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GROUND INVESTIGATION REPORT

**FOR
SOFIDEL UK LIMITED,
BRUNEL WAY,
BRITON FERRY,
NEATH PORT TALBOT,
SA11 2HZ**

**PREPARED FOR
VITAL ENERGI**

**REPORT NO. M3822F
MARCH 2025**

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GROUND INVESTIGATION FOR SOFIDEL UK LIMITED, BRUNEL WAY, BRITON FERRY, NEATH PORT TALBOT, SA11 2HZ

CLIENT: VITAL ENERGI

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1. INTRODUCTION

This report has been prepared in accordance with Purchase Order No. SUB18633 Amendment 05, dated 9th April 2024, and SUB18633 Amendment 06 dated 30th January 2025 from the Client.

The brief was set out in our estimates, ref. EM6321A dated 8th April 2024, and EM 6547B dated 30th January 2025 with amendments as the investigation proceeded and includes:

- 4 No. mini boreholes
- 3 No. cable percussive boreholes
- In-situ testing
- Geotechnical laboratory testing
- Contamination analyses
- Installation of standpipes followed by groundwater and ground gas monitoring
- Provision of an interpretative report on the above.

It should be noted that we have previously issued a Phase I Desk Study Report for this site, ref. M3822 and dated May 2024, which should be read in conjunction with this Phase II Ground Investigation Report.

This report is a revision of our previous Phase II Ground Investigation Report Ref. M3822B which has been updated with the following amendments and supplementary information undertaken after consultation with Natural Resources Wales:

- Cross sections have been added to the appendices (Figure 4)
- Detailed groundwater level monitoring has been undertaken
- Two additional rounds of groundwater contamination analyses have been undertaken
- An updated conceptual ground model has been added

1.1 Site Location and Description

The site is located in the north of the Baglan Energy Park, Briton Ferry, Neath Port Talbot, South Wales, as indicated on Figure 1. The approximate National Grid Reference of the centre of the site is 273130E, 192803N.

As shown on Figure 2, the site comprises a tissue paper manufacturing works operated by Sofidel UK Limited, bound to the north by a grassed area then a car park and the River Neath, to the east by offices, industrial properties and Brunel Way, to the south by railway sidings then industrial buildings and vacant land, and to the west by an undeveloped flood plain.

M3822F Sofidel, Briton Ferry

1.2 Proposed Development and Purpose of the Ground Investigation

We understand that it is proposed to construct a new biomass energy centre within the existing area of hardstanding, as shown on Figure 2.

The purpose of the investigation was to determine the ground conditions at the positions of the exploratory holes, to assess the likelihood of a general pattern of strata being present below the site and to establish the load bearing characteristics of the strata deriving, if possible, an assessment of the suitability of appropriate founding techniques.

In addition, contamination analysis and assessment were required in order to determine necessary precautions and/or remedial measures required for the proposed development and to ascertain the need for any further sampling and analysis.

Ground gas monitoring and assessment was also required to determine necessary precautions and/or remedial measures.

2. INVESTIGATION

2.1 Investigation Details

Four mini boreholes were put down to depths of between 0.41m and 1.65m using a mini sampling rig at the positions determined and set out by Sub Surface Midlands Limited, as shown on Figure 3. The samples were subsequently logged in accordance with BS.5930:2015+A1:2020 and the resulting Mini Borehole Records are appended. On completion the mini boreholes were backfilled with gravel as no installations were required.

Three 200mm diameter reducing to 150mm diameter boreholes were put down by cable percussive boring techniques at the positions determined and set out by Sub Surface Midlands Limited, as shown on Figure 3. The boreholes were put down to depths of between 15.08m and 15.15m, samples taken were logged in accordance with BS.5930:2015+A1:2020 and the resulting Borehole Records are appended.

All of the mini boreholes were terminated on obstructions thought to be zones of dense slag within the made ground. BH3 was also terminated on an obstruction at 0.70m, the borehole was moved over and an attempt at redrilling was made in location BH3A, this attempt also encountered an obstruction at 0.70m, the borehole was moved again and successfully redrilled to full depth in the location of BH3B.

Three rotary boreholes were put down to a depth of 7.00m using a Fraste Multidrill PL G drill rig at the positions determined and set out by Sub Surface Midlands Limited, as shown on Figure 3. Boreholes were advanced by rotary open holing techniques, with water flushing medium. The foreman driller logged chippings flushed to the surface during drilling and the resulting Rotary Borehole Records are appended. The purpose of the rotary boreholes was to replace the standpipes installed in cable percussive boreholes BH1, BH2 and BH3B which were decommissioned between the end of the previous monitoring programme and the time of the supplementary investigation.

2.2 Sub Surface Detail

Details of the strata encountered in the ground investigation are given on the appended Borehole and Mini Borehole Records and conjectured cross sections are given on Figure 4. The exploratory holes found made ground overlying natural granular strata. A general summary of the strata found is as follows:

2.2.1 Made Ground

Made ground was encountered in all of the exploratory holes to depths of between at least 0.41m and 2.60m to 4.00m (7.25m, 5.08m and 3.57m mAOD respectively) and comprised bituminous macadam surfacing over black, dark brown and dark grey ashy gravelly fine to coarse sand with localised low slag and sandstone cobble and boulder content with localised shell fragments. The gravel sized component comprised mainly fine to coarse slag, clinker and sandstone with localised siltstone, quartz and brick and plastic.

2.2.2 Drift Deposits

Natural drift deposits were encountered at depths of between 2.60m and 4.00m and comprised mainly loose or medium dense becoming dense and very dense brown and greyish brown slightly gravelly slightly silty medium locally fine to medium sand with localised shell fragments. The gravel sized component comprised mainly subangular to rounded fine to medium sandstone and siltstone.

2.2.3 Groundwater

Groundwater inflows were observed at depths below ground level of 4.50m in R1, 3.70m in R2 and 4.50m in R3. No groundwater entries were recorded in the remaining exploratory holes during drilling although it should be noted that water was added below 1.20m to assist drilling, probably masking water entries. It should also be noted that the boreholes and mini boreholes were only left open for a short period of time and groundwater levels and rates of inflow may be subject to seasonal, tidal and/ or climatic variations.

Monitoring of standpipes installed in BH1, BH2, and BH3B found groundwater to be at depths below ground level of 3.90m to 4.30m, 3.80m to 4.10m and 3.90m to 4.20m respectively.

The second phase of more detailed monitoring undertaken between the 10th February 2025 and the 18th March 2025 found that tide levels ranged from -2.58mAOD to 7.31mAOD while the average groundwater levels in the area of the proposed development varied from 3.44mAOD to 3.87mAOD. The groundwater monitoring data and tidal data are appended. Plots showing the relationship between the tidal data and groundwater throughout the monitoring period and a snapshot of the relationship between the 12th March and 14th March 2025 are also appended.

3. SAMPLING, TESTING AND MONITORING

3.1 Sampling

Continuous core, small disturbed and bulk disturbed samples were obtained for the strata encountered and were subjected to careful examination.

The samples will be retained for a period of one month after the issue of this report, for reference purposes, and then disposed of unless otherwise instructed.

3.2 Field Testing

Forty Standard Penetration Tests (SPTs) were performed in made ground and natural granular strata, the results of which are recorded on the appended Standard Penetration Test Results Sheet with 'N' values and indicative relative density and shear strength, where appropriate, given on the appended Borehole and Mini Borehole Records.

3.3 Installations and Monitoring

On completion of BH1, BH2 and BH3B hdpe standpipes were installed to a depth of 5.00m. The standpipes are slotted from 1.00m depth, have an internal diameter of 50mm and have removable quick release gas valves to enable both ground gas and groundwater monitoring and sampling to be undertaken. Details of the installations are given on the appended Borehole Records.

Monitoring of the standpipes installed in BH1, BH2 and BH3B for ground gas and groundwater was undertaken on six occasions using portable equipment. A Gas Data GFM 435 was used for monitoring methane, carbon dioxide, oxygen, gas flows and atmospheric pressure. The results of the monitoring are given on the appended Ground Gas and Groundwater Monitoring Results sheet.

3.4 Laboratory Testing

The following laboratory tests were carried out in accordance with BS.1377: 1990, where applicable, and the results are appended.

- Particle size distribution by wet sieve analysis
- Soluble sulphate content and pH value tests (including pyritic ground testing).

Contamination analyses have been performed on eight soil samples to determine: pH and concentrations of sulphate, sulphide, cyanide, arsenic, boron (soluble), cadmium, chromium, hexavalent chromium, copper, lead, mercury, molybdenum, nickel, selenium, zinc, speciated aliphatic and aromatic total petroleum hydrocarbons (TPH CWG), the speciated polynuclear aromatic hydrocarbons (PAHs) suite, the benzene/ethylbenzene/ toluene/ xylene (BTEX) suite and phenols. In addition, the soil samples were subjected to an asbestos screen. In four samples where asbestos was recorded quantification and identification has also been undertaken.

In addition, eight samples were analysed for soil organic matter content and two sample were subjected to a two stage waste acceptance criteria (WAC) suite of analyses.

Contamination analyses have been performed on three groundwater samples taken from the standpipes installed in BH1, BH2 and BH3B on 22nd May 2024, three groundwater samples taken from the standpipes installed in R1, R2 and R3 on 18th February 2025 and three groundwater samples taken from the standpipes installed in R1, R2 and R3 on 4th March 2025 to determine: pH and concentrations of sulphate, sulphide, cyanide, arsenic, boron (soluble), cadmium, chromium, hexavalent chromium, copper, lead, mercury, molybdenum, nickel, selenium, zinc, speciated aliphatic and aromatic total petroleum hydrocarbons (TPH CWG), the speciated polynuclear aromatic hydrocarbons (PAHs) suite, the benzene/ ethylbenzene/ toluene/ xylene (BTEX) suite and phenols.

The results of the above analyses are appended.

4. APPRAISAL AND RECOMMENDATIONS

4.1 Comments on the Profile

At the outset it should be appreciated that only a small proportion of the area to be developed has been investigated and consequently the recommendations made and opinions expressed in this report can only be applied to such conditions as were encountered in the exploratory holes.

The exploratory holes indicate a nature and degree of similarity to the extent that we consider them likely to be representative of the natural ground conditions. However, no guarantee can be given.

Due to the site having been previously developed, and the nature of Made Ground, localised variations in thickness and composition should be anticipated and hence interpolation or extrapolation from the exploratory holes to adjoining areas should only be undertaken with caution.

Details of the findings of the investigation are given on the appended Borehole and Mini Records and a summary of the ground conditions is given in Section 2.2.

4.2 Foundations

We understand that it is proposed to construct a new biomass energy centre within the existing area of hardstanding, as shown on Figure 2. However, at the time of writing this report no specific details regarding the proposed foundations and design loadings were available and consequently the recommendations given are in general terms only.

The ground investigation found made ground to depths of between at least 0.41m and 2.80m to 4.00m underlain by natural mainly loose or medium dense becoming dense and very dense brown and greyish brown slightly gravelly slightly silty medium locally fine to medium sand with localised shell fragments.

We would not recommend founding in the Made Ground in its present condition because of its inherent variability in consistency and compaction, and in parts the nature of its constituents.

In view of the depth of Made Ground shallow foundations in natural ground are not feasible and hence alternative foundations need to be considered. These might include ground improvement by vibroflotation with shallow reinforced foundations or piled foundations.

When considering whether to use vibroflotation or piles consideration should be given to the carbon footprint. According to an assessment undertaken by Balfour Beatty Ground Engineering (BBGE Technical Paper 'Sustainability in Foundations', 2021), Vibro systems typically generate 5-10% of the CO₂ compared to piling systems.

The most common form of the vibroflotation treatment technique is vibro replacement whereby dense stone columns are formed through the full depth of any Made Ground that is present and variable near surface strata, utilising the passive resistance of cohesive soils and compacting granular soils to improve the bearing capacity and minimise differential settlements of the composite mass of near surface materials and compacted stone columns.

Due to the varying types, sizes and power of vibroflotation machines currently in use, the advice of a Specialist Contractor should be sought to ascertain the feasibility of applying the particular technique, the allowable bearing capacity and expected differential settlements each machine will achieve and in formulating the most economic scheme. However, due to the presence of obstructions and very dense bands within the made ground it is likely that the made ground will not be able to be satisfactorily treated by vibroflotation.

Care must be taken when undertaking vibroflotation ground treatment to prevent vibrations being transmitted to adjacent/ nearby buildings, structures, services and/or slopes/ retaining walls as they may be detrimentally affected. Consequently, we recommend that any tendering Specialist Vibroflotation Contractor confirm that vibrations will not detrimentally affect adjacent/ nearby buildings, structures, services and/or slopes/ retaining walls.

With regard to the choice of pile type, consideration could be given to driven piles, continuous flight auger (CFA) piles or cast in-situ bored piles with the driven pile option probably being the most economical. However, in considering piles driven to a pre-determined set in the more competent strata at depth, it is essential to ensure that any vibrations set up during the driving process are not transmitted to adjacent/ nearby buildings, structures, services and/or slopes/ retaining walls as they may be detrimentally affected. Consequently, in respect of driven piles, we recommend that any tendering Specialist Piling Contractor confirm that vibrations will not detrimentally affect adjacent/ nearby buildings, structures, services and/or slopes/ retaining walls. If such confirmation cannot be given, as is likely then we would recommend using either CFA or cast in-situ bored piles. When considering the type of pile to use it should be noted that chiselling techniques were required to penetrate horizons containing possible localised zones of dense slag and obstructions in the shallow made ground. Care must be taken to space the piles in any group to ensure the adequate utilisation of skin friction where this has been assumed in the calculation of the load bearing capacity of an individual pile. Checks must also be undertaken to confirm that the underlying ground supporting the pile group is not overstressed.

In determining the final pile design it should be noted that up to 4.00m of the piles will be in made ground and due regard should be paid to the lack of lateral restraint over this length in cases where significant lateral forces are to be catered for.

To provide assistance for estimating purposes only, we have undertaken a preliminary pile design calculation for a 15.15m long pile taking into consideration the ground conditions at BH2, as follows:

Preliminary Pile Design based on strata in BH2 (water at 3.80m)

Bored Cast In-situ or CFA Pile Factor of Safety: 2.5 (shaft), 3.0 (end)
Dia. = 0.30m, Perimeter = 0.94m, Cross Section Area = 0.07m², Length = 15.15m.

0.00 to 4.00m	MADE GROUND	ignore
4.00 to 6.00m	Medium Dense SAND Allowable Shaft Friction Allowable Shaft Friction Load	$\bar{N} = 16$ blows/300mm = 8.8 kN/m ² = <u>16 kN</u>
6.00 to 9.00m	Loose SAND Allowable Shaft Friction Allowable Shaft Friction Load	$\bar{N} = 6$ blows/300mm = 9.7 kN/m ² = <u>27 kN</u>
9.00 to 12.15m	Medium dense becoming very dense SAND Allowable Shaft Friction Allowable Shaft Friction Load	$\bar{N} = 16$ blows/300mm = 17.3 kN/m ² = <u>51 kN</u>
12.15 to 15.15m	Medium dense becoming very dense SAND Allowable Shaft Friction Allowable Shaft Friction Load	$\bar{N} = 50$ blows/180mm = 38.7 kN/m ² = <u>109 kN</u>
15.15m	Very dense SAND Allowable End Bearing Allowable End Bearing Load	N = 50 blows for 40mm = 1000 kN/m ² = <u>70 kN</u>
Total Allowable Working Load = 16 + 27 + 51 + 109 + 70		= <u>273 kN</u>

In order to use the load carrying capacity attributable to both shaft friction and end bearing, the final design figures should be checked to ensure that the ultimate shaft friction is greater than or equal to the allowable working load, otherwise end bearing only should be used.

There is a possibility that for piles installed through a significant thickness of Made Ground some continuing self-weight and consolidation settlement might take place and exert negative skin friction. Due allowance should be made for this in any pile design.

In order to use the full load carrying capacity attributable to end bearing for bored cast in-situ piles either base ramming should be carried out or settled debris should be removed.

To formulate the most satisfactory and economic scheme we recommend that competitive tenders and designs from Specialist Piling Contractors should be sought using the exploratory hole information obtained.

4.3 Floor Slab Construction

With regard to the design and construction of normal ground bearing floor slabs, it should be noted that due to the thickness of Made Ground there will be a risk of significant total and differential settlements, the extent of which will be a matter of chance rather than being assessable by calculation.

To obviate any significant damaging settlements we would recommend using a suspended floor slab with intermediate support designed on the same basis as the main foundations where the spans are too large for economical single suspended slab design.

This is an expensive form of construction and we would recommend that careful consideration is given to the extent to which the maintenance of a very uniform level surface is essential. If some degree of tolerance is available in this respect, we would recommend consideration is given to a compromise solution, which, whilst not guaranteeing any specific limit to the degree of movement would nevertheless provide some reduction in the risks involved and at the same time be a cheaper option.

The compromise solution referred to above involves removing approximately 0.60 metres of Made Ground, placing a layer of geotextile material and then building up to the underside of the slab using a graded granular hardcore, placed and compacted in layers not exceeding 150mm followed by the construction of suitably reinforced concrete slab with shear reinforcement at all joints cast on a 50mm bed of compacted sand.

The design of the slab size and reinforcement will be controlled by the extent to which tilting of the slabs can be tolerated and the static and live loading to be supported.

Should vibroflotation ground treatment be proposed for the main foundations consideration could be given to extending the ground treatment in a grid pattern beneath the whole of the building followed by the construction of a suitably reinforced concrete ground bearing floor slab cast on a granular base layer.

4.4 Excavations and Groundwater

There should be no particular difficulties in excavating the strata indicated in the exploratory holes utilising an appropriate and suitably sized mechanical excavator. However, obstructions thought to be zones of dense slag were encountered in BH3 at 0.70m, in BH3A at 0.70m, in M1 at 1.65m, in M2 at 1.61m, in M3 at 0.41m, and in M4 at 0.97m which may need to be broken out prior to excavation.

It is recommended that all excavations to greater than 1.20m depth, or for shallower excavations where groundwater is encountered above this level, are closely supported, especially where man entry is required. Alternatively, where space permits, the excavations might be battered back to an appropriate angle.

No groundwater inflows were observed in the exploratory holes during drilling although it should be noted that water was added below 1.20m to assist drilling, probably masking water entries. It should also be noted that the boreholes and mini boreholes were only left open for a short period of time and groundwater levels and rates of inflow may be subject to seasonal, tidal and/ or climatic variations.

Monitoring of standpipes installed in BH1, BH2, BH3B, R1, R2 and R3 found groundwater to be at levels of 3.90m to 4.30m, 3.80m to 4.10m, 3.90m to 4.20m, 3.91m to 4.12m, 3.82m to 4.01m, and 4.06 to 4.16m depth below ground level respectively, equating to Ordnance Survey levels ranging from 3.34mAOD to 3.87mAOD. It was initially conjectured that given the proximity of the estuary the groundwater levels may be subject to tidal influences.

An assessment of levels at the time of the first phase of monitoring visits found that tide levels ranged from 0.99mAOD to 6.26mAOD while the average groundwater levels in the area of the proposed development varied from 3.34mAOD to 3.76mAOD.

The second phase of more detailed monitoring undertaken between the 10th February 2025 and the 18th March 2025 found that tide levels ranged from -2.58mAOD to 7.31mAOD while the average groundwater levels in the area of the proposed development varied from 3.44mAOD to 3.87mAOD.

