
148	282	14	13	10.31	25.65
282	554	42	28	9.71	27.31
554	742	45	3	62.67	3.81

Comments

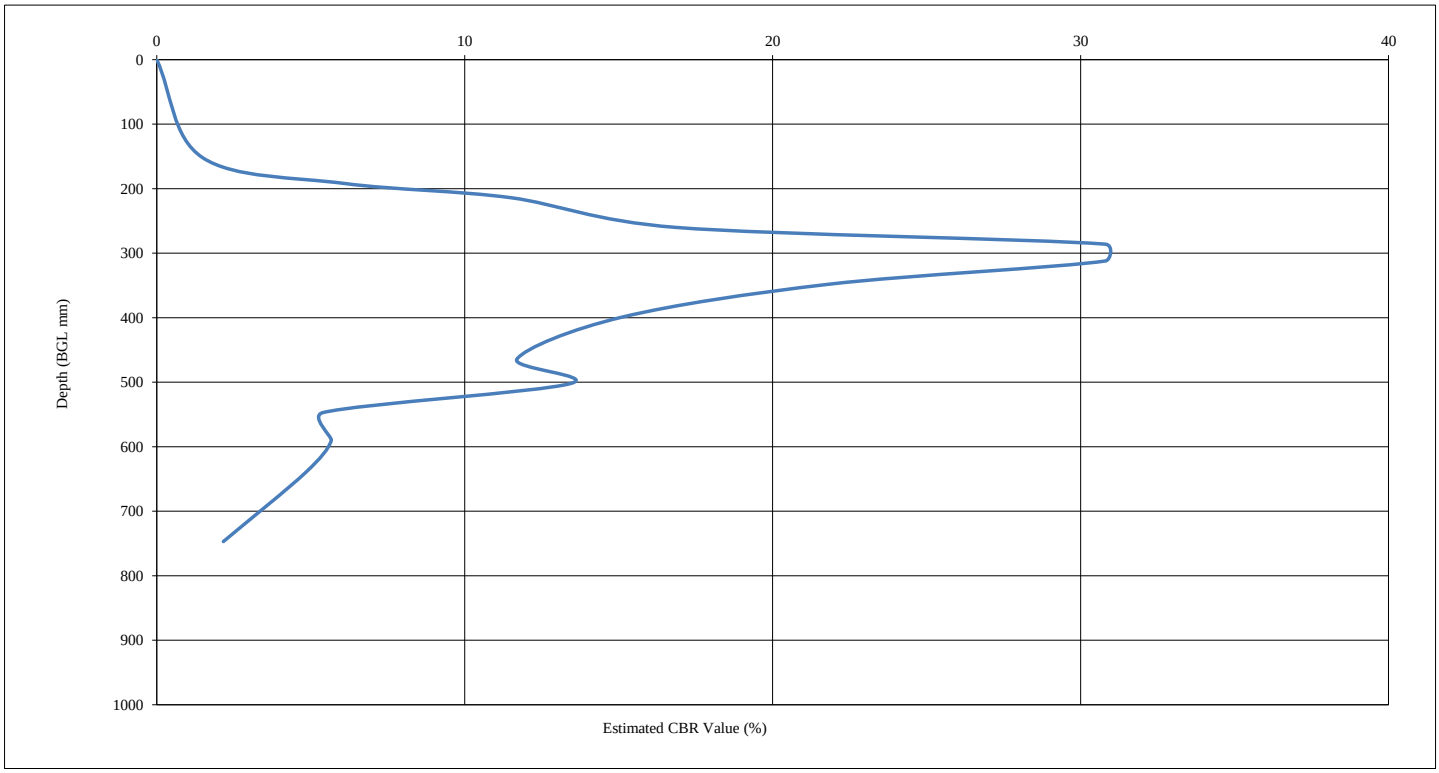
Site Engineer:	Checked By:	Date:	Approved By:	Date:
JJ	NG	08.02.2022	BH	19/04/2022

Determination of Dynamic Cone Penetrometer - Estimated CBR Value (%)

In Accordance with TRL Report PR/INT/277/04

Site Name	Cherryfield Drive	**Test Date:**	07/02/2022
Site Ref	15-280	**Test Location:**	Cherryfield Drive
Test No.:	DCP143	**Easting:**	0
Initial Depth (mm BGL):	0	**Northing:**	0
Final Depth (mm BGL):	747		

Estimated California Bearing Ratio Graph



Start Depth (mm) BGL	Finish Depth (mm) BGL	No. of Blows	Blows Per Layer	DCP mm/Blows	Ave Estimated Layer (CBR %)
0	192	2	2	96.00	2.43
192	464	21	19	14.32	18.13
464	747	24	3	94.33	2.47

Comments

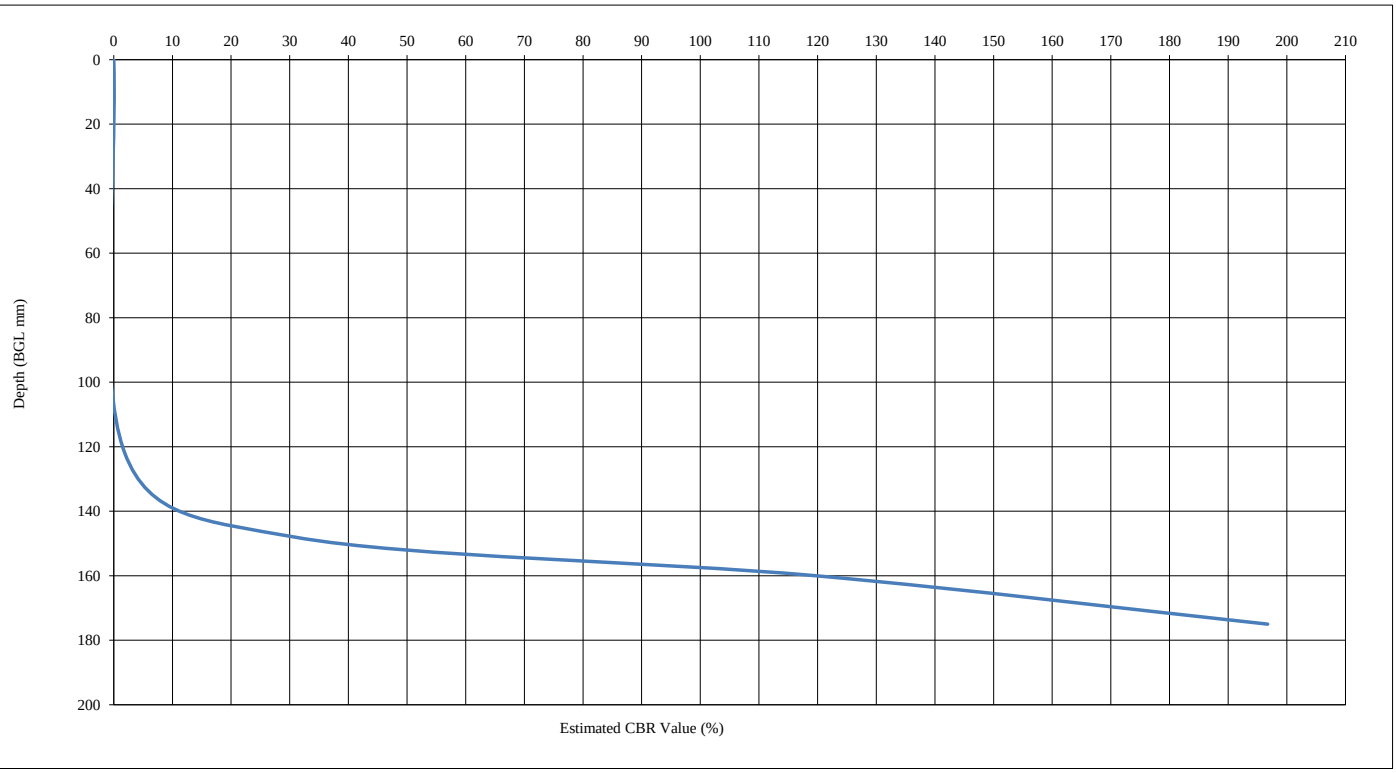
Site Engineer:	Checked By:	Date:	Approved By:	Date:
JJ	NG	08.02.2022	BH	19/04/2022

Determination of Dynamic Cone Penetrometer - Estimated CBR Value (%)

In Accordance with TRL Report PR/INT/277/04

Site Name	Cherryfield Drive	**Test Date:**	07/02/2022
Site Ref	15-280	**Test Location:**	Cherryfield Drive
Test No.:	DCP144	**Easting:**	0
Initial Depth (mm BGL):	0	**Northing:**	0
Final Depth (mm BGL):	175		

Estimated California Bearing Ratio Graph



Start Depth (mm) BGL	Finish Depth (mm) BGL	No. of Blows	Blows Per Layer	DCP mm/Blows	Ave Estimated Layer (CBR %)
0	122	1	1	122.00	1.88
122	175	19	18	2.94	96.44

Comments

Terminated on obstruction

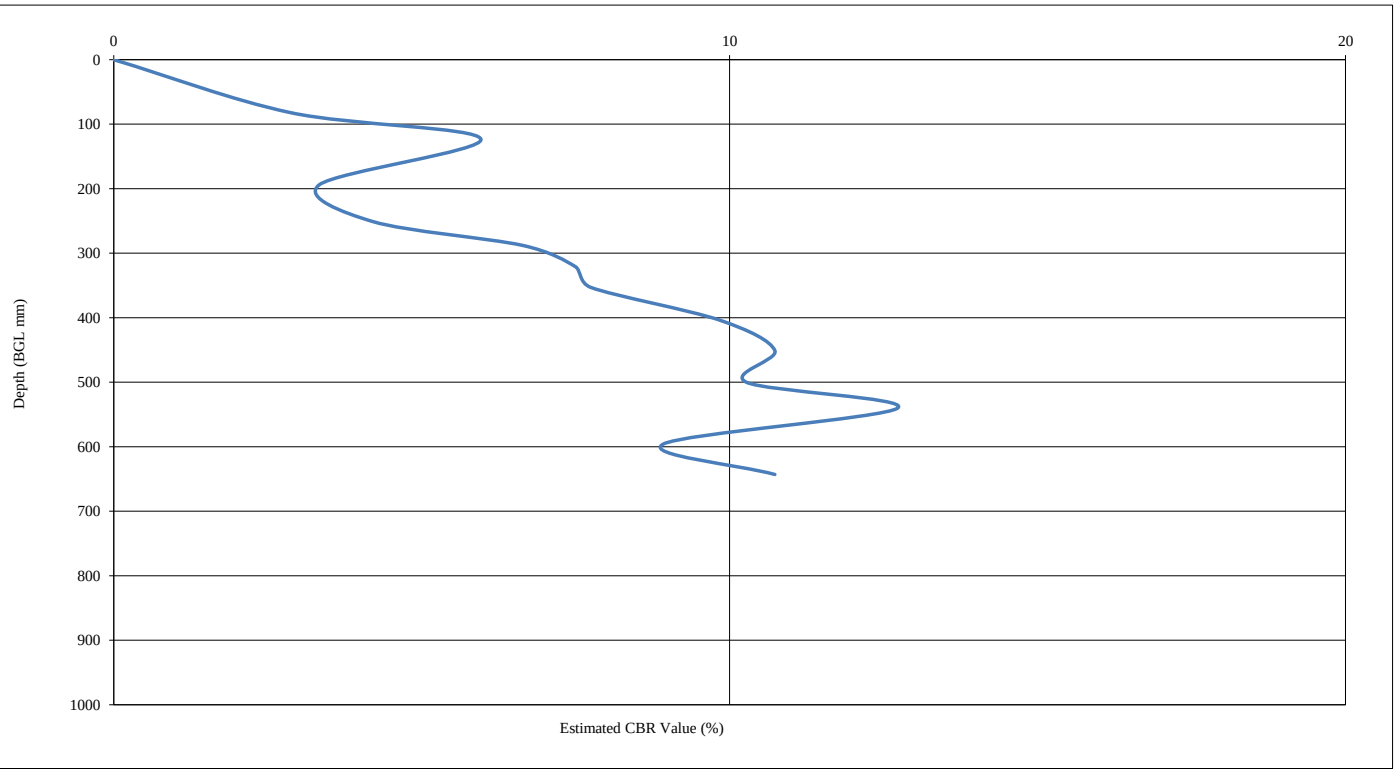
Site Engineer:	Checked By:	Date:	Approved By:	Date:
JJ	NG	08.02.2022	BH	19/04/2022

Determination of Dynamic Cone Penetrometer - Estimated CBR Value (%)

In Accordance with TRL Report PR/INT/277/04

Site Name	Cherryfield Drive	**Test Date:**	07/02/2022
Site Ref	15-280	**Test Location:**	Cherryfield Drive
Test No.:	DCP145	**Easting:**	0
Initial Depth (mm BGL):	0	**Northing:**	0
Final Depth (mm BGL):	643		

Estimated California Bearing Ratio Graph



Start Depth (mm) BGL	Finish Depth (mm) BGL	No. of Blows	Blows Per Layer	DCP mm/Blows	Ave Estimated Layer (CBR %)
0	194	3	3	64.67	3.68
194	451	11	8	32.13	7.71
451	643	19	8	24.00	10.50

Comments

Site Engineer:	Checked By:	Date:	Approved By:	Date:
JJ	NG	08.02.2022	BH	19/04/2022

APPENDIX IX
BRE365 SOAKAWAY TEST CERTIFICATES

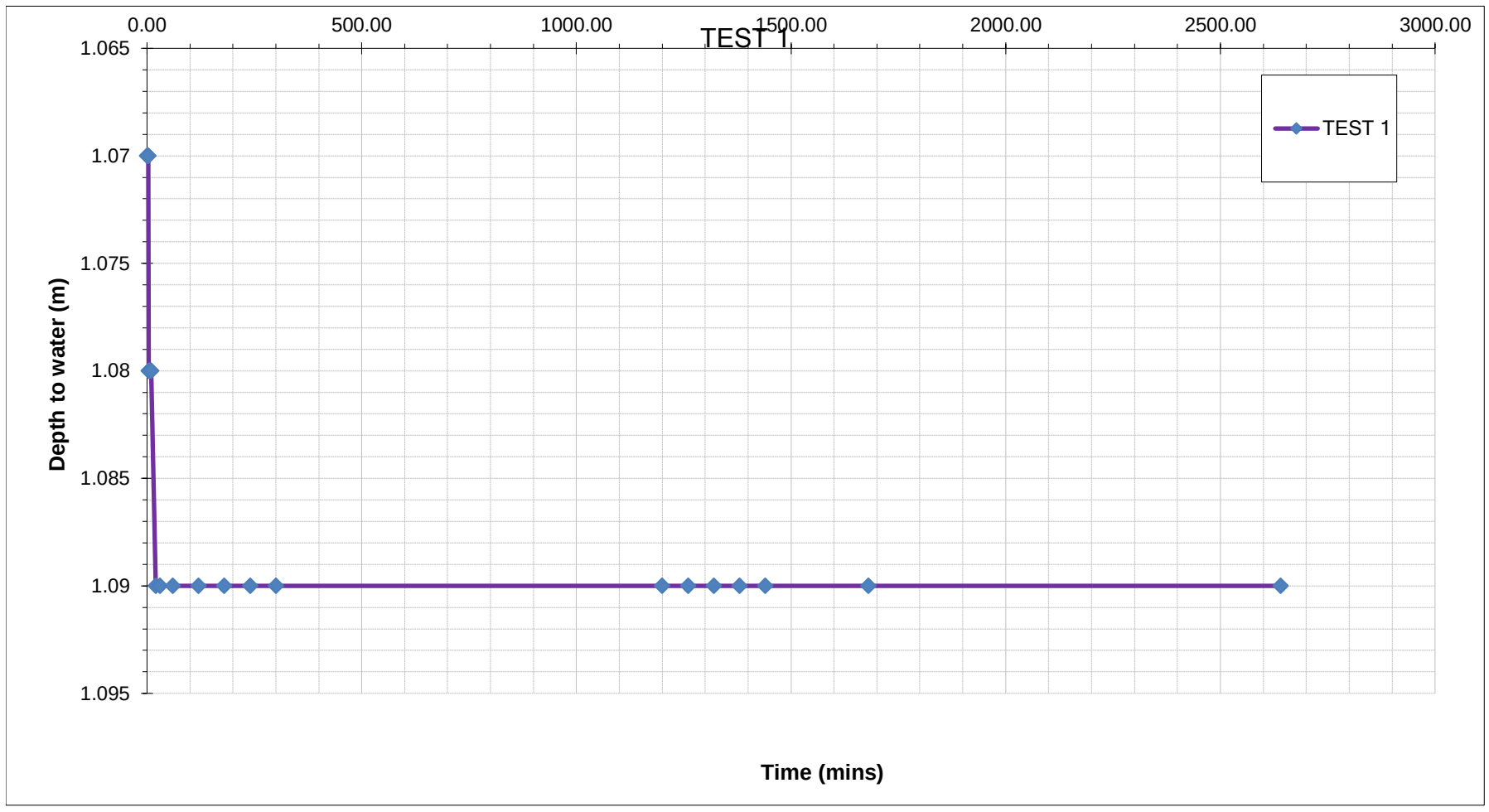
Site:	Cherryfield Drive. Kirkby	
Job Number:	15-280	
Date of Test:	10.01.22	
Trial Pit Number:	SA101	
Length:	2.50	m
Width:	0.70	m
Depth:	3.20	m
Groundwater Level:		m

Test did not reach the 25% or 75% effective storage depth and therefore test has been recorded to have failed.

TEST 1		TEST 2		TEST 3	
Time(min)	Depth to Water (m)	Time(min)	Depth to Water (m)	Time(min)	Depth to Water (m)
0.00	1.07				
1.00	1.07				
2.00	1.07				
3.00	1.07				
4.00	1.08				
5.00	1.08				
10.00	1.08				
20.00	1.09				
30.00	1.09				
60.00	1.09				
120.00	1.09				
180.00	1.09				
240.00	1.09				
300.00	1.09				
1200.00	1.09				
1260.00	1.09				
1320.00	1.09				
1380.00	1.09				
1440.00	1.09				
1680.00	1.09				
2640.00	1.09				

Effective Storage Depth	m	2.13		
75% Effective Storage Depth	m	1.60		
(i.e. depth below GL)	m	1.60		
25% Effective Storage Depth	m	0.53		
(i.e. depth below GL)	m	2.67		
Effective Storage Depth 75%-25%	m	1.07		
Time to fall to 75% effective depth	mins	N/A		
Time to fall to 25% effective depth	mins	N/A		
V (75%-25%)	m3	1.86		
a (50%)	m2	8.57		
t (75%-25%)	mins	N/A		
SOIL INFILTRATION RATE	m/s	**N/A**	**N/A**	**N/A**

DESIGN SOIL INFILTRATION RATE, f	**0.00E+00**



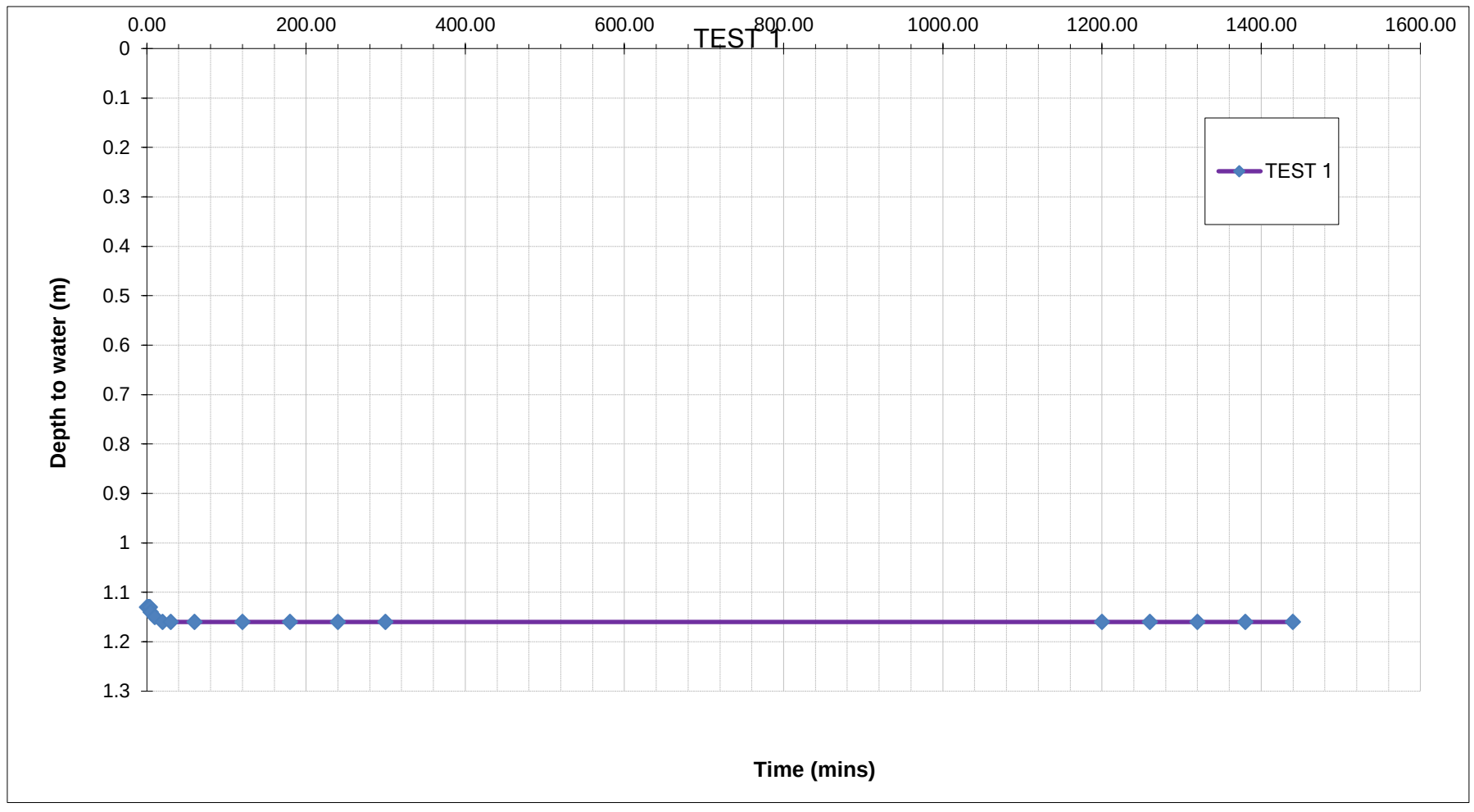
Site:	Cherryfield Drive. Kirkby	
Job Number:	15-280	
Date of Test:	10.01.22	
Trial Pit Number:	SA102	
Length:	2.60	m
Width:	0.80	m
Depth:	2.60	m
Groundwater Level:		m

Test did not reach the 25% or 75% effective storage depth and therefore test has been recorded to have failed.

TEST 1		TEST 2		TEST 3	
Time(min)	Depth to Water (m)	Time(min)	Depth to Water (m)	Time(min)	Depth to Water (m)
0.00	1.13				
1.00	1.13				
2.00	1.13				
3.00	1.13				
4.00	1.13				
5.00	1.14				
10.00	1.15				
20.00	1.16				
30.00	1.16				
60.00	1.16				
120.00	1.16				
180.00	1.16				
240.00	1.16				
300.00	1.16				
1200.00	1.16				
1260.00	1.16				
1320.00	1.16				
1380.00	1.16				
1440.00	1.16				

Effective Storage Depth	m	1.47		
75% Effective Storage Depth	m	1.10		
(i.e. depth below GL)	m	1.50		
25% Effective Storage Depth	m	0.37		
(i.e. depth below GL)	m	2.23		
Effective Storage Depth 75%-25%	m	0.74		
Time to fall to 75% effective depth	mins	N/A		
Time to fall to 25% effective depth	mins	N/A		
V (75%-25%)	m3	1.53		
a (50%)	m2	7.08		
t (75%-25%)	mins	N/A		
SOIL INFILTRATION RATE	m/s	**N/A**	**N/A**	**N/A**

DESIGN SOIL INFILTRATION RATE, f	**0.00E+00**



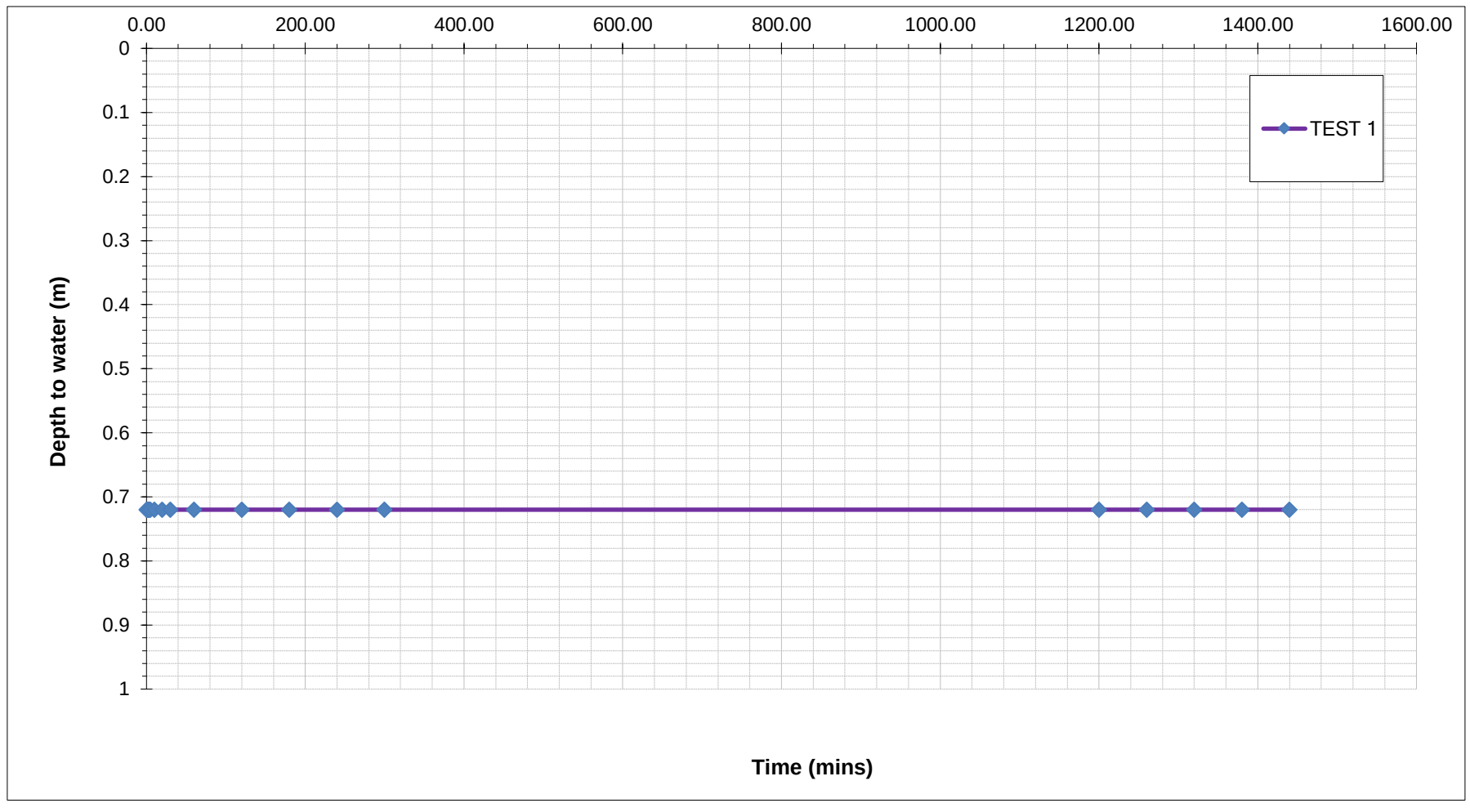
Site:	Cherryfield Drive. Kirkby	
Job Number:	15-280	
Date of Test:	10.01.22	
Trial Pit Number:	SA103	
Length:	2.50	m
Width:	0.70	m
Depth:	2.23	m
Groundwater Level:		m

Test did not reach the 25% or 75% effective storage depth and therefore test has been recorded to have failed.