The highest groundwater level recorded in the standpipes (3.87mAOD) was below the depth of made ground encountered in all of the exploratory holes apart from BH2 where made ground was recorded to 4.00m below ground level (3.57mAOD).

We understand from the Client that during the detailed monitoring phase some pumping of a nearby ash pit was undertaken. This pumping operation was undertaken between 13th February 2025 and 1st March 2025 and appears to have lowered the groundwater table by some 0.07m on average. During the pumping period the groundwater levels were very stable with a range of some 0.02m in R1, 0.05m in R2, and 0.03m in R3. Outside of the pumping period the groundwater level was more variable with ranges of 0.20m in R1, 0.15m in R2 and 0.10m in R3. There was no discernible correlation between the groundwater and tidal levels.

Based on the above tidal effects on the groundwater level in the area of the site appear to be negligible.

The groundwater monitoring data and tidal data are appended. Plots showing the relationship between the tidal data and groundwater throughout the monitoring period and a snapshot of the relationship between the 12th March and 14th March 2025 are also appended.

Given the limited information, groundwater seepages or inflows are not anticipated in shallow excavations to a depth of 3.80m subject to potential tidal influences. However, should groundwater seepages occur, and water accumulate in excavations up to 3.80m in depth it should be able to be removed by pumping from a filtered sump. Below this depth more sophisticated dewatering measures are likely to be required.

4.5 Buried Concrete

For the design of buried concrete the recommendations given in Building Research Establishment (BRE) Special Digest 1 (February 2017 revision), "Concrete in Aggressive Ground", should be followed.

Determination of pH on the soil samples gave values in the range of 8.5 to 11.1.

Soluble sulphate concentrations were also determined for the soil samples and the results ranged from 0.03 to 0.43 g/l.

Total sulphate, total sulphur, chloride, nitrate and ammonia have been determined for four samples and the results were 0.03 to 0.06 %, 0.01 to 0.04 %, 0.004 to 0.009 g/l, <0.001 to 0.004 g/l, and <0.01 g/l. In addition, water soluble magnesium concentrations have been determined for four samples and the results were <0.01 g/l. Our calculations have determined that pyrite (sulphides), which might weather and produce higher levels of sulphates, are not present.

The results indicate that the Design Sulphate Class for the site should be DS-1.

Our knowledge of the site and ground conditions indicates that the site is “brownfield” with potentially mobile groundwater. Consequently, in accordance with the Design Sulphate Class for the site together with the site and groundwater conditions an Aggressive Chemical Environment for Concrete (ACEC) classification of AC-1 should be used as detailed on the appended extract.

4.6 Contamination Considerations

We have previously undertaken a Phase I Report, ref. M3822 and dated May 2024 and this Phase II ground investigation has been undertaken to provide an initial contamination risk assessment in accordance with the Phase I Conceptual Ground Model. Based upon the findings of the above additional sampling, analysis and assessment may be required.

It should be appreciated that the suite of determinants analysed for consists of a range of contaminants identified in the Conceptual Ground Model. However, the absence of any other specific contaminants cannot be guaranteed.

4.6.1 Assessment (Soil)

In order to provide an assessment of the presence of contamination eight soil samples have been analysed for a suite of determinants and the results are appended.

The concentrations of the determinants have been compared against published generic assessment criteria (GACs). The Department for Environment, Food and Rural Affairs (DEFRA) and the Environment Agency published soil guideline values (SGVs) for mercury, selenium, benzene, toluene, ethylbenzene and xylene on 31 March 2009, arsenic and nickel on 12 May 2009 and cadmium and phenols in June 2009. Contaminated Land: Applications in Real Environments (CL:AIRE) guideline values were also published in December 2009 to supplement the above. DEFRA published in March 2014 Category 4 Screening Levels (C4SLs) for arsenic, cadmium, lead, hexavalent chromium, benzo(a)pyrene and benzene. In November 2014 Suitable for Use Levels (S4ULs) were then published by LQM/ CIEH and updated S4ULs values for cadmium and phenols were published in July 2015 and for nickel in August 2015. The assessment criteria (SGVs, S4ULs, CL:AIRE and C4SLs) vary dependent upon the land use; allotment and residential use being the most sensitive and commercial/ industrial use being the least sensitive.

For the purposes of assessment, as the proposed development is a biomass energy centre for a factory, the results of the contamination analyses have been compared with the GACs for a standard land use of commercial and industrial.

When compared with the GACs the contamination analyses determined no elevated concentrations of the determinands tested for.

Guideline values for the assessment can be supplied directly to the Regulator, if requested.

An asbestos screen was undertaken on the soil samples and (bundles of chrysotile and/or amosite fibres were found in four of the samples at concentrations of between 0.003 and 0.035%.

The results of the Waste Acceptance Criteria (WAC) analyses are also appended.

In addition to the above, an assessment of risk to personnel who will come into contact with on-site materials throughout the site has been undertaken.

4.6.2 Assessment (Groundwater)

Three samples of groundwater taken from the standpipes installed in BH1, BH2 and BH3B on 22nd May 2024, three groundwater samples taken from the standpipes installed in R1, R2 and R3 on 18th February 2025 and three groundwater samples taken from the standpipes installed in R1, R2 and R3 on 4th March 2025 have been analysed for a suite of determinants in accordance with the Conceptual Ground Model and the results are appended.

To assess the risk to surface water bodies the results have been compared with the Environmental Quality Standards (EQS) for annual allowable concentrations, published in the Department of Environment Food and Rural Affairs (DEFRA) Water Framework Directive Directions 2015, or the best equivalent (e.g. the Dangerous Substance Directive List II Substances).

To assess the risk to groundwater resources the results have been compared with the United Kingdom Drinking Water Standards (UK DWS), published in the Water Supply (Water Quality) Regulations 2016. Where no UK DWS is available the World Health Organisation (WHO) Drinking Water Guidelines have been adopted.

The bioavailability of copper, lead, nickel and zinc has been estimated using the Water Framework Directive UKTAG Metal Biodiversity Assessment Tools (M-BAT), a copy of the assessment results is appended.

We have listed the samples where the levels of contamination have exceeded the EQS, UK DWS and/ or WHO, as follows:

TABLE 1 ASSESSMENT OF GROUNDWATER CONTAMINATION
22nd MAY 2024

Determinant	EQS (µg/l)	UK DWS (µg/l)	WHO (µg/l)	BH1 4.00m (µg/l)	BH2 3.90m (µg/l)	BH3B 4.00m (µg/l)
Arsenic	50	10	10	-	-	47
Copper	1.0 _{bio}	2000	2000	-	-	1.46 _{bio}
Lead	1.2 _{bio}	10	10	-	-	4.6 _{bio}
Mercury	0.07	1	6	0.08	-	0.62
Zinc	12.3* _{bio}	5000	-	89 _{bio}	35 _{bio}	124 _{bio}
Fluoranthene	0.0063	-	-	0.19	0.26	0.22
Benzo(a)pyrene	0.00017	0.01	0.7	-	0.04	0.05
Total PAH	-	0.1	-	0.57	1.4	1.2

*Available ambient concentration (assumed to be 1.4µg/l) added to EQS

It should be noted that the UK DWS is a post treatment standard and as such is very stringent.

The results of the groundwater analysis indicate that at the time of the 22nd May 2024 monitoring visit elevated concentrations of heavy metals and PAH compounds were present in the superficial groundwater beneath the site.

TABLE 2 ASSESSMENT OF GROUNDWATER CONTAMINATION
18th FEBRUARY 2025

Determinant	EQS (µg/l)	UK DWS (µg/l)	WHO (µg/l)	R1 4.11m (µg/l)	R2 4.01m (µg/l)	R3 4.13m (µg/l)
Arsenic	50	10	10	14	12	79
Zinc	12.3* _{bio}	5000	-	52 _{bio}	56 _{bio}	49 _{bio}
Total Petroleum Hydrocarbons (TPH)	-	10	-	160	1100	130
Anthracene	0.1	-	-	-	0.20	-
Fluoranthene	0.0063	-	-	0.15	0.79	0.27
Benzo(a)pyrene	0.00017	0.01	0.7	0.06	0.41	0.14
Genotoxic PAH**	BaP as surrogate marker	0.1	-	0.21	1.18	0.44
Total PAH	-	0.1	-	0.76	5.3	1.9

*Available ambient concentration (assumed to be 1.4µg/l) added to EQS

**Sum of benzo(b)fluoranthene, benzo(k)fluoranthene, indeno(1,2,3-cd)perylene, and benzo(g,h,i)perylene.

TABLE 3 ASSESSMENT OF GROUNDWATER CONTAMINATION
4th MARCH 2025

Determinant	EQS (µg/l)	UK DWS (µg/l)	WHO (µg/l)	R1 3.92m (µg/l)	R2 3.89m (µg/l)	R3 4.06m (µg/l)
Arsenic	50	10	10	33	28	56
Zinc	12.3* _{bio}	5000	-	28 _{bio}	18 _{bio}	51 _{bio}
Total Petroleum Hydrocarbons (TPH)	-	10	-	-	-	27
Anthracene	0.1	-	-	0.14	-	0.30
Fluoranthene	0.0063	-	-	0.64	0.11	1.6
Benzo(a)pyrene	0.00017	0.01	0.7	0.33	0.06	0.55
Genotoxic PAH**	BaP as surrogate marker	0.1	-	0.83	0.17	1.71
Total PAH	-	0.1	-	3.5	0.55	7.9

*Available ambient concentration (assumed to be 1.4µg/l) added to EQS

**Sum of benzo(b)fluoranthene, benzo(k)fluoranthene, indeno(1,2,3-cd)perylene, and benzo(g,h,i)perylene.

It should be noted that the UK DWS is a post treatment standard and as such is very stringent.

The results of the groundwater analysis indicate that at the time of the monitoring visits elevated concentrations of heavy metals, PAH compounds and occasional TPH compounds were present in the superficial groundwater beneath the site.

4.6.3 Conclusions and Recommendations

Our assessment, based on the soil samples tested, indicates asbestos fibres are present in the near surface Made Ground/ soils (source). The pathway from the source to site operatives during earthworks, and the end users of the development (receptors) will need to be removed by precautions and/ or remedial measures.

End Users

As the contaminated ground will be covered by the proposed building, and hardstanding, other surface protection will not be necessary as the pathway between the asbestos contaminated soil and the end users of the site will be broken.

Contaminated materials should, where possible, be retained on site. However, it should be appreciated that contaminated material left on site is the legal responsibility of the landowner, unless the person who created the contamination can be identified.

If waste materials are to be removed from the site, classification of the waste should be undertaken to determine the most appropriate tip to use and the associated costs. It should be noted that significant cost savings can sometimes be made on waste disposal by correct classification of the waste, a service that we can provide.

It should be noted that all vehicles carrying contaminated material should be securely sheeted and the wheels and undercarriages cleaned before leaving site to ensure that hazardous materials are not dropped onto public roads.

Construction Workers

S4ULs, C4SLs and CL:AIRE assume long term contact with contamination and assess chronic health risk. The risk of short term acute exposure to site personnel is dealt with in the remit of the Health and Safety Executive under the Health and Safety at Work Act: 1974 and Regulations made under the Act, including the Control of Substances Hazardous to Health (COSHH) Regulations and the Control of Asbestos Regulations (CAR 2012). The levels of contamination and risk to site personnel should be considered under the Construction Design and Management (CDM) Regulations at the planning stage and in the development of the designers and contractors Health and Safety Plans and Method Statements. The risk of contact with on-site soils should be minimised.

An Asbestos Management Plan has been prepared by IDOM ref. AMP-22714-24-318, dated September 2024 which sets out the procedures which should be followed for managing asbestos during the construction phase.

Controlled Waters

During the May 2024 monitoring visit elevated copper, lead and mercury concentrations were recorded in BH3B and a slightly elevated concentration of mercury was recorded in BH1 above the EQS but below the DWS. However, in the samples taken in February 2025 and March 2025 these metals were all found to be below the EQS and DWS.

The arsenic, zinc and PAH (anthracene, fluoranthene, benzo(a)pyrene) exceedances are an order of magnitude or more higher than the EQS, however the concentrations of all of the determinands are relatively low for an industrial site and in our opinion are likely to be derived from the extensive historic use of steel works slag to raise levels on the flood plain.

The elevated TPH recorded during the 18th February 2025 visit appears to be anomalous, with a very low concentration recorded in R3 and no measurable TPH recorded in R1 or R2 on the following visit on 4th March 2025. The TPH was mainly in the C21 to C35 range and included both aliphatic and aromatic compounds, consistent with low scale spillage of lubricating oils. Given that the elevated concentrations were recorded shortly after drilling the rotary boreholes it may also be that the results were artificially high due to interference from agitation of the made ground and perched water during drilling. Based on the results to date in our opinion it is unlikely that the TPH concentrations recorded are indicative of significant hydrocarbon contamination.

In our opinion the concentrations recorded in the vicinity of the proposed development are unlikely to have a significant impact on the underlying Secondary A Aquifer, the River Neath 160m to the north, or the coastal water 1.1km to the south west.

Should it be necessary for groundwater to be pumped from on-site excavations the groundwater should be sampled and analysed and the groundwater analysis should be submitted to the appropriate waste water authority with a request for a discharge consent. Following receipt of a discharge consent groundwater is likely to be discharged to a sewer or to an off-site licensed discharge point.

For the proposed piled foundations, a method should be selected that minimises the risks of groundwater pollution. In this regard, we understand that an 'Environmental Assessment for Foundation Piling' has been prepared for the site and submitted to the Local Authority by a third party.

4.7 Ground Gas Considerations

Ground gas monitoring has been undertaken on six occasions and the results of the monitoring visits are appended.

Ground gases: methane, carbon dioxide and oxygen and flow rate have been monitored and the ranges of ground gases and flow rate during the monitoring period are as follows:

TABLE 2 GROUND GAS CONCENTRATIONS AND FLOW RATE

Methane (% vol. in air)	Carbon Dioxide (% vol. in air)	Oxygen (% vol. in air)	Gas Flow Rate (litres/ hour)
0.0	0.5 – 2.0	0.7 – 13.1	<0.1

It can be seen from the monitoring that no elevated levels of methane and no measurable gas flow have been detected. However, slightly elevated concentration of carbon dioxide were recorded in BH1 and BH2, and depleted levels of oxygen were recorded in all three standpipes during multiple visits.

Methane gas when present between 5% volume in air (Lower Explosive Limit - L.E.L.) and 15% volume in air (Upper Explosive Limit - U.E.L.) is potentially explosive and inflammable whilst carbon dioxide in conjunction with depleted oxygen is an asphyxiant. Both methane and carbon dioxide are a by-product of the anaerobic and aerobic decomposition of biodegradable materials.

The levels of gas have been assessed in accordance with British Standard 8485, "Code of practice for the design of protective measures for methane and carbon dioxide gasses for new buildings", published in June 2015 and updated in January 2019 (BS.8485:2015+A1:2019).

The characteristic hazardous gas flow rate (Q_{hg}) is calculated by dividing the maximum gas (methane or carbon dioxide) concentration by 100 and multiplying by the maximum flow rate in litres per hour (minimum 0.1 l/hr for Sub Surface monitoring equipment). For this site $Q_{hg} = 2.0 / 100 \times 0.1 = 0.002$ l/hr

Based on the monitoring to date, BS.8485:2015+A1:2019, Table 2, indicates that the site falls into Characteristic Situation 1 (CS1).

BS.8485:2015+A1:2019, Table 4, indicates that for a CS1 and the type of development proposed a score of zero gives no protection and remedial measures required.

All excavations of greater than 1.20m depth should be routinely checked for air quality prior to man entry and appropriate precautions taken.

Any manholes, inspection chambers or other void spaces formed beneath the sites ground surface are potential ground gas traps. Precautions, as per the excavations above, should be taken.

4.8 Updated Conceptual Ground Model

A conceptual ground model of a site and its environs uses available information to form a preliminary assessment of contamination sources, pathways and receptors, and the significance of hazards that exist or will potentially exist on the site. Its purpose is to identify the relationships between sources of contamination, pathways and receptors to allow exposure scenarios to be determined and thereby aid in the design of any intrusive investigation. It also forms the basis of the risk assessment.

4.8.1 Sources

Potential sources of contamination identified in the desk study are:

- Contaminants within the slag waste used to build up levels on the flood plain or in made ground derived from past construction on the site. With regard to the risk to human health the only contaminants of concern was found to be asbestos which was encountered as bundles of chrysotile and/or amosite fibres at concentrations of between 0.003 and 0.035%. However localised relatively high concentrations (albeit below the human health screening values) of arsenic, copper and lead were recorded.
- Dissolved phase contamination within the groundwater beneath the site. Contaminants identified are arsenic, zinc, fluoranthene, benzo(a)pyrene, and PAHs. Possibly derived from leachate through the Made Ground (although soil PAH concentrations in particular were very low) or via migration from off site sources including the former BP chemical works which occupied the land to the south and south east from 1963 until 2003.

The following potential sources identified in the Phase I Desk Study have been ruled out by the Phase II investigation and pathways associated with these sources have therefore been removed from the conceptual model:

- No significant evidence was found of any contaminants associated with the current site operations including acids and bleaching agents, and petroleum hydrocarbons from the operation and maintenance of machinery, plant and vehicles. The site is well maintained with continuous hardstanding surfacing throughout and a comprehensive drainage scheme with rainwater harvesting which prevents surface water from infiltrating the Made Ground in the area of the site.
- No organic material was encountered in the boreholes and no significant concentrations of ground gas were found during the monitoring.

4.8.2 Pathways

Potential pathways from source and receptor for the proposed development are:

- Inhalation of contaminated dust
- Migration of leachable contaminants
- Migration of dissolved phase contaminants
- Displacement of contaminated soil / cross contamination.

4.8.3 Receptors

Potential receptors for the proposed development are:

- Site operatives during demolition, earthworks and/ or construction.
- The workers who will be the end users of the development.
- Controlled waters including the nearby River Neath and Baglan Bay, and the underlying Secondary Aquifers

4.8.4 Pollutant Linkages

Potential viable pollutant linkages are:

- Inhalation of asbestos contaminated dust by construction operatives and by the end users of the site.
- Migration of leachable contaminants in Made Ground due to rainwater infiltration or rising groundwater due to tidal effects.
- Vertical and Lateral migration of dissolved phase contaminants to the underlying Secondary A Aquifer and to the nearby River Neath and Baglan Bay.
- Displacement of contaminated soil / cross contamination during piling operations.

With regard to the risks during the construction phase the procedures set out in the Asbestos Management Plan prepared by IDOM ref. AMP-22714-24-318, dated September 2024 should be followed. With regard to the risks to the end users the pathway will be broken by the hard surfacing integral to the development.

Hard surfacing and rainwater harvesting in the area of the proposed development mean infiltration in this area is minimal. Based on the observations carried out to date tidal effects are thought to be minimal.

We understand that an 'Environmental Assessment for Foundation Piling' has been prepared for the site and submitted to the Local Authority by a third party.

A conceptual site model diagram is given on the appended Figure 5 and a source-pathway-receptor network diagram for the viable linkages is given on the appended Figure 6.

4.8.5 Conclusions

An appraisal of the sources, pathways and receptors has been considered and we have produced a conceptual ground model based upon the available information, as follows:

TABLE 4 CONCEPTUAL GROUND MODEL

Potential Source	Contaminants Associated with the Source	Pathway	Receptor	Risk Rating*
Contaminants in made ground derived from past construction and land reclamation.	Asbestos fibres	Ingestion of dust	Site Operatives during the construction phase	Moderate
			End Users of the site on completion of the development	Very Low
	Arsenic Copper Lead	Displacement of Made Ground due to piling operations	Underlying Secondary Aquifers	Low
Leachable contaminants in Made Ground liberated by infiltration or by rising groundwater due to tidal effects.	Arsenic Copper Lead	Vertical movement of mobile contaminants to groundwater	Underlying Secondary Aquifers	Very Low to Low
Dissolved phase contaminants in groundwater beneath the site, possible derived from Made Ground leachate, or from off site sources	Arsenic Zinc Fluoranthene Benzo(a)pyrene PAHs	Vertical movement of mobile contaminants to groundwater	Underlying Secondary Aquifers	Low
		Lateral movement of mobile contaminants to surface water	River Neath Baglan Bay	Low
Leakage and spillage of chemicals during the sites usage as a tissue paper factory	Total Petroleum Hydrocarbons (TPH) BTEX Acids Bleaching Agents	No significant elevated contamination identified other than heavy end TPH during one monitoring visit (thought to be anomalous).		
Ground gas migration from made ground and possible organic rich deposits beneath and adjacent to the site.	Methane Carbon Dioxide	No significant gas sources identified		

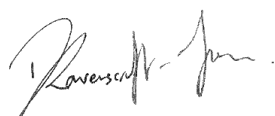
*The risk rating takes into account the mitigation afforded by the proposed development as described in Section 4.8.4.

4.9 General

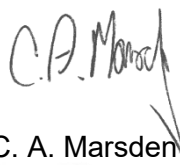
We recommend that consultation should be undertaken with, and the written approval obtained from, the Local Authority Environmental Health Officer, the Local Authority Building Control Officer and the Coal Authority prior to commencing development.

We trust that this report fulfils your present requirements but if you have any queries or we can be of further assistance please contact the undersigned or Mr Gurbinder Singh Mann at our Tipton office.

SUB SURFACE CONSULTANTS LIMITED
REPORT No. M3822F
(REVISION TO M3822B)
MARCH 2025



D. Ravenscroft-Jones Cert Nat Sci (Open), BSc.(Hons.), MSc., CEnv, MIEEnvSc, AMRSC
Principal Geoenvironmental Engineer
For and on behalf of
Sub Surface Consultants Limited



C. A. Marsden B.Sc.(Hons.), C.Eng., M.I.C.E.
Director
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GAS / GROUNDWATER MONITORING RESULTS

SUB SURFACE SITE INVESTIGATION AND SPECIALIST GEOTECHNICAL CONSULTANTS 3 Peel Street, Preston, PR2 2QS. Tel. (01772) 561135 Fax (01772) 204907		Insitu Test Results					
Site: SOFIDEL UK LIMITED, BRUNEL WAY, BAGLAN ENERGY PARK, BRITON FERRY		Job Number M3822B					
Client: VITAL ENERGI		Sheet: 1 / 1					
Engineer:							
Ground Gas and Groundwater Monitoring Results Sheet							
Date	Hole No.	Methane (% Volume)	Carbon Dioxide (% Volume)	Oxygen (% Volume)	Gas Flow Rate (l/hr)	Atmospheric Pressure (m bars)	Depth to Groundwater (m)
09/05/24	BH1	0.0	0.9	5.9	<0.1	1026	4.00
	BH2	0.0	1.1	11.7	<0.1	1026	3.80
	BH3B	0.0	0.5	3.6	<0.1	1026	3.90
22/05/24	BH1	0.0	1.4	3.1	<0.1	1007	4.00
	BH2	0.0	1.8	13.1	<0.1	1007	3.90
	BH3B	0.0	0.6	1.3	<0.1	1007	4.00
06/06/24	BH1	0.0	1.5	2.6	<0.1	1018	4.10
	BH2	0.0	0.9	10.3	<0.1	1018	4.00
	BH3B	0.0	0.8	2.3	<0.1	1018	4.10
21/06/24	BH1	0.0	1.7	1.8	<0.1	1014	4.20
	BH2	0.0	2.0	9.6	<0.1	1014	4.10
	BH3B	0.0	1.1	0.7	<0.1	1014	4.10
17/07/24	BH1	0.0	1.9	1.3	<0.1	1020	4.30
	BH2	0.0	1.6	11.4	<0.1	1020	4.10
	BH3B	0.0	1.3	1.0	<0.1	1020	4.20
24/09/24	BH1	0.0	1.6	1.0	<0.1	1005	3.90
	BH2	0.0	1.4	10.2	<0.1	1005	3.80
	BH3B	0.0	0.7	2.1	<0.1	1005	3.90
Remarks: Elevated levels of methane and carbon dioxide and depleted levels of oxygen are shown in bold/italics . 22/5/24 - Groundwater samples taken 06/06/24 - BH3 metal cover broken. 21/6/24 - BH3 cover repaired by site team with metal plate ontop							



Site: SOFIDEL UK LIMITED, BRUNEL WAY, BAGLAN ENERGY PARK, BRITON FERRY

Client: VITAL ENERGI

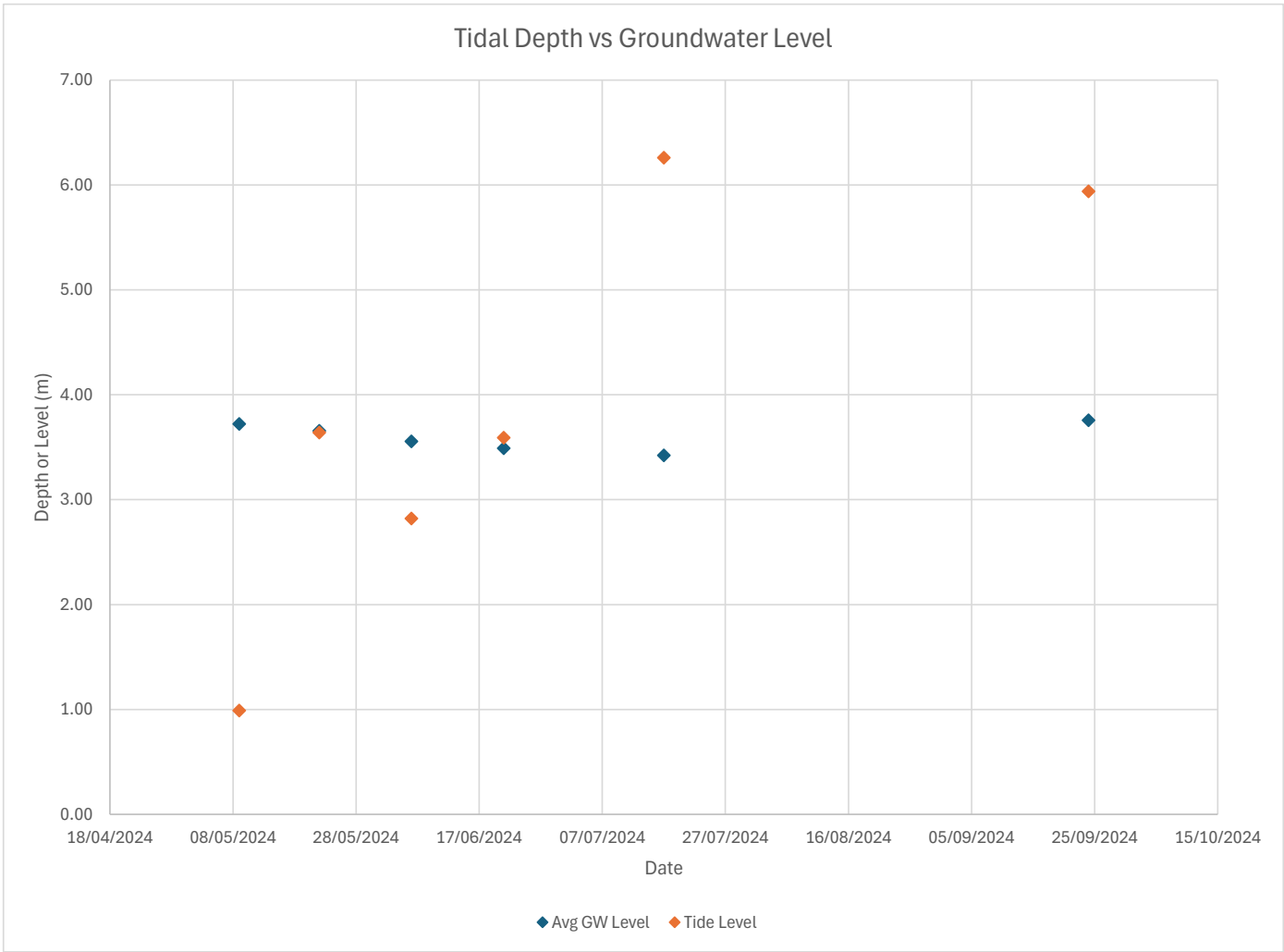
Engineer:

Job Number: M3822B

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TIDAL EFFECTS

Date	Time	Average Groundwater Level (mAOD)	Tide Level (m)
09/05/2024	13:00:00	3.72	0.99
22/05/2024	13:00:00	3.66	3.64
06/06/2024	13:00:00	3.56	2.82
21/06/2024	13:00:00	3.49	3.59
17/07/2024	08:00:00	3.42	6.26
24/09/2024	13:00:00	3.76	5.94

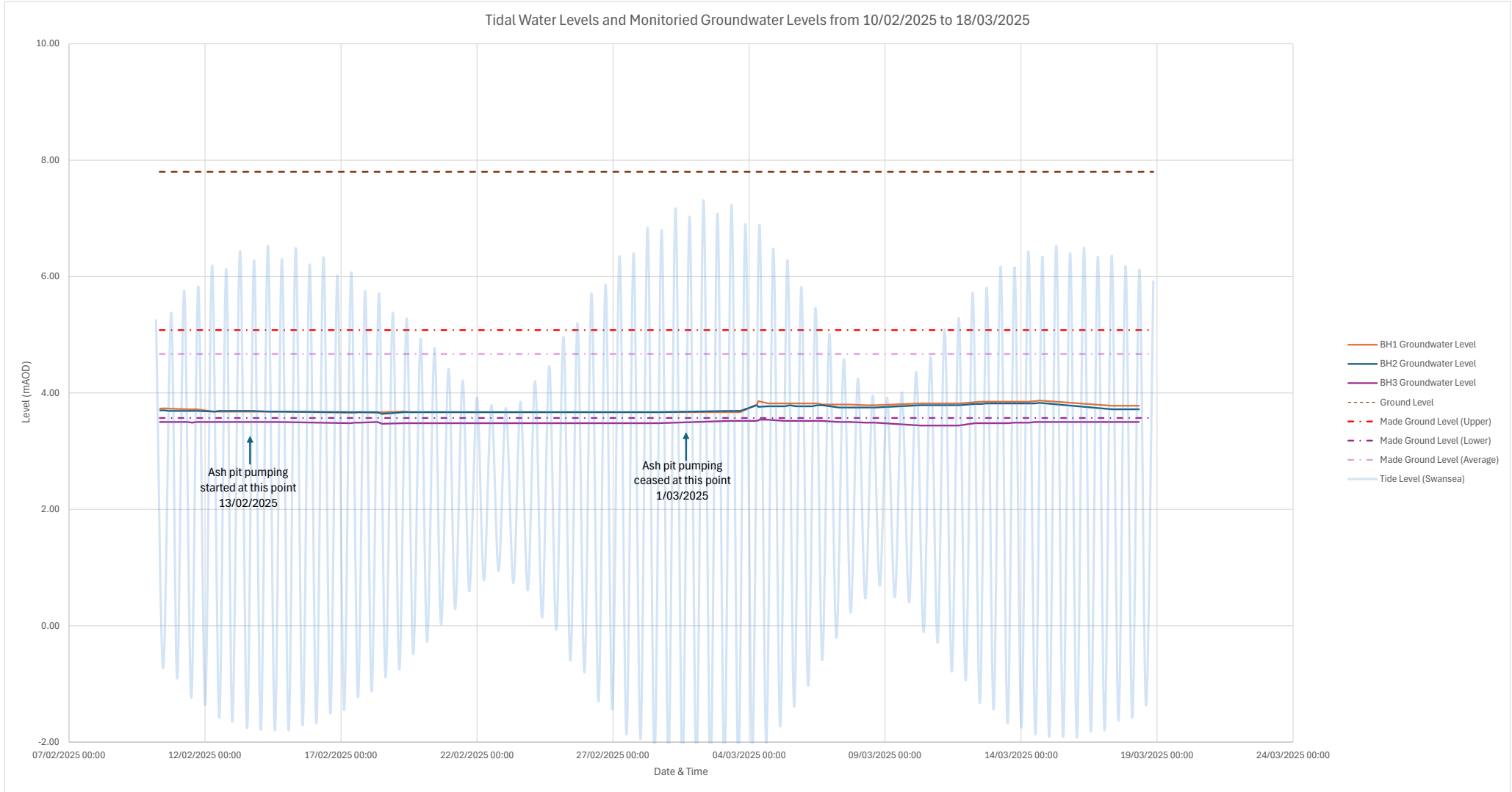




Site: SOFIDEL UK IIMITED, BRUNEL WAY, BAGLAN ENERGY PARK, BRITON FERRY, SA11 2HZ
Client: VITAL ENERGI
Engineer:

Job Number: M3822F
Sheet: 1/2

GROUNDWATER LEVELS AND TIDAL DATA



Tide levels are based on UK Hydrographic Office (UKHO) data accessed via www.tidetimes.co.uk. The levels were recorded at the National Oceanography Centre monitoring station at King's Dock, Swansea Marina (267397E, 192612N).

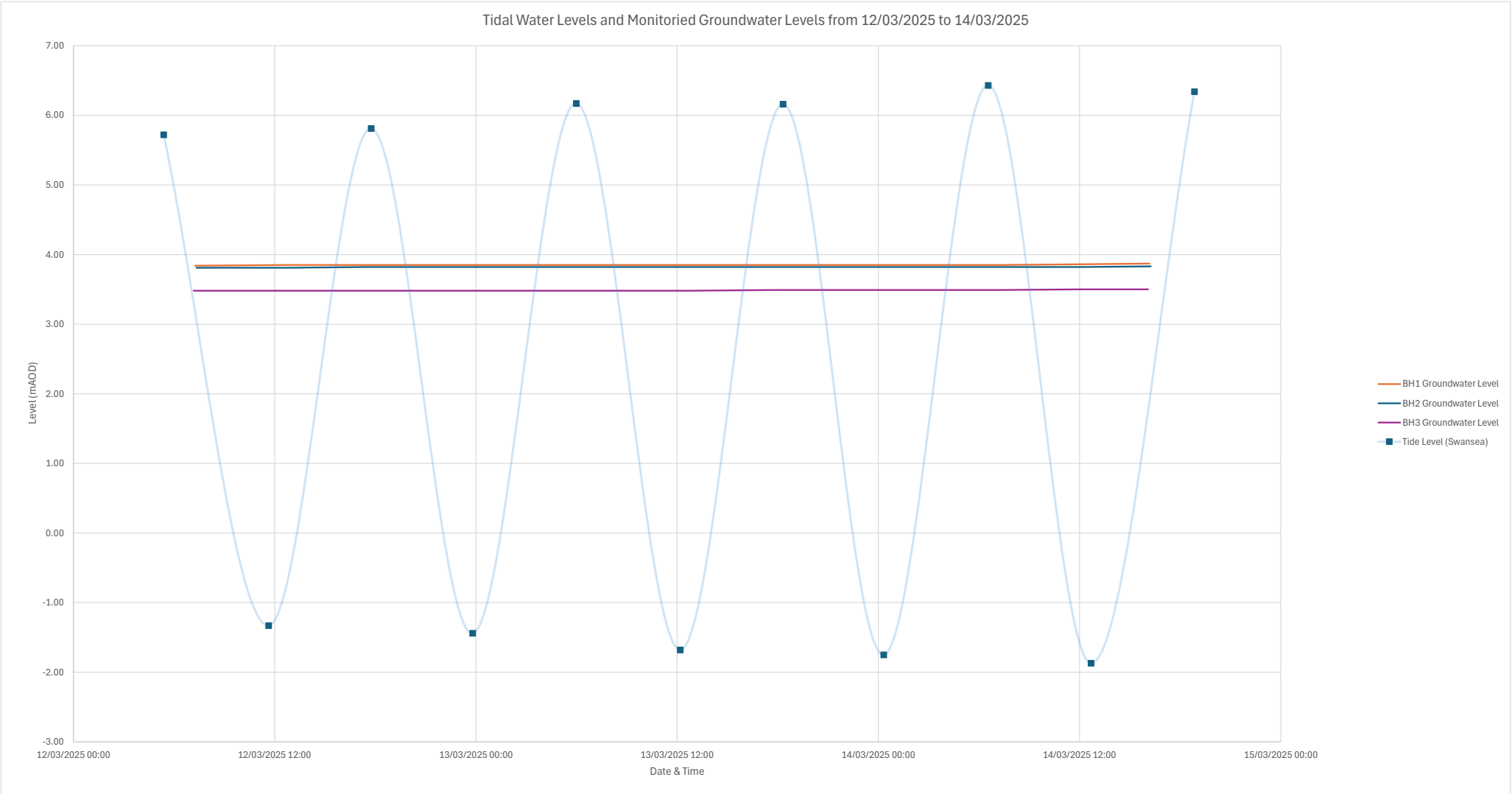
The tide levels have been converted to mAOD from the raw data which was measured in relation to the Admiralty Chart Datum (ACD). At Swansea the ACD is 2.82m above the Ordnance Datum.



Site: SOFIDEL UK IIMITED, BRUNEL WAY, BAGLAN ENERGY PARK, BRITON FERRY, SA11 2HZ
Client: VITAL ENERGY
Engineer:

Job Number: M3822F
Sheet: 2/2

GROUNDWATER LEVELS AND TIDAL DATA



Tide levels are based on UK Hydrographic Office (UKHO) data accessed via www.tidetimes.co.uk. The levels were recorded at the National Oceanography Centre monitoring station at King's Dock, Swansea Marina (267397E, 192612N).

The tide levels have been converted to mAOD from the raw data which was measured in relation to the Admiralty Chart Datum (ACD). At Swansea the ACD is 2.82m above the Ordnance Datum.