TEST 1		TEST 2		TEST 3	
Time(min)	Depth to Water (m)	Time(min)	Depth to Water (m)	Time(min)	Depth to Water (m)
0.00	0.72				
1.00	0.72				
2.00	0.72				
3.00	0.72				
4.00	0.72				
5.00	0.72				
10.00	0.72				
20.00	0.72				
30.00	0.72				
60.00	0.72				
120.00	0.72				
180.00	0.72				
240.00	0.72				
300.00	0.72				
1200.00	0.72				
1260.00	0.72				
1320.00	0.72				
1380.00	0.72				
1440.00	0.72				

Effective Storage Depth	m	1.51		
75% Effective Storage Depth	m	1.13		
(i.e. depth below GL)	m	1.10		
25% Effective Storage Depth	m	0.38		
(i.e. depth below GL)	m	1.85		
Effective Storage Depth 75%-25%	m	0.76		
Time to fall to 75% effective depth	mins	N/A		
Time to fall to 25% effective depth	mins	N/A		
V (75%-25%)	m3	1.32		
a (50%)	m2	6.58		
t (75%-25%)	mins	N/A		
SOIL INFILTRATION RATE	m/s	**N/A**	**N/A**	**N/A**

DESIGN SOIL INFILTRATION RATE, f	**0.00E+00**



Site:	Cherryfield Drive. Kirkby	
Job Number:	15-280	
Date of Test:	10.01.22	

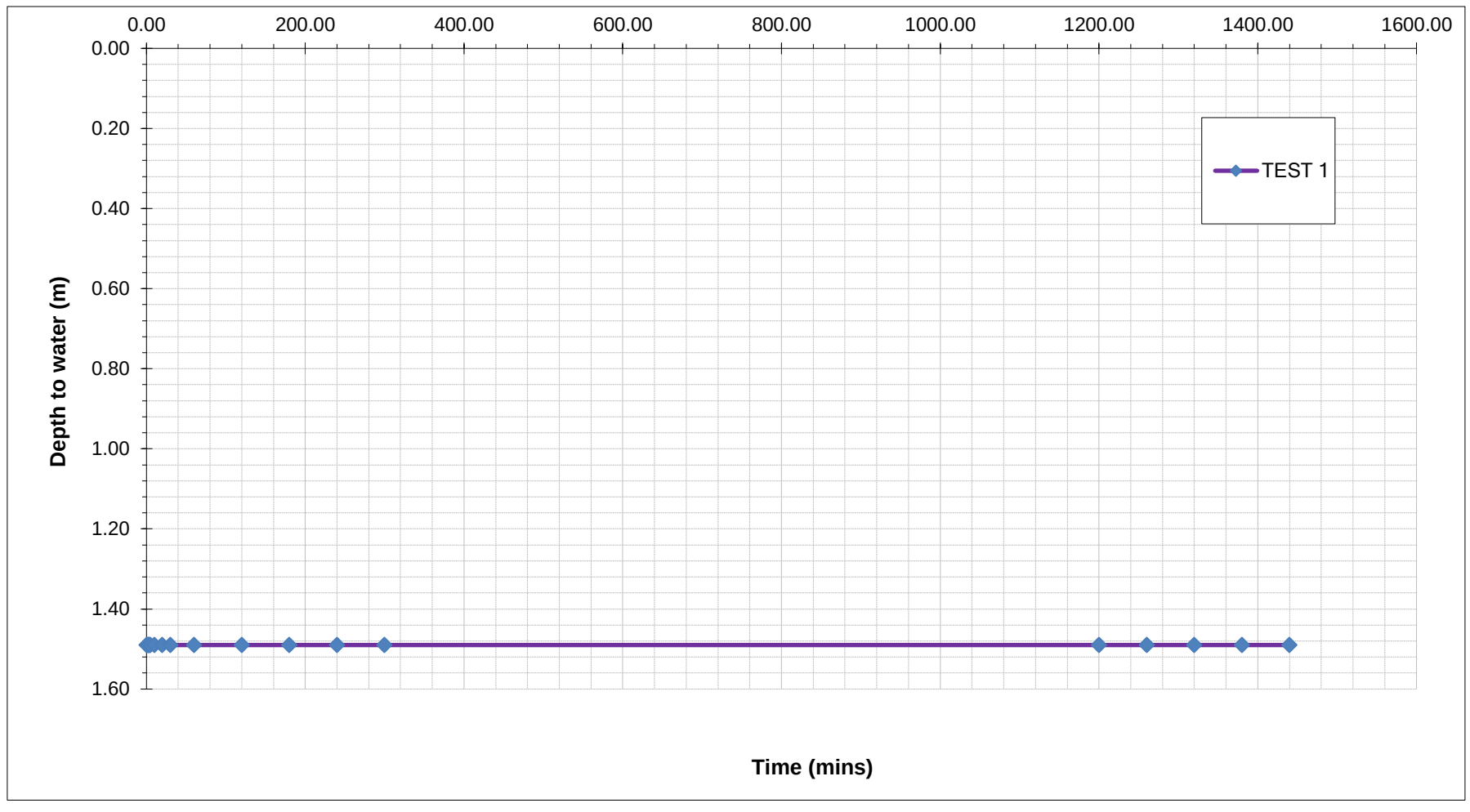
Trial Pit Number:	SA104	
Length:	2.00	m
Width:	0.90	m
Depth:	2.60	m
Groundwater Level:		m

Test did not reach the 25% or 75% effective storage depth and therefore test has been recorded to have failed.

TEST 1		TEST 2		TEST 3	
Time(min)	Depth to Water (m)	Time(min)	Depth to Water (m)	Time(min)	Depth to Water (m)
0.00	1.49				
1.00	1.49				
2.00	1.49				
3.00	1.49				
4.00	1.49				
5.00	1.49				
10.00	1.49				
20.00	1.49				
30.00	1.49				
60.00	1.49				
120.00	1.49				
180.00	1.49				
240.00	1.49				
300.00	1.49				
1200.00	1.49				
1260.00	1.49				
1320.00	1.49				
1380.00	1.49				
1440.00	1.49				

Effective Storage Depth	m	1.11		
75% Effective Storage Depth	m	0.83		
(i.e. depth below GL)	m	1.77		
25% Effective Storage Depth	m	0.28		
(i.e. depth below GL)	m	2.32		
Effective Storage Depth 75%-25%	m	0.56		
Time to fall to 75% effective depth	mins	N/A		
Time to fall to 25% effective depth	mins	N/A		
V (75%-25%)	m3	1.00		
a (50%)	m2	5.02		
t (75%-25%)	mins	N/A		
SOIL INFILTRATION RATE	m/s	**N/A**	**N/A**	**N/A**

DESIGN SOIL INFILTRATION RATE, f	**0.00E+00**



Site:	Cherryfield Drive. Kirkby	
Job Number:	15-280	
Date of Test:	10.01.22	

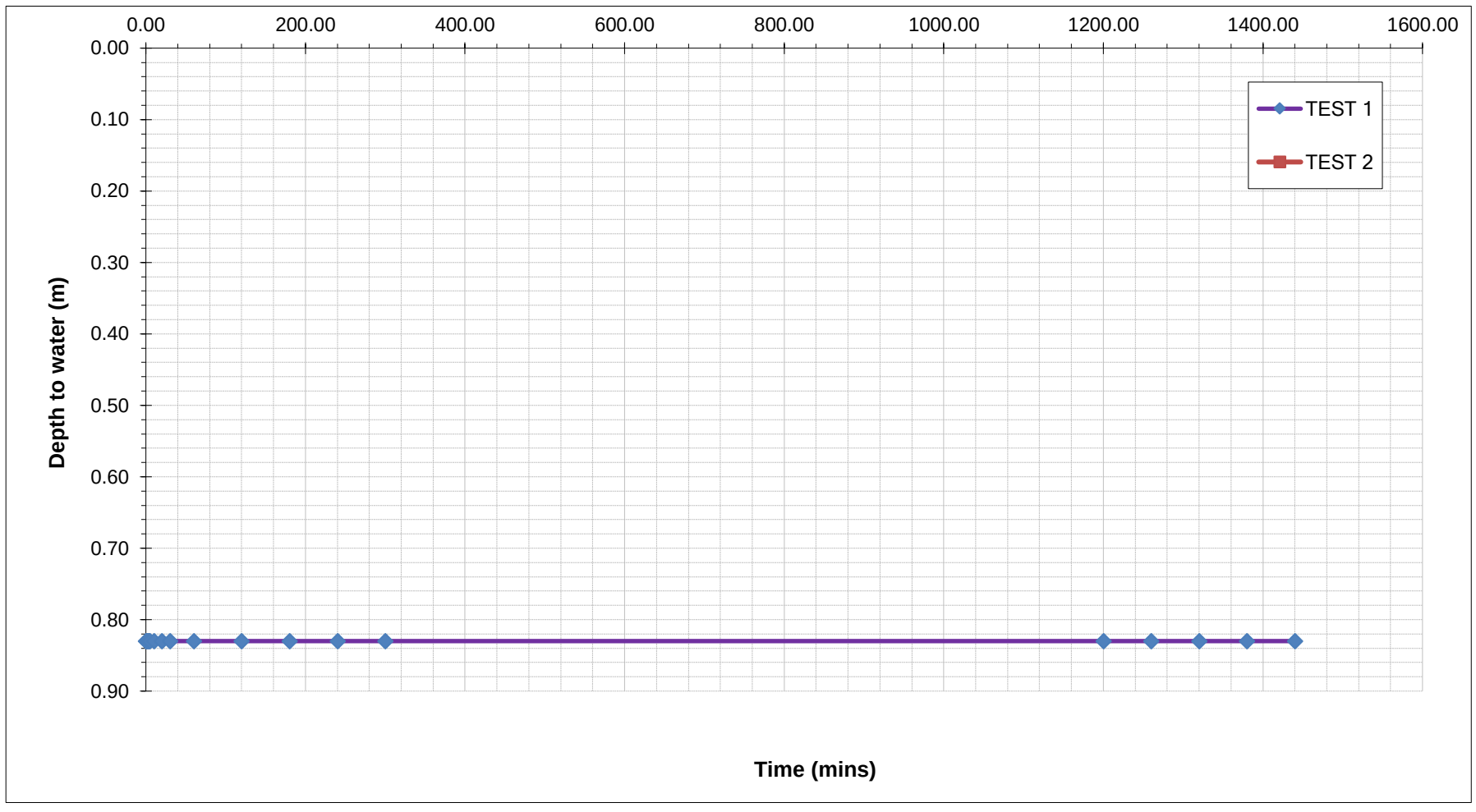
Trial Pit Number:	SA105	
Length:	2.00	m
Width:	0.60	m
Depth:	2.70	m
Groundwater Level:		m

Test did not reach the 25% or 75% effective storage depth and therefore test has been recorded to have failed.

TEST 1		TEST 2		TEST 3	
Time(min)	Depth to Water (m)	Time(min)	Depth to Water (m)	Time(min)	Depth to Water (m)
0.00	0.83				
1.00	0.83				
2.00	0.83				
3.00	0.83				
4.00	0.83				
5.00	0.83				
10.00	0.83				
20.00	0.83				
30.00	0.83				
60.00	0.83				
120.00	0.83				
180.00	0.83				
240.00	0.83				
300.00	0.83				
1200.00	0.83				
1260.00	0.83				
1320.00	0.83				
1380.00	0.83				
1440.00	0.83				

Effective Storage Depth	m	1.87		
75% Effective Storage Depth	m	1.40		
(i.e. depth below GL)	m	1.30		
25% Effective Storage Depth	m	0.47		
(i.e. depth below GL)	m	2.23		
Effective Storage Depth 75%-25%	m	0.94		
Time to fall to 75% effective depth	mins	N/A		
Time to fall to 25% effective depth	mins	N/A		
V (75%-25%)	m3	1.12		
a (50%)	m2	6.06		
t (75%-25%)	mins	N/A		
SOIL INFILTRATION RATE	m/s	**N/A**	**N/A**	**N/A**

DESIGN SOIL INFILTRATION RATE, f	**0.00E+00**



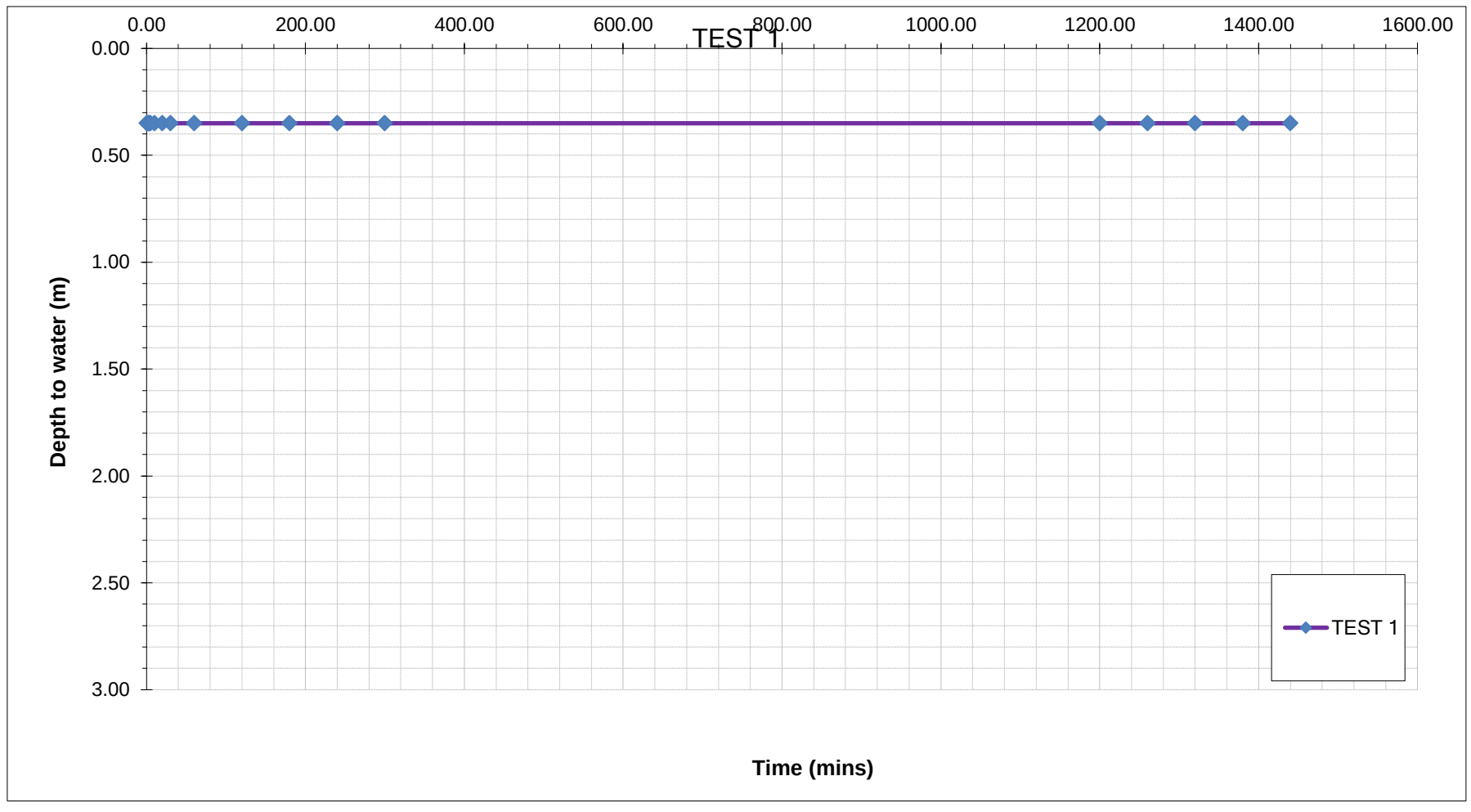
Site:	Cherryfield Drive. Kirkby	
Job Number:	15-280	
Date of Test:	11.01.22	
Trial Pit Number:	SA106	
Length:	2.50	m
Width:	0.50	m
Depth:	2.40	m
Groundwater Level:		m

Test did not reach the 25% or 75% effective storage depth and therefore test has been recorded to have failed.

TEST 1		TEST 2		TEST 3	
Time(min)	Depth to Water (m)	Time(min)	Depth to Water (m)	Time(min)	Depth to Water (m)
0.00	0.35				
1.00	0.35				
2.00	0.35				
3.00	0.35				
4.00	0.35				
5.00	0.35				
10.00	0.35				
20.00	0.35				
30.00	0.35				
60.00	0.35				
120.00	0.35				
180.00	0.35				
240.00	0.35				
300.00	0.35				
1200.00	0.35				
1260.00	0.35				
1320.00	0.35				
1380.00	0.35				
1440.00	0.35				

Effective Storage Depth	m	2.05		
75% Effective Storage Depth	m	1.54		
(i.e. depth below GL)	m	0.86		
25% Effective Storage Depth	m	0.51		
(i.e. depth below GL)	m	1.89		
Effective Storage Depth 75%-25%	m	1.03		
Time to fall to 75% effective depth	mins	N/A		
Time to fall to 25% effective depth	mins	N/A		
V (75%-25%)	m3	1.28		
a (50%)	m2	7.40		
t (75%-25%)	mins	N/A		
SOIL INFILTRATION RATE	m/s	**N/A**	**N/A**	**N/A**

DESIGN SOIL INFILTRATION RATE, f	**0.00E+00**



Site:	Cherryfield Drive. Kirkby	
Job Number:	15-280	
Date of Test:	11.01.22	

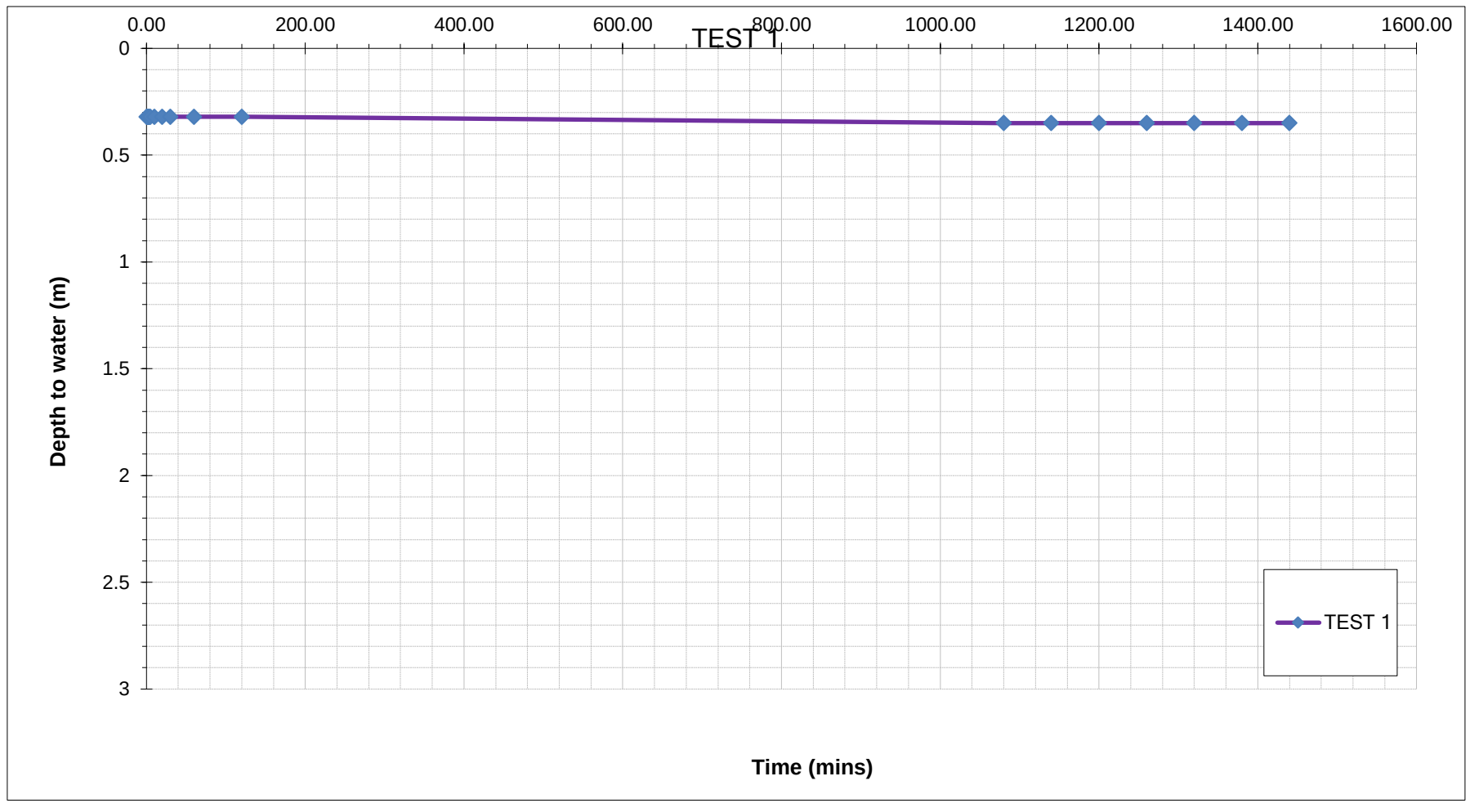
Trial Pit Number:	SA107	
Length:	2.00	m
Width:	0.60	m
Depth:	2.50	m
Groundwater Level:		m

Test did not reach the 25% or 75% effective storage depth and therefore test has been recorded to have failed.

TEST 1		TEST 2		TEST 3	
Time(min)	Depth to Water (m)	Time(min)	Depth to Water (m)	Time(min)	Depth to Water (m)
0.00	0.32				
1.00	0.32				
2.00	0.32				
3.00	0.32				
4.00	0.32				
5.00	0.32				
10.00	0.32				
20.00	0.32				
30.00	0.32				
60.00	0.32				
120.00	0.32				
1080.00	0.35				
1140.00	0.35				
1200.00	0.35				
1260.00	0.35				
1320.00	0.35				
1380.00	0.35				
1440.00	0.35				

Effective Storage Depth	m	2.18		
75% Effective Storage Depth	m	1.64		
(i.e. depth below GL)	m	0.87		
25% Effective Storage Depth	m	0.55		
(i.e. depth below GL)	m	1.96		
Effective Storage Depth 75%-25%	m	1.09		
Time to fall to 75% effective depth	mins	N/A		
Time to fall to 25% effective depth	mins	N/A		
V (75%-25%)	m3	1.31		
a (50%)	m2	6.87		
t (75%-25%)	mins	N/A		
SOIL INFILTRATION RATE	m/s	**N/A**	**N/A**	**N/A**

DESIGN SOIL INFILTRATION RATE, f	**0.00E+00**



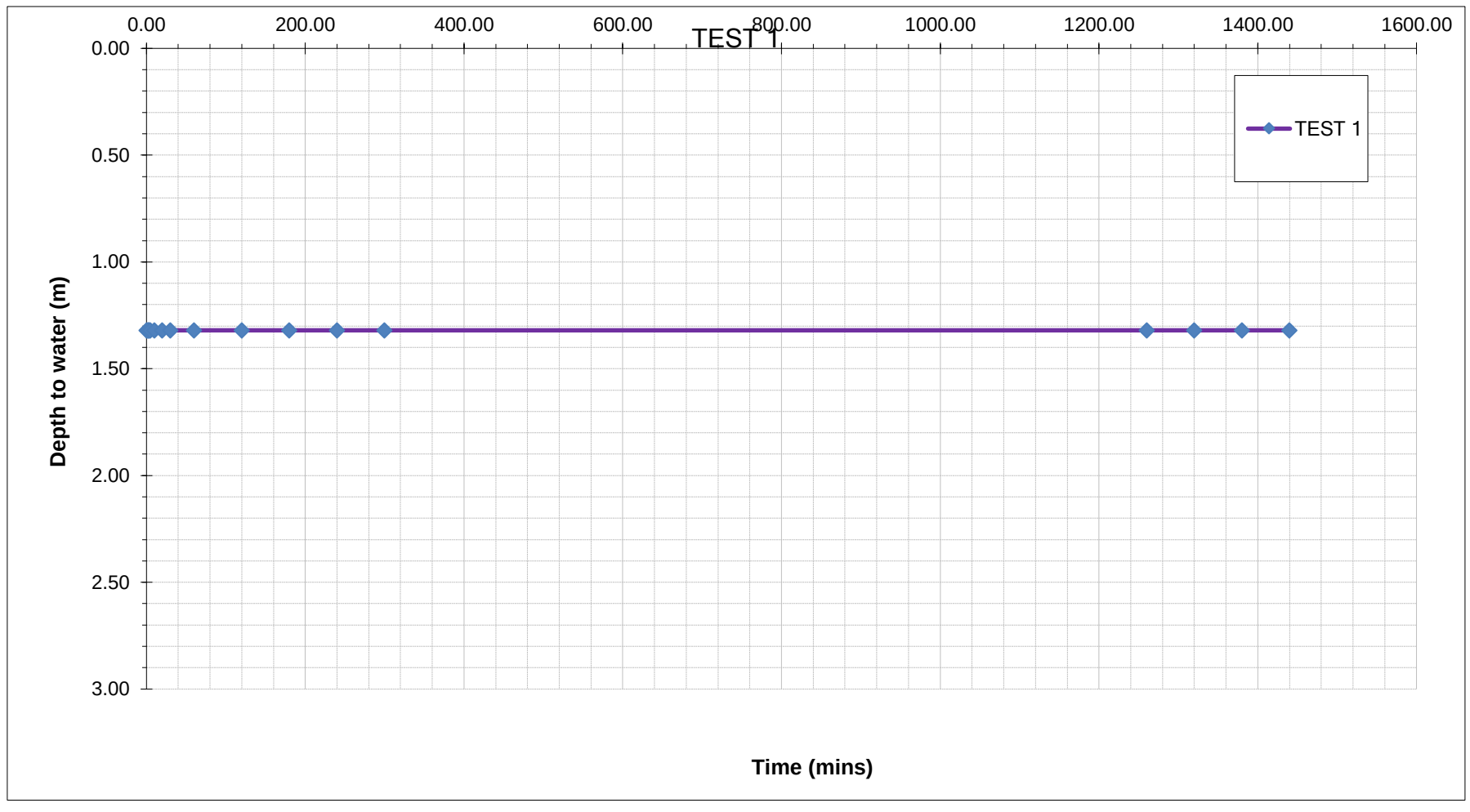
Site:	Cherryfield Drive. Kirkby	
Job Number:	15-280	
Date of Test:	11.01.22	
Trial Pit Number:	SA108	
Length:	2.90	m
Width:	1.20	m
Depth:	2.40	m
Groundwater Level:		m

Test did not reach the 25% or 75% effective storage depth and therefore test has been recorded to have failed.