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Site: SOFIDEL UK LIMITED, BRUNEL WAY, BAGLAN ENERGY PARK, BRITON FERRY
Client: VITAL ENERGI
Engineer:

Job Number
M3822F
Sheet:
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Detailed Groundwater Monitoring Results: R1

Date & Time	Level (mAOD)	Date & Time	Level (mAOD)
10/02/2025 08:20	3.73	28/02/2025 07:45	3.67
10/02/2025 12:15	3.735	28/02/2025 12:05	3.67
10/02/2025 16:10	3.73	28/02/2025 15:50	3.67
11/02/2025 08:35	3.72	03/03/2025 07:40	3.67
11/02/2025 12:45	3.72	03/03/2025 12:35	3.67
11/02/2025 16:35	3.72	03/03/2025 16:05	3.67
12/02/2025 08:20	3.68	04/03/2025 07:05	3.8
12/02/2025 12:05	3.68	04/03/2025 08:10	3.86
12/02/2025 16:20	3.68	04/03/2025 16:50	3.82
13/02/2025 08:05	3.68	05/03/2025 07:35	3.82
13/02/2025 11:50	3.68	05/03/2025 11:50	3.82
13/02/2025 16:50	3.68	05/03/2025 17:05	3.82
14/02/2025 09:05	3.68	06/03/2025 07:25	3.82
14/02/2025 12:20	3.68	06/03/2025 12:25	3.82
14/02/2025 16:15	3.68	06/03/2025 16:35	3.8
17/02/2025 08:20	3.66	07/03/2025 07:10	3.8
17/02/2025 12:05	3.66	07/03/2025 13:15	3.8
17/02/2025 16:20	3.67	07/03/2025 16:55	3.8
18/02/2025 08:20	3.66	08/03/2025 07:15	3.79
18/02/2025 12:05	3.67	08/03/2025 12:20	3.79
19/02/2025 07:35	3.68	08/03/2025 15:20	3.79
19/02/2025 12:25	3.67	10/03/2025 07:35	3.82
19/02/2025 16:10	3.67	10/03/2025 11:55	3.82
20/02/2025 08:20	3.67	10/03/2025 16:10	3.82
20/02/2025 11:20	3.67	11/03/2025 07:45	3.82
20/02/2025 16:25	3.67	11/03/2025 12:20	3.82
21/02/2025 07:55	3.67	11/03/2025 17:10	3.82
21/02/2025 12:15	3.67	12/03/2025 07:15	3.84
21/02/2025 16:50	3.67	12/03/2025 12:45	3.85
24/02/2025 07:40	3.67	12/03/2025 17:20	3.85
24/02/2025 12:20	3.67	13/03/2025 08:10	3.85
24/02/2025 16:30	3.67	13/03/2025 12:55	3.85
25/02/2025 07:20	3.67	13/03/2025 17:50	3.85
25/02/2025 13:10	3.67	14/03/2025 07:20	3.85
25/02/2025 16:50	3.67	14/03/2025 12:05	3.86
26/02/2025 08:10	3.67	14/03/2025 16:10	3.87
26/02/2025 12:15	3.67	17/03/2025 08:10	3.78
26/02/2025 17:20	3.67	17/03/2025 12:15	3.78
27/02/2025 07:20	3.67	17/03/2025 15:15	3.78
27/02/2025 12:45	3.67	18/03/2025 08:00	3.78
27/02/2025 16:25	3.67		



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Insitu Test Results

Site: SOFIDEL UK LIMITED, BRUNEL WAY, BAGLAN ENERGY PARK, BRITON FERRY
Client: VITAL ENERGI
Engineer:

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Detailed Groundwater Monitoring Results: R2

Date & Time	Level (mAOD)	Date & Time	Level (mAOD)
10/02/2025 08:25	3.7	28/02/2025 07:45	3.67
10/02/2025 12:20	3.7	28/02/2025 12:05	3.67
10/02/2025 16:20	3.69	28/02/2025 15:50	3.67
11/02/2025 08:45	3.69	03/03/2025 07:40	3.69
11/02/2025 12:50	3.69	03/03/2025 12:35	3.69
11/02/2025 16:40	3.69	03/03/2025 16:05	3.69
12/02/2025 08:25	3.68	04/03/2025 07:05	3.79
12/02/2025 12:10	3.69	04/03/2025 08:10	3.76
12/02/2025 16:25	3.69	04/03/2025 16:50	3.77
13/02/2025 08:10	3.69	05/03/2025 07:40	3.77
13/02/2025 11:55	3.69	05/03/2025 11:55	3.79
13/02/2025 16:55	3.69	05/03/2025 17:10	3.77
14/02/2025 09:10	3.68	06/03/2025 07:30	3.77
14/02/2025 12:25	3.68	06/03/2025 12:30	3.79
14/02/2025 16:20	3.68	06/03/2025 16:40	3.79
17/02/2025 08:25	3.67	07/03/2025 07:15	3.75
17/02/2025 12:10	3.67	07/03/2025 13:20	3.75
17/02/2025 16:25	3.67	07/03/2025 17:00	3.75
18/02/2025 08:25	3.67	08/03/2025 07:20	3.75
18/02/2025 12:10	3.64	08/03/2025 12:25	3.75
19/02/2025 07:40	3.67	08/03/2025 15:25	3.75
19/02/2025 12:25	3.67	10/03/2025 07:40	3.79
19/02/2025 16:10	3.67	10/03/2025 12:00	3.79
20/02/2025 08:20	3.67	10/03/2025 16:15	3.79
20/02/2025 11:20	3.67	11/03/2025 07:50	3.79
20/02/2025 16:25	3.67	11/03/2025 12:25	3.79
21/02/2025 07:55	3.67	11/03/2025 17:15	3.79
21/02/2025 12:15	3.67	12/03/2025 07:20	3.81
21/02/2025 16:50	3.67	12/03/2025 12:50	3.81
24/02/2025 07:40	3.67	12/03/2025 17:25	3.82
24/02/2025 12:20	3.67	13/03/2025 08:15	3.82
24/02/2025 16:30	3.67	13/03/2025 13:00	3.82
25/02/2025 07:20	3.67	13/03/2025 17:55	3.82
25/02/2025 13:10	3.67	14/03/2025 07:25	3.82
25/02/2025 16:50	3.67	14/03/2025 12:10	3.82
26/02/2025 08:10	3.67	14/03/2025 16:15	3.83
26/02/2025 12:15	3.67	17/03/2025 08:15	3.72
26/02/2025 17:20	3.67	17/03/2025 12:20	3.72
27/02/2025 07:20	3.67	17/03/2025 15:20	3.72
27/02/2025 12:45	3.67	18/03/2025 08:05	3.72
27/02/2025 16:25	3.67		



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Insitu Test Results

Site: SOFIDEL UK LIMITED, BRUNEL WAY, BAGLAN ENERGY PARK, BRITON FERRY

Client: VITAL ENERGI

Engineer:

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Detailed Groundwater Monitoring Results: R3

Date & Time	Level (mAOD)	Date & Time	Level (mAOD)
10/02/2025 08:10	3.5	28/02/2025 07:40	3.48
10/02/2025 12:10	3.5	28/02/2025 12:00	3.48
10/02/2025 16:05	3.5	28/02/2025 15:45	3.48
11/02/2025 08:30	3.5	03/03/2025 07:35	3.52
11/02/2025 12:40	3.49	03/03/2025 12:30	3.52
11/02/2025 16:30	3.5	03/03/2025 16:00	3.52
12/02/2025 08:15	3.5	04/03/2025 07:00	3.52
12/02/2025 12:00	3.5	04/03/2025 09:15	3.54
12/02/2025 16:15	3.5	04/03/2025 16:45	3.54
13/02/2025 08:00	3.5	05/03/2025 07:30	3.52
13/02/2025 11:45	3.5	05/03/2025 11:45	3.52
13/02/2025 16:45	3.5	05/03/2025 17:00	3.52
14/02/2025 09:00	3.5	06/03/2025 07:20	3.52
14/02/2025 12:15	3.5	06/03/2025 12:20	3.52
14/02/2025 16:10	3.5	06/03/2025 16:30	3.52
17/02/2025 08:15	3.48	07/03/2025 07:05	3.5
17/02/2025 12:00	3.49	07/03/2025 13:10	3.5
17/02/2025 16:15	3.49	07/03/2025 16:50	3.5
18/02/2025 08:15	3.5	08/03/2025 07:10	3.49
18/02/2025 12:00	3.47	08/03/2025 12:15	3.49
19/02/2025 07:30	3.48	08/03/2025 15:15	3.49
19/02/2025 12:20	3.48	10/03/2025 07:30	3.44
19/02/2025 16:05	3.48	10/03/2025 11:50	3.44
20/02/2025 08:15	3.48	10/03/2025 16:05	3.44
20/02/2025 11:15	3.48	11/03/2025 07:40	3.44
20/02/2025 16:20	3.48	11/03/2025 12:15	3.44
21/02/2025 07:50	3.48	11/03/2025 17:05	3.44
21/02/2025 12:10	3.48	12/03/2025 07:10	3.48
21/02/2025 16:45	3.48	12/03/2025 12:40	3.48
24/02/2025 07:30	3.48	12/03/2025 17:15	3.48
24/02/2025 12:10	3.48	13/03/2025 08:05	3.48
24/02/2025 16:20	3.48	13/03/2025 12:50	3.48
25/02/2025 07:15	3.48	13/03/2025 17:45	3.49
25/02/2025 13:05	3.48	14/03/2025 07:15	3.49
25/02/2025 16:45	3.48	14/03/2025 12:00	3.5
26/02/2025 08:05	3.48	14/03/2025 16:05	3.5
26/02/2025 12:10	3.48	17/03/2025 08:05	3.5
26/02/2025 17:15	3.48	17/03/2025 12:10	3.5
27/02/2025 07:15	3.48	17/03/2025 15:10	3.5
27/02/2025 12:40	3.48	18/03/2025 07:55	3.5
27/02/2025 16:20	3.48		



SUB SURFACE

SITE INVESTIGATION AND SPECIALIST GEOTECHNICAL CONSULTANTS
3 Peel Street, Preston, PR2 2QS. Tel. (01772) 561135 Fax (01772) 204907

Insitu Test Results

Site: SOFIDEL UK LIMITED, BRUNEL WAY, BAGLAN ENERGY PARK, BRITON FERRY

Client: VITAL ENERGI

Engineer:

Job Number

M3822F

Sheet:

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Tide Levels

Date & Time	Level (mAOD)	Date & Time	Level (mAOD)
10/02/2025 04:47	5.25	20/02/2025 10:30	4.77
10/02/2025 11:08	-0.73	20/02/2025 16:18	0.02
10/02/2025 18:11	5.38	20/02/2025 22:54	4.41
10/02/2025 23:26	-0.91	21/02/2025 04:44	0.29
11/02/2025 05:37	5.76	21/02/2025 11:20	4.21
11/02/2025 11:55	-1.24	21/02/2025 17:12	0.59
11/02/2025 18:03	5.83	21/02/2025 23:57	3.92
12/02/2025 00:08	-1.36	22/02/2025 06:06	0.78
12/02/2025 06:19	6.19	22/02/2025 12:37	3.79
12/02/2025 12:34	-1.58	22/02/2025 19:03	0.94
12/02/2025 18:43	6.13	23/02/2025 01:30	3.74
13/02/2025 00:08	-1.65	23/02/2025 08:08	0.73
13/02/2025 06:56	6.44	23/02/2025 14:23	3.85
13/02/2025 13:08	-1.76	23/02/2025 20:51	0.61
13/02/2025 19:18	6.28	24/02/2025 03:16	4.2
14/02/2025 01:17	-1.79	24/02/2025 09:28	0.14
14/02/2025 07:31	6.53	24/02/2025 15:48	4.46
14/02/2025 13:40	-1.8	24/02/2025 21:59	-0.07
14/02/2025 19:51	6.3	25/02/2025 04:19	4.96
15/02/2025 01:47	-1.8	25/02/2025 10:25	-0.6
15/02/2025 08:04	6.49	25/02/2025 16:43	5.2
15/02/2025 14:09	-1.71	25/02/2025 22:50	-0.8
15/02/2025 20:21	6.21	26/02/2025 05:06	5.71
16/02/2025 02:16	-1.68	26/02/2025 11:12	-1.3
16/02/2025 08:34	6.33	26/02/2025 17:28	5.86
16/02/2025 14:36	-1.51	26/02/2025 23:24	-1.44
16/02/2025 20:50	6.02	27/02/2025 05:48	6.35
17/02/2025 02:42	-1.45	27/02/2025 11:56	-1.87
17/02/2025 09:02	6.07	27/02/2025 18:10	6.4
17/02/2025 14:58	-1.23	28/02/2025 00:16	-1.95
17/02/2025 21:17	5.75	28/02/2025 06:31	6.84
18/02/2025 03:05	-1.13	28/02/2025 12:38	-2.28
18/02/2025 09:29	5.71	28/02/2025 18:52	6.8
18/02/2025 15:18	-0.89	01/03/2025 00:57	-2.3
18/02/2025 21:44	5.38	01/03/2025 07:12	7.17
19/02/2025 03:28	-0.75	01/03/2025 13:18	-2.53
19/02/2025 09:56	5.28	01/03/2025 19:32	7.03
19/02/2025 15:43	-0.49	02/03/2025 01:37	-2.49
19/02/2025 22:14	4.93	02/03/2025 07:53	7.31
20/02/2025 03:59	-0.28	02/03/2025 13:58	-2.58

Tide levels are based on UK Hydrographic Office (UKHO) data accessed via www.tidetimes.co.uk. The levels were recorded at the National Oceanography Centre monitoring station at King's Dock, Swansea Marina (267397E, 192612N).

The levels have been converted to mAOD from the raw data which was measured in relation to the Admiralty Chart Datum (ACD). At Swansea the ACD is 2.82m above the Ordnance Datum.



SUB SURFACE

SITE INVESTIGATION AND SPECIALIST GEOTECHNICAL CONSULTANTS
3 Peel Street, Preston, PR2 2QS. Tel. (01772) 561135 Fax (01772) 204907

Insitu Test Results

Site: SOFIDEL UK LIMITED, BRUNEL WAY, BAGLAN ENERGY PARK, BRITON FERRY

Client: VITAL ENERGI

Engineer:

Job Number

M3822F

Sheet:

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Tide Levels

Date & Time	Level (mAOD)	Date & Time	Level (mAOD)
02/03/2025 20:12	7.08	13/03/2025 12:11	-1.68
03/03/2025 02:15	-2.47	13/03/2025 18:19	6.16
03/03/2025 08:34	7.23	14/03/2025 00:19	-1.75
03/03/2025 14:35	-2.42	14/03/2025 06:33	6.43
03/03/2025 20:50	6.9	14/03/2025 12:41	-1.87
04/03/2025 02:51	-2.22	14/03/2025 18:51	6.34
04/03/2025 09:13	6.89	15/03/2025 00:49	-1.91
04/03/2025 15:11	-2.02	15/03/2025 07:04	6.53
04/03/2025 21:29	6.48	15/03/2025 13:10	-1.91
05/03/2025 03:28	-1.73	15/03/2025 19:21	6.4
05/03/2025 09:55	6.28	16/03/2025 01:18	-1.92
05/03/2025 15:49	-1.39	16/03/2025 07:34	6.5
05/03/2025 22:10	5.82	16/03/2025 13:37	-1.82
06/03/2025 04:10	-1.03	16/03/2025 19:49	6.34
06/03/2025 10:40	5.46	17/03/2025 01:46	-1.8
06/03/2025 16:35	-0.59	17/03/2025 08:02	6.36
06/03/2025 22:56	5.01	17/03/2025 14:01	-1.63
07/03/2025 05:05	-0.21	17/03/2025 20:16	6.18
07/03/2025 11:40	4.58	18/03/2025 02:10	-1.58
07/03/2025 17:41	0.23	18/03/2025 08:28	6.12
08/03/2025 00:07	4.24	18/03/2025 14:20	-1.37
08/03/2025 06:36	0.47	18/03/2025 20:42	5.92
08/03/2025 13:07	3.95		
08/03/2025 19:22	0.69		
09/03/2025 01:51	3.92		
09/03/2025 08:37	0.49		
09/03/2025 14:53	4.01		
09/03/2025 21:17	0.4		
10/03/2025 03:34	4.36		
10/03/2025 10:05	-0.11		
10/03/2025 16:14	4.62		
10/03/2025 22:26	-0.29		
11/03/2025 04:38	5.09		
11/03/2025 10:58	-0.79		
11/03/2025 17:05	5.29		
11/03/2025 23:11	-0.94		
12/03/2025 05:23	5.72		
12/03/2025 11:38	-1.33		
12/03/2025 17:45	5.81		
12/03/2025 23:48	-1.44		
13/03/2025 05:59	6.17		

Tide levels are based on UK Hydrographic Office (UKHO) data accessed via www.tidetimes.co.uk. The levels were recorded at the National Oceanography Centre monitoring station at King's Dock, Swansea Marina (267397E, 192612N).

The levels have been converted to mAOD from the raw data which was measured in relation to the Admiralty Chart Datum (ACD). At Swansea the ACD is 2.82m above the Ordnance Datum.