TEST 1		TEST 2		TEST 3	
Time(min)	Depth to Water (m)	Time(min)	Depth to Water (m)	Time(min)	Depth to Water (m)
0.00	1.32				
1.00	1.32				
2.00	1.32				
3.00	1.32				
4.00	1.32				
5.00	1.32				
10.00	1.32				
20.00	1.32				
30.00	1.32				
60.00	1.32				
120.00	1.32				
180.00	1.32				
240.00	1.32				
300.00	1.32				
1260.00	1.32				
1320.00	1.32				
1380.00	1.32				
1440.00	1.32				

Effective Storage Depth	m	1.08		
75% Effective Storage Depth	m	0.81		
(i.e. depth below GL)	m	1.59		
25% Effective Storage Depth	m	0.27		
(i.e. depth below GL)	m	2.13		
Effective Storage Depth 75%-25%	m	0.54		
Time to fall to 75% effective depth	mins	N/A		
Time to fall to 25% effective depth	mins	N/A		
V (75%-25%)	m3	1.88		
a (50%)	m2	7.91		
t (75%-25%)	mins	N/A		
SOIL INFILTRATION RATE	m/s	**N/A**	**N/A**	**N/A**

DESIGN SOIL INFILTRATION RATE, f	**0.00E+00**



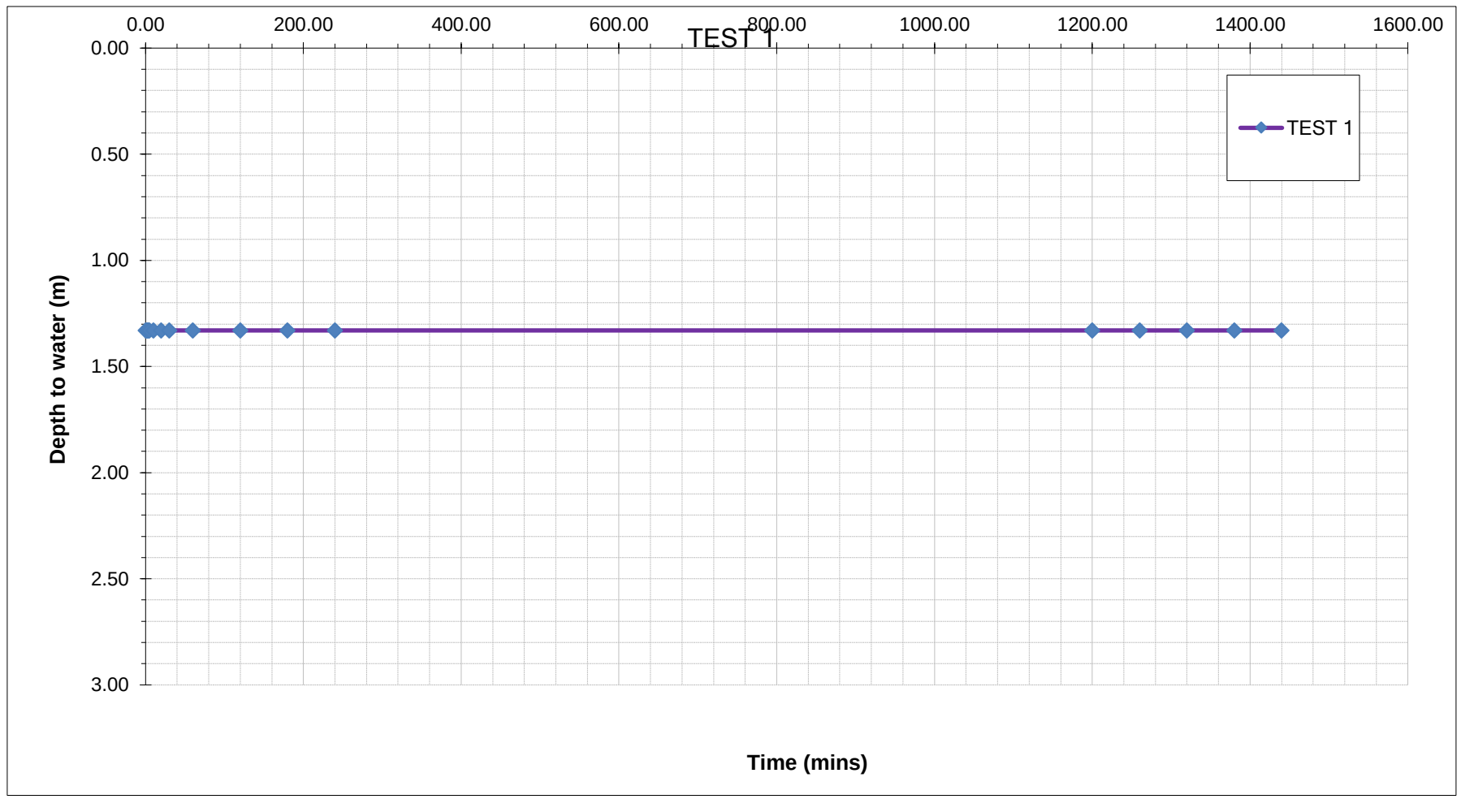
Site:	Cherryfield Drive. Kirkby	
Job Number:	15-280	
Date of Test:	11.01.22	
Trial Pit Number:	SA109	
Length:	2.10	m
Width:	1.20	m
Depth:	2.20	m
Groundwater Level:		m

Test did not reach the 25% or 75% effective storage depth and therefore test has been recorded to have failed.

TEST 1		TEST 2		TEST 3	
Time(min)	Depth to Water (m)	Time(min)	Depth to Water (m)	Time(min)	Depth to Water (m)
0.00	1.33				
1.00	1.33				
2.00	1.33				
3.00	1.33				
4.00	1.33				
5.00	1.33				
10.00	1.33				
20.00	1.33				
30.00	1.33				
60.00	1.33				
120.00	1.33				
180.00	1.33				
240.00	1.33				
1200.00	1.33				
1260.00	1.33				
1320.00	1.33				
1380.00	1.33				
1440.00	1.33				

Effective Storage Depth	m	0.87		
75% Effective Storage Depth	m	0.65		
(i.e. depth below GL)	m	1.55		
25% Effective Storage Depth	m	0.22		
(i.e. depth below GL)	m	1.98		
Effective Storage Depth 75%-25%	m	0.44		
Time to fall to 75% effective depth	mins	N/A		
Time to fall to 25% effective depth	mins	N/A		
V (75%-25%)	m3	1.10		
a (50%)	m2	5.39		
t (75%-25%)	mins	N/A		
SOIL INFILTRATION RATE	m/s	**N/A**	**N/A**	**N/A**

DESIGN SOIL INFILTRATION RATE, f	**0.00E+00**



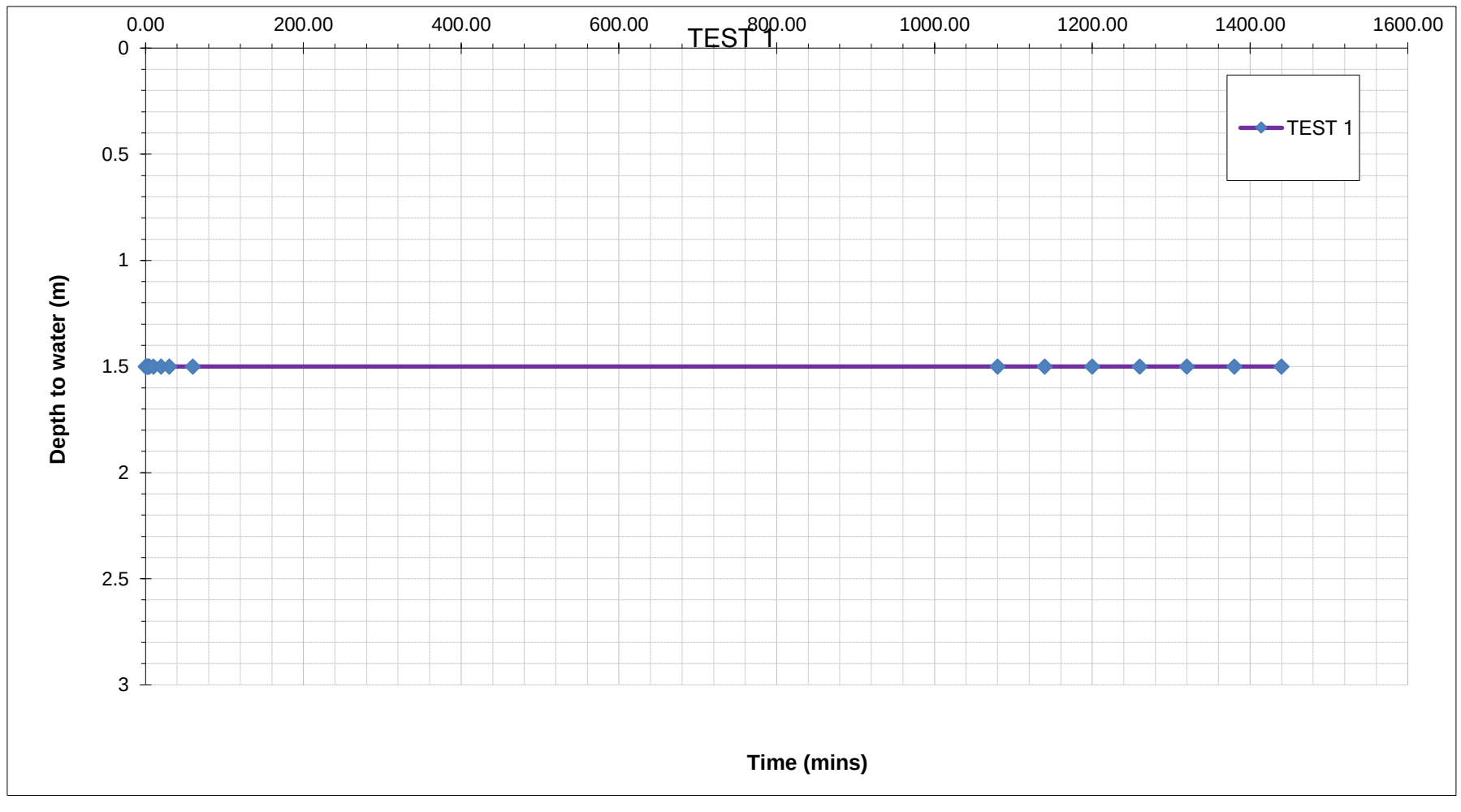
Site:	Cherryfield Drive. Kirkby	
Job Number:	15-280	
Date of Test:	13.01.22	
Trial Pit Number:	SA110	
Length:	2.20	m
Width:	1.20	m
Depth:	2.20	m
Groundwater Level:		m

Test did not reach the 25% or 75% effective storage depth and therefore test has been recorded to have failed.

TEST 1		TEST 2		TEST 3	
Time(min)	Depth to Water (m)	Time(min)	Depth to Water (m)	Time(min)	Depth to Water (m)
0.00	1.5				
1.00	1.5				
2.00	1.5				
3.00	1.5				
4.00	1.5				
5.00	1.5				
10.00	1.5				
20.00	1.5				
30.00	1.5				
60.00	1.5				
1080.00	1.5				
1140.00	1.5				
1200.00	1.5				
1260.00	1.5				
1320.00	1.5				
1380.00	1.5				
1440.00	1.5				

Effective Storage Depth	m	0.70		
75% Effective Storage Depth	m	0.53		
(i.e. depth below GL)	m	1.68		
25% Effective Storage Depth	m	0.18		
(i.e. depth below GL)	m	2.03		
Effective Storage Depth 75%-25%	m	0.35		
Time to fall to 75% effective depth	mins	N/A		
Time to fall to 25% effective depth	mins	N/A		
V (75%-25%)	m3	0.92		
a (50%)	m2	5.02		
t (75%-25%)	mins	N/A		
SOIL INFILTRATION RATE	m/s	**N/A**	**N/A**	**N/A**

DESIGN SOIL INFILTRATION RATE, f	**0.00E+00**



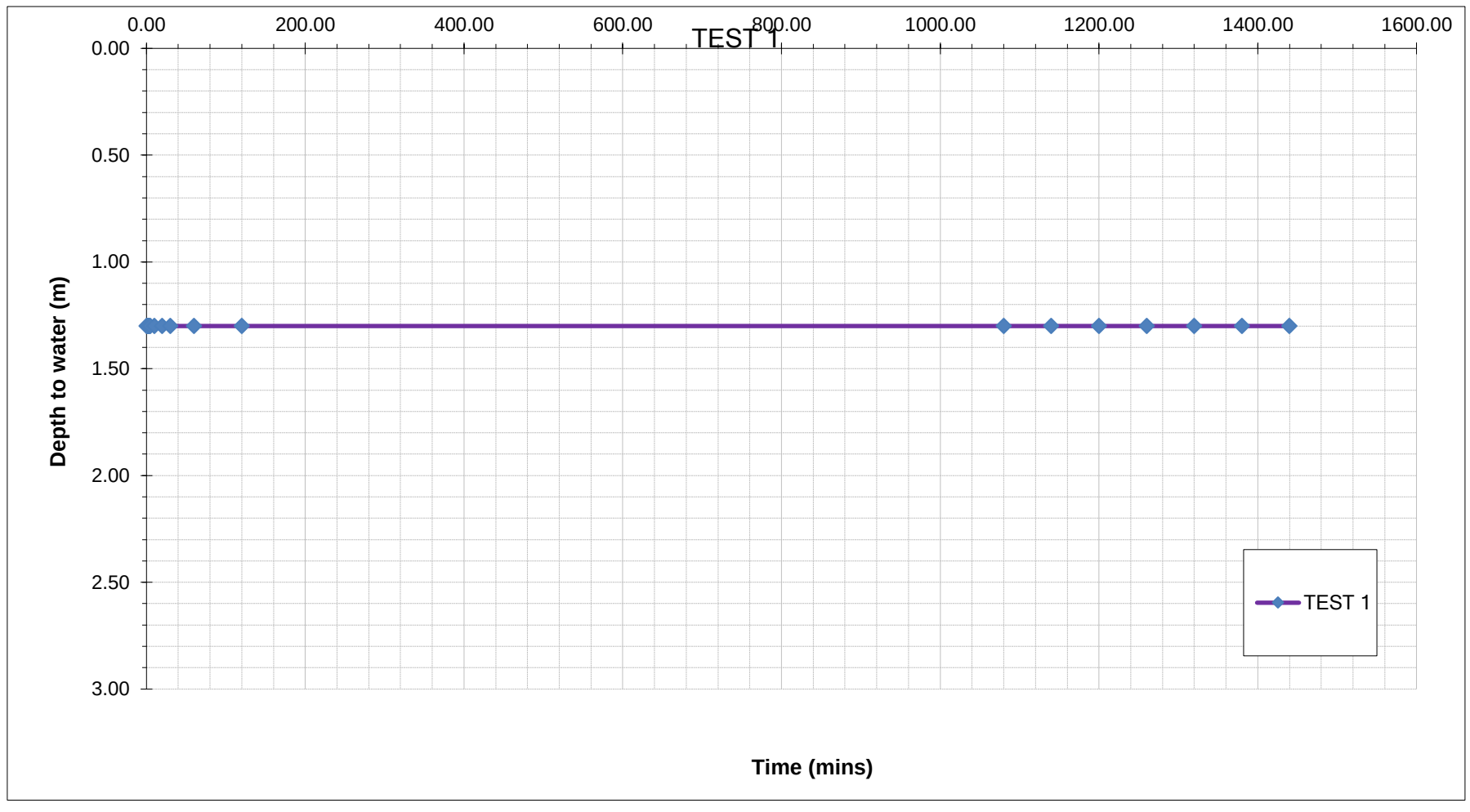
Site:	Cherryfield Drive. Kirkby	
Job Number:	15-280	
Date of Test:	13.01.22	
Trial Pit Number:	SA111	
Length:	2.90	m
Width:	0.60	m
Depth:	2.50	m
Groundwater Level:		m

Test did not reach the 25% or 75% effective storage depth and therefore test has been recorded to have failed.

TEST 1		TEST 2		TEST 3	
Time(min)	Depth to Water (m)	Time(min)	Depth to Water (m)	Time(min)	Depth to Water (m)
0.00	1.30				
1.00	1.30				
2.00	1.30				
3.00	1.30				
4.00	1.30				
5.00	1.30				
10.00	1.30				
20.00	1.30				
30.00	1.30				
60.00	1.30				
120.00	1.30				
1080.00	1.30				
1140.00	1.30				
1200.00	1.30				
1260.00	1.30				
1320.00	1.30				
1380.00	1.30				
1440.00	1.30				

Effective Storage Depth	m	1.20		
75% Effective Storage Depth	m	0.90		
(i.e. depth below GL)	m	1.60		
25% Effective Storage Depth	m	0.30		
(i.e. depth below GL)	m	2.20		
Effective Storage Depth 75%-25%	m	0.60		
Time to fall to 75% effective depth	mins	N/A		
Time to fall to 25% effective depth	mins	N/A		
V (75%-25%)	m3	1.04		
a (50%)	m2	5.94		
t (75%-25%)	mins	N/A		
SOIL INFILTRATION RATE	m/s	**N/A**	**N/A**	**N/A**

DESIGN SOIL INFILTRATION RATE, f	**0.00E+00**



APPENDIX X
GEOTECHNICAL TESTING RESULTS

MURRAY RIX

CONSULTANCY, SITE INVESTIGATION
CONSTRUCTION MATERIALS TESTING

TEST REPORT

Client e3p

Address Taylor Road
Trafford Park
Urmston
Manchester
M41 7JQ

Contract Cherryfield Drive

Job Number MRN 4287/25B
Date of Issue 24 February 2022
Pages 1 of 28

Approved Signatories

S J Hutchings, O P Davies

Notes

1 All remaining samples and remnants from this contract will be disposed 28 days from the date of this report unless you notify us to the contrary.

2 Result certificates, in this report, not bearing a UKAS mark, are not included in our UKAS accreditation schedule.

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

4 Certified that the samples have been examined and tested in accordance with the terms of the contract/order and unless otherwise stated conform to the standards/specifications quoted.

5 The results included within the report are representative of the samples submitted for analysis.

6 This certificate should not be reproduced, except in full, without the express permission of the laboratory.

MURRAY RIX

ANDREW HOUSE, HADFIELD STREET,
DUKINFIELD, CHESHIRE SK16 4QX
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UKAS TESTING 1580

TEST CERTIFICATE

LIQUID AND PLASTIC LIMIT

BS 1377: PART 2: 1990 Clause 4.4 ONE POINT METHOD & Clause 5.3

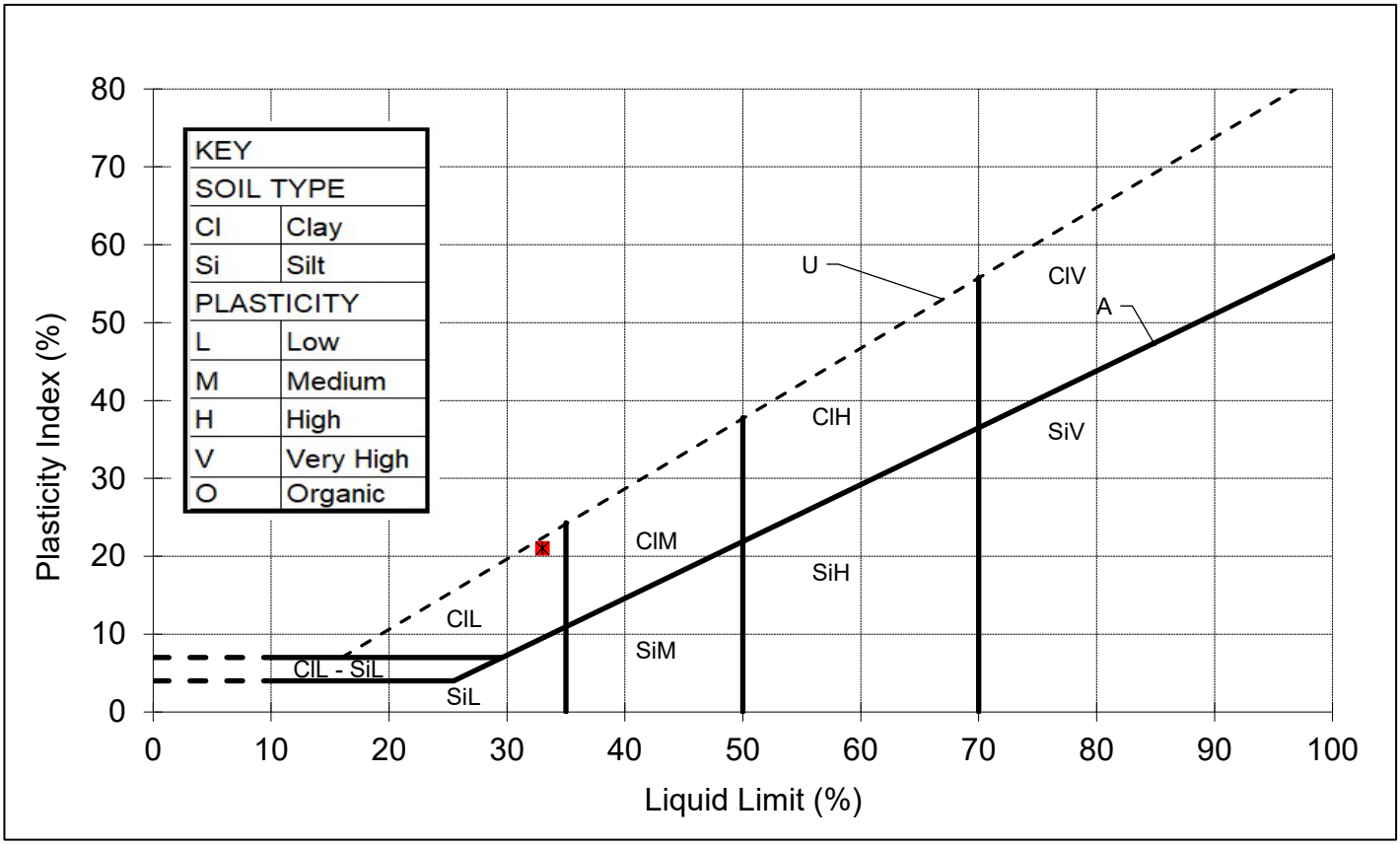
MOISTURE CONTENT METHOD BS 1377: PART 2: 1990 Clause 3.2

CLIENT	e3p
SITE	Cherryfield Drive
JOB NUMBER	MRN 4287/25B

SAMPLE LABEL	WS107 D 1.00	DATE SAMPLED	10-Jan-22
SAMPLE No.	109342	DATE RECEIVED	09-Feb-22
DATE TESTED	11-Feb-22	SAMPLED BY	Client

MATERIAL	Stiff brown silty sandy CLAY
ADVISED SOURCE	Site Investigation Sample

Natural Moisture Content (%)	Liquid Limit (%)	Plastic Limit (%)	Plasticity Index (%)	Passing 425 micron (%)
16	33	12	21	100



REMARKS
Sample tested in natural condition

SIGNED

NAME O.P. Davies BA (Hons)
(Laboratory Manager)

DATE 24-Feb-22

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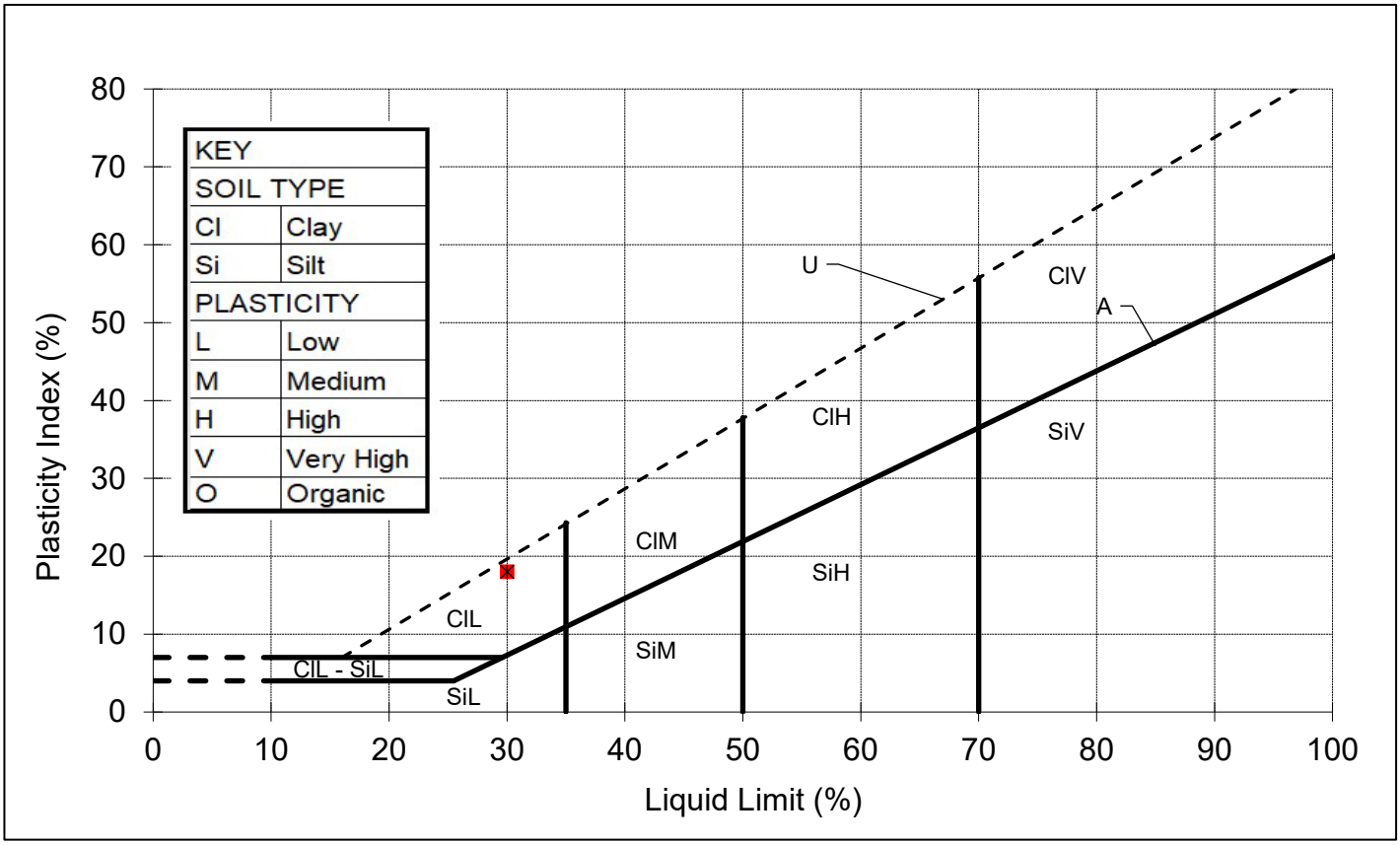
MOISTURE CONTENT METHOD BS 1377: PART 2: 1990 Clause 3.2

CLIENT	e3p
SITE	Cherryfield Drive
JOB NUMBER	MRN 4287/25B

SAMPLE LABEL	WS125 D 2.00	DATE SAMPLED	11-Jan-22
SAMPLE No.	109344	DATE RECEIVED	09-Feb-22
DATE TESTED	11-Feb-22	SAMPLED BY	Client

MATERIAL	Firm to stiff brown silty sandy CLAY
ADVISED SOURCE	Site Investigation Sample

Natural Moisture Content (%)	Liquid Limit (%)	Plastic Limit (%)	Plasticity Index (%)	Passing 425 micron (%)
16	30	12	18	100



REMARKS
Sample tested in natural condition

SIGNED

NAME O.P. Davies BA (Hons)
(Laboratory Manager)

DATE 24-Feb-22

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LIQUID AND PLASTIC LIMIT

BS 1377: PART 2: 1990 Clause 4.4 ONE POINT METHOD & Clause 5.3

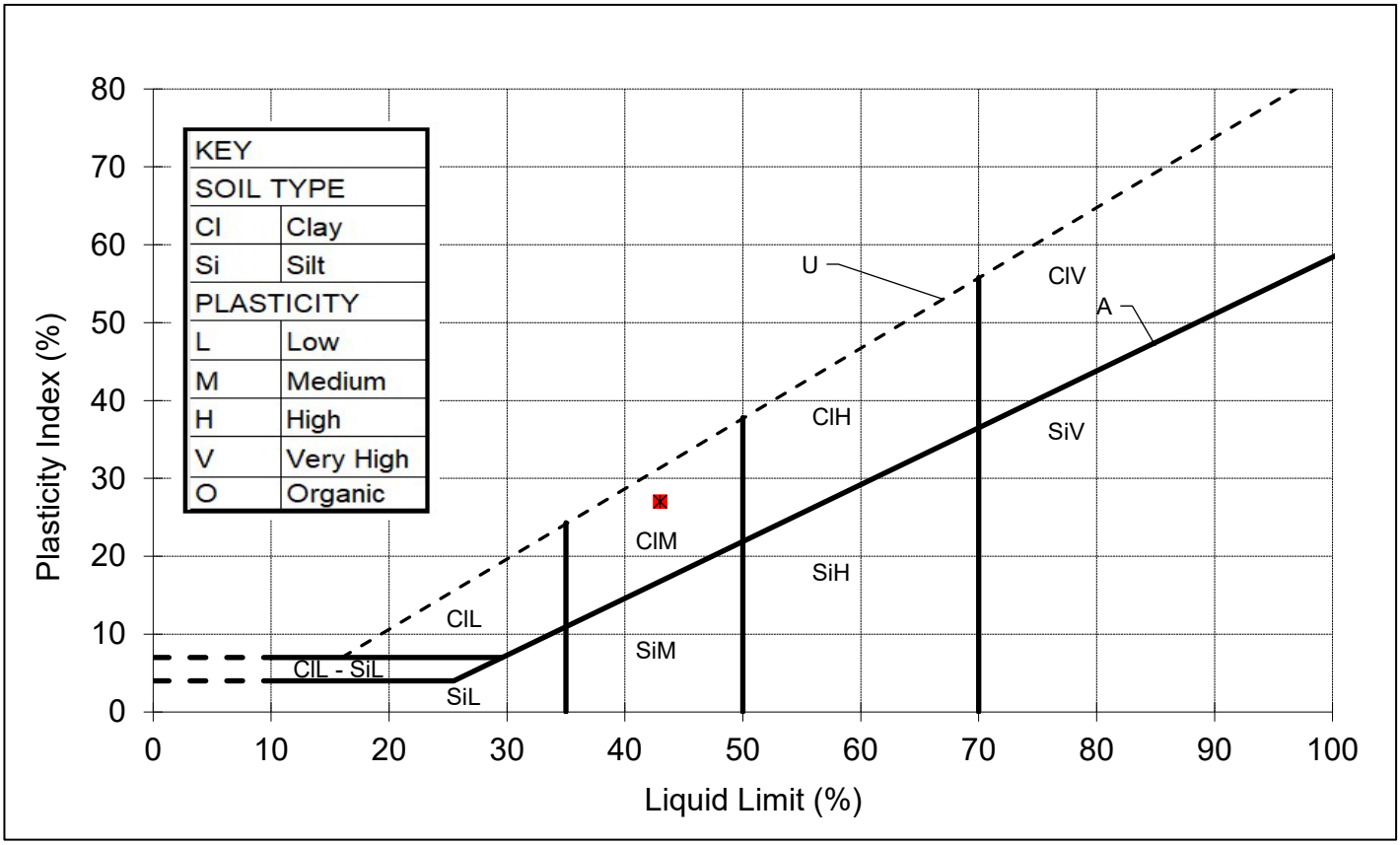
MOISTURE CONTENT METHOD BS 1377: PART 2: 1990 Clause 3.2

CLIENT	e3p
SITE	Cherryfield Drive
JOB NUMBER	MRN 4287/25B

SAMPLE LABEL	WS127 D 2.00	DATE SAMPLED	11-Jan-22
SAMPLE No.	109345	DATE RECEIVED	09-Feb-22
DATE TESTED	11-Feb-22	SAMPLED BY	Client

MATERIAL	Firm to stiff brown silty sandy CLAY
ADVISED SOURCE	Site Investigation Sample

Natural Moisture Content (%)	Liquid Limit (%)	Plastic Limit (%)	Plasticity Index (%)	Passing 425 micron (%)
24	43	16	27	99



REMARKS
Sample tested in natural condition

SIGNED

NAME O.P. Davies BA (Hons)
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DATE 24-Feb-22

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TEST CERTIFICATE

LIQUID AND PLASTIC LIMIT

BS 1377: PART 2: 1990 Clause 4.4 ONE POINT METHOD & Clause 5.3

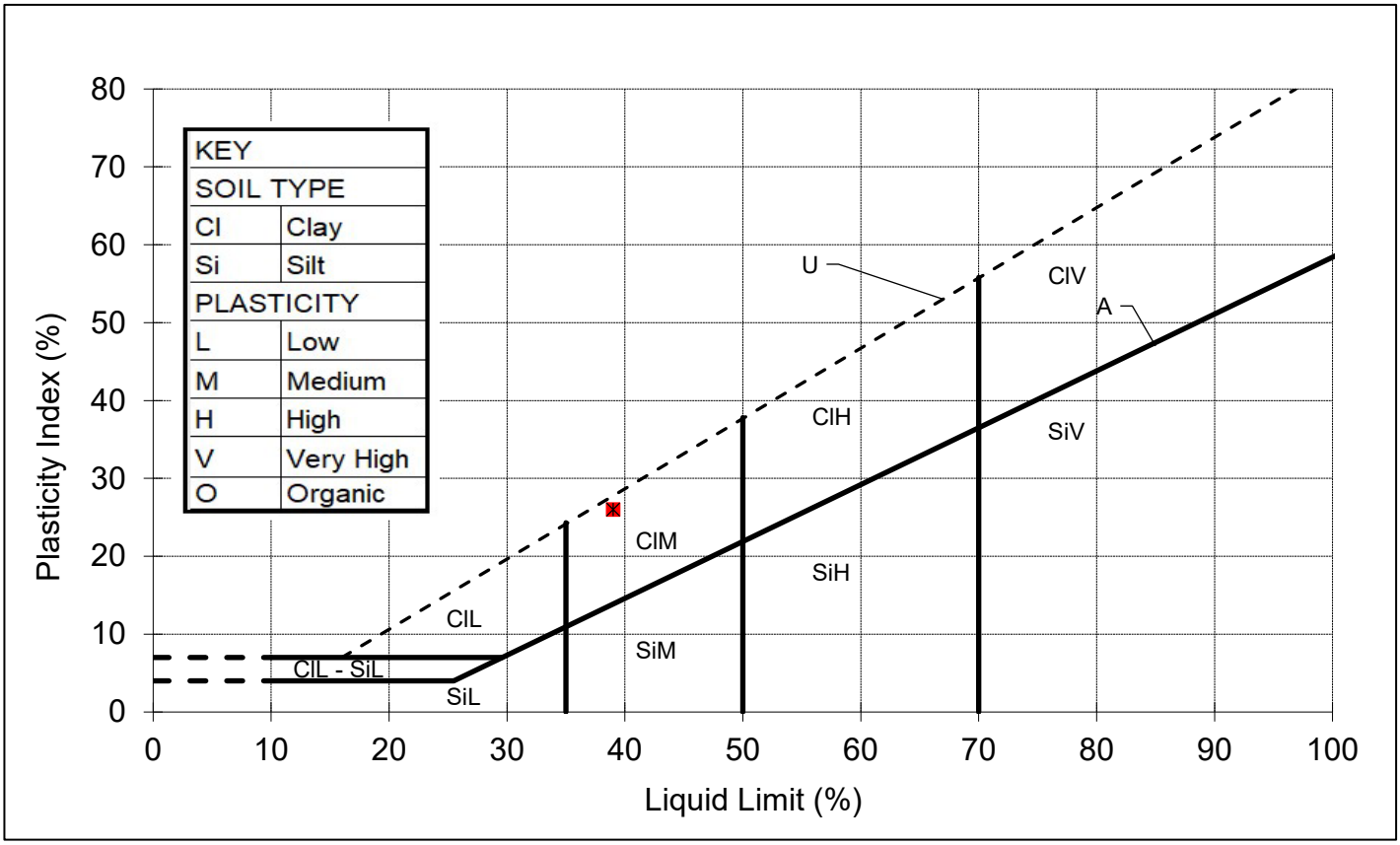
MOISTURE CONTENT METHOD BS 1377: PART 2: 1990 Clause 3.2

CLIENT	e3p
SITE	Cherryfield Drive
JOB NUMBER	MRN 4287/25B

SAMPLE LABEL	WS141 D 1.00	DATE SAMPLED	13-Jan-22
SAMPLE No.	109346	DATE RECEIVED	09-Feb-22
DATE TESTED	11-Feb-22	SAMPLED BY	Client

MATERIAL	Stiff brown silty sandy CLAY
ADVISED SOURCE	Site Investigation Sample

Natural Moisture Content (%)	Liquid Limit (%)	Plastic Limit (%)	Plasticity Index (%)	Passing 425 micron (%)
13	39	13	26	98



REMARKS
Sample tested in natural condition

SIGNED

NAME O.P. Davies BA (Hons)
(Laboratory Manager)

DATE 24-Feb-22

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LIQUID AND PLASTIC LIMIT

BS 1377: PART 2: 1990 Clause 4.4 ONE POINT METHOD & Clause 5.3

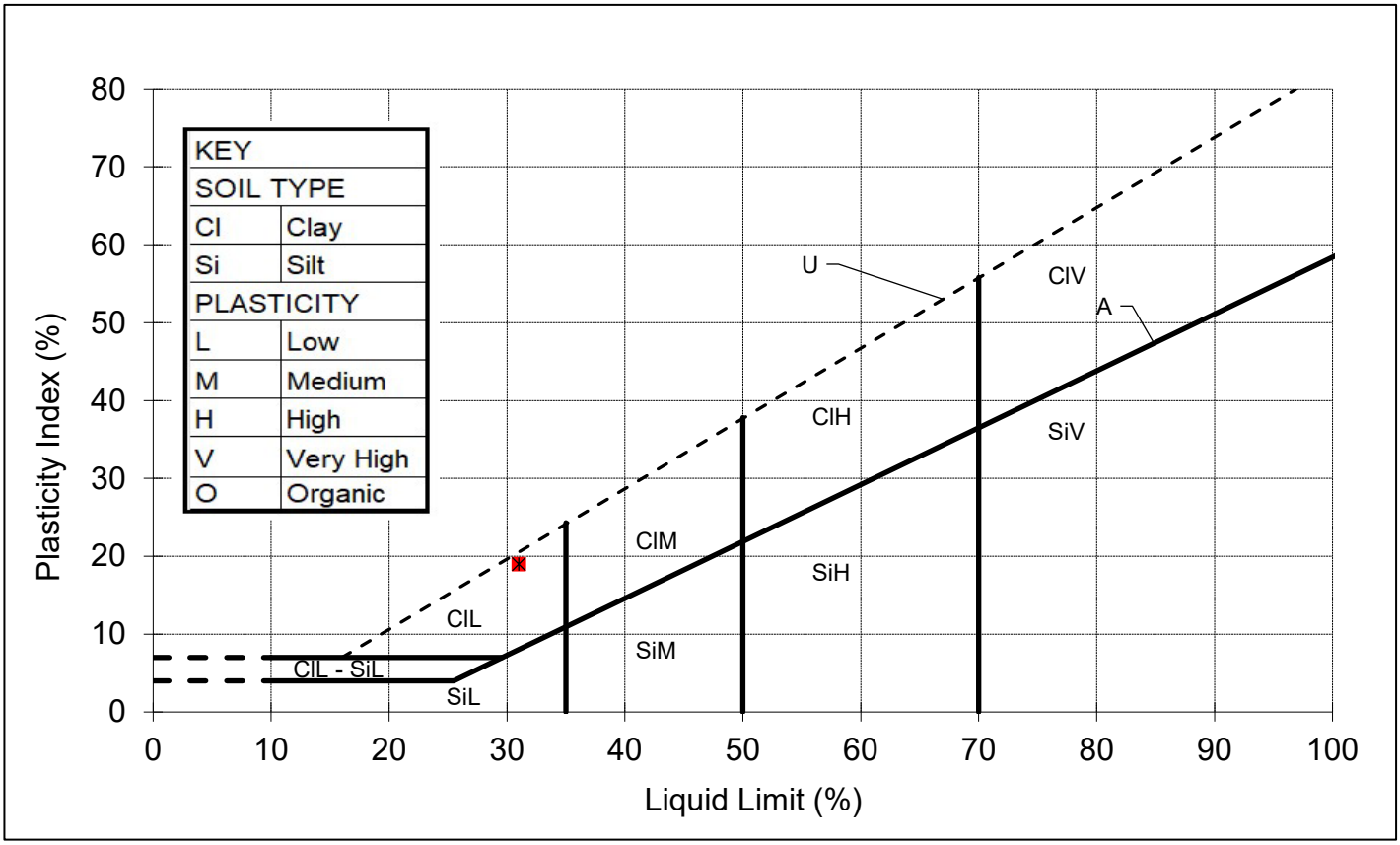
MOISTURE CONTENT METHOD BS 1377: PART 2: 1990 Clause 3.2

CLIENT	e3p
SITE	Cherryfield Drive
JOB NUMBER	MRN 4287/25B

SAMPLE LABEL	WS104 D 1.00	DATE SAMPLED	10-Jan-22
SAMPLE No.	109350	DATE RECEIVED	09-Feb-22
DATE TESTED	11-Feb-22	SAMPLED BY	Client

MATERIAL	Stiff brown silty sandy CLAY
ADVISED SOURCE	Site Investigation Sample

Natural Moisture Content (%)	Liquid Limit (%)	Plastic Limit (%)	Plasticity Index (%)	Passing 425 micron (%)
15	31	12	19	100



REMARKS
Sample tested in natural condition

SIGNED

NAME O.P. Davies BA (Hons)
(Laboratory Manager)

DATE 24-Feb-22

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TEST CERTIFICATE

LIQUID AND PLASTIC LIMIT

BS 1377: PART 2: 1990 Clause 4.4 ONE POINT METHOD & Clause 5.3

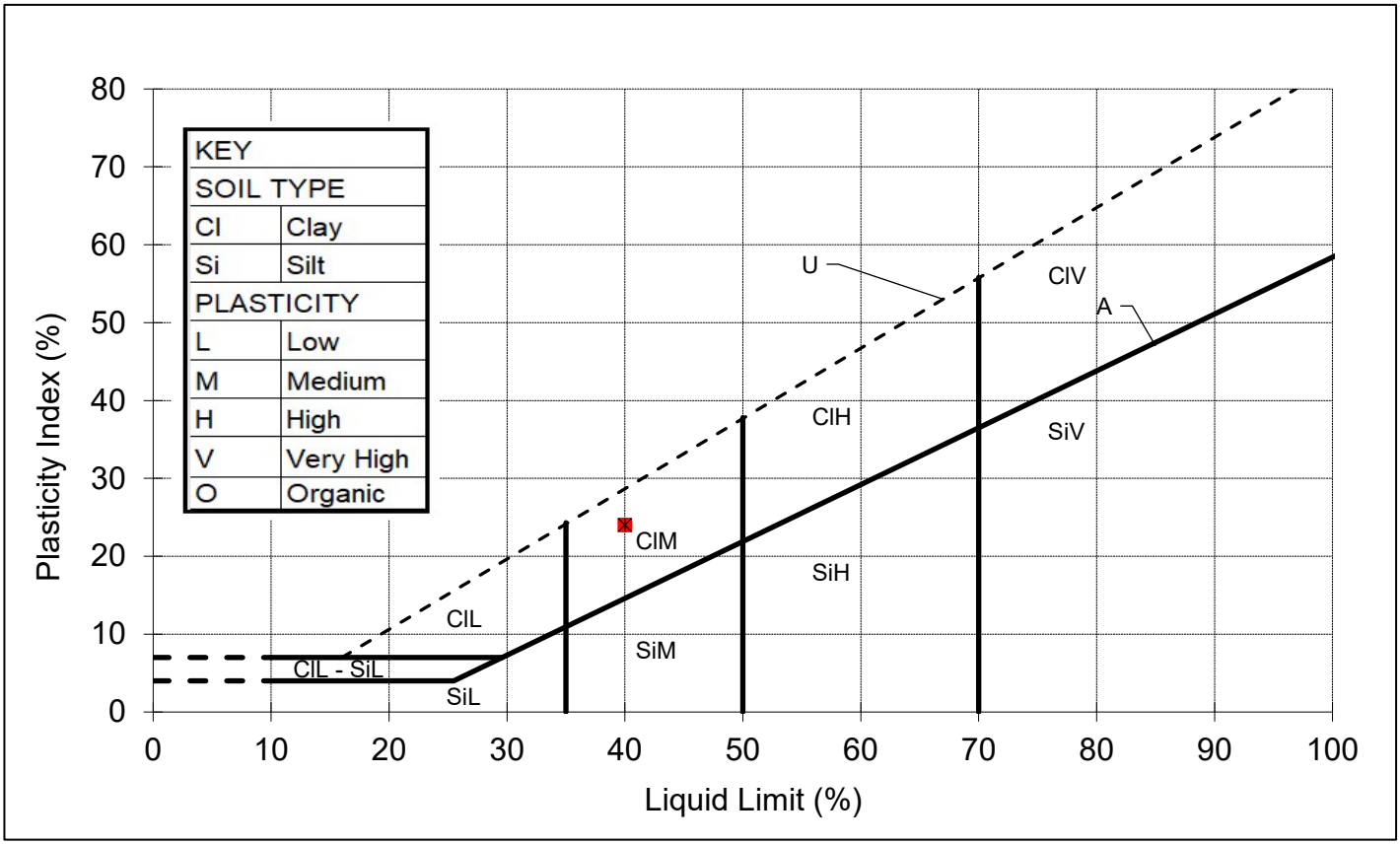
MOISTURE CONTENT METHOD BS 1377: PART 2: 1990 Clause 3.2

CLIENT	e3p
SITE	Cherryfield Drive
JOB NUMBER	MRN 4287/25B

SAMPLE LABEL	WS112 D 2.00	DATE SAMPLED	10-Jan-22
SAMPLE No.	109352	DATE RECEIVED	09-Feb-22
DATE TESTED	11-Feb-22	SAMPLED BY	Client

MATERIAL	Stiff red brown silty sandy CLAY
ADVISED SOURCE	Site Investigation Sample

Natural Moisture Content (%)	Liquid Limit (%)	Plastic Limit (%)	Plasticity Index (%)	Passing 425 micron (%)
17	40	16	24	98



REMARKS
Sample tested in natural condition

SIGNED

NAME O.P. Davies BA (Hons)
(Laboratory Manager)

DATE 24-Feb-22

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LIQUID AND PLASTIC LIMIT

BS 1377: PART 2: 1990 Clause 4.4 ONE POINT METHOD & Clause 5.3

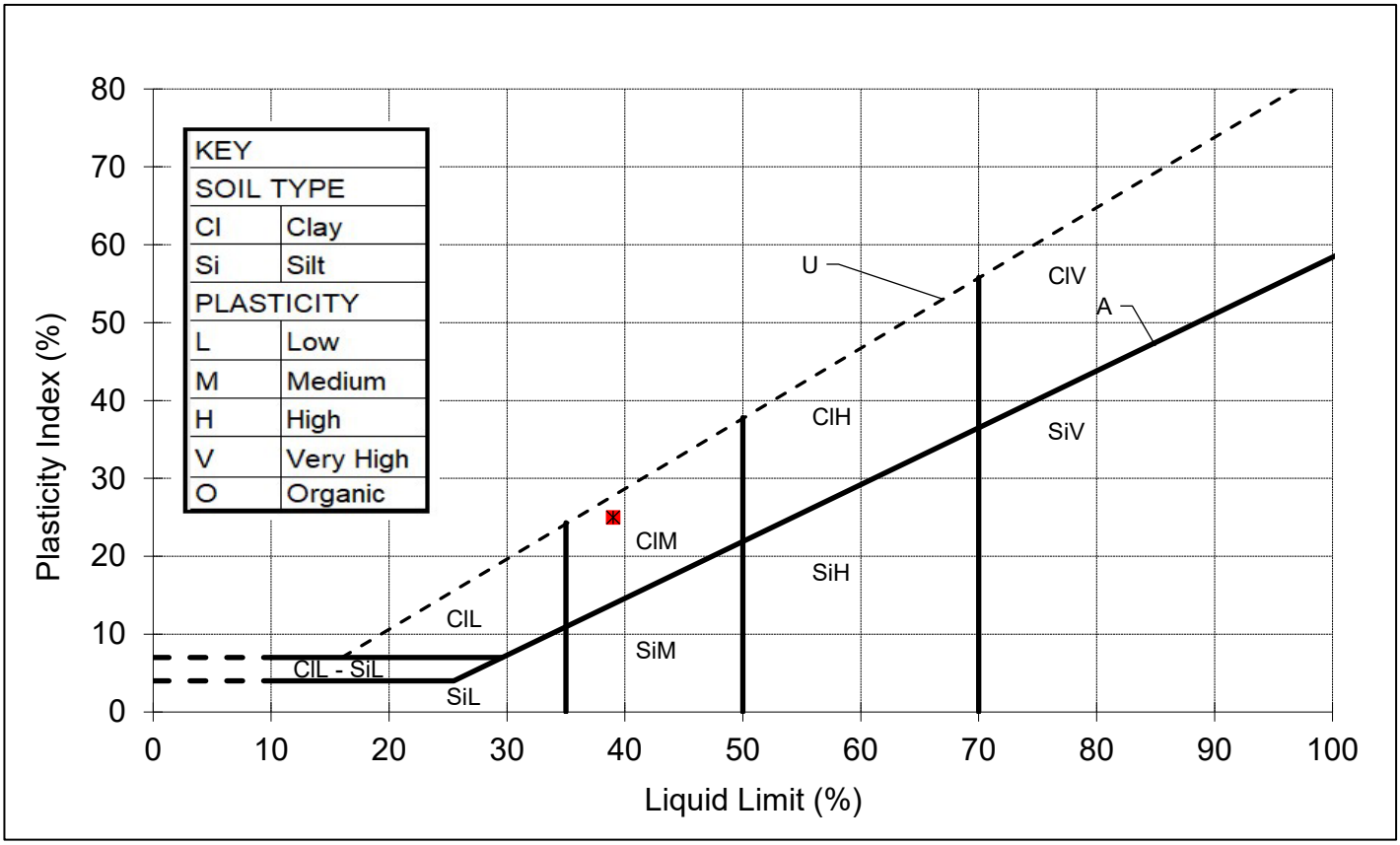
MOISTURE CONTENT METHOD BS 1377: PART 2: 1990 Clause 3.2

CLIENT	e3p
SITE	Cherryfield Drive
JOB NUMBER	MRN 4287/25B

SAMPLE LABEL	WS122 D 1.00	DATE SAMPLED	11-Jan-22
SAMPLE No.	109355	DATE RECEIVED	09-Feb-22
DATE TESTED	11-Feb-22	SAMPLED BY	Client

MATERIAL	Stiff red brown silty sandy CLAY
ADVISED SOURCE	Site Investigation Sample

Natural Moisture Content (%)	Liquid Limit (%)	Plastic Limit (%)	Plasticity Index (%)	Passing 425 micron (%)
16	39	14	25	96