INSITU TEST RESULTS

S SUB SURFACE SITE INVESTIGATION SPECIALISTS, GEOTECHNICAL & ENVIRONMENTAL CONSULTANTS 3 Peel Street, Preston, Lancashire, PR2 2QS. Tel: (01772) 561135 Fax: (01772) 204907							Standard Penetration Test Results						
Site : SOFIDEL UK LIMITED, BRUNEL WAY, BAGLAN ENERGY PARK, BRITON FERRY, SA11 2HZ												Job Number M3822A	
Client : VITAL ENERGI												Sheet 1 / 1	
Architect: BRADSHAW GASS & HOPE													
Borehole Number	Base of Borehole (m)	End of Seating Drive (m)	End of Test Drive (m)	Test Type	Seating Blows per 75mm		Blows for each 75mm penetration				Result	Comments	
					1	2	1	2	3	4			
BH1	1.20	1.35	1.65	SPT	5	3	4	5	6	7	N=22		
BH1	2.00	2.10	2.31	SPT	16	9	15	17	18		25*/100mm 50/210mm N=43		
BH1	3.00	3.15	3.45	SPT	3	6	7	8	14	14	N=34		
BH1	4.00	4.15	4.45	SPT	3	4	6	8	8	12	N=28		
BH1	5.00	5.15	5.45	CPT	3	4	4	6	8	10	N=30		
BH1	6.00	6.15	6.45	CPT	3	3	4	6	8	12	N=14		
BH1	7.50	7.65	7.95	CPT	2	1	2	3	3	6	N=11		
BH1	9.00	9.15	9.45	CPT	2	1	2	3	3	3	25*/115mm 50/115mm 25*/120mm 50/115mm 25*/105mm 50/125mm 25*/75mm 50/50mm		
BH1	10.50	10.62	10.73	CPT	15	10	28	22					
BH1	12.00	12.12	12.24	CPT	16	9	30	20					
BH1	13.50	13.61	13.73	CPT	17	8	28	22					
BH1	15.00	15.08	15.13	CPT	25		50						
BH2	1.20	1.35	1.65	CPT	3	4	7	7	7	7	N=28		
BH2	2.00	2.10	2.31	CPT	3	3	4	4	5	7	6*/100mm 20/210mm N=24		
BH2	3.00	3.15	3.45	CPT	2	2	4	5	6	9	N=20		
BH2	4.00	4.15	4.45	CPT	2	3	4	5	5	6	N=12		
BH2	5.00	5.15	5.45	CPT	2	2	3	3	3	3	N=5		
BH2	6.00	6.15	6.45	CPT	2	1	1	1	1	2	N=8		
BH2	7.50	7.65	7.95	CPT	1	1	1	1	3	3	N=18		
BH2	9.00	9.15	9.45	CPT	2	2	4	4	4	6	N=14		
BH2	10.50	10.65	10.95	CPT	2	2	3	3	4	4	50/245mm		
BH2	12.00	12.15	12.40	CPT	8	8	8	17	19	6	25*/125mm 50/115mm 25*/105mm 50/40mm		
BH2	13.50	13.63	13.74	CPT	15	10	25	25					
BH2	15.00	15.11	15.15	CPT	19	6	50						
BH3B	1.20	1.35	1.50	CPT	10	15	20	25	5		25*/145mm 50/150mm 25*/130mm 50/145mm N=9	pushing obstruction	
BH3B	2.00	2.13	2.28	CPT	10	15	23	27			N=29		
BH3B	3.00	3.15	3.45	CPT	1	2	1	2	3	3	N=10		
BH3B	4.00	4.15	4.45	CPT	4	5	6	6	8	9	N=24		
BH3B	5.00	5.15	5.45	CPT	1	2	2	2	2	4	N=43		
BH3B	6.00	6.15	6.45	CPT	3	3	4	5	6	9	N=21		
BH3B	7.50	7.65	7.95	CPT	3	4	6	7	14	16	N=22		
BH3B	9.00	9.15	9.45	CPT	2	2	3	4	6	8	N=17		
BH3B	10.50	10.65	10.95	CPT	1	1	3	4	5	10	25*/45mm 50/50mm 25*/40mm 50/40mm		
BH3B	12.00	12.15	12.45	CPT	1	2	3	4	4	6			
BH3B	13.50	13.55	13.60	CPT	25		50						
BH3B	15.00	15.04	15.08	CPT	25		50						
M1	1.20	1.35	1.65	SPT	10	12	13	13	12	13	51/295mm		
M2	1.20	1.35	1.61	SPT	12	13	13	15	14	8	25*/145mm 50/265mm		
M3	0.40	0.41	0.41	SPT	25		50				25*/10mm 50/0mm		
M4	0.60	0.73	0.97	SPT	13	12	14	14	15	7	25*/125mm 50/245mm		

LABORATORY TEST RESULTS

Job Number
M3822A

Sheet

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Architect: BRADSHAW GASS & HOPE

DETERMINATION OF PARTICLE SIZE DISTRIBUTION

[illegible]

Remarks :

Job Number
M3822A

Sheet

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Architect: BRADSHAW GASS & HOPE

DETERMINATION OF PARTICLE SIZE DISTRIBUTION

Sieve / Particle Size	% Passing
9.5 mm	100.0
5.6 mm	99.7
3.35 mm	99.0
2.36 mm	98.6
1.4 mm	98.0
710 μm	97.6
425 μm	94.3
300 μm	69.6
212 μm	13.2
150 μm	5.4
63 μm	3.7

Remarks :



SUB SURFACE

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Laboratory Test Results

Site : SOFIDEL UK LIMITED, BRUNEL WAY, BAGLAN ENERGY PARK, BRITON FERRY, SA11 2HZ

Client : VITAL ENERGI

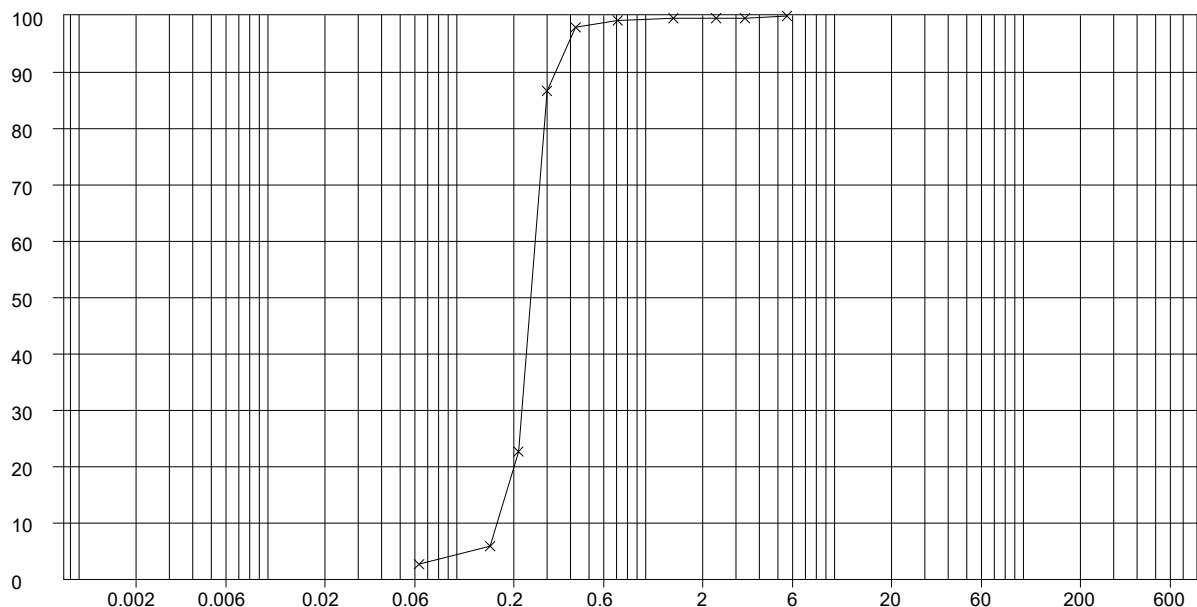
Architect: BRADSHAW GASS & HOPE

Job Number
M3822A

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DETERMINATION OF PARTICLE SIZE DISTRIBUTION

Borehole / Trial Pit	Depth (m)	Sample	Laboratory Description
BH1	6.00	B	Greyish brown slightly silty fine to medium SAND with occasional shell fragments..



Sieve / Particle Size	% Passing
5.6 mm	100.0
3.35 mm	99.6
2.36 mm	99.6
1.4 mm	99.6
710 µm	99.2
425 µm	98.0
300 µm	86.7
212 µm	22.7
150 µm	5.9
63 µm	2.7

CLAY	Fine	Medium	Coarse	Fine	Medium	Coarse	Fine	Medium	Coarse	COBBLES	BOULDERS
	SILT			SAND			GRAVEL				

Grading Analysis	
D85	297.7 µm
D60	263.3 µm
D10	165.1 µm
Uniformity Coefficient	1.6

Particle Proportions	
Cobbles + Boulders	-
Gravel	0.4%
Sand	96.9%
Silt	-
Clay	-

Method of Preparation : BS 1377:PART 1:1990:7.3 Initial preparation 1990:7.4.5 Particle size tests

Method of Test : BS 1377:PART 2:1990:9 Determination of particle size distribution

Remarks :

Job Number
M3822A

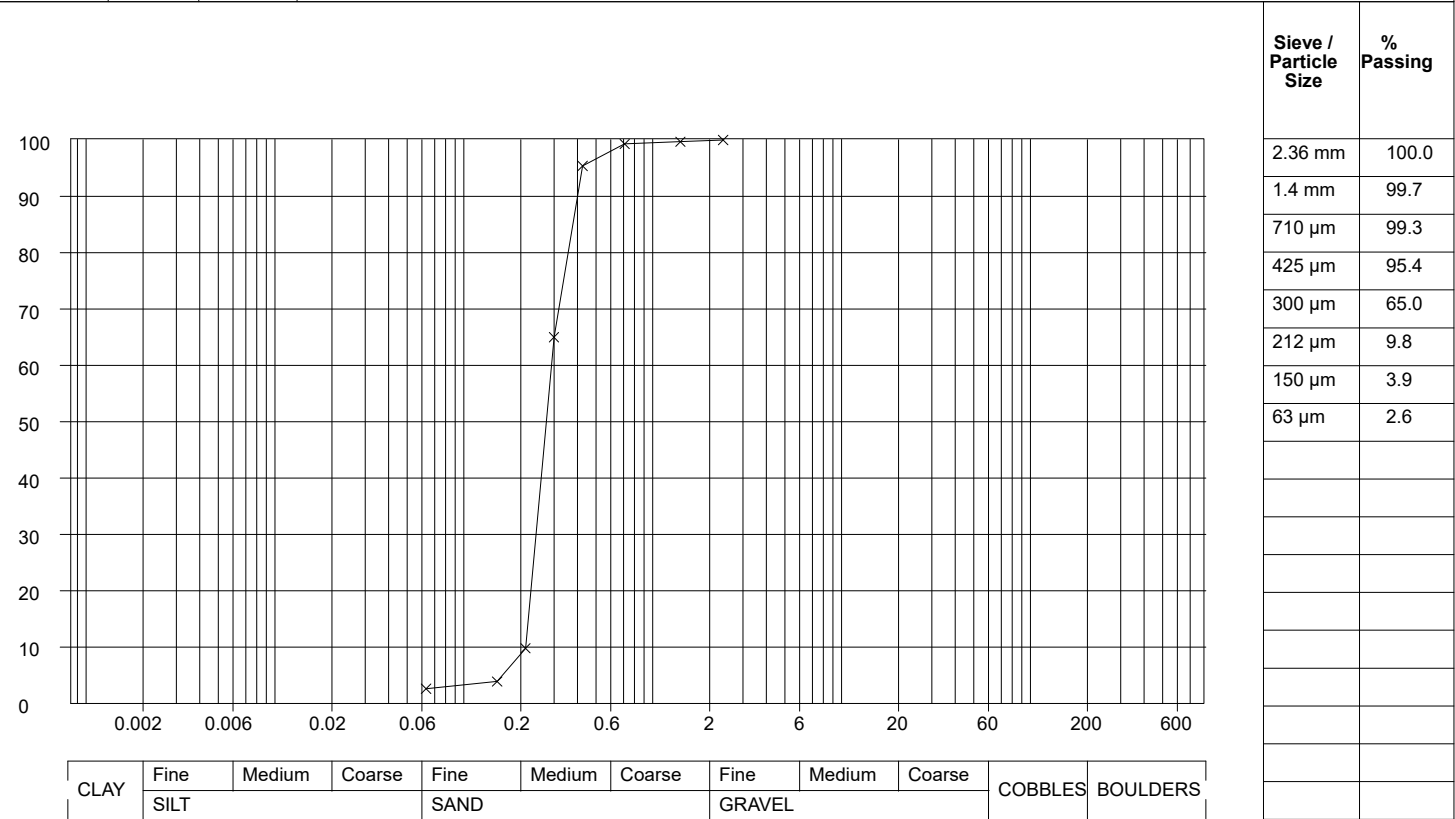
Sheet

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Architect: BRADSHAW GASS & HOPE

DETERMINATION OF PARTICLE SIZE DISTRIBUTION

Borehole / Trial Pit	Depth (m)	Sample	Laboratory Description
BH1	9.00	B	Greyish brown slightly silty medium SAND with occasional shell fragments..



Grading Analysis	
D85	382.2 μm
D60	292.0 μm
D10	212.3 μm
Uniformity Coefficient	1.4

Particle Proportions	
Cobbles + Boulders	-
Gravel	0.1%
Sand	97.3%
Silt	-
Clay	-

Method of Preparation : BS 1377:PART 1:1990:7.3 Initial preparation 1990:7.4.5 Particle size tests

Method of Test : BS 1377:PART 2:1990:9 Determination of particle size distribution

Remarks :

Job Number
M3822A

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Architect: BRADSHAW GASS & HOPE

DETERMINATION OF PARTICLE SIZE DISTRIBUTION

The figure displays a semi-logarithmic grading analysis graph and a corresponding data table. The graph plots the percentage of material passing through various sieve sizes against the sieve size in millimeters (mm) and micrometers (µm). The x-axis is logarithmic, ranging from 0.002 mm to 600 mm. The y-axis is linear, ranging from 0% to 100% passing. The data points are connected by a smooth curve, showing a sharp increase in the percentage passing between 0.075 mm and 0.425 mm, indicating a well-graded sand.

Sieve / Particle Size	% Passing
9.5 mm	100.0
5.6 mm	99.6
3.35 mm	99.3
2.36 mm	98.9
1.4 mm	98.5
710 µm	98.1
425 µm	92.9
300 µm	72.8
212 µm	10.4
150 µm	3.7
63 µm	2.2

Below the graph, a table categorizes the material based on the Unified Soil Classification System (USCS). The material is classified as **Fine Sand** (SW) based on the percentage of sand (96.6%) and the liquid limit (LL) and plasticity index (PI) values.

CLAY	Fine	Medium	Coarse	Fine	Medium	Coarse	Fine	Medium	Coarse	COBBLES	BOULDERS
	SILT			SAND			GRAVEL				

The following table summarizes the grading analysis results:

Grading Analysis	
D85	375.9 µm
D60	281.9 µm
D10	208.3 µm
Uniformity Coefficient	1.4

The following table summarizes the particle proportions:

Particle Proportions	
Cobbles + Boulders	-
Gravel	1.2%
Sand	96.6%
Silt	-
Clay	-

Remarks :

Job Number
M3822A

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Architect: BRADSHAW GASS & HOPE

DETERMINATION OF PARTICLE SIZE DISTRIBUTION

Sieve / Particle Size	% Passing
19 mm	100.0
9.5 mm	99.6
5.6 mm	99.2
3.35 mm	98.9
2.36 mm	98.1
1.4 mm	97.3
710 µm	96.6
425 µm	89.4
300 µm	67.0
212 µm	15.9
150 µm	7.6
63 µm	6.1

CLAY	Fine	Medium	Coarse	Fine	Medium	Coarse	Fine	Medium	Coarse	COBBLES	BOULDERS
	SILT			SAND			GRAVEL				

Grading Analysis	
D85	400.4 µm
D60	287.9 µm
D10	167.9 µm
Uniformity Coefficient	1.7

Particle Proportions	
Cobbles + Boulders	-
Gravel	2.2%
Sand	91.7%
Silt	-
Clay	-

Remarks :

Job Number
M3822A

Sheet

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Architect: BRADSHAW GASS & HOPE

DETERMINATION OF PARTICLE SIZE DISTRIBUTION

Grading Analysis Data

Sieve / Particle Size	% Passing
9.5 mm	100.0
5.6 mm	99.6
3.35 mm	98.8
2.36 mm	98.3
1.4 mm	97.5
710 µm	96.7
425 µm	93.4
300 µm	81.3
212 µm	12.4
150 µm	5.0
63 µm	3.3

CLAY	Fine	Medium	Coarse	Fine	Medium	Coarse	Fine	Medium	Coarse	COBBLES	BOULDERS
	SILT			SAND			GRAVEL				

D85	338.2 µm
D60	272.8 µm
D10	191.9 µm
Uniformity Coefficient	1.4

Cobbles + Boulders	-
Gravel	2.0%
Sand	94.7%
Silt	-
Clay	-

Remarks :



SUB SURFACE

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Laboratory Test Results

Site : SOFIDEL UK LIMITED, BRUNEL WAY, BAGLAN ENERGY PARK, BRITON FERRY, SA11 2HZ

Client : VITAL ENERGI

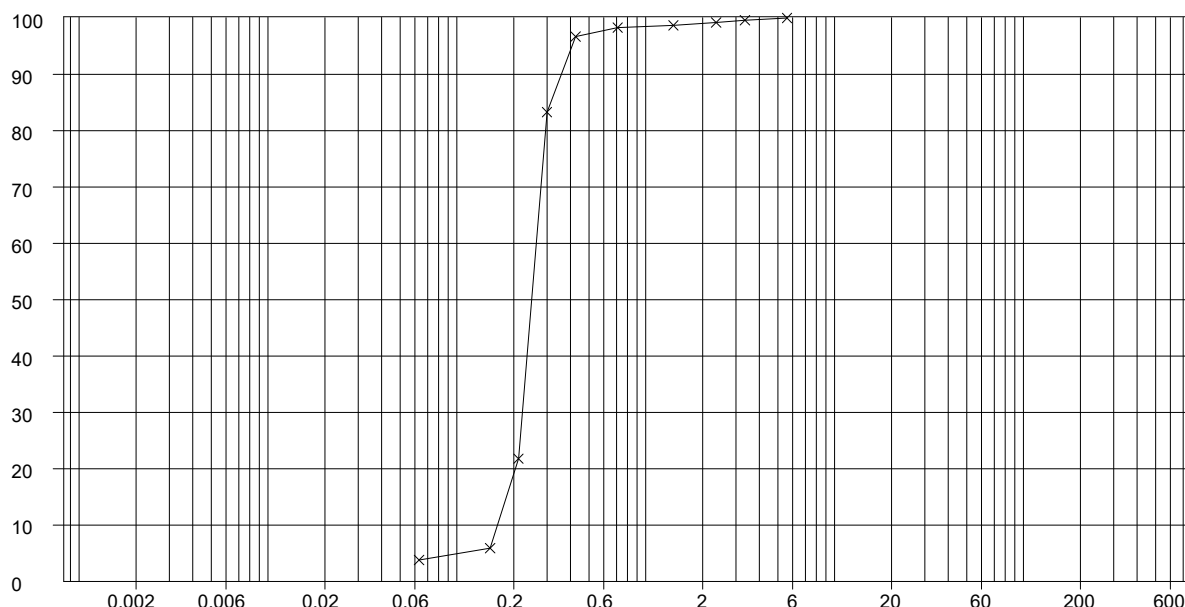
Architect: BRADSHAW GASS & HOPE

Job Number
M3822A

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DETERMINATION OF PARTICLE SIZE DISTRIBUTION

Borehole / Trial Pit	Depth (m)	Sample	Laboratory Description
BH2	7.50	B	Greyish brown slightly gravelly slightly silty medium SAND. Gravel comprises subangular to rounded fine to medium sandstone and quartz



Sieve / Particle Size	% Passing
5.6 mm	100.0
3.35 mm	99.6
2.36 mm	99.2
1.4 mm	98.7
710 µm	98.3
425 µm	96.7
300 µm	83.3
212 µm	21.8
150 µm	5.9
63 µm	3.8

CLAY	Fine	Medium	Coarse	Fine	Medium	Coarse	Fine	Medium	Coarse	COBBLES	BOULDERS
	SILT			SAND			GRAVEL				

Grading Analysis	
D85	315.9 µm
D60	266.7 µm
D10	166.0 µm
Uniformity Coefficient	1.6

Particle Proportions	
Cobbles + Boulders	-
Gravel	1.0%
Sand	95.2%
Silt	-
Clay	-

Method of Preparation : BS 1377:PART 1:1990:7.3 Initial preparation 1990:7.4.5 Particle size tests

Method of Test : BS 1377:PART 2:1990:9 Determination of particle size distribution

Remarks :



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Laboratory Test Results

Site : SOFIDEL UK LIMITED, BRUNEL WAY, BAGLAN ENERGY PARK, BRITON FERRY, SA11 2HZ

Client : VITAL ENERGI

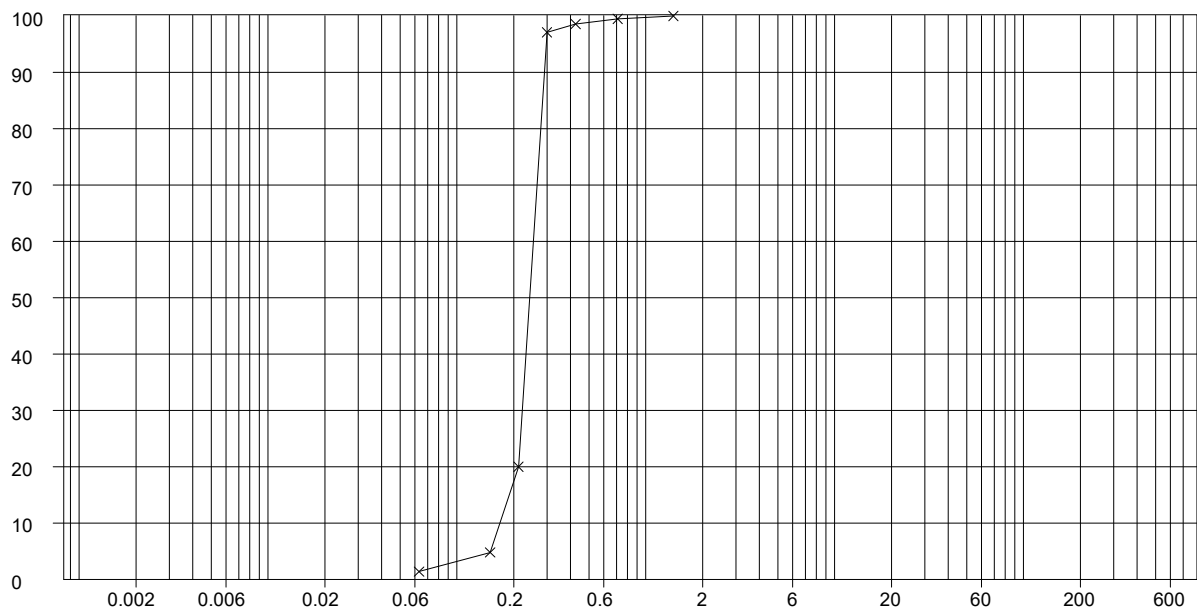
Architect: BRADSHAW GASS & HOPE

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DETERMINATION OF PARTICLE SIZE DISTRIBUTION

Borehole / Trial Pit	Depth (m)	Sample	Laboratory Description
BH2	10.50	B	Dark brown slightly silty fine to medium SAND with occasional shell fragments.