REMARKS
Sample tested in natural condition

SIGNED

NAME O.P. Davies BA (Hons)
(Laboratory Manager)

DATE 24-Feb-22

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TEST CERTIFICATE

LIQUID AND PLASTIC LIMIT

BS 1377: PART 2: 1990 Clause 4.4 ONE POINT METHOD & Clause 5.3

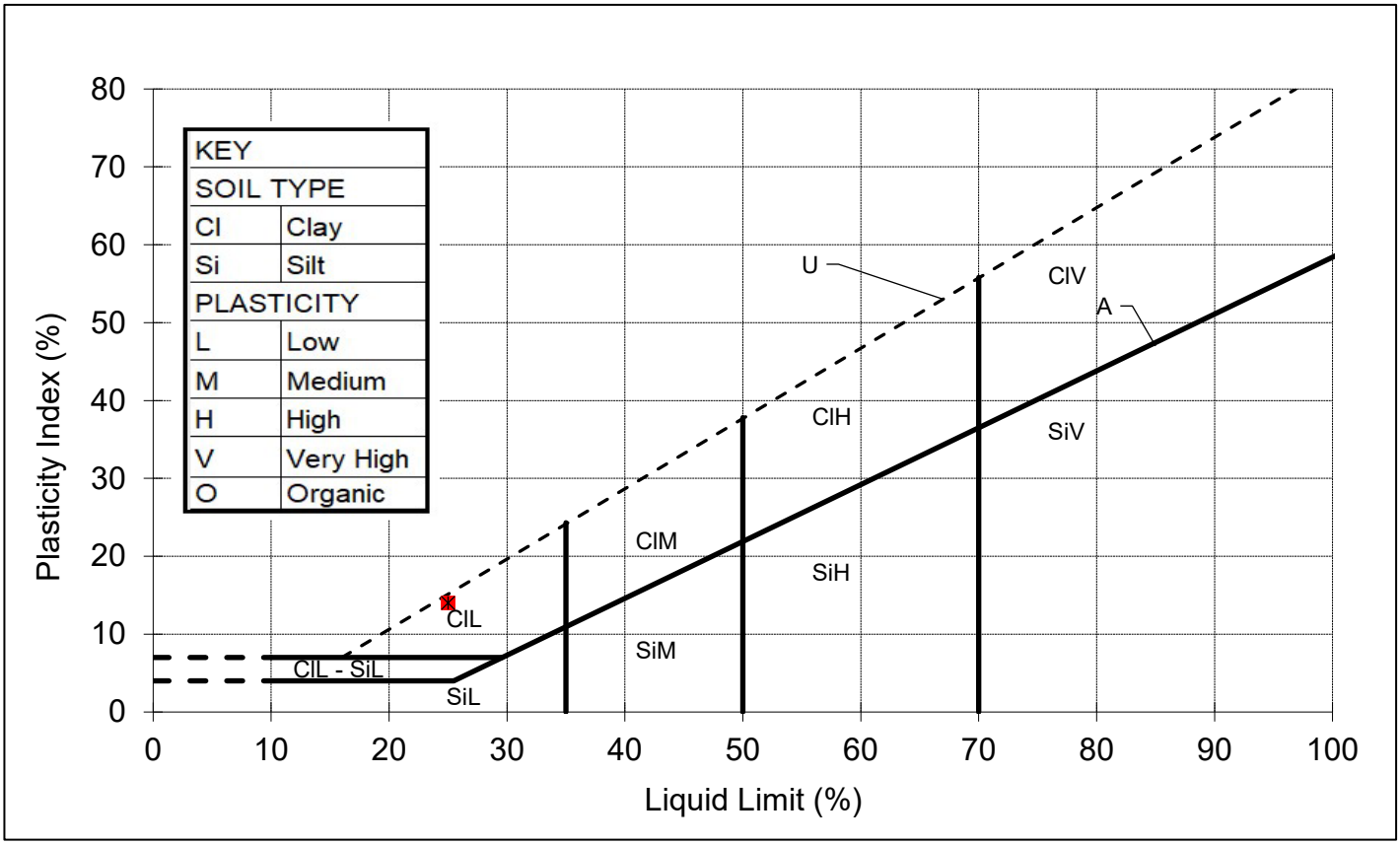
MOISTURE CONTENT METHOD BS 1377: PART 2: 1990 Clause 3.2

CLIENT	e3p
SITE	Cherryfield Drive
JOB NUMBER	MRN 4287/25B

SAMPLE LABEL	WS128 D 1.00	DATE SAMPLED	11-Jan-22
SAMPLE No.	109358	DATE RECEIVED	09-Feb-22
DATE TESTED	11-Feb-22	SAMPLED BY	Client

MATERIAL	Firm to stiff brown silty sandy CLAY
ADVISED SOURCE	Site Investigation Sample

Natural Moisture Content (%)	Liquid Limit (%)	Plastic Limit (%)	Plasticity Index (%)	Passing 425 micron (%)
13	25	11	14	100



REMARKS
Sample tested in natural condition

SIGNED

NAME O.P. Davies BA (Hons)
(Laboratory Manager)

DATE 24-Feb-22

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UKAS TESTING 1580

TEST CERTIFICATE

LIQUID AND PLASTIC LIMIT

BS 1377: PART 2: 1990 Clause 4.4 ONE POINT METHOD & Clause 5.3

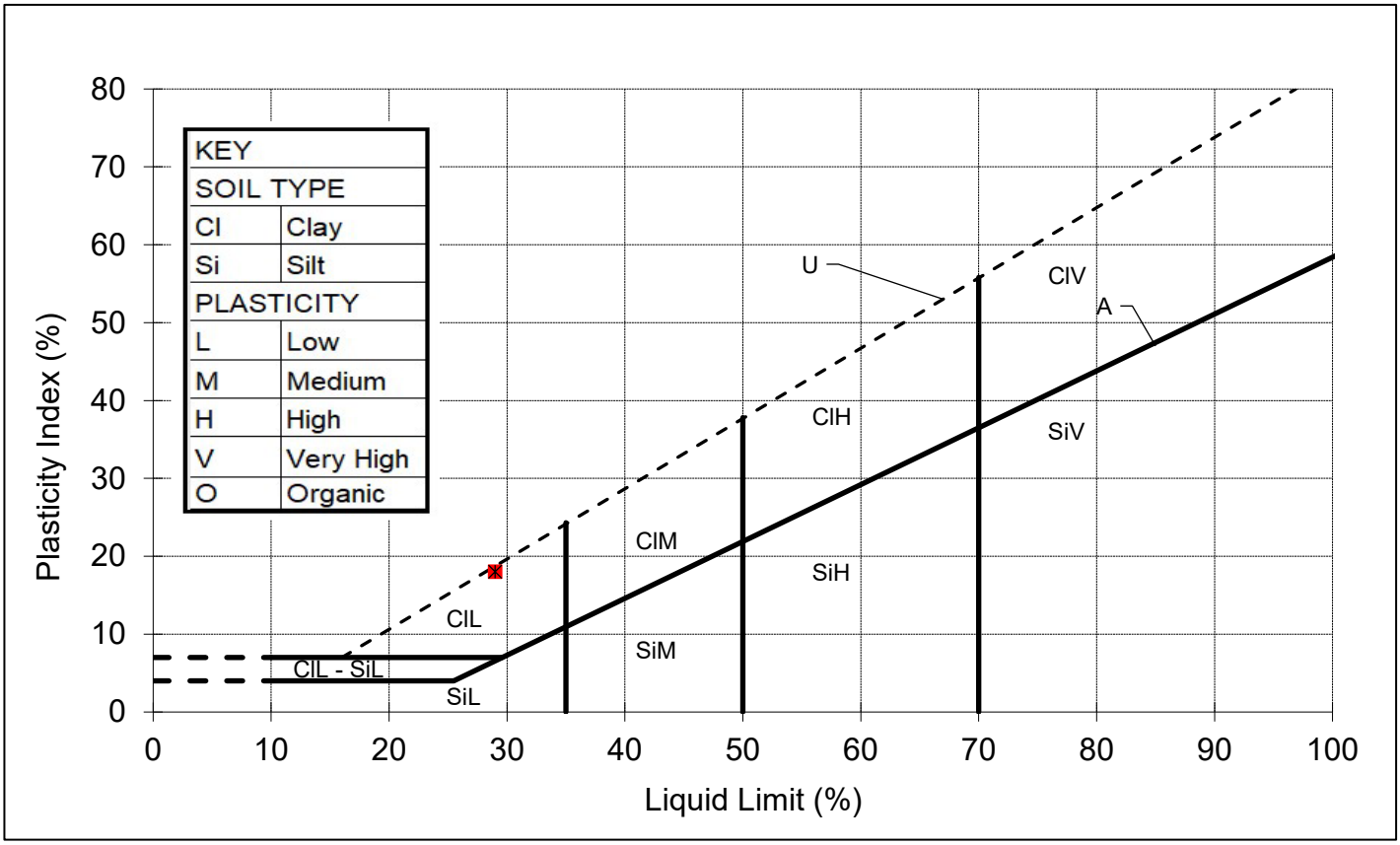
MOISTURE CONTENT METHOD BS 1377: PART 2: 1990 Clause 3.2

CLIENT	e3p
SITE	Cherryfield Drive
JOB NUMBER	MRN 4287/25B

SAMPLE LABEL	WS155 D 1	DATE SAMPLED	11-Jan-22
SAMPLE No.	109361	DATE RECEIVED	09-Feb-22
DATE TESTED	11-Feb-22	SAMPLED BY	Client

MATERIAL	Stiff brown silty sandy CLAY
ADVISED SOURCE	Site Investigation Sample

Natural Moisture Content (%)	Liquid Limit (%)	Plastic Limit (%)	Plasticity Index (%)	Passing 425 micron (%)
11	29	11	18	100



REMARKS
Sample tested in natural condition

SIGNED

NAME O.P. Davies BA (Hons)
(Laboratory Manager)

DATE 24-Feb-22

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TEST CERTIFICATE

LIQUID AND PLASTIC LIMIT

BS 1377: PART 2: 1990 Clause 4.4 ONE POINT METHOD & Clause 5.3

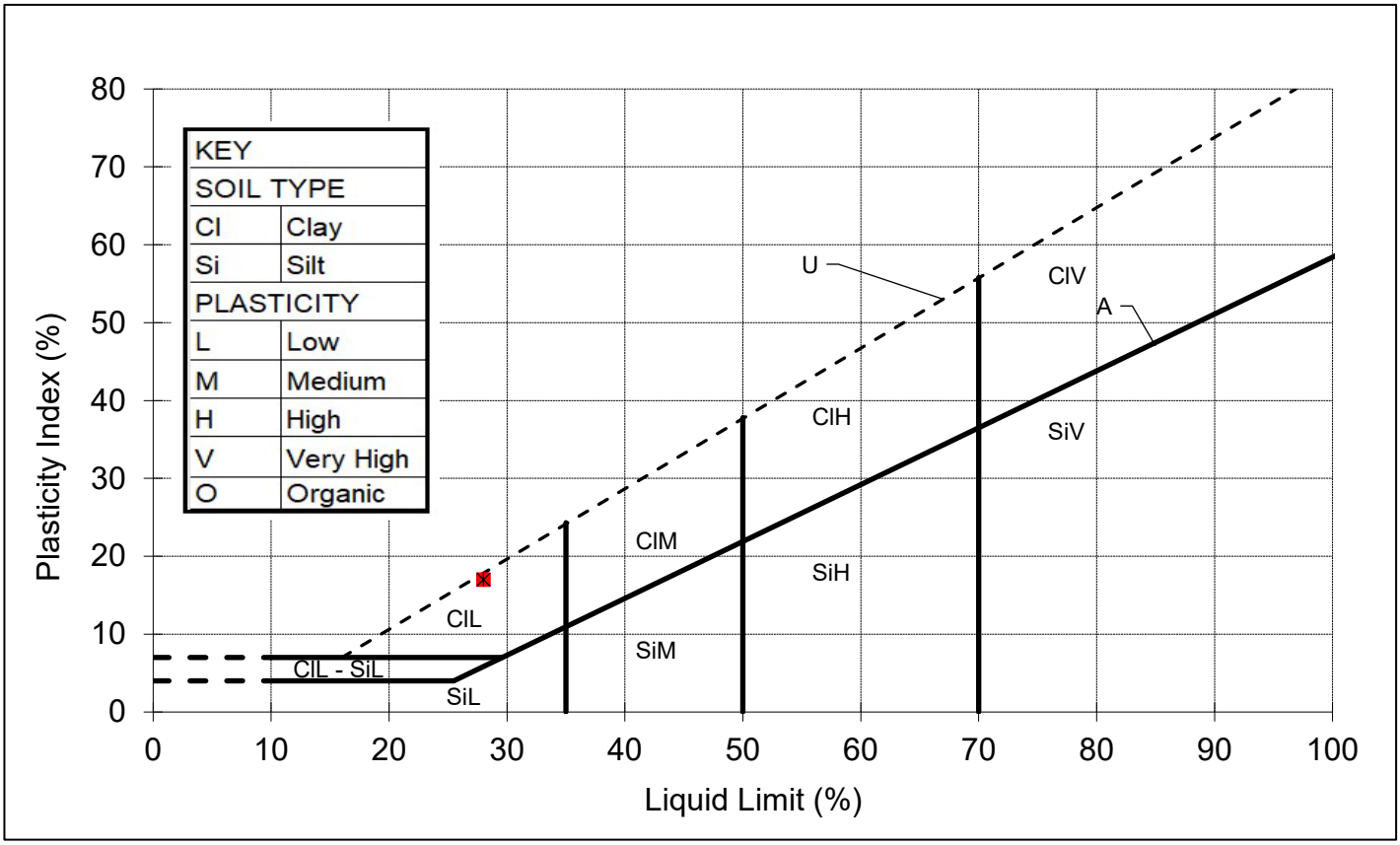
MOISTURE CONTENT METHOD BS 1377: PART 2: 1990 Clause 3.2

CLIENT	e3p
SITE	Cherryfield Drive
JOB NUMBER	MRN 4287/25B

SAMPLE LABEL	WS163 D 2	DATE SAMPLED	25-Jan-22
SAMPLE No.	109364	DATE RECEIVED	09-Feb-22
DATE TESTED	11-Feb-22	SAMPLED BY	Client

MATERIAL	Stiff brown silty sandy CLAY
ADVISED SOURCE	Site Investigation Sample

Natural Moisture Content (%)	Liquid Limit (%)	Plastic Limit (%)	Plasticity Index (%)	Passing 425 micron (%)
11	28	11	17	100



REMARKS
Sample tested in natural condition

SIGNED

NAME O.P. Davies BA (Hons)
(Laboratory Manager)

DATE 24-Feb-22

M U R R A Y R I X

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UKAS TESTING 1580

TEST CERTIFICATE

PARTICLE SIZE DISTRIBUTION

BS 1377: PART 2: Clause 9.2: 1990

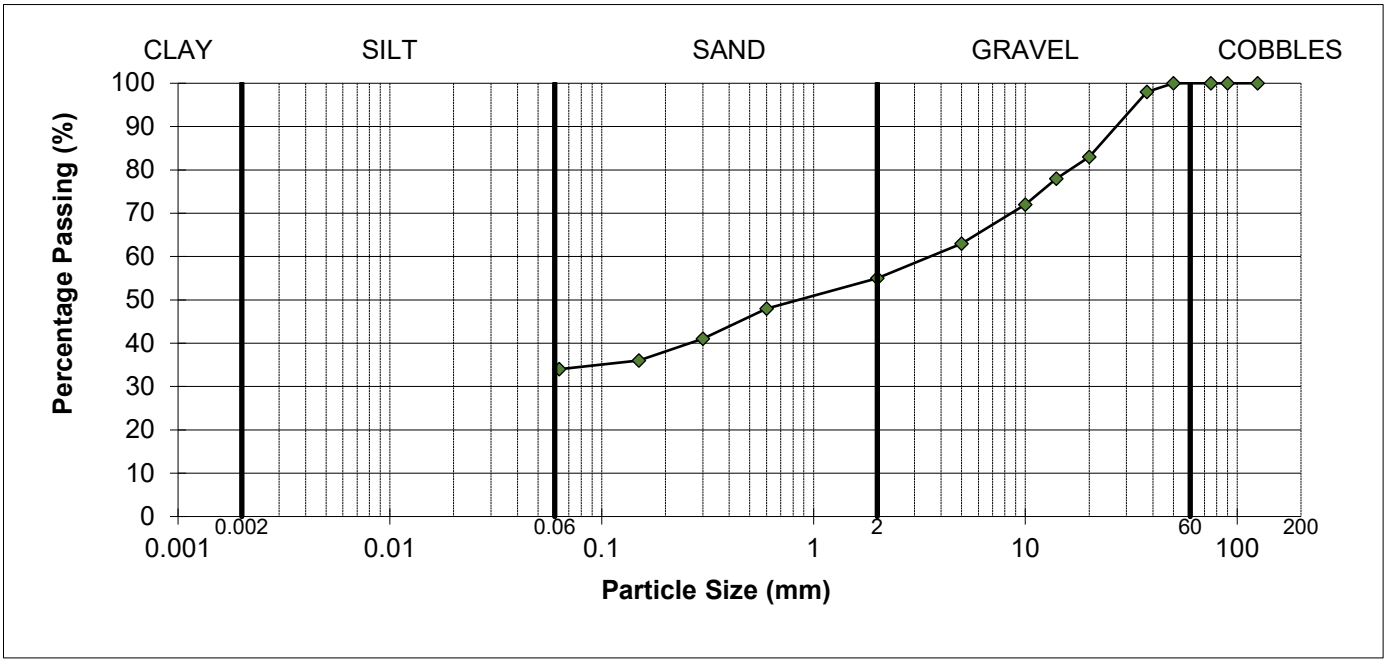
Determination of Moisture Content in accordance with BS 1377: PART 2: Clause 3: 1990 (Oven Dry)

CLIENT	e3p
SITE	Cherryfield Drive
JOB NUMBER	MRN 4287/25B

SAMPLE LABEL	TP117 B 1	DATE SAMPLED	10-Jan-22
LAB SAMPLE No	109348	DATE RECEIVED	09-Feb-22
DATE TESTED	14-Feb-22	SAMPLED BY	Client

MATERIAL	MADE GROUND
ADVISED SOURCE	Site Investigation Sample

Sieve Size (mm)	% Passing (%)	Specification (%)	Sieve Size (mm)	% Passing (%)	Specification (%)
125	100		10	72	
90	100		5	63	
75	100		2	55	
50	100		0.6	48	
37.5	98		0.3	41	
20	83		0.15	36	
14	78		0.063	34	



REMARKS
As received moisture content = 52%

SIGNED

NAME O.P. Davies BA (Hons) (Laboratory Manager) DATE 24-Feb-22

M U R R A Y R I X

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UKAS TESTING 1580

TEST CERTIFICATE

PARTICLE SIZE DISTRIBUTION

BS 1377: PART 2: Clause 9.2: 1990

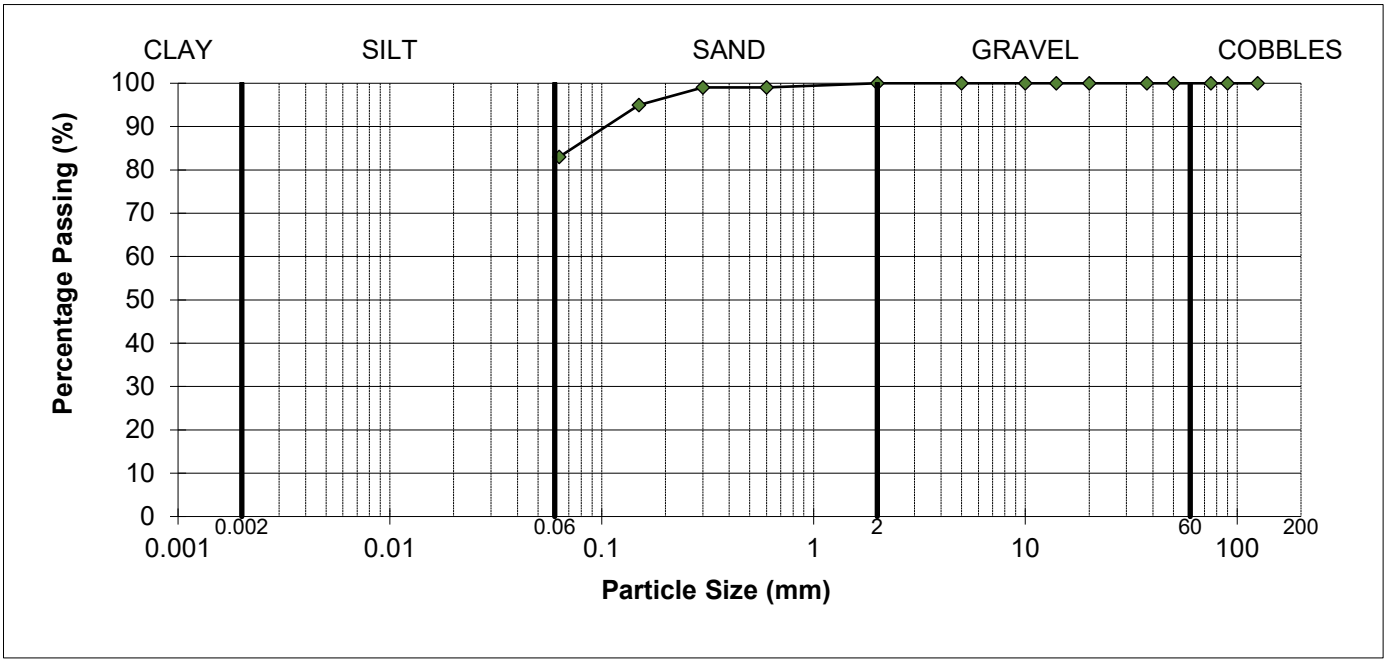
Determination of Moisture Content in accordance with BS 1377: PART 2: Clause 3: 1990 (Oven Dry)

CLIENT	e3p
SITE	Cherryfield Drive
JOB NUMBER	MRN 4287/25B

SAMPLE LABEL	TP163 B 1.4	DATE SAMPLED	12-Jan-22
LAB SAMPLE No	109349	DATE RECEIVED	09-Feb-22
DATE TESTED	14-Feb-22	SAMPLED BY	Client

MATERIAL	Brown sandy SILT
ADVISED SOURCE	Site Investigation Sample

Sieve Size (mm)	% Passing (%)	Specification (%)	Sieve Size (mm)	% Passing (%)	Specification (%)
125	100		10	100	
90	100		5	100	
75	100		2	100	
50	100		0.6	99	
37.5	100		0.3	99	
20	100		0.15	95	
14	100		0.063	83	



REMARKS
As received moisture content = 22%

SIGNED

NAME O.P. Davies BA (Hons) (Laboratory Manager) DATE 24-Feb-22

M U R R A Y R I X

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TEL 0161 475 0870 FAX 0161 475 0871

UKAS TESTING 1580

TEST CERTIFICATE

PARTICLE SIZE DISTRIBUTION

BS 1377: PART 2: Clause 9.2: 1990

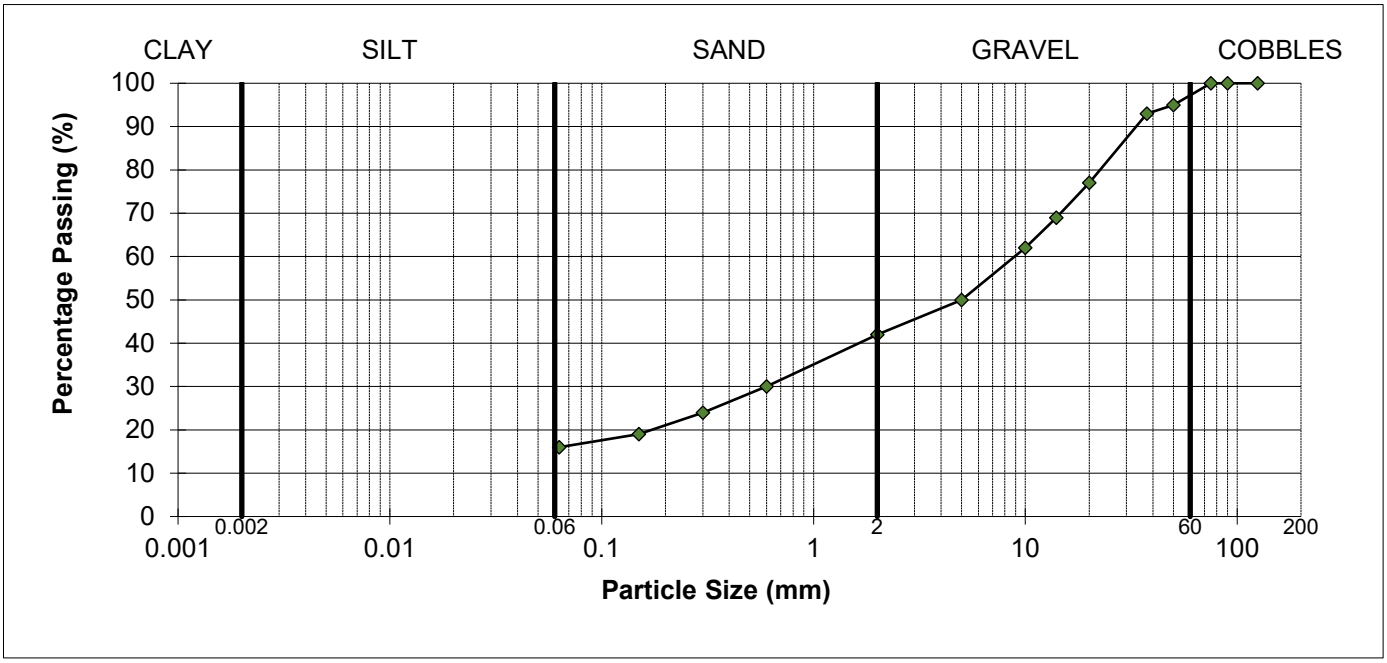
Determination of Moisture Content in accordance with BS 1377: PART 2: Clause 3: 1990 (Oven Dry)

CLIENT	e3p
SITE	Cherryfield Drive
JOB NUMBER	MRN 4287/25B

SAMPLE LABEL	TP118 B 1.00	DATE SAMPLED	10-Jan-22
LAB SAMPLE No	109351	DATE RECEIVED	09-Feb-22
DATE TESTED	14-Feb-22	SAMPLED BY	Client

MATERIAL	MADE GROUND
ADVISED SOURCE	Site Investigation Sample

Sieve Size (mm)	% Passing (%)	Specification (%)	Sieve Size (mm)	% Passing (%)	Specification (%)
125	100		10	62	
90	100		5	50	
75	100		2	42	
50	95		0.6	30	
37.5	93		0.3	24	
20	77		0.15	19	
14	69		0.063	16	



REMARKS
As received moisture content = 48%

SIGNED

NAME O.P. Davies BA (Hons) (Laboratory Manager) DATE 24-Feb-22

M U R R A Y R I X

ANDREW HOUSE, HADFIELD STREET,
DUKINFIELD, CHESHIRE SK16 4QX
TEL 0161 475 0870 FAX 0161 475 0871

UKAS TESTING 1580

TEST CERTIFICATE

PARTICLE SIZE DISTRIBUTION

BS 1377: PART 2: Clause 9.2: 1990

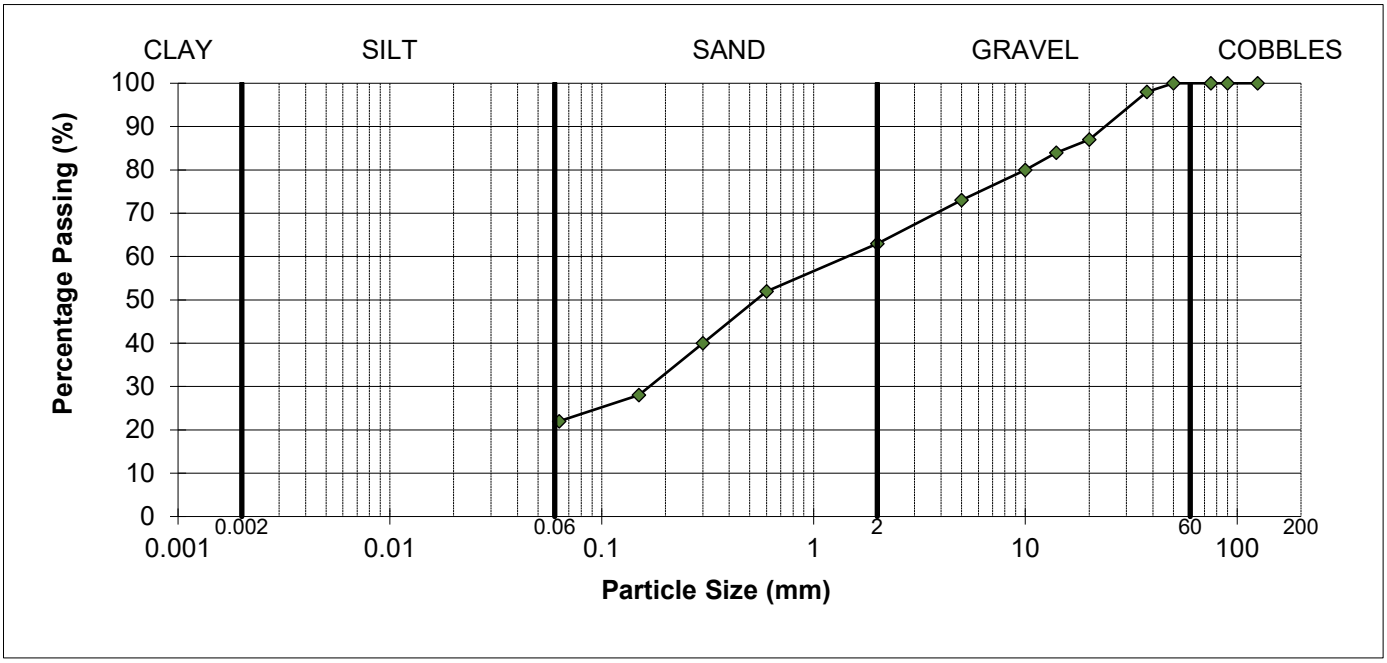
Determination of Moisture Content in accordance with BS 1377: PART 2: Clause 3: 1990 (Oven Dry)

CLIENT	e3p
SITE	Cherryfield Drive
JOB NUMBER	MRN 4287/25B

SAMPLE LABEL	TP140 B 0.50	DATE SAMPLED	11-Jan-22
LAB SAMPLE No	109354	DATE RECEIVED	09-Feb-22
DATE TESTED	14-Feb-22	SAMPLED BY	Client

MATERIAL	MADE GROUND
ADVISED SOURCE	Site Investigation Sample

Sieve Size (mm)	% Passing (%)	Specification (%)	Sieve Size (mm)	% Passing (%)	Specification (%)
125	100		10	80	
90	100		5	73	
75	100		2	63	
50	100		0.6	52	
37.5	98		0.3	40	
20	87		0.15	28	
14	84		0.063	22	



REMARKS
As received moisture content = 48%

SIGNED

NAME O.P. Davies BA (Hons) (Laboratory Manager) DATE 24-Feb-22

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PARTICLE SIZE DISTRIBUTION

BS 1377: PART 2: Clause 9.2: 1990

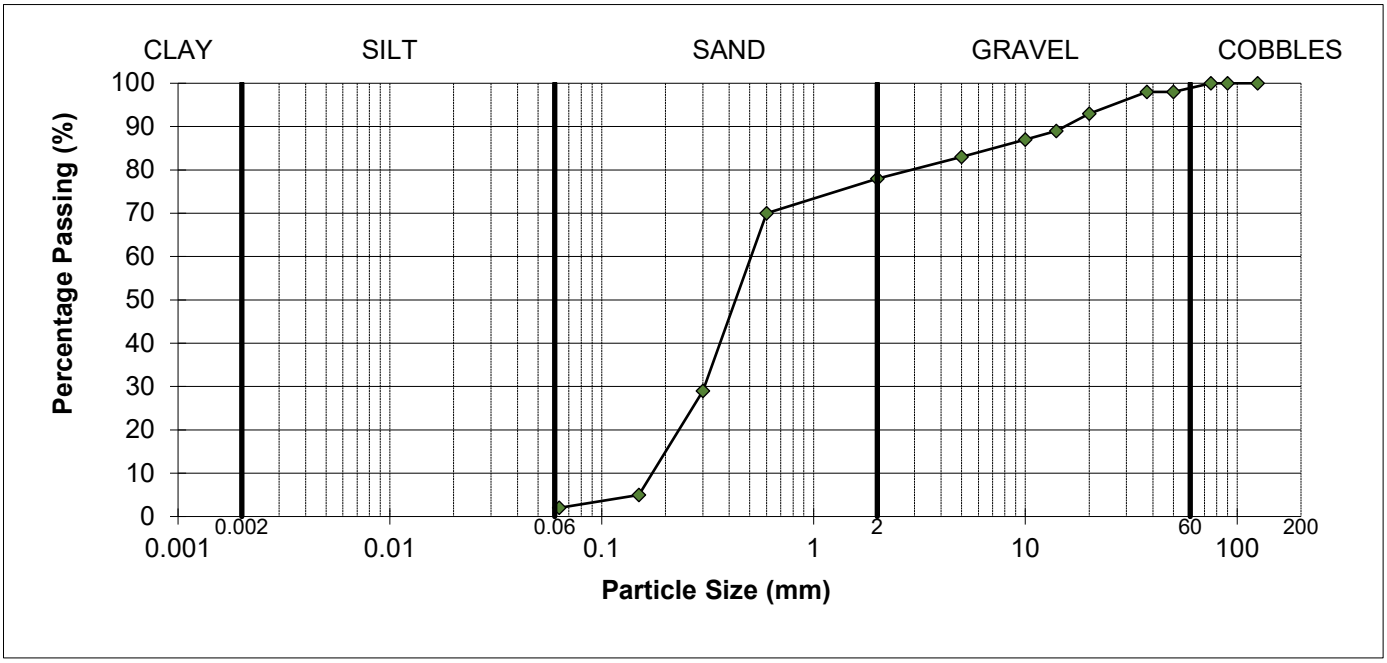
Determination of Moisture Content in accordance with BS 1377: PART 2: Clause 3: 1990 (Oven Dry)

CLIENT	e3p
SITE	Cherryfield Drive
JOB NUMBER	MRN 4287/25B

SAMPLE LABEL	TP152 B 0.50	DATE SAMPLED	12-Jan-22
LAB SAMPLE No	109356	DATE RECEIVED	09-Feb-22
DATE TESTED	14-Feb-22	SAMPLED BY	Client

MATERIAL	Brown slightly silty SAND with frequent gravel
ADVISED SOURCE	Site Investigation Sample

Sieve Size (mm)	% Passing (%)	Specification (%)	Sieve Size (mm)	% Passing (%)	Specification (%)
125	100		10	87	
90	100		5	83	
75	100		2	78	
50	98		0.6	70	
37.5	98		0.3	29	
20	93		0.15	5	
14	89		0.063	2	



REMARKS
As received moisture content = 14%

SIGNED

NAME O.P. Davies BA (Hons) (Laboratory Manager) DATE 24-Feb-22

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TEST CERTIFICATE

PARTICLE SIZE DISTRIBUTION

BS 1377: PART 2: Clause 9.2: 1990

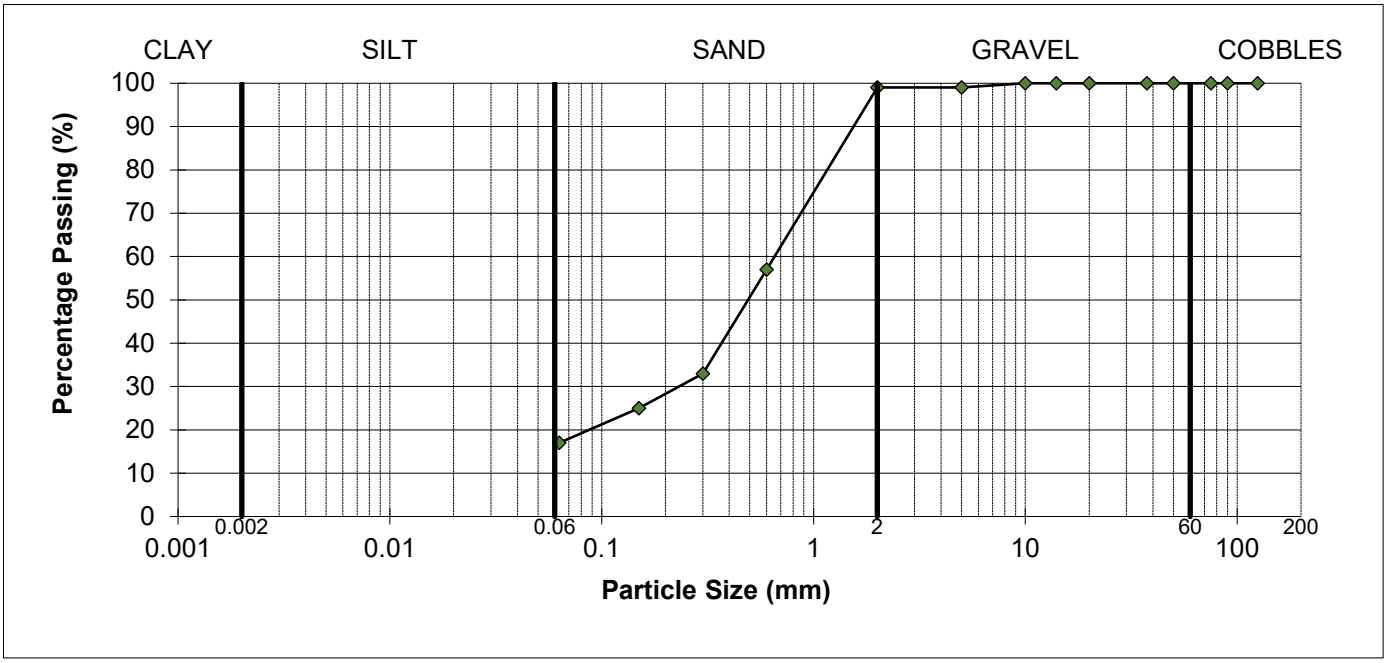
Determination of Moisture Content in accordance with BS 1377: PART 2: Clause 3: 1990 (Oven Dry)

CLIENT	e3p
SITE	Cherryfield Drive
JOB NUMBER	MRN 4287/25B

SAMPLE LABEL	TP1108 B 1.20	DATE SAMPLED	25-Jan-22
LAB SAMPLE No	109360	DATE RECEIVED	09-Feb-22
DATE TESTED	14-Feb-22	SAMPLED BY	Client

MATERIAL	Brown silty SAND with rare gravel
ADVISED SOURCE	Site Investigation Sample

Sieve Size (mm)	% Passing (%)	Specification (%)	Sieve Size (mm)	% Passing (%)	Specification (%)
125	100		10	100	
90	100		5	99	
75	100		2	99	
50	100		0.6	57	
37.5	100		0.3	33	
20	100		0.15	25	
14	100		0.063	17	



REMARKS
As received moisture content = 14%

SIGNED

NAME O.P. Davies BA (Hons) (Laboratory Manager) DATE 24-Feb-22

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TEST CERTIFICATE

PARTICLE SIZE DISTRIBUTION

BS 1377: PART 2: Clause 9.2: 1990

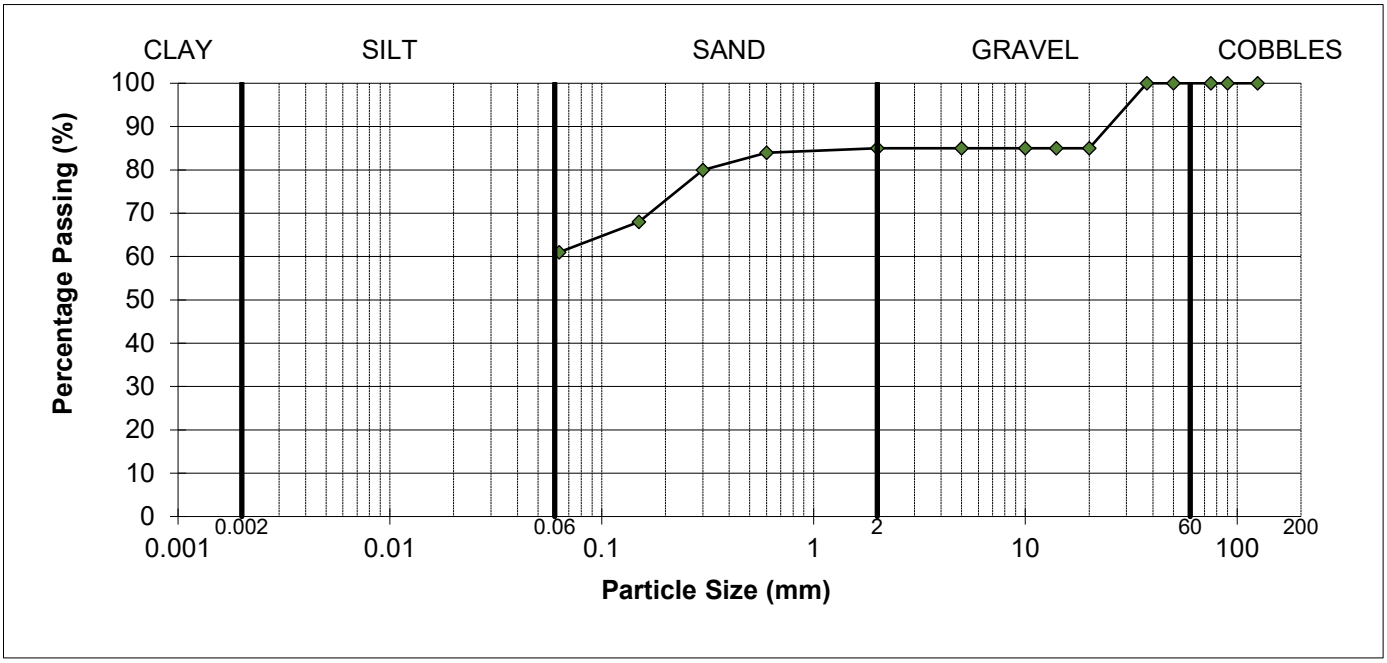
Determination of Moisture Content in accordance with BS 1377: PART 2: Clause 3: 1990 (Oven Dry)

CLIENT	e3p
SITE	Cherryfield Drive
JOB NUMBER	MRN 4287/25B

SAMPLE LABEL	TP1119 B 1	DATE SAMPLED	24-Jan-22
LAB SAMPLE No	109362	DATE RECEIVED	09-Feb-22
DATE TESTED	14-Feb-22	SAMPLED BY	Client

MATERIAL	Firm brown silty sandy CLAY with occasional gravel
ADVISED SOURCE	Site Investigation Sample

Sieve Size (mm)	% Passing (%)	Specification (%)	Sieve Size (mm)	% Passing (%)	Specification (%)
125	100		10	85	
90	100		5	85	
75	100		2	85	
50	100		0.6	84	
37.5	100		0.3	80	
20	85		0.15	68	
14	85		0.063	61	



REMARKS
As received moisture content = 23%

SIGNED

NAME O.P. Davies BA (Hons) (Laboratory Manager) DATE 24-Feb-22

form omcram

MURRAY RIX

ANDREW HOUSE, HADFIELD STREET
DUKINFIELD, CHESHIRE SK16 4QX
TEL 0161 475 0870

UKAS TESTING 1580

TEST CERTIFICATE

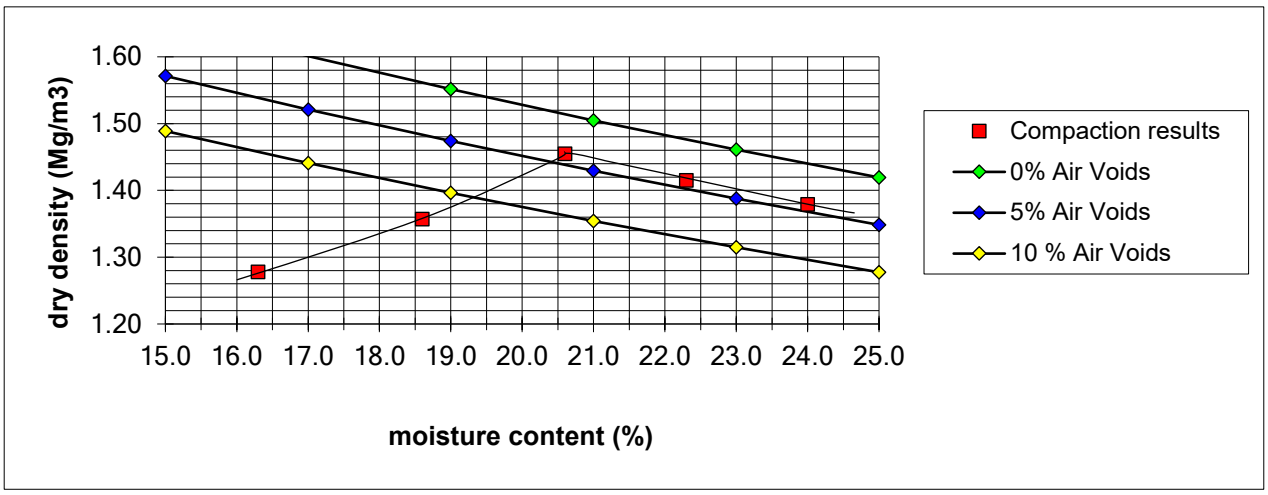
DRY DENSITY/MOISTURE CONTENT RELATIONSHIP 2.5kg RAMMER
BS 1377: PART 4: 1990
PARTICLE DENSITY METHOD BS 1377: PART 2: 1990 Clause 8.2

CLIENT	e3p
SITE	Cherryfield Drive
JOB NUMBER	MRN 4287/25B

SAMPLE LABEL	TP117 B 1	DATE SAMPLED	10-Jan-22
LAB SAMPLE No	109348	DATE RECEIVED	09-Feb-22
DATE TESTED	17-Feb-22	SAMPLED BY	Client

MATERIAL	MADE GROUND
ADVISED SOURCE	Site Investigation Sample
PRE TREATMENT	Air Dried/Single Sample

Point Number		Moisture Content (%)	Dry Density (Mg/m3)
1		16.3	1.278
2		18.6	1.357
3		20.6	1.455
4		22.3	1.415
5		24.0	1.379
	Optimum	21.0	
	Maximum		1.45
	Particle Density	2.2 (Assumed)	



REMARKS/ABNORMALITIES
Percentage of material retained on 37.5mm sieve = 2%
Percentage of material retained on 20mm sieve = 17%

SIGNED

NAME O.P. Davies BA (Hons) (Laboratory Manager) DATE 24-Feb-22

form omcram

MURRAY RIX

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DUKINFIELD, CHESHIRE SK16 4QX
TEL 0161 475 0870

UKAS TESTING 1580

TEST CERTIFICATE

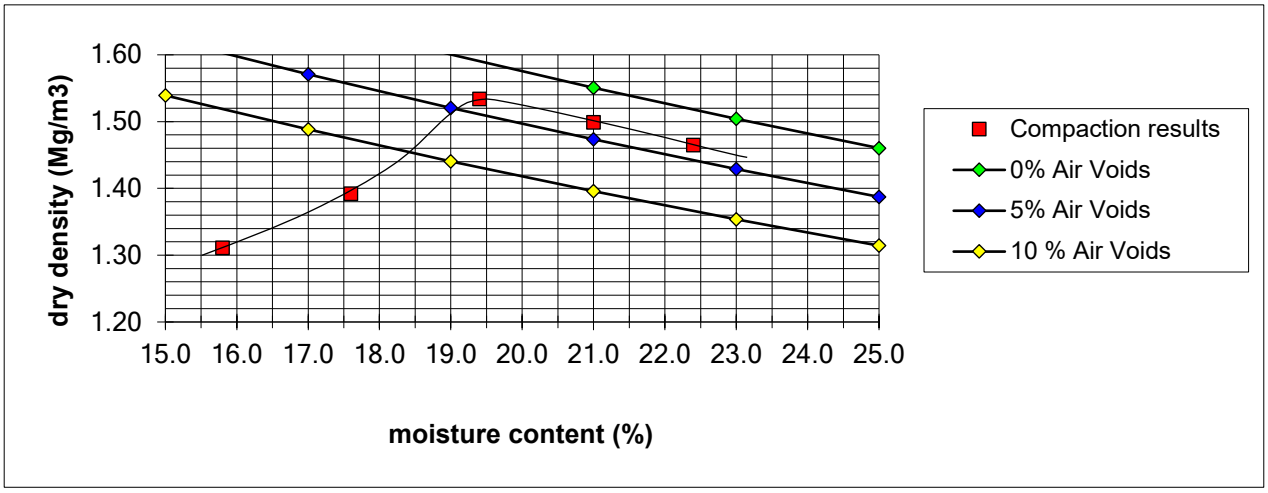
DRY DENSITY/MOISTURE CONTENT RELATIONSHIP 2.5kg RAMMER
BS 1377: PART 4: 1990
PARTICLE DENSITY METHOD BS 1377: PART 2: 1990 Clause 8.2

CLIENT	e3p
SITE	Cherryfield Drive
JOB NUMBER	MRN 4287/25B

SAMPLE LABEL	TP140 B 0.50	DATE SAMPLED	11-Jan-22
LAB SAMPLE No	109354	DATE RECEIVED	09-Feb-22
DATE TESTED	17-Feb-22	SAMPLED BY	Client

MATERIAL	MADE GROUND
ADVISED SOURCE	Site Investigation Sample
PRE TREATMENT	Air Dried/Single Sample

Point Number		Moisture Content (%)	Dry Density (Mg/m3)
1		15.8	1.311
2		17.6	1.392
3		19.4	1.534
4		21.0	1.499
5		22.4	1.465
	Optimum	19.0	
	Maximum		1.53
	Particle Density	2.3 (Assumed)	



REMARKS/ABNORMALITIES
Percentage of material retained on 37.5mm sieve = 2%
Percentage of material retained on 20mm sieve = 13%

SIGNED

NAME O.P. Davies BA (Hons) (Laboratory Manager) DATE 24-Feb-22

form omcram

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UKAS TESTING 1580

TEST CERTIFICATE

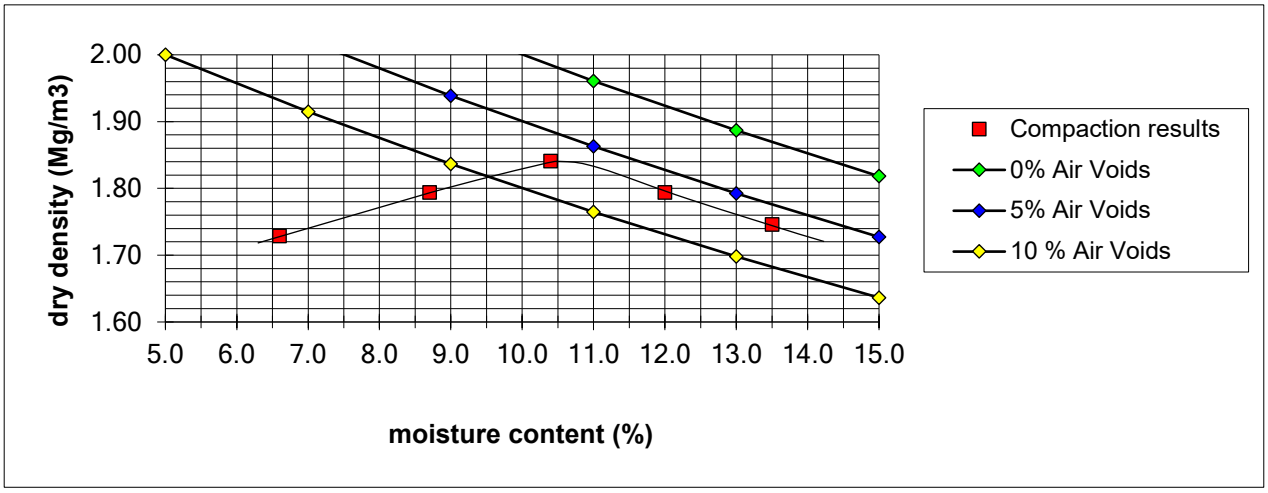
DRY DENSITY/MOISTURE CONTENT RELATIONSHIP 2.5kg RAMMER
BS 1377: PART 4: 1990
PARTICLE DENSITY METHOD BS 1377: PART 2: 1990 Clause 8.2

CLIENT	e3p
SITE	Cherryfield Drive
JOB NUMBER	MRN 4287/25B

SAMPLE LABEL	TP152 B 0.50	DATE SAMPLED	12-Jan-22
LAB SAMPLE No	109356	DATE RECEIVED	09-Feb-22
DATE TESTED	17-Feb-22	SAMPLED BY	Client

MATERIAL	Brown slightly silty SAND with frequent gravel
ADVISED SOURCE	Site Investigation Sample
PRE TREATMENT	Air Dried/Single Sample