Sieve / Particle Size	% Passing
1.4 mm	100.0
710 µm	99.5
425 µm	98.6
300 µm	97.1
212 µm	20.0
150 µm	4.8
63 µm	1.4

CLAY	Fine	Medium	Coarse	Fine	Medium	Coarse	Fine	Medium	Coarse	COBBLES	BOULDERS
	SILT			SAND			GRAVEL				

Grading Analysis	
D85	286.2 µm
D60	257.7 µm
D10	171.2 µm
Uniformity Coefficient	1.5

Particle Proportions	
Cobbles + Boulders	-
Gravel	-
Sand	98.6%
Silt	-
Clay	-

Method of Preparation : BS 1377:PART 1:1990:7.3 Initial preparation 1990:7.4.5 Particle size tests

Method of Test : BS 1377:PART 2:1990:9 Determination of particle size distribution

Remarks :

Job Number
M3822A

Sheet
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Architect: BRADSHAW GASS & HOPE

DETERMINATION OF PARTICLE SIZE DISTRIBUTION

Grading Analysis Data:

Sieve / Particle Size	% Passing
1.4 mm	100.0
710 µm	99.5
425 µm	98.6
300 µm	97.1
212 µm	20.0
150 µm	4.8
63 µm	1.4

CLAY	Fine	Medium	Coarse	Fine	Medium	Coarse	Fine	Medium	Coarse	COBBLES	BOULDERS
	SILT			SAND			GRAVEL				

D85	286.2 µm
D60	257.7 µm
D10	171.2 µm
Uniformity Coefficient	1.5

Cobbles + Boulders	-
Gravel	-
Sand	98.6%
Silt	-
Clay	-

Remarks :



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Client : VITAL ENERGI

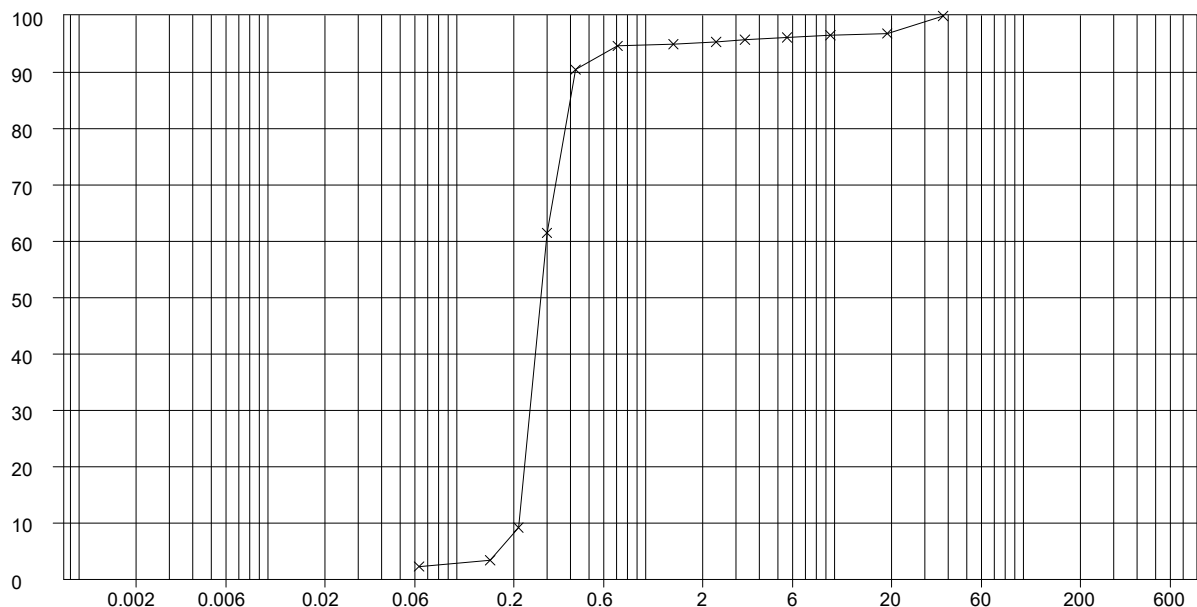
Architect: BRADSHAW GASS & HOPE

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DETERMINATION OF PARTICLE SIZE DISTRIBUTION

Borehole / Trial Pit	Depth (m)	Sample	Laboratory Description
BH3B	3.00	B	Dark brown slightly gravelly slightly silty medium SAND with occasional shell fragments. Gravel comprises subangular to rounded fine to coarse sandstone and quartz.



Sieve / Particle Size	% Passing
37.5 mm	100.0
19 mm	96.9
9.5 mm	96.6
5.6 mm	96.2
3.35 mm	95.8
2.36 mm	95.4
1.4 mm	95.0
710 µm	94.7
425 µm	90.5
300 µm	61.5
212 µm	9.2
150 µm	3.4
63 µm	2.3

CLAY	Fine	Medium	Coarse	Fine	Medium	Coarse	Fine	Medium	Coarse	COBBLES	BOULDERS
	SILT			SAND			GRAVEL				

Grading Analysis	
D85	401.3 µm
D60	297.5 µm
D10	213.3 µm
Uniformity Coefficient	1.4

Particle Proportions	
Cobbles + Boulders	-
Gravel	4.7%
Sand	93.0%
Silt	-
Clay	-

Method of Preparation : BS 1377:PART 1:1990:7.3 Initial preparation 1990:7.4.5 Particle size tests

Method of Test : BS 1377:PART 2:1990:9 Determination of particle size distribution

Remarks :

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DETERMINATION OF PARTICLE SIZE DISTRIBUTION

[illegible]

Remarks :



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Laboratory Test Results

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Client : VITAL ENERGI

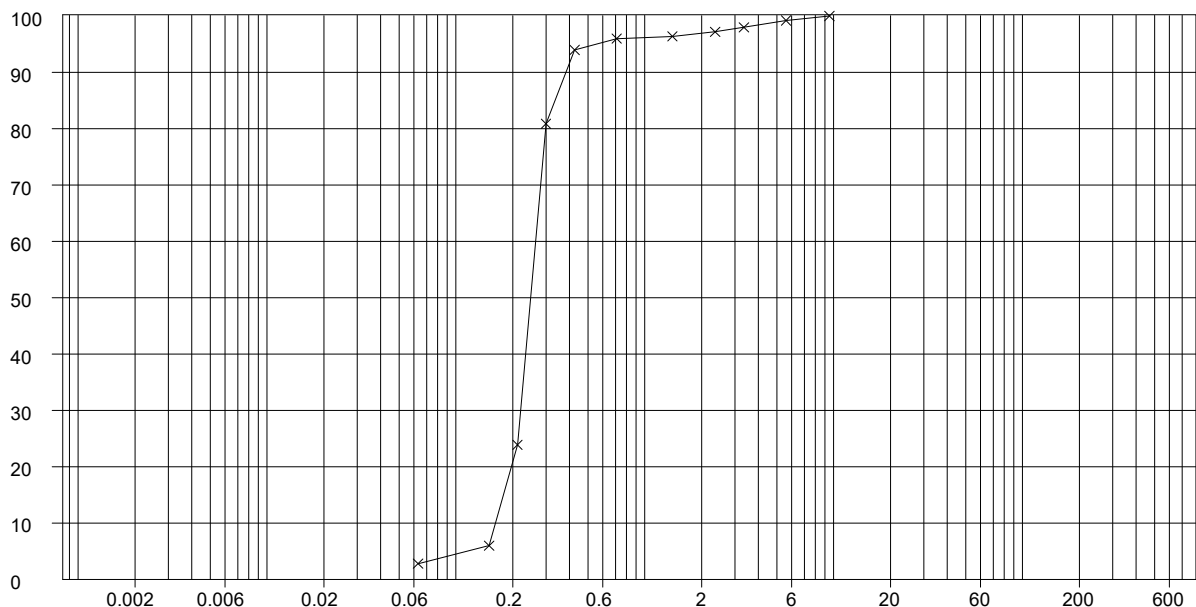
Architect: BRADSHAW GASS & HOPE

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M3822A

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DETERMINATION OF PARTICLE SIZE DISTRIBUTION

Borehole / Trial Pit	Depth (m)	Sample	Laboratory Description
BH3B	6.00	B	Greyish brown slightly gravelly slightly silty fine to medium SAND. Gravel comprises subangular to subrounded fine to medium sandstone, siltstone and quartz.



Sieve / Particle Size	% Passing
9.5 mm	100.0
5.6 mm	99.2
3.35 mm	98.0
2.36 mm	97.2
1.4 mm	96.4
710 µm	96.0
425 µm	94.0
300 µm	80.9
212 µm	23.9
150 µm	6.0
63 µm	2.8

CLAY	Fine	Medium	Coarse	Fine	Medium	Coarse	Fine	Medium	Coarse	COBBLES	BOULDERS
	SILT			SAND			GRAVEL				

Grading Analysis	
D85	339.1 µm
D60	267.7 µm
D10	163.9 µm
Uniformity Coefficient	1.6

Particle Proportions	
Cobbles + Boulders	-
Gravel	3.1%
Sand	94.1%
Silt	-
Clay	-

Method of Preparation : BS 1377:PART 1:1990:7.3 Initial preparation 1990:7.4.5 Particle size tests

Method of Test : BS 1377:PART 2:1990:9 Determination of particle size distribution

Remarks :

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M3822A

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Architect: BRADSHAW GASS & HOPE

DETERMINATION OF PARTICLE SIZE DISTRIBUTION

[illegible]

Remarks :



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Laboratory Test Results

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Client : VITAL ENERGI

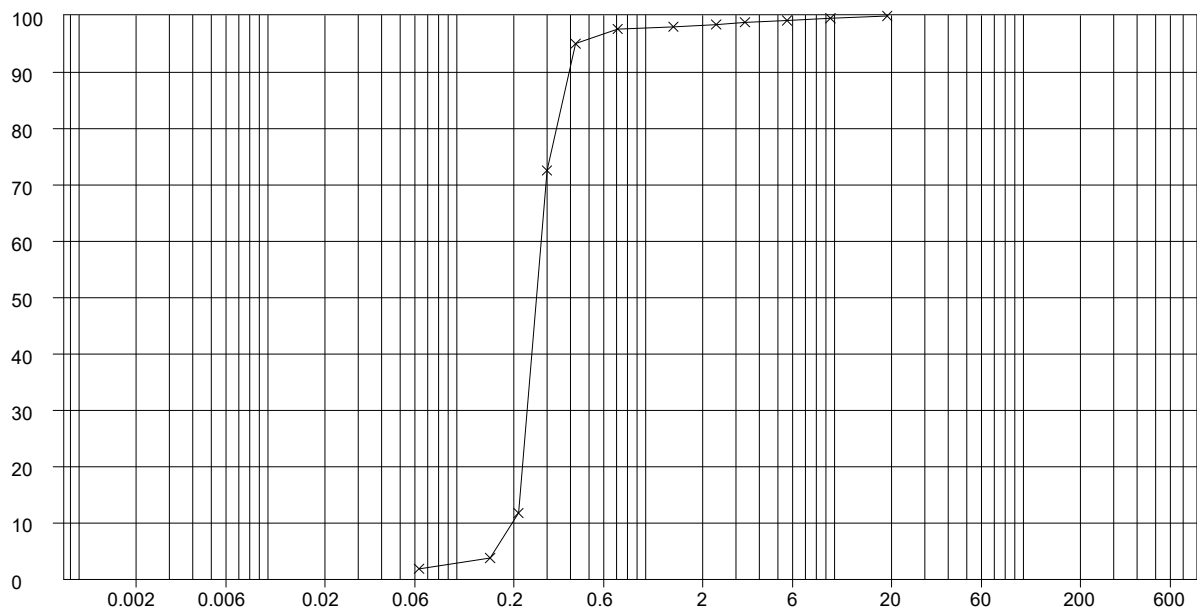
Architect: BRADSHAW GASS & HOPE

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M3822A

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DETERMINATION OF PARTICLE SIZE DISTRIBUTION

Borehole / Trial Pit	Depth (m)	Sample	Laboratory Description
BH3B	12.00	B	Greyish brown slightly gravelly slightly silty fine to medium SAND. Gravel comprises subangular to subrounded fine to medium sandstone, siltstone and quartz.



Sieve / Particle Size	% Passing
19 mm	100.0
9.5 mm	99.6
5.6 mm	99.2
3.35 mm	98.9
2.36 mm	98.5
1.4 mm	98.1
710 μm	97.7
425 μm	95.1
300 μm	72.6
212 μm	11.8
150 μm	3.8
63 μm	1.9

CLAY	Fine	Medium	Coarse	Fine	Medium	Coarse	Fine	Medium	Coarse	COBBLES	BOULDERS
	SILT			SAND			GRAVEL				

Grading Analysis	
D85	368.9 μm
D60	281.8 μm
D10	198.0 μm
Uniformity Coefficient	1.4

Particle Proportions	
Cobbles + Boulders	-
Gravel	1.6%
Sand	96.5%
Silt	-
Clay	-

Method of Preparation : BS 1377:PART 1:1990:7.3 Initial preparation 1990:7.4.5 Particle size tests

Method of Test : BS 1377:PART 2:1990:9 Determination of particle size distribution

Remarks :



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Laboratory Test Results

Site : SOFIDEL UK LIMITED, BRUNEL WAY, BAGLAN ENERGY PARK, BRITON FERRY, SA11 2HZ

Client : VITAL ENERGI

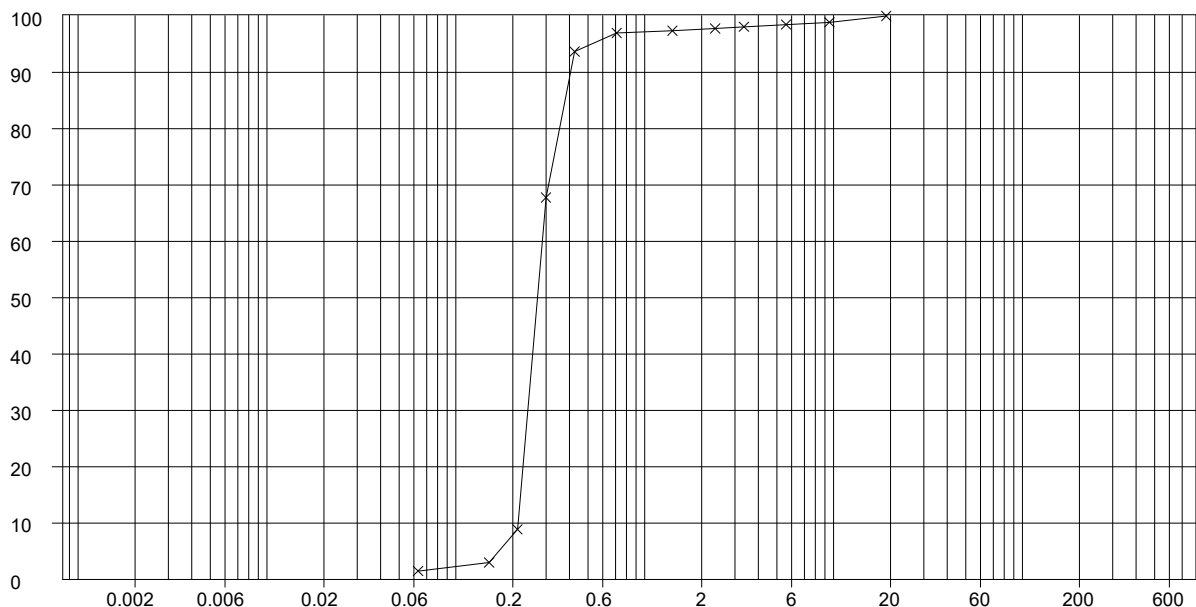
Architect: BRADSHAW GASS & HOPE

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M3822A

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DETERMINATION OF PARTICLE SIZE DISTRIBUTION

Borehole / Trial Pit	Depth (m)	Sample	Laboratory Description
BH3B	13.50	B	Greyish brown slightly gravelly slightly silty fine to medium SAND. Gravel comprises subangular to subrounded fine to medium sandstone, siltstone and quartz.