Point Number		Moisture Content (%)	Dry Density (Mg/m3)
1		6.6	1.729
2		8.7	1.794
3		10.4	1.841
4		12.0	1.794
5		13.5	1.746
	Optimum	11.0	
	Maximum		1.84
	Particle Density	2.5 (Assumed)	



REMARKS/ABNORMALITIES
Percentage of material retained on 37.5mm sieve = 2%
Percentage of material retained on 20mm sieve = 7%

SIGNED

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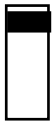
TEST CERTIFICATE

DETERMINATION OF THE ONE-DIMENSIONAL CONSOLIDATION PROPERTIES

BS 1377 : PART 5 : Clause 3 : 1990

CLIENT	e3p
SITE	Cherryfield Drive
JOB NUMBER	MRN 4287/25B

SAMPLE LABEL	WS116 U 0.50-1	**DATE SAMPLED**	11-Jan-22
LAB SAMPLE No.	109353	**DATE RECEIVED**	09-Feb-22
DATE TESTED	17-Feb-22	**SAMPLED BY**	Client
MATERIAL	Stiff brown silty sandy CLAY		
ADVISED SOURCE	Site Investigation Sample		

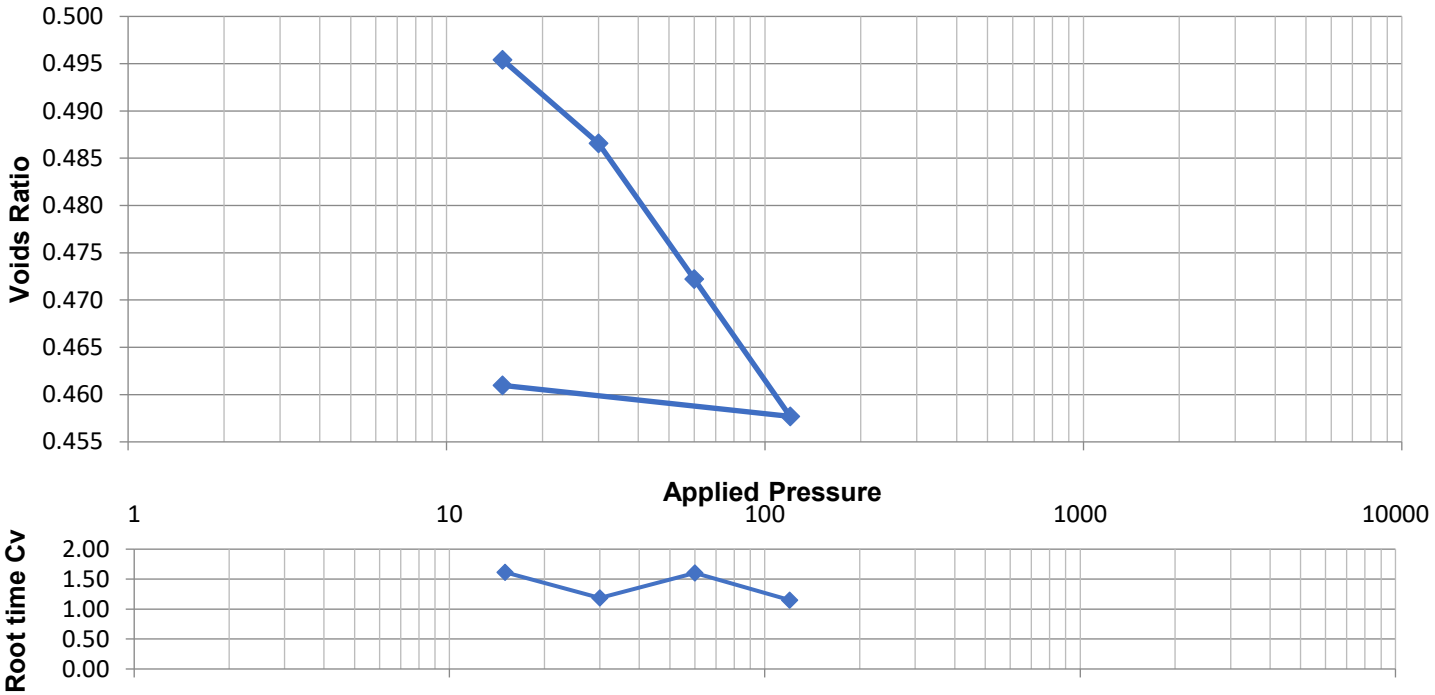
Specimen Location 

Sample Length (mm)	470	Specimen depth from top of Sample (mm)	50
Sample Orientation	Vertical	Specimen Condition	Undisturbed

INITIAL CONDITIONS

Height	20.2	mm	Particle density	2.65	Ass
Diameter	74.8	mm	Initial void ratio	0.51	
Weight wet	184.0	g	Deg. of sat.	95	%
Moist. cont.	18	%	Swell. press.	5	kN/m2
Bulk Density	2.08	Mg/m3	Dry density	1.76	Mg/m3

Load No.	Applied Pressure kPa	Sample Height mm	Void Ratio	Mv m2/MN	Temp °C	Cv t90 root m2/yr	Cv t50 log m2/yr
1	15	19.99	0.495	0.62	20	1.61	1.01
2	30	19.87	0.487	0.40	20	1.19	0.58
3	60	19.68	0.472	0.33	20	1.60	1.29
4	120	19.48	0.458	0.17	20	1.15	1.48
5	15	19.53	0.461	0.02	20		
6							
7							



Remarks/Abnormalities

Name O.P Davies BA (Hons) (Laboratory Manager) Signed  Date 24 February 2022

MURRAY RIX
ANDREW HOUSE, HADFIELD STREET,
DUKINFIELD, CHESHIRE SK16 4QX
TEL 0161 475 0870

TEST CERTIFICATE

DETERMINATION OF THE ONE-DIMENSIONAL CONSOLIDATION PROPERTIES
BS 1377 : PART 5 : Clause 3 : 1990

CLIENT	e3p
SITE	Cherryfield Drive
JOB NUMBER	MRN 4287/25B

SAMPLE LABEL	WS138 U 2.00-3.00	**DATE SAMPLED**	12-Jan-22
LAB SAMPLE No.	109359	**DATE RECEIVED**	09-Feb-22
DATE TESTED	17-Feb-22	**SAMPLED BY**	Client
MATERIAL	Stiff brown silty sandy CLAY		
ADVISED SOURCE	Site Investigation Sample		

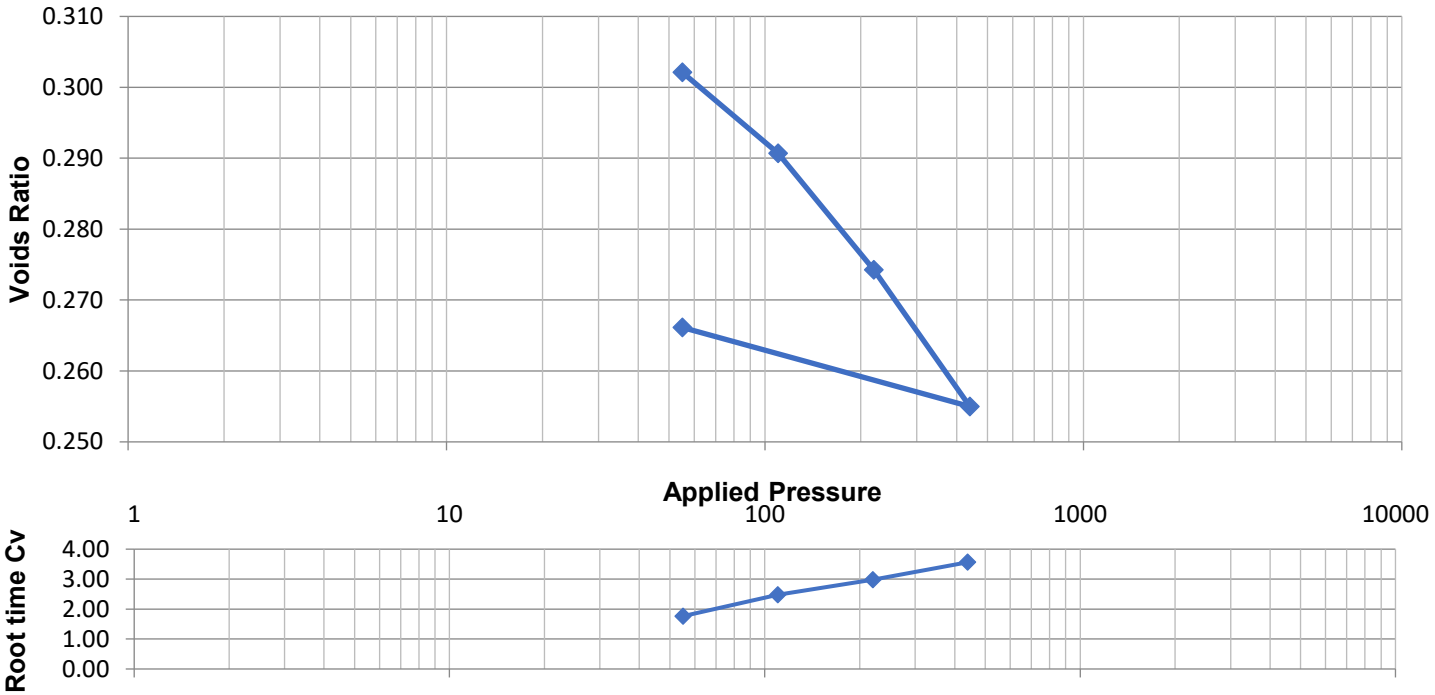
Specimen Location

Sample Length (mm)	500	Specimen depth from top of Sample (mm)	150
Sample Orientation	Vertical	Specimen Condition	Undisturbed

INITIAL CONDITIONS

Height	20.3	mm	Particle density	2.65	Ass
Diameter	74.9	mm	Initial void ratio	0.33	
Weight wet	199.2	g	Deg. of sat.	97	%
Moist. cont.	12	%	Swell. press.	5	kN/m2
Bulk Density	2.23	Mg/m3	Dry density	1.99	Mg/m3

Load No.	Applied Pressure kPa	Sample Height mm	Void Ratio	Mv m2/MN	Temp °C	Cv t90 root m2/yr	Cv t50 log m2/yr
1	55	19.84	0.302	0.39	20	1.76	1.76
2	110	19.66	0.291	0.16	20	2.48	2.41
3	220	19.41	0.274	0.12	20	2.98	2.77
4	440	19.12	0.255	0.07	20	3.56	3.04
5	55	19.29	0.266	0.02	20		
6							
7							



Remarks/Abnormalities

Name O.P Davies BA (Hons) (Laboratory Manager) Signed Date 24 February 2022

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TEL 0161 475 0870

TEST CERTIFICATE

UNDRAINED SHEAR STRENGTH IN TRIAXIAL COMPRESSION

BS 1377 : PART 7: Clause 8 Single Stage

CLIENT	e3p
SITE	Cherryfield Drive
JOB NUMBER	MRN 4287/25B

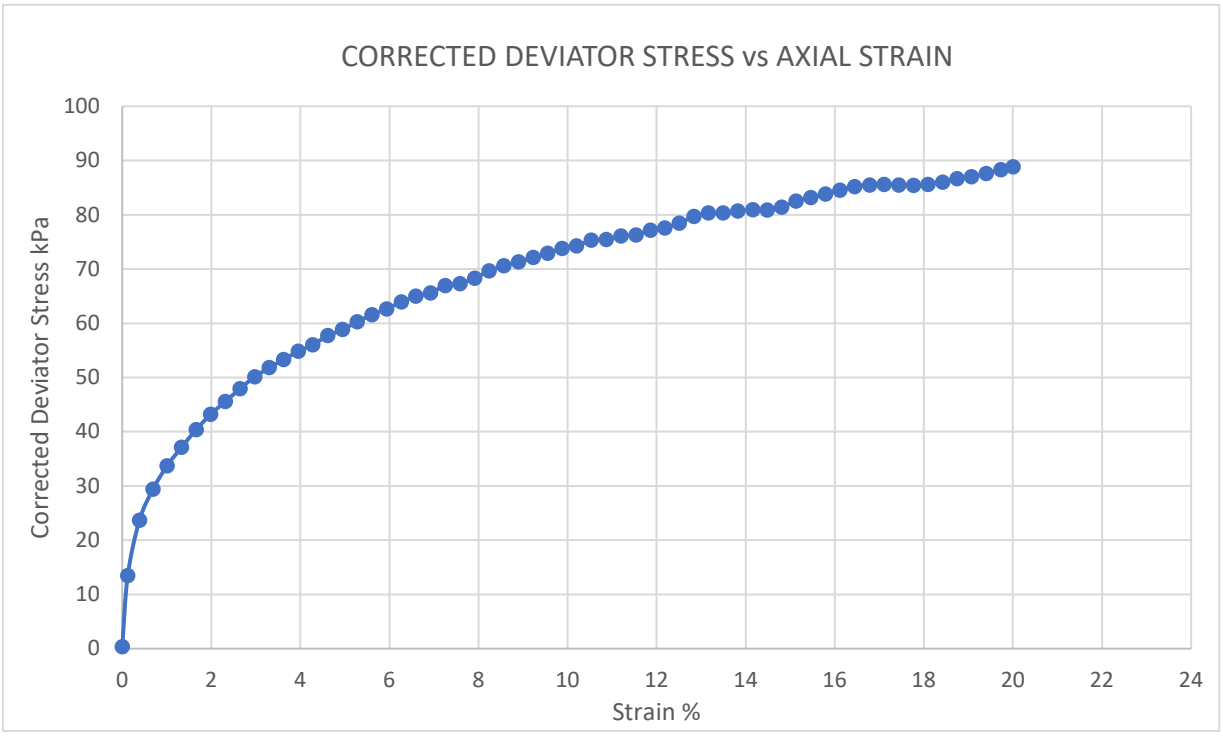
SAMPLE LABEL	WS113 U 1.5-2	**DATE SAMPLED**	11-Jan-22
LAB SAMPLE No.	109343	**DATE RECEIVED**	09-Feb-22
DATE TESTED	23-Feb-22	**SAMPLED BY**	Client
MATERIAL	Firm brown silty sandy CLAY		
ADVISED SOURCE	Site Investigation Sample		

INITIAL CONDITIONS

Specimen Location

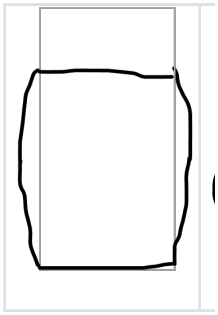


Sample Length (mm)	690	Specimen depth from top of Sample (mm)	150
Sample Orientation	Vertical	Specimen Condition	Undisturbed
Specimen Length (mm)	147	Specimen Moisture Content (%)	16
Specimen Diameter (mm)	72	Specimen Bulk Density (Mg/m3)	2.26
Membrane Thickness (mm)	0.4	Specimen Dry Density (Mg/m3)	1.94
Membrane Correction	2.10		



TEST TYPE
SINGLE STAGE

SKETCH OF SPECIMEN AT FAILURE



PLASTIC

Cell Pressure (kPa)	Failure Strain (%)	Rate of Strain (%/min)	Corrected Deviator Stress (kPa)	Shear Strength Cu (kPa)
35	20	2	88	44

Remarks/Abnormalities

Name O.P Davies BA (Hons) (Laboratory Manager)

Signed 

Date 24 February 2022

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TEL 0161 475 0870

TEST CERTIFICATE

UNDRAINED SHEAR STRENGTH IN TRIAXIAL COMPRESSION

BS 1377 : PART 7: Clause 8 Single Stage

CLIENT	e3p
SITE	Cherryfield Drive
JOB NUMBER	MRN 4287/25B

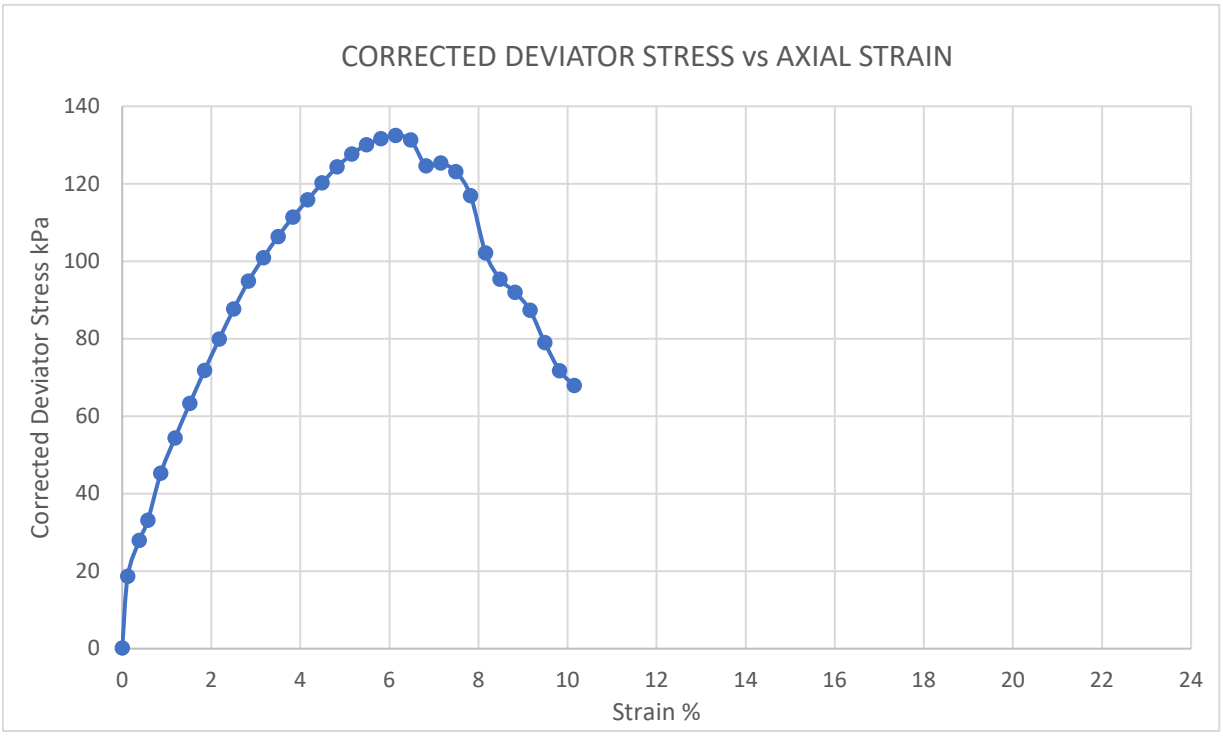
SAMPLE LABEL	WS143 U 0.5-1	**DATE SAMPLED**	13-Jan-22
LAB SAMPLE No.	109347	**DATE RECEIVED**	09-Feb-22
DATE TESTED	23-Feb-22	**SAMPLED BY**	Client
MATERIAL	Stiff brown silty sandy CLAY		
ADVISED SOURCE	Site Investigation Sample		

INITIAL CONDITIONS

Specimen Location

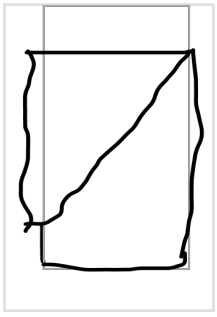


Sample Length (mm)	480	Specimen depth from top of Sample (mm)	270
Sample Orientation	Vertical	Specimen Condition	Undisturbed
Specimen Length (mm)	161	Specimen Moisture Content (%)	22
Specimen Diameter (mm)	81	Specimen Bulk Density (Mg/m3)	2.18
Membrane Thickness (mm)	0.4	Specimen Dry Density (Mg/m3)	1.79
Membrane Correction	1.14		



TEST TYPE
SINGLE STAGE

SKETCH OF SPECIMEN AT FAILURE



SIMPLE_SHEAR

Cell Pressure (kPa)	Failure Strain (%)	Rate of Strain (%/min)	Corrected Deviator Stress (kPa)	Shear Strength Cu (kPa)
15	6	2	132	66

Remarks/Abnormalities

Name O.P Davies BA (Hons) (Laboratory Manager) Signed Date 24 February 2022

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TEST CERTIFICATE

UNDRAINED SHEAR STRENGTH IN TRIAXIAL COMPRESSION

BS 1377 : PART 7: Clause 8 Single Stage

CLIENT	e3p
SITE	Cherryfield Drive
JOB NUMBER	MRN 4287/25B

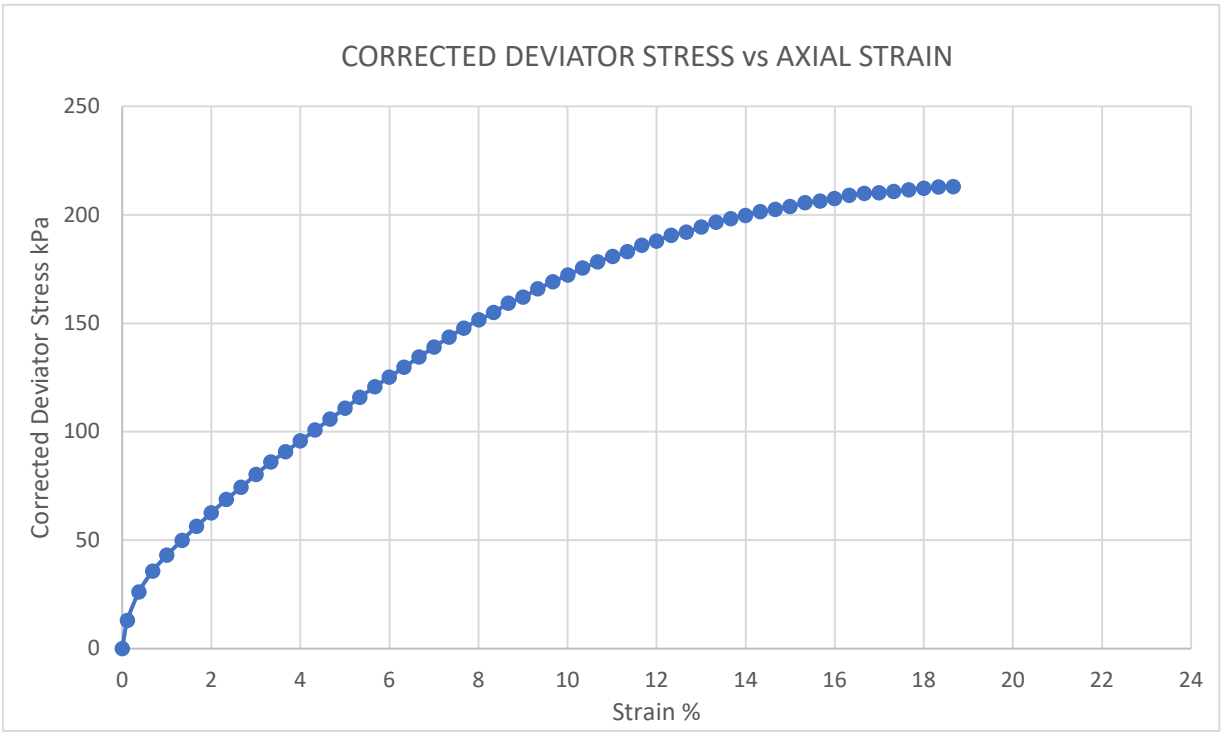
SAMPLE LABEL	WS116 U 0.50-1	**DATE SAMPLED**	11-Jan-22
LAB SAMPLE No.	109353	**DATE RECEIVED**	09-Feb-22
DATE TESTED	23-Feb-22	**SAMPLED BY**	Client
MATERIAL	Stiff brown silty sandy CLAY		
ADVISED SOURCE	Site Investigation Sample		

INITIAL CONDITIONS

Specimen Location

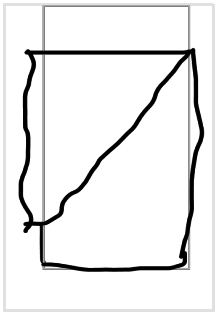


Sample Length (mm)	470	Specimen depth from top of Sample (mm)	120
Sample Orientation	Vertical	Specimen Condition	Undisturbed
Specimen Length (mm)	160	Specimen Moisture Content (%)	18
Specimen Diameter (mm)	79	Specimen Bulk Density (Mg/m3)	2.32
Membrane Thickness (mm)	0.4	Specimen Dry Density (Mg/m3)	1.96
Membrane Correction	1.91		



TEST TYPE
SINGLE STAGE

SKETCH OF SPECIMEN AT FAILURE



SIMPLE_SHEAR

Cell Pressure (kPa)	Failure Strain (%)	Rate of Strain (%/min)	Corrected Deviator Stress (kPa)	Shear Strength Cu (kPa)
15	20	2	215	107

Remarks/Abnormalities

Name O.P Davies BA (Hons) (Laboratory Manager) Signed  Date 24 February 2022

MURRAY RIX

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DUKINFIELD, CHESHIRE SK16 4QX
TEL 0161 475 0870

TEST CERTIFICATE

UNDRAINED SHEAR STRENGTH IN TRIAXIAL COMPRESSION

BS 1377 : PART 7: Clause 8 Single Stage

CLIENT	e3p
SITE	Cherryfield Drive
JOB NUMBER	MRN 4287/25B

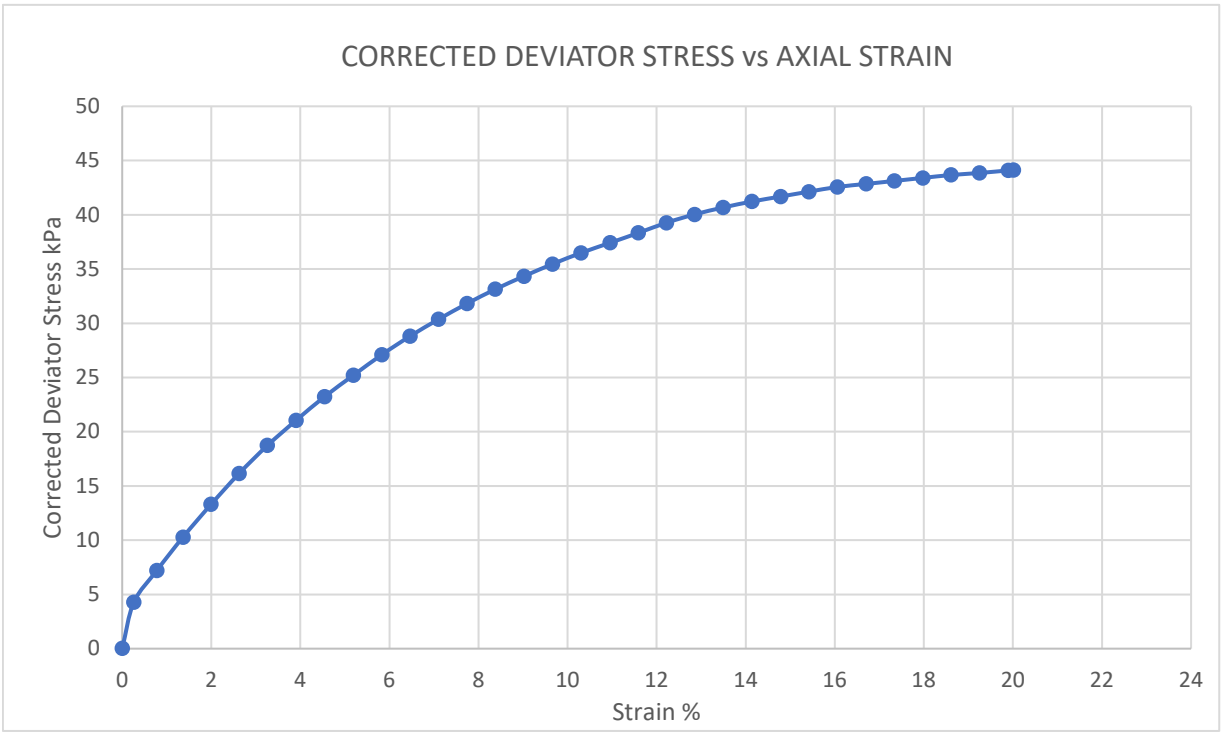
SAMPLE LABEL	WS130 U 1.50-2.00	**DATE SAMPLED**	12-Jan-22
LAB SAMPLE No.	109357	**DATE RECEIVED**	09-Feb-22
DATE TESTED	23-Feb-22	**SAMPLED BY**	Client
MATERIAL	Soft brown silty sandy CLAY		
ADVISED SOURCE	Site Investigation Sample		

INITIAL CONDITIONS

Specimen Location

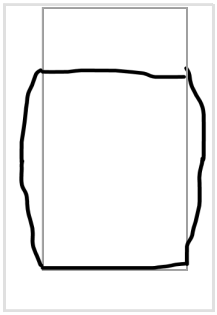


Sample Length (mm)	500	Specimen depth from top of Sample (mm)	300
Sample Orientation	Vertical	Specimen Condition	Undisturbed
Specimen Length (mm)	141	Specimen Moisture Content (%)	15
Specimen Diameter (mm)	73	Specimen Bulk Density (Mg/m3)	1.22
Membrane Thickness (mm)	0.4	Specimen Dry Density (Mg/m3)	1.06
Membrane Correction	1.96		



TEST TYPE
SINGLE STAGE

SKETCH OF SPECIMEN AT FAILURE



PLASTIC

Cell Pressure (kPa)	Failure Strain (%)	Rate of Strain (%/min)	Corrected Deviator Stress (kPa)	Shear Strength Cu (kPa)
35	20	2	44	22

Remarks/Abnormalities

Name O.P Davies BA (Hons) (Laboratory Manager) Signed Date 24 February 2022

MURRAY RIX

ANDREW HOUSE, HADFIELD STREET,
DUKINFIELD, CHESHIRE SK16 4QX
TEL 0161 475 0870

TEST CERTIFICATE

UNDRAINED SHEAR STRENGTH IN TRIAXIAL COMPRESSION

BS 1377 : PART 7: Clause 8 Single Stage

CLIENT	e3p
SITE	Cherryfield Drive
JOB NUMBER	MRN 4287/25B

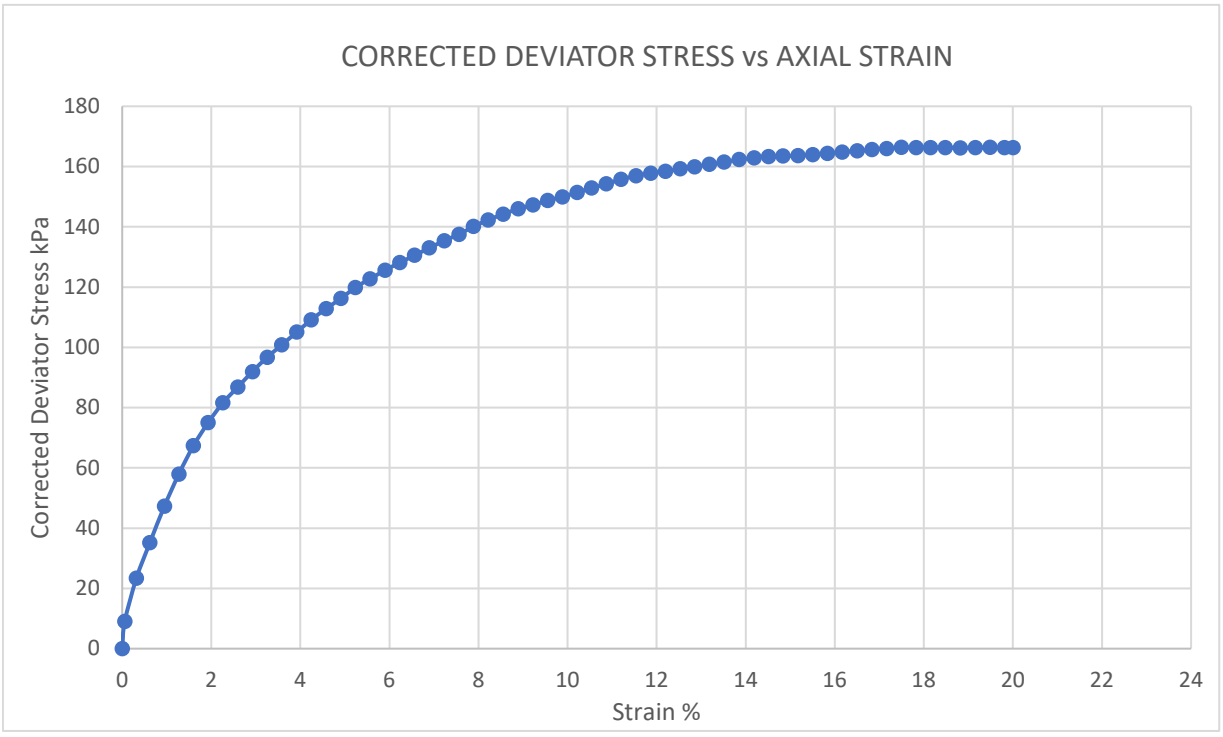
SAMPLE LABEL	WS159 U 0.5-1	**DATE SAMPLED**	24-Jan-22
LAB SAMPLE No.	109363	**DATE RECEIVED**	09-Feb-22
DATE TESTED	23-Feb-22	**SAMPLED BY**	Client
MATERIAL	Soft brown silty sandy CLAY		
ADVISED SOURCE	Site Investigation Sample		

INITIAL CONDITIONS

Specimen Location

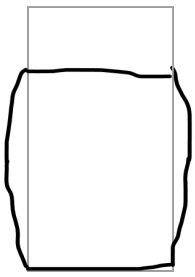


Sample Length (mm)	500	Specimen depth from top of Sample (mm)	120
Sample Orientation	Vertical	Specimen Condition	Undisturbed
Specimen Length (mm)	171	Specimen Moisture Content (%)	16
Specimen Diameter (mm)	83	Specimen Bulk Density (Mg/m3)	2.23
Membrane Thickness (mm)	0.4	Specimen Dry Density (Mg/m3)	1.92
Membrane Correction	1.83		



TEST TYPE
SINGLE STAGE

SKETCH OF SPECIMEN AT FAILURE



PLASTIC

Cell Pressure (kPa)	Failure Strain (%)	Rate of Strain (%/min)	Corrected Deviator Stress (kPa)	Shear Strength Cu (kPa)
15	19	2	166	83

Remarks/Abnormalities

Name O.P Davies BA (Hons) (Laboratory Manager) Signed  Date 24 February 2022

MURRAY RIX
CONSULTANCY, SITE INVESTIGATION
CONSTRUCTION MATERIALS TESTING

TEST REPORT

Client e3p

Address Taylor Road
Trafford Park
Urmston
Manchester
M41 7JQ

Contract Cherryfield Drive

Job Number MRN 4287/27
Date of Issue 03 March 2022
Pages 1 of 11

Approved Signatories

S J Hutchings, O P Davies

Notes

1 All remaining samples and remnants from this contract will be disposed 28 days from the date of this report unless you notify us to the contrary.

2 Result certificates, in this report, not bearing a UKAS mark, are not included in our UKAS accreditation schedule.

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

4 Certified that the samples have been examined and tested in accordance with the terms of the contract/order and unless otherwise stated conform to the standards/specifications quoted.

5 The results included within the report are representative of the samples submitted for analysis.

6 This certificate should not be reproduced, except in full, without the express permission of the laboratory.

M U R R A Y R I X

ANDREW HOUSE, HADFIELD STREET,
DUKINFIELD, CHESHIRE SK16 4QX
TEL 0161 475 0870

TEST CERTIFICATE

DETERMINATION OF THE COMPRESSIVE STRENGTH OF INTACT ROCK CORE SPECIMENS
ASTM D7012 - 14 Method C

CLIENT	e3p
SITE	Cherryfield Drive
JOB NUMBER	MRN 4287/27

SAMPLE REFERENCE	CP/RB101 6.70-6.91	DATE RECEIVED	01-Mar-22
SAMPLE NUMBER	109806	DATE SAMPLED	Not advised
DATE TESTED	02-Mar-22	SAMPLED BY	Client

DIMENSIONS

TESTED BY	SC	DIAMETER (mm)	90
LENGTH AFTER PREPARATION (mm)	110	LENGTH/DIAMETER RATIO	1.22

METHOD OF END PREPARATION	Saw / Grinding	TIME IN WATER PRIOR TO TEST	0 Hours
DATE OF DRILLING	Not advised	DRILLED BY	Others
MATERIAL	Rock Core	SAMPLE LOCATION	Not advised

DESCRIPTION OF CORE AFTER TEST	Split vertically from top to bottom, with no visible end effects

COMPRESSIVE STRENGTH

LOAD AT FAILURE (kN)	16.7	MEASURED COMPRESSIVE STRENGTH (N/mm2)	2.6

COMPRESSIVE STRENGTH (MPa)	**2.6**

Comments / Deviation from standard method / Abnormalities noted during visual inspection.
Length/diameter ratio was outside the requirements of the Standard.

NAME O.P. Davies BA (Hons) (Laboratory Manager) SIGNED  DATE 03-Mar-22

M U R R A Y R I X

ANDREW HOUSE, HADFIELD STREET,
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TEL 0161 475 0870

TEST CERTIFICATE

DETERMINATION OF THE COMPRESSIVE STRENGTH OF INTACT ROCK CORE SPECIMENS
ASTM D7012 - 14 Method C

CLIENT	e3p
SITE	Cherryfield Drive
JOB NUMBER	MRN 4287/27

SAMPLE REFERENCE	CP/RB101 7.50-7.96	DATE RECEIVED	01-Mar-22
SAMPLE NUMBER	109807	DATE SAMPLED	Not advised
DATE TESTED	02-Mar-22	SAMPLED BY	Client

DIMENSIONS

TESTED BY	SC	DIAMETER (mm)	90
LENGTH AFTER PREPARATION (mm)	183	LENGTH/DIAMETER RATIO	2.03

METHOD OF END PREPARATION	Saw / Grinding	TIME IN WATER PRIOR TO TEST	0 Hours
DATE OF DRILLING	Not advised	DRILLED BY	Others
MATERIAL	Rock Core	SAMPLE LOCATION	Not advised

DESCRIPTION OF CORE AFTER TEST	Split vertically from top to bottom, with no visible end effects

COMPRESSIVE STRENGTH

LOAD AT FAILURE (kN)	82.4	MEASURED COMPRESSIVE STRENGTH (N/mm2)	13.0

COMPRESSIVE STRENGTH (MPa)	**13.0**

Comments / Deviation from standard method / Abnormalities noted during visual inspection.
None

NAME O.P. Davies BA (Hons) (Laboratory Manager) SIGNED  DATE 03-Mar-22

M U R R A Y R I X

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TEST CERTIFICATE

DETERMINATION OF THE COMPRESSIVE STRENGTH OF INTACT ROCK CORE SPECIMENS
ASTM D7012 - 14 Method C

CLIENT	e3p
SITE	Cherryfield Drive
JOB NUMBER	MRN 4287/27

SAMPLE REFERENCE	CP/RB101 11.10-11.15	DATE RECEIVED	01-Mar-22
SAMPLE NUMBER	109809	DATE SAMPLED	Not advised
DATE TESTED	02-Mar-22	SAMPLED BY	Client

DIMENSIONS

TESTED BY	SC	DIAMETER (mm)	90
LENGTH AFTER PREPARATION (mm)	127	LENGTH/DIAMETER RATIO	1.41

METHOD OF END PREPARATION	Saw / Grinding	TIME IN WATER PRIOR TO TEST	0 Hours
DATE OF DRILLING	Not advised	DRILLED BY	Others
MATERIAL	Rock Core	SAMPLE LOCATION	Not advised

DESCRIPTION OF CORE AFTER TEST	Split vertically from top to bottom, with no visible end effects

COMPRESSIVE STRENGTH

LOAD AT FAILURE (kN)	29.4	MEASURED COMPRESSIVE STRENGTH (N/mm2)	4.6

COMPRESSIVE STRENGTH (MPa)	**4.6**

Comments / Deviation from standard method / Abnormalities noted during visual inspection.
Length/diameter ratio was outside the requirements of the Standard.

NAME O.P. Davies BA (Hons) (Laboratory Manager) SIGNED  DATE 03-Mar-22

M U R R A Y R I X

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TEST CERTIFICATE

DETERMINATION OF THE COMPRESSIVE STRENGTH OF INTACT ROCK CORE SPECIMENS

ASTM D7012 - 14 Method C

CLIENT	e3p
SITE	Cherryfield Drive
JOB NUMBER	MRN 4287/27

SAMPLE REFERENCE	CP/RB102 6.10-6.40	DATE RECEIVED	01-Mar-22
SAMPLE NUMBER	109811	DATE SAMPLED	Not advised
DATE TESTED	02-Mar-22	SAMPLED BY	Client

DIMENSIONS

TESTED BY	SC	DIAMETER (mm)	89.5
LENGTH AFTER PREPARATION (mm)	181	LENGTH/DIAMETER RATIO	2.02

METHOD OF END PREPARATION	Saw / Grinding	TIME IN WATER PRIOR TO TEST	0 Hours
DATE OF DRILLING	Not advised	DRILLED BY	Others
MATERIAL	Rock Core	SAMPLE LOCATION	Not advised

DESCRIPTION OF CORE AFTER TEST	Split vertically from top to bottom, with no visible end effects

COMPRESSIVE STRENGTH

LOAD AT FAILURE (kN)	78.0	MEASURED COMPRESSIVE STRENGTH (N/mm2)	12.4

COMPRESSIVE STRENGTH (MPa)	**12.4**

Comments / Deviation from standard method / Abnormalities noted during visual inspection.
None

NAME O.P. Davies BA (Hons) (Laboratory Manager) SIGNED DATE 03-Mar-22

M U R R A Y R I X

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TEST CERTIFICATE

DETERMINATION OF THE COMPRESSIVE STRENGTH OF INTACT ROCK CORE SPECIMENS
ASTM D7012 - 14 Method C

CLIENT	e3p
SITE	Cherryfield Drive
JOB NUMBER	MRN 4287/27

SAMPLE REFERENCE	CP/RB102 10.40-10.60	DATE RECEIVED	01-Mar-22
SAMPLE NUMBER	109815	DATE SAMPLED	Not advised
DATE TESTED	02-Mar-22	SAMPLED BY	Client

DIMENSIONS

TESTED BY	SC	DIAMETER (mm)	89
LENGTH AFTER PREPARATION (mm)	142	LENGTH/DIAMETER RATIO	1.60

METHOD OF END PREPARATION	Saw / Grinding	TIME IN WATER PRIOR TO TEST	0 Hours
DATE OF DRILLING	Not advised	DRILLED BY	Others
MATERIAL	Rock Core	SAMPLE LOCATION	Not advised

DESCRIPTION OF CORE AFTER TEST	Split vertically from top to bottom, with no visible end effects

COMPRESSIVE STRENGTH

LOAD AT FAILURE (kN)	34.1	MEASURED COMPRESSIVE STRENGTH (N/mm2)	5.5

COMPRESSIVE STRENGTH (MPa)	**5.5**

Comments / Deviation from standard method / Abnormalities noted during visual inspection.
Length/diameter ratio was outside the requirements of the Standard.

NAME O.P. Davies BA (Hons) (Laboratory Manager) SIGNED  DATE 03-Mar-22

M U R R A Y R I X

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DUKINFIELD, CHESHIRE SK16 4QX
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TEST CERTIFICATE

DETERMINATION OF THE COMPRESSIVE STRENGTH OF INTACT ROCK CORE SPECIMENS
ASTM D7012 - 14 Method C

CLIENT	e3p
SITE	Cherryfield Drive
JOB NUMBER	MRN 4287/27

SAMPLE REFERENCE	CP/RB103 6.55-6.78	DATE RECEIVED	01-Mar-22
SAMPLE NUMBER	109818	DATE SAMPLED	Not advised
DATE TESTED	02-Mar-22	SAMPLED BY	Client

DIMENSIONS

TESTED BY	SC	DIAMETER (mm)	90
LENGTH AFTER PREPARATION (mm)	183	LENGTH/DIAMETER RATIO	2.03

METHOD OF END PREPARATION	Saw / Grinding	TIME IN WATER PRIOR TO TEST	0 Hours
DATE OF DRILLING	Not advised	DRILLED BY	Others
MATERIAL	Rock Core	SAMPLE LOCATION	Not advised

DESCRIPTION OF CORE AFTER TEST	Split vertically from top to bottom, with no visible end effects

COMPRESSIVE STRENGTH

LOAD AT FAILURE (kN)	56.6	MEASURED COMPRESSIVE STRENGTH (N/mm2)	8.9

COMPRESSIVE STRENGTH (MPa)	**8.9**

Comments / Deviation from standard method / Abnormalities noted during visual inspection.
None

NAME O.P. Davies BA (Hons) (Laboratory Manager) SIGNED  DATE 03-Mar-22

M U R R A Y R I X

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TEST CERTIFICATE

DETERMINATION OF THE COMPRESSIVE STRENGTH OF INTACT ROCK CORE SPECIMENS
ASTM D7012 - 14 Method C

CLIENT	e3p
SITE	Cherryfield Drive
JOB NUMBER	MRN 4287/27

SAMPLE REFERENCE	CP/RB103 8.33-8.65	DATE RECEIVED	01-Mar-22
SAMPLE NUMBER	109819	DATE SAMPLED	Not advised
DATE TESTED	02-Mar-22	SAMPLED BY	Client

DIMENSIONS

TESTED BY	SC	DIAMETER (mm)	90
LENGTH AFTER PREPARATION (mm)	180	LENGTH/DIAMETER RATIO	2.00

METHOD OF END PREPARATION	Saw / Grinding	TIME IN WATER PRIOR TO TEST	0 Hours
DATE OF DRILLING	Not advised	DRILLED BY	Others
MATERIAL	Rock Core	SAMPLE LOCATION	Not advised

DESCRIPTION OF CORE AFTER TEST	Split vertically from top to bottom, with no visible end effects

COMPRESSIVE STRENGTH

LOAD AT FAILURE (kN)	56.6	MEASURED COMPRESSIVE STRENGTH (N/mm2)	8.9

COMPRESSIVE STRENGTH (MPa)	**8.9**

Comments / Deviation from standard method / Abnormalities noted during visual inspection.
None

NAME O.P. Davies BA (Hons) (Laboratory Manager) SIGNED  DATE 03-Mar-22

M U R R A Y R I X

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DUKINFIELD, CHESHIRE SK16 4QX
TEL 0161 475 0870

TEST CERTIFICATE

DETERMINATION OF POINT LOAD STRENGTH INDEX OF ROCK
METHOD IN ACCORDANCE WITH ASTM STANDARD D 5731

CLIENT	e3p
SITE	Cherryfield Drive
JOB NUMBER	MRN 4287/27

SAMPLE LABEL	CP/RB101	DATE SAMPLED	Not advised
LAB SAMPLE No	109808, 109810	DATE RECEIVED	01-Mar-22
DATE TESTED	02-Mar-22	SAMPLED BY	Client

MATERIAL	Rock Core
ADVISED SOURCE	Site Investigation Sample

Depth (m)	Test Type	D (mm)	*W (mm)	Load (P) (kN)	D_e^2 (mm^2)	D_e (mm)	Is (MPa)	F	$I_{s(50)}$ (MPa)
10.28-10.40	D	90.0		2.6	8100.00	90.00	0.32	1.30	0.42
11.50-11.65	D	90.0		0.6	8100.00	90.00	0.07	1.30	0.10
					0.00	0.00	0.00	0.00	0.00
					0.00	0.00	0.00	0.00	0.00
					0.00	0.00	0.00	0.00	0.00
					0.00	0.00	0.00	0.00	0.00
					0.00	0.00	0.00	0.00	0.00
					0.00	0.00	0.00	0.00	0.00
					0.00	0.00	0.00	0.00	0.00
					0.00	0.00	0.00	0.00	0.00
					0.00	0.00	0.00	0.00	0.00
					0.00	0.00	0.00	0.00	0.00
					0.00	0.00	0.00	0.00	0.00
					0.00	0.00	0.00	0.00	0.00
					0.00	0.00	0.00	0.00	0.00
					0.00	0.00	0.00	0.00	0.00
					0.00	0.00	0.00	0.00	0.00
					0.00	0.00	0.00	0.00	0.00
					0.00	0.00	0.00	0.00	0.00
					0.00	0.00	0.00	0.00	0.00
					0.00	0.00	0.00	0.00	0.00

*W Entry required if test type is not Diametrical

REMARKS

SIGNED

NAME O.P. Davies BA (Hons)
(Laboratory Manager)

DATE 03-Mar-22

M U R R A Y R I X

ANDREW HOUSE, HADFIELD STREET,
DUKINFIELD, CHESHIRE SK16 4QX
TEL 0161 475 0870

TEST CERTIFICATE

DETERMINATION OF POINT LOAD STRENGTH INDEX OF ROCK
METHOD IN ACCORDANCE WITH ASTM STANDARD D 5731

CLIENT	e3p
SITE	Cherryfield Drive
JOB NUMBER	MRN 4287/27

SAMPLE LABEL	CP/RB102	DATE SAMPLED	Not advised
LAB SAMPLE No	109812-14, 109816	DATE RECEIVED	01-Mar-22
DATE TESTED	02-Mar-22	SAMPLED BY	Client

MATERIAL	Rock Core
ADVISED SOURCE	Site Investigation Sample

Depth (m)	Test Type	D (mm)	*W (mm)	Load (P) (kN)	D_e^2 (mm^2)	D_e (mm)	Is (MPa)	F	$I_{s(50)}$ (MPa)
6.66-6.77	D	90.0		2.6	8100.00	90.00	0.32	1.30	0.42
8.25-8.40	D	90.0		2.3	8100.00	90.00	0.28	1.30	0.37
9.38-9.50	D	89.0		0.1	7921.00	89.00	0.01	1.30	0.02
11.00-11.10	D	88.0		0.5	7744.00	88.00	0.06	1.29	0.08
					0.00	0.00	0.00	0.00	0.00
					0.00	0.00	0.00	0.00	0.00
					0.00	0.00	0.00	0.00	0.00
					0.00	0.00	0.00	0.00	0.00
					0.00	0.00	0.00	0.00	0.00
					0.00	0.00	0.00	0.00	0.00
					0.00	0.00	0.00	0.00	0.00
					0.00	0.00	0.00	0.00	0.00
					0.00	0.00	0.00	0.00	0.00
					0.00	0.00	0.00	0.00	0.00
					0.00	0.00	0.00	0.00	0.00
					0.00	0.00	0.00	0.00	0.00
					0.00	0.00	0.00	0.00	0.00
					0.00	0.00	0.00	0.00	0.00
					0.00	0.00	0.00	0.00	0.00
					0.00	0.00	0.00	0.00	0.00

*W Entry required if test type is not Diametrical

REMARKS

SIGNED

NAME O.P. Davies BA (Hons)
(Laboratory Manager)

DATE 03-Mar-22

M U R R A Y R I X

ANDREW HOUSE, HADFIELD STREET,
DUKINFIELD, CHESHIRE SK16 4QX
TEL 0161 475 0870

TEST CERTIFICATE

DETERMINATION OF POINT LOAD STRENGTH INDEX OF ROCK
METHOD IN ACCORDANCE WITH ASTM STANDARD D 5731

CLIENT	e3p
SITE	Cherryfield Drive
JOB NUMBER	MRN 4287/27

SAMPLE LABEL	CP/RB103	DATE SAMPLED	Not advised
LAB SAMPLE No	109817, 109820	DATE RECEIVED	01-Mar-22
DATE TESTED	02-Mar-22	SAMPLED BY	Client

MATERIAL	Rock Core
ADVISED SOURCE	Site Investigation Sample

Depth (m)	Test Type	D (mm)	*W (mm)	Load (P) (kN)	D_e^2 (mm^2)	D_e (mm)	Is (MPa)	F	$I_{s(50)}$ (MPa)
5.13-5.31	D	90.0		14.1	8100.00	90.00	1.74	1.30	2.27
10.20-10.40	D	90.0		2.6	8100.00	90.00	0.32	1.30	0.42
					0.00	0.00	0.00	0.00	0.00
					0.00	0.00	0.00	0.00	0.00
					0.00	0.00	0.00	0.00	0.00
					0.00	0.00	0.00	0.00	0.00
					0.00	0.00	0.00	0.00	0.00
					0.00	0.00	0.00	0.00	0.00
					0.00	0.00	0.00	0.00	0.00
					0.00	0.00	0.00	0.00	0.00
					0.00	0.00	0.00	0.00	0.00
					0.00	0.00	0.00	0.00	0.00
					0.00	0.00	0.00	0.00	0.00
					0.00	0.00	0.00	0.00	0.00
					0.00	0.00	0.00	0.00	0.00
					0.00	0.00	0.00	0.00	0.00
					0.00	0.00	0.00	0.00	0.00
					0.00	0.00	0.00	0.00	0.00
					0.00	0.00	0.00	0.00	0.00
					0.00	0.00	0.00	0.00	0.00

*W Entry required if test type is not Diametrical

REMARKS

SIGNED

NAME O.P. Davies BA (Hons)
(Laboratory Manager)

DATE 03-Mar-22