Sieve / Particle Size	% Passing
19 mm	100.0
9.5 mm	98.9
5.6 mm	98.5
3.35 mm	98.1
2.36 mm	97.8
1.4 mm	97.4
710 µm	97.0
425 µm	93.7
300 µm	67.8
212 µm	8.9
150 µm	3.0
63 µm	1.5

CLAY	Fine	Medium	Coarse	Fine	Medium	Coarse	Fine	Medium	Coarse	COBBLES	BOULDERS
	SILT			SAND			GRAVEL				

Grading Analysis	
D85	383.0 µm
D60	288.3 µm
D10	213.6 µm
Uniformity Coefficient	1.3

Particle Proportions	
Cobbles + Boulders	-
Gravel	2.3%
Sand	96.2%
Silt	-
Clay	-

Method of Preparation : BS 1377:PART 1:1990:7.3 Initial preparation 1990:7.4.5 Particle size tests

Method of Test : BS 1377:PART 2:1990:9 Determination of particle size distribution

Remarks :

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Site : SOFIDEL UK LIMITED, BRUNEL WAY, BAGLAN ENERGY PARK, BRITON FERRY, SA11 2HZ Client : VITAL ENERGI Architect : BRADSHAW GASS & HOPE										Job Number M3822A Sheet 1 / 1
DETERMINATION OF pH, SULPHATE CONTENT AND TOTAL SULPHUR OF SOIL AND GROUNDWATER										
Borehole/ Trial Pit	Depth (m)	Sample	Concentration of Soluble Sulphate			Total Sulphur %	Percentage of sample passing 2mm Sieve %	pH	Classification	Laboratory Description
			Total S04 %	S04 in 2:1 water:soil g /l	Groundwater g /l					
BH1	0.13	B		0.16				11.1	DS-1	MADE GROUND: black ashy gravelly fine to coarse sand with low sandstone and slag cobble content and with occasional wood fragments. Gravel sized fragments comprise fine to coarse slag, clinker and sandstone.
BH1	3.00	B		0.05				10.6	DS-1	Dark brown gravelly slightly silty medium SAND. Gravel comprises subangular to rounded fine to medium sandstone and siltstone.
BH1	6.00	B		0.04				9.9	DS-1	Greyish brown slightly silty fine to medium SAND with occasional shell fragments..
BH1	9.00	B	0.03	0.04		0.01		9.1	DS-1	Greyish brown slightly silty medium SAND with occasional shell fragments..
BH2	2.00	B		0.03				9.2	DS-1	MADE GROUND: dark brown ashy gravelly silty fine to coarse sand with occasional shell fragments.
BH2	7.50	B		0.03				9.7	DS-1	Greyish brown slightly gravelly slightly silty medium SAND. Gravel comprises subangular to rounded fine to medium sandstone and quartz
BH2	12.00	B		0.07				8.5	DS-1	Dark brown slightly gravelly slightly silty medium SAND. Gravel comprises subangular to rounded fine to medium sandstone and quartz
BH3B	6.00	B		0.04				10.4	DS-1	Greyish brown slightly gravelly slightly silty fine to medium SAND. Gravel comprises subangular to subrounded fine to medium sandstone, siltstone and quartz.
BH3B	12.00	B		0.04				9.5	DS-1	Greyish brown slightly gravelly slightly silty fine to medium SAND. Gravel comprises subangular to subrounded fine to medium sandstone, siltstone and quartz.
BH3B	13.50	B	0.05	0.03		0.03		10.2	DS-1	Greyish brown slightly gravelly slightly silty fine to medium SAND. Gravel comprises subangular to subrounded fine to medium sandstone, siltstone and quartz.
M1	0.13	B		0.43				10.3	DS-1	MADE GROUND: black very gravelly fine to coarse sand with high slag cobble content
M4	0.13	B		0.06				10.8	DS-1	MADE GROUND: dark brown ashy gravelly fine to coarse sand. Gravel sized fragments are fine to coarse brick, stone and clinker.
Method of Preparation : BS 1377:PART 1:1990:7.5 Preparation of soil for chemical tests BS 1377:PART 3:1990:5.2, 5.3, 5.4 & 9.4 Method of Test : Laboratory in-house methods based on BS1377: Part 3 for contents of water soluble sulphate, total sulphate and pH. Remarks : Classification relates to Design Sulphate Class of BRE Special Digest 1 (2005)										

S S SUB SURFACE SITE INVESTIGATION SPECIALISTS, GEOTECHNICAL & ENVIRONMENTAL CONSULTANTS 3 Peel Street, Preston, Lancashire, PR2 2QS. Tel: (01772) 561135 Fax: (01772) 204907							Laboratory Test Results				
Site : SOFIDEL UK LIMITED, BRUNEL WAY, BAGLAN ENERGY PARK, BRITON FERRY, SA11 2HZ											Job Number M3822A
Client : VITAL ENERGI											Sheet 1 / 1
Architect: BRADSHAW GASS & HOPE											
DETERMINATION OF pH, SULPHATE, TOTAL SULPHUR, MAGNESIUM, CHLORIDE, NITRATE AND AMMONIUM CONTENT											
Borehole/ Trial Pit	Depth (m)	Sample	Concentration of Sulphate		Total Sulphur %	Ammonium NH4 mg/l	Water Soluble Magnesium mg/l	Water Soluble Chloride mg/l	Water Soluble Nitrate mg/l	pH	Laboratory Description
			Total S04 %	S04 in 2:1 water:soil g /l							
BH1	0.13	B		0.16						11.1	MADE GROUND: black ashy gravelly fine to coarse sand with low sandstone and slag cobble content and with occasional wood fragments. Gravel sized fragments comprise fine to coarse slag, clinker and sandstone.
BH1	3.00	B		0.05						10.6	Dark brown gravelly slightly silty medium SAND. Gravel comprises subangular to rounded fine to medium sandstone and siltstone.
BH1	6.00	B		0.04						9.9	Greyish brown slightly silty fine to medium SAND with occasional shell fragments..
BH1	9.00	B	0.03	0.04	0.01	< 10	< 10	4.80	< 1.0	9.10	Greyish brown slightly silty medium SAND with occasional shell fragments..
BH2	2.00	B	0.05	0.03	0.04	< 10	< 10	8.90	4.40	9.3	MADE GROUND: dark brown ashy gravelly silty fine to coarse sand with occasional shell fragments.
BH2	7.50	B		0.03						9.7	Greyish brown slightly gravelly slightly silty medium SAND. Gravel comprises subangular to rounded fine to medium sandstone and quartz
BH2	12.00	B		0.07						8.5	Dark brown slightly gravelly slightly silty medium SAND. Gravel comprises subangular to rounded fine to medium sandstone and quartz
BH3B	6.00	B		0.04						10.4	Greyish brown slightly gravelly slightly silty fine to medium SAND. Gravel comprises subangular to subrounded fine to medium sandstone, siltstone and quartz.
BH3B	12.00	B		0.04						9.5	Greyish brown slightly gravelly slightly silty fine to medium SAND. Gravel comprises subangular to subrounded fine to medium sandstone, siltstone and quartz.
BH3B	13.50	B	0.05	0.03	0.03	< 10	< 10	3.90	< 1.0	10.20	Greyish brown slightly gravelly slightly silty fine to medium SAND. Gravel comprises subangular to subrounded fine to medium sandstone, siltstone and quartz.
M1	0.13	B		0.43						10.3	MADE GROUND: black very gravelly fine to coarse sand with high slag cobble content
M2	0.70	B	0.06	0.06	0.03	< 10	< 10	6.70	1.20	10.30	MADE GROUND:dark brown ashy slightly gravelly fine to coarse sand. Gravel sized fragments are fine to coarse clinker and slag.
M4	0.13	B		0.06						10.8	MADE GROUND: dark brown ashy gravelly fine to coarse sand. Gravel sized fragments are fine to coarse brick, stone and clinker.
Method of Preparation :											
Method of Test :											
Remarks :											

**SUB SURFACE**

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BRE Special Digest 1

AGGRESSIVE CHEMICAL ENVIRONMENT FOR CONCRETE (ACEC) SITE CLASSIFICATION.**Table C1 Aggressive Chemical Environment for Concrete (ACEC) classification for natural ground locations^a**

Sulfate Design Sulfate Class for location	2:1 water/soil extract ^b	Groundwater	Total potential sulfate ^c	Groundwater Static water	Mobile water	ACEC Class for location
1	2 (SO ₄ mg/l)	3 (SO ₄ mg/l)	4 (SO ₄ %)	5 (pH)	6 (pH)	7
DS-1	< 500	< 400	< 0.24	≥ 2.5	> 5.5 ^d 2.5–5.5	AC-1s AC-1 ^d AC-2z
DS-2	500–1500	400–1400	0.24–0.6	> 3.5 2.5–3.5	> 5.5 2.5–5.5	AC-1s AC-2 AC-2s AC-3z
DS-3	1600–3000	1500–3000	0.7–1.2	> 3.5 2.5–3.5	> 5.5 2.5–5.5	AC-2s AC-3 AC-3s AC-4
DS-4	3100–6000	3100–6000	1.3–2.4	> 3.5 2.5–3.5	> 5.5 2.5–5.5	AC-3s AC-4 AC-4s AC-5
DS-5	> 6000	> 6000	> 2.4	> 3.5 2.5–3.5	≥ 2.5	AC-4s AC-5

Notes

- a** Applies to locations on sites that comprise either undisturbed ground that is in its natural state (ie is not brownfield – Table C2) or clean fill derived from such ground.
b The limits of Design Sulfate Classes based on 2:1 water/soil extracts have been lowered relative to previous Digests (Box C7).
c Applies only to locations where concrete will be exposed to sulfate ions (SO₄) which may result from the oxidation of sulfides (eg pyrite) following ground disturbance (Appendix A1 and Box C8).
d For flowing water that is potentially aggressive to concrete owing to high purity or an aggressive carbon dioxide level greater than 15 mg/l (Section C2.2.3), increase the ACEC Class to AC-2z.

Explanation of suffix symbols to ACEC Class

- Suffix 's' indicates that the water has been classified as static.
- Concrete placed in ACEC Classes that include the suffix 'z' primarily have to resist acid conditions and may be made with any of the cements or combinations listed in Table D2 on page 42.

Table C2 Aggressive Chemical Environment for Concrete (ACEC) classification for brownfield locations^a

Sulfate and magnesium						Groundwater		ACEC
Design Sulfate Class for location	2:1 water/soil extract ^b		Groundwater		Total potential sulfate ^c	Static water	Mobile water	Class for location
1	2	3	4	5	6	7	8	9
	(SO ₄ mg/l)	(Mg mg/l)	(SO ₄ mg/l)	(Mg mg/l)	(SO ₄ %)	(pH) ^d	(pH) ^d	
DS-1	< 500		< 400		< 0.24	≥ 2.5	> 6.5 ^d 5.5–6.5 4.5–5.5 2.5–4.5	AC-1s AC-1 AC-2z AC-3z AC-4z
DS-2	500–1500		400–1400		0.24–0.6	> 5.5 2.5–5.5	> 6.5 5.5–6.5 4.5–5.5 2.5–4.5	AC-1s AC-2 AC-2s AC-3z AC-4z AC-5z
DS-3	1600–3000		1500–3000		0.7–1.2	> 5.5 2.5–5.5	> 6.5 5.5–6.5 2.5–5.5	AC-2s AC-3 AC-3s AC-4 AC-5
DS-4	3100–6000	≤ 1200	3100–6000	≤ 1000	1.3–2.4	> 5.5 2.5–5.5	> 6.5 2.5–6.5	AC-3s AC-4 AC-4s AC-5
DS-4m	3100–6000	> 1200 ^a	3100–6000	> 1000 ^a	1.3–2.4	> 5.5 2.5–5.5	> 6.5 2.5–6.5	AC-3s AC-4m AC-4ms AC-5m
DS-5	> 6000	≤ 1200	> 6000	≤ 1000	> 2.4	> 5.5 2.5–5.5	≥ 2.5	AC-4s AC-5
DS-5m	> 6000	> 1200 ^a	> 6000	> 1000 ^a	> 2.4	> 5.5 2.5–5.5	≥ 2.5	AC-4ms AC-5m

Notes

- a** Brownfield locations are those sites, or parts of sites, that might contain chemical residues produced by or associated with industrial production (Section C5.1.3).
b The limits of Design Sulfate Classes based on 2:1 water/soil extracts have been lowered from previous Digests (Box C7).
c Applies only to locations where concrete will be exposed to sulfate ions (SO₄), which may result from the oxidation of sulfides such as pyrite, following ground disturbance (Appendix A1 and Box C8).
d An additional account is taken of hydrochloric and nitric acids by adjustment to sulfate content (Section C5.1.3).
e The limit on water-soluble magnesium does not apply to brackish groundwater (chloride content between 12 000 mg/l and 17 000 mg/l). This allows 'm' to be omitted from the relevant ACEC classification. Seawater (chloride content about 18 000 mg/l) and stronger brines are not covered by this table.

Explanation of suffix symbols to ACEC Class

- Suffix 's' indicates that the water has been classified as static.
- Concrete placed in ACEC Classes that include the suffix 'z' have primarily to resist acid conditions and may be made with any of the cements in Table D2 on page 42.
- Suffix 'm' relates to the higher levels of magnesium in Design Sulfate Classes 4 and 5.

CONTAMINATION ANALYSIS RESULTS



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Site: SOFIDEL UK LIMITED, BRUNEL WAY, BRITON FERRY, SA11 2HZ

Client: VITAL ENERGI

Engineer:

Job Number:

M3822F

Sheet:

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Pb Screening Tool 1.0

INPUT DATA						RESULTS (Pb)			
ID	Location	Waterbody	Date	Measured Pb Concentration (dissolved) ($\mu\text{g l}^{-1}$)	DOC	Site Specific PNEC Dissolved Pb ($\mu\text{g l}^{-1}$)	BioF	Available Pb ($\mu\text{g l}^{-1}$)	Risk Characterisation Ratio
1	BH1	Neath	22/05/2024	0.48	2.19	2.63	0.46	0.22	0.18
2	BH2	Neath	22/05/2024	0.11	2.19	2.63	0.46	0.05	0.04
3	BH3	Neath	22/05/2024	10.00	2.19	2.63	0.46	4.57	3.81
5	R1	Neath	18/02/2025	0.18	2.19	2.63	0.46	0.08	0.07
6	R2	Neath	18/02/2025	0.09	2.19	2.63	0.46	0.04	0.03
7	R3	Neath	18/02/2025	0.09	2.19	2.63	0.46	0.04	0.03
9	R1	Neath	04/03/2025	0.17	2.19	2.63	0.46	0.08	0.06
10	R2	Neath	04/03/2025	0.12	2.19	2.63	0.46	0.05	0.05
11	R3	Neath	04/03/2025	0.09	2.19	2.63	0.46	0.04	0.03

Metal Bioavailability Assessment Tool (M-BAT)

INPUT DATA											
ID	Location	Waterbody	Date	Measured Cu Concentration (dissolved) (µg l ⁻¹)	Measured Zn Concentration (dissolved) (µg l ⁻¹)	Measured Mn Concentration (dissolved) (µg l ⁻¹)	Measured Ni Concentration (dissolved) (µg l ⁻¹)	pH	DOC	Ca	
1	Sofidel UK, Briton Ferry - BH1	Neath	22/05/2024	0.4	150		2.1	7.3	2.19	53.6	
2	Sofidel UK, Briton Ferry - BH2	Neath	22/05/2024	0.4	59		4.3	7.3	2.19	53.6	
3	Sofidel UK, Briton Ferry - BH3	Neath	22/05/2024	13	210		8.1	7.3	2.19	53.6	
5	Sofidel UK, Briton Ferry - R1	Neath	18/02/2025	2.1	88		3.4	7.3	2.19	53.6	
6	Sofidel UK, Briton Ferry - R2	Neath	18/02/2025	0.7	94		1.5	7.3	2.19	53.6	
7	Sofidel UK, Briton Ferry - R3	Neath	18/02/2025	1.3	83		1.8	7.3	2.19	53.6	
9	Sofidel UK, Briton Ferry - R1	Neath	04/03/2025	2.5	47		3.5	7.3	2.19	53.6	
10	Sofidel UK, Briton Ferry - R2	Neath	04/03/2025	2.5	30		1.9	7.3	2.19	53.6	
11	Sofidel UK, Briton Ferry - R3	Neath	04/03/2025	0.8	86		1.4	7.3	2.19	53.6	

RESULTS (Copper)				RESULTS (Zinc)				RESULTS (Ni)			
Site-specific PNEC Dissolved Copper ($\mu\text{g l}^{-1}$)	BioF	Bioavailable Copper Concentration ($\mu\text{g l}^{-1}$)	Risk Characterisation Ratio	Site-specific PNEC Dissolved Zinc ($\mu\text{g l}^{-1}$)	BioF	Bioavailable Zinc Concentration ($\mu\text{g l}^{-1}$)	Risk Characterisation Ratio	Site-specific PNEC Dissolved Nickel ($\mu\text{g l}^{-1}$)	BioF	Bioavailable Nickel Concentration ($\mu\text{g l}^{-1}$)	Risk Characterisation Ratio
8.91	0.11	0.04	0.04	18.45	0.59	88.62	8.13	13.45	0.30	0.62	0.16
8.91	0.11	0.04	0.04	18.45	0.59	34.86	3.20	13.45	0.30	1.28	0.32
8.91	0.11	1.46	1.46	18.45	0.59	124.06	11.38	13.45	0.30	2.41	0.60
8.91	0.11	0.24	0.24	18.45	0.59	51.99	4.77	13.45	0.30	1.01	0.25
8.91	0.11	0.08	0.08	18.45	0.59	55.53	5.09	13.45	0.30	0.45	0.11
8.91	0.11	0.15	0.15	18.45	0.59	49.03	4.50	13.45	0.30	0.54	0.13
8.91	0.11	0.28	0.28	18.45	0.59	27.77	2.55	13.45	0.30	1.04	0.26
8.91	0.11	0.28	0.28	18.45	0.59	17.72	1.63	13.45	0.30	0.56	0.14
8.91	0.11	0.09	0.09	18.45	0.59	50.81	4.66	13.45	0.30	0.42	0.10



Certificate of Analysis

Certificate Number 24-09574

Issued: 17-May-24

Client Sub Surface Laboratories Ltd
3 Peel Street
Preston
Lancashire
PR2 2QS

Our Reference 24-09574

Client Reference ~ M3822A

Order No ~ (not supplied)

Contract Title ~ Sofidel UK Limited, Brunel Way, Neath

Description 16 Soil samples, 4 Leachate prepared by DETS samples.

Date Received 10-May-24

Date Started 10-May-24

Date Completed 17-May-24

Test Procedures Identified by prefix DETSn (details on request).

Notes Opinions and interpretations are outside the laboratory's scope of ISO 17025 accreditation. This certificate is issued in accordance with the accreditation requirements of the United Kingdom Accreditation Service. The results reported herein relate only to the material supplied to the laboratory. This certificate shall not be reproduced except in full, without the prior written approval of the laboratory.

Approved By

A handwritten signature in black ink, appearing to read "K. Bridgewood".

Kirk Bridgewood
General Manager



Normec DETS Limited

Unit 2, Park Road Industrial Estate South, Consett, Co Durham, DH8 5PY

Symbol key at end of report Tel: 01207 582333 • email: info@dets.co.uk • www.dets.co.uk

Page 1 of 16

Summary of Chemical Analysis

Soil Samples

Our Ref 24-09574

Client Ref ~ M3822A

Contract Title ~ Sofidel UK Limited, Brunel Way, Neath

Lab No	2335298	2335299	2335300	2335301	2335302	2335303	2335304
Sample ID ~	M1	M2	M3	M4	BH1	BH1	BH1
Depth ~	0.13-0.80	0.70-1.20	0.14-0.40	0.13-0.60	0.13-0.70	3.00-3.45	6.00-6.45
Other ID ~	334	330	328	327	335	343	349
Sample Type ~	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Sampling Date ~	24/04/2024	24/04/2024	24/04/2024	24/04/2024	24/04/2024	24/04/2024	24/04/2024
Sampling Time ~	n/s	n/s	n/s	n/s	n/s	n/s	n/s

Test	Method	LOD	Units							
Asbestos Quantification	DETSC 1102	0.001	%	0.035		0.003		0.034		
Preparation										
Moisture Content	DETSC 1004	0.1	%	9.7	3.0	7.3	7.0	7.4		
Metals										
Arsenic	DETSC 2301#	0.2	mg/kg	39	13	13	10	8.0		
Boron, Water Soluble (2.5:1)	DETSC 2311#	0.2	mg/kg	3.1	0.9	1.7	1.3	1.7		
Cadmium	DETSC 2301#	0.1	mg/kg	4.3	0.5	2.0	0.8	1.8		
Chromium	DETSC 2301#	0.15	mg/kg	490	75	270	82	490		
Chromium, Hexavalent	DETSC 2204*	1	mg/kg	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0		
Copper	DETSC 2301#	0.2	mg/kg	500	36	99	50	82		
Lead	DETSC 2301#	0.3	mg/kg	470	39	190	100	140		
Magnesium Aqueous Extract (2:1)	DETSC 2076*	10	mg/l							
Mercury	DETSC 2325#	0.05	mg/kg	0.49	0.08	0.23	0.06	0.07		
Molybdenum	DETSC 2301#	0.4	mg/kg	21	1.2	8.1	3.1	8.6		
Nickel	DETSC 2301#	1	mg/kg	130	13	31	34	42		
Selenium	DETSC 2301#	0.5	mg/kg	3.8	< 0.5	2.6	1.0	4.0		
Zinc	DETSC 2301#	1	mg/kg	1100	140	460	240	340		
Inorganics										
pH	DETSC 2008#		pH	10.3	10.3	10.8	10.8	11.1	10.6	9.9
Cyanide, Total	DETSC 2130#	0.1	mg/kg	0.9	< 0.1	< 0.1	< 0.1	< 0.1		
Organic matter	DETSC 2002#	0.1	%	3.4	1.5	3.1	2.0	1.8		
Ammonia Aqueous Extract as N	DETSC 2119*	10	mg/l							
Chloride Aqueous Extract (2:1)	DETSC 2055	1	mg/l							
Nitrate Aqueous Extract as NO3 (2:1)	DETSC 2055	1	mg/l							
Sulphate Aqueous Extract as SO4 (2:1)	DETSC 2076#	10	mg/l	430			62	160	52	39
Sulphide	DETSC 2024*	10	mg/kg	< 10	48	150	100	220		
Sulphur as S, Total	DETSC 2320	0.01	%							
Sulphate as SO4, Total	DETSC 2321#	0.01	%	0.36	0.06	0.19	0.10	0.30		
Petroleum Hydrocarbons										
Aliphatic C5-C6: HS_1D_AL	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01		
Aliphatic C6-C8: HS_1D_AL	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01		
Aliphatic C8-C10: HS_1D_AL	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01		
Aliphatic C10-C12: EH_CU_1D_AL	DETSC 3072#	1.5	mg/kg	< 1.5	< 1.5	< 1.5	< 1.5	< 1.5		
Aliphatic C12-C16: EH_CU_1D_AL	DETSC 3072#	1.2	mg/kg	1.9	< 1.2	< 1.2	< 1.2	< 1.2		
Aliphatic C16-C21: EH_CU_1D_AL	DETSC 3072#	1.5	mg/kg	15	< 1.5	4.8	< 1.5	4.4		
Aliphatic C21-C35: EH_CU_1D_AL	DETSC 3072#	3.4	mg/kg	66	< 3.4	20	< 3.4	21		
Aliphatic C35-C44: EH_CU_1D_AL	DETSC 3072*	3.4	mg/kg	9.7	< 3.4	< 3.4	< 3.4	< 3.4		
Aliphatic C10-C44: EH_CU_1D_AL	DETSC 3072*	10	mg/kg	93	< 10	26	< 10	26		
Aromatic C5-C7: HS_1D_AR	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01		
Aromatic C7-C8: HS_1D_AR	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01		
Aromatic C8-C10: HS_1D_AR	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01		
Aromatic C10-C12: EH_CU_1D_AR	DETSC 3072#	0.9	mg/kg	< 0.9	< 0.9	< 0.9	< 0.9	< 0.9		

Summary of Chemical Analysis

Soil Samples

Our Ref 24-09574

Client Ref ~ M3822A

Contract Title ~ Sofidel UK Limited, Brunel Way, Neath

Lab No	2335298	2335299	2335300	2335301	2335302	2335303	2335304
Sample ID ~	M1	M2	M3	M4	BH1	BH1	BH1
Depth ~	0.13-0.80	0.70-1.20	0.14-0.40	0.13-0.60	0.13-0.70	3.00-3.45	6.00-6.45
Other ID ~	334	330	328	327	335	343	349
Sample Type ~	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Sampling Date ~	24/04/2024	24/04/2024	24/04/2024	24/04/2024	24/04/2024	24/04/2024	24/04/2024
Sampling Time ~	n/s	n/s	n/s	n/s	n/s	n/s	n/s

Test	Method	LOD	Units							
Aromatic C12-C16: EH_CU_1D_AR	DETSC 3072#	0.5	mg/kg	1.1	< 0.5	< 0.5	< 0.5	< 0.5		
Aromatic C16-C21: EH_CU_1D_AR	DETSC 3072#	0.6	mg/kg	14	< 0.6	< 0.6	< 0.6	5.9		
Aromatic C21-C35: EH_CU_1D_AR	DETSC 3072#	1.4	mg/kg	43	< 1.4	< 1.4	< 1.4	27		
Aromatic C35-C44: EH_CU_1D_AR	DETSC 3072*	1.4	mg/kg	7.4	< 1.4	< 1.4	< 1.4	9.7		
Aromatic C10-C44: EH_CU_1D_AR	DETSC 3072*	10	mg/kg	65	< 10	< 10	< 10	43		
Ali/Aro C10-C44: EH_CU_1D_Total	DETSC 3072*	10	mg/kg	160	< 10	26	< 10	69		
Benzene	DETSC 3321#	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01		
Ethylbenzene	DETSC 3321#	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01		
Toluene	DETSC 3321#	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01		
m+p Xylene	DETSC 3321#	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01		
o Xylene	DETSC 3321#	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01		
MTBE	DETSC 3321	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01		
PAHs										
Naphthalene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1		
Acenaphthylene	DETSC 3301	0.1	mg/kg	0.2	< 0.1	< 0.1	< 0.1	< 0.1		
Acenaphthene	DETSC 3301	0.1	mg/kg	0.3	< 0.1	< 0.1	< 0.1	< 0.1		
Fluorene	DETSC 3301	0.1	mg/kg	0.4	0.3	0.3	< 0.1	0.4		
Phenanthrene	DETSC 3301	0.1	mg/kg	2.2	0.2	0.4	< 0.1	0.3		
Anthracene	DETSC 3301	0.1	mg/kg	0.8	< 0.1	< 0.1	< 0.1	< 0.1		
Fluoranthene	DETSC 3301	0.1	mg/kg	1.2	0.3	0.4	0.2	0.4		
Pyrene	DETSC 3301	0.1	mg/kg	0.8	0.3	0.5	0.1	0.5		
Benzo(a)anthracene	DETSC 3301	0.1	mg/kg	0.4	0.2	0.2	0.3	0.2		
Chrysene	DETSC 3301	0.1	mg/kg	0.4	0.2	0.3	0.2	0.2		
Benzo(b)fluoranthene	DETSC 3301	0.1	mg/kg	0.6	0.1	0.2	0.2	< 0.1		
Benzo(k)fluoranthene	DETSC 3301	0.1	mg/kg	0.3	< 0.1	< 0.1	0.2	< 0.1		
Benzo(a)pyrene	DETSC 3301	0.1	mg/kg	0.5	0.2	0.2	0.4	0.2		
Indeno(1,2,3-c,d)pyrene	DETSC 3301	0.1	mg/kg	0.4	< 0.1	< 0.1	0.4	< 0.1		
Dibenzo(a,h)anthracene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1	0.1	< 0.1		
Benzo(g,h,i)perylene	DETSC 3301	0.1	mg/kg	0.6	< 0.1	< 0.1	0.2	< 0.1		
PAH 16 Total	DETSC 3301	1.6	mg/kg	9.3	1.9	2.4	2.3	2.2		
Phenols										
Phenol - Monohydric	DETSC 2130#	0.3	mg/kg	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3		

Summary of Chemical Analysis

Soil Samples

Our Ref 24-09574

Client Ref ~ M3822A

Contract Title ~ Sofidel UK Limited, Brunel Way, Neath

Lab No	2335305	2335306	2335307	2335308	2335309	2335310	2335311
Sample ID ~	BH1	BH2	BH2	BH2	BH2	BH3	BH3
Depth ~	9.00-9.45	0.20-0.40	2.00-2.45	7.50-7.95	12.00-12.45	0.18-1.20	6.00-6.45
Other ID ~	353	362	367	377	383	387	401
Sample Type ~	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Sampling Date ~	24/04/2024	24/04/2024	24/04/2024	24/04/2024	24/04/2024	24/04/2024	24/04/2024
Sampling Time ~	n/s	n/s	n/s	n/s	n/s	n/s	n/s

Test	Method	LOD	Units							
Asbestos Quantification	DETSC 1102	0.001	%					0.003		
Preparation										
Moisture Content	DETSC 1004	0.1	%		6.5	13		6.3		
Metals										
Arsenic	DETSC 2301#	0.2	mg/kg		9.2	16		20		
Boron, Water Soluble (2.5:1)	DETSC 2311#	0.2	mg/kg		1.4	0.8		1.8		
Cadmium	DETSC 2301#	0.1	mg/kg		1.2	0.3		2.8		
Chromium	DETSC 2301#	0.15	mg/kg		170	25		490		
Chromium, Hexavalent	DETSC 2204*	1	mg/kg		< 1.0	< 1.0		< 1.0		
Copper	DETSC 2301#	0.2	mg/kg		61	18		300		
Lead	DETSC 2301#	0.3	mg/kg		110	35		300		
Magnesium Aqueous Extract (2:1)	DETSC 2076*	10	mg/l	< 10						
Mercury	DETSC 2325#	0.05	mg/kg		0.08	< 0.05		0.14		
Molybdenum	DETSC 2301#	0.4	mg/kg		5.5	1.1		33		
Nickel	DETSC 2301#	1	mg/kg		18	13		98		
Selenium	DETSC 2301#	0.5	mg/kg		2.7	< 0.5		3.6		
Zinc	DETSC 2301#	1	mg/kg		240	160		810		
Inorganics										
pH	DETSC 2008#		pH	9.1	10.7	9.2	9.7	8.5	11.1	10.4
Cyanide, Total	DETSC 2130#	0.1	mg/kg		< 0.1	< 0.1		< 0.1		
Organic matter	DETSC 2002#	0.1	%		3.5	5.2		4.5		
Ammonia Aqueous Extract as N	DETSC 2119*	10	mg/l	< 10						
Chloride Aqueous Extract (2:1)	DETSC 2055	1	mg/l	4.8						
Nitrate Aqueous Extract as NO3 (2:1)	DETSC 2055	1	mg/l	< 1.0						
Sulphate Aqueous Extract as SO4 (2:1)	DETSC 2076#	10	mg/l	40		31	26	70		37
Sulphide	DETSC 2024*	10	mg/kg		180	68		130		
Sulphur as S, Total	DETSC 2320	0.01	%	0.01						
Sulphate as SO4, Total	DETSC 2321#	0.01	%	0.03	0.19	0.06		0.27		
Petroleum Hydrocarbons										
Aliphatic C5-C6: HS_1D_AL	DETSC 3321*	0.01	mg/kg		< 0.01	< 0.01		< 0.01		
Aliphatic C6-C8: HS_1D_AL	DETSC 3321*	0.01	mg/kg		< 0.01	< 0.01		< 0.01		
Aliphatic C8-C10: HS_1D_AL	DETSC 3321*	0.01	mg/kg		< 0.01	< 0.01		< 0.01		
Aliphatic C10-C12: EH_CU_1D_AL	DETSC 3072#	1.5	mg/kg		< 1.5	< 1.5		< 1.5		
Aliphatic C12-C16: EH_CU_1D_AL	DETSC 3072#	1.2	mg/kg		< 1.2	< 1.2		< 1.2		
Aliphatic C16-C21: EH_CU_1D_AL	DETSC 3072#	1.5	mg/kg		< 1.5	< 1.5		24		
Aliphatic C21-C35: EH_CU_1D_AL	DETSC 3072#	3.4	mg/kg		< 3.4	< 3.4		110		
Aliphatic C35-C44: EH_CU_1D_AL	DETSC 3072*	3.4	mg/kg		< 3.4	< 3.4		5.1		
Aliphatic C10-C44: EH_CU_1D_AL	DETSC 3072*	10	mg/kg		< 10	< 10		140		
Aromatic C5-C7: HS_1D_AR	DETSC 3321*	0.01	mg/kg		< 0.01	< 0.01		< 0.01		
Aromatic C7-C8: HS_1D_AR	DETSC 3321*	0.01	mg/kg		< 0.01	< 0.01		< 0.01		
Aromatic C8-C10: HS_1D_AR	DETSC 3321*	0.01	mg/kg		< 0.01	< 0.01		< 0.01		
Aromatic C10-C12: EH_CU_1D_AR	DETSC 3072#	0.9	mg/kg		< 0.9	< 0.9		< 0.9		

Summary of Chemical Analysis

Soil Samples

Our Ref 24-09574

Client Ref ~ M3822A

Contract Title ~ Sofidel UK Limited, Brunel Way, Neath

Lab No	2335305	2335306	2335307	2335308	2335309	2335310	2335311
Sample ID ~	BH1	BH2	BH2	BH2	BH2	BH3	BH3
Depth ~	9.00-9.45	0.20-0.40	2.00-2.45	7.50-7.95	12.00-12.45	0.18-1.20	6.00-6.45
Other ID ~	353	362	367	377	383	387	401
Sample Type ~	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Sampling Date ~	24/04/2024	24/04/2024	24/04/2024	24/04/2024	24/04/2024	24/04/2024	24/04/2024
Sampling Time ~	n/s	n/s	n/s	n/s	n/s	n/s	n/s

Test	Method	LOD	Units						
Aromatic C12-C16: EH_CU_1D_AR	DETSC 3072#	0.5	mg/kg		< 0.5	< 0.5			0.8
Aromatic C16-C21: EH_CU_1D_AR	DETSC 3072#	0.6	mg/kg		< 0.6	< 0.6			16
Aromatic C21-C35: EH_CU_1D_AR	DETSC 3072#	1.4	mg/kg		< 1.4	< 1.4			83
Aromatic C35-C44: EH_CU_1D_AR	DETSC 3072*	1.4	mg/kg		< 1.4	< 1.4			12
Aromatic C10-C44: EH_CU_1D_AR	DETSC 3072*	10	mg/kg		< 10	< 10			110
Ali/Aro C10-C44: EH_CU_1D_Total	DETSC 3072*	10	mg/kg		< 10	< 10			250
Benzene	DETSC 3321#	0.01	mg/kg		< 0.01	< 0.01			< 0.01
Ethylbenzene	DETSC 3321#	0.01	mg/kg		< 0.01	< 0.01			< 0.01
Toluene	DETSC 3321#	0.01	mg/kg		< 0.01	< 0.01			< 0.01
m+p Xylene	DETSC 3321#	0.01	mg/kg		< 0.01	< 0.01			< 0.01
o Xylene	DETSC 3321#	0.01	mg/kg		< 0.01	< 0.01			< 0.01
MTBE	DETSC 3321	0.01	mg/kg		< 0.01	< 0.01			< 0.01
PAHs									
Naphthalene	DETSC 3301	0.1	mg/kg		< 0.1	< 0.1			< 0.1
Acenaphthylene	DETSC 3301	0.1	mg/kg		< 0.1	< 0.1			< 0.1
Acenaphthene	DETSC 3301	0.1	mg/kg		< 0.1	< 0.1			0.2
Fluorene	DETSC 3301	0.1	mg/kg		0.3	0.3			0.5
Phenanthrene	DETSC 3301	0.1	mg/kg		0.2	0.2			0.5
Anthracene	DETSC 3301	0.1	mg/kg		< 0.1	< 0.1			0.2
Fluoranthene	DETSC 3301	0.1	mg/kg		0.3	0.4			0.4
Pyrene	DETSC 3301	0.1	mg/kg		0.5	0.4			0.4
Benzo(a)anthracene	DETSC 3301	0.1	mg/kg		0.3	0.1			0.3
Chrysene	DETSC 3301	0.1	mg/kg		0.2	0.2			0.2
Benzo(b)fluoranthene	DETSC 3301	0.1	mg/kg		0.1	0.2			0.2
Benzo(k)fluoranthene	DETSC 3301	0.1	mg/kg		< 0.1	< 0.1			< 0.1
Benzo(a)pyrene	DETSC 3301	0.1	mg/kg		0.1	0.2			0.2
Indeno(1,2,3-c,d)pyrene	DETSC 3301	0.1	mg/kg		< 0.1	< 0.1			< 0.1
Dibenzo(a,h)anthracene	DETSC 3301	0.1	mg/kg		< 0.1	< 0.1			< 0.1
Benzo(g,h,i)perylene	DETSC 3301	0.1	mg/kg		< 0.1	< 0.1			< 0.1
PAH 16 Total	DETSC 3301	1.6	mg/kg		2.0	2.0			3.0
Phenols									
Phenol - Monohydric	DETSC 2130#	0.3	mg/kg		< 0.3	< 0.3			< 0.3

Summary of Chemical Analysis

Soil Samples

Our Ref 24-09574

Client Ref ~ M3822A

Contract Title ~ Sofidel UK Limited, Brunel Way, Neath

Lab No	2335312	2335313
Sample ID ~	BH3	BH3
Depth ~	12.00-12.45	13.50-13.95
Other ID ~	410	412
Sample Type ~	SOIL	SOIL
Sampling Date ~	24/04/2024	24/04/2024
Sampling Time ~	n/s	n/s

Test	Method	LOD	Units		
Asbestos Quantification	DETSC 1102	0.001	%		
Preparation					
Moisture Content	DETSC 1004	0.1	%		
Metals					
Arsenic	DETSC 2301#	0.2	mg/kg		
Boron, Water Soluble (2.5:1)	DETSC 2311#	0.2	mg/kg		
Cadmium	DETSC 2301#	0.1	mg/kg		
Chromium	DETSC 2301#	0.15	mg/kg		
Chromium, Hexavalent	DETSC 2204*	1	mg/kg		
Copper	DETSC 2301#	0.2	mg/kg		
Lead	DETSC 2301#	0.3	mg/kg		
Magnesium Aqueous Extract (2:1)	DETSC 2076*	10	mg/l		< 10
Mercury	DETSC 2325#	0.05	mg/kg		
Molybdenum	DETSC 2301#	0.4	mg/kg		
Nickel	DETSC 2301#	1	mg/kg		
Selenium	DETSC 2301#	0.5	mg/kg		
Zinc	DETSC 2301#	1	mg/kg		
Inorganics					
pH	DETSC 2008#		pH	9.5	10.2
Cyanide, Total	DETSC 2130#	0.1	mg/kg		
Organic matter	DETSC 2002#	0.1	%		
Ammonia Aqueous Extract as N	DETSC 2119*	10	mg/l		< 10
Chloride Aqueous Extract (2:1)	DETSC 2055	1	mg/l		3.9
Nitrate Aqueous Extract as NO3 (2:1)	DETSC 2055	1	mg/l		< 1.0
Sulphate Aqueous Extract as SO4 (2:1)	DETSC 2076#	10	mg/l	42	31
Sulphide	DETSC 2024*	10	mg/kg		
Sulphur as S, Total	DETSC 2320	0.01	%		0.03
Sulphate as SO4, Total	DETSC 2321#	0.01	%		0.04
Petroleum Hydrocarbons					
Aliphatic C5-C6: HS_1D_AL	DETSC 3321*	0.01	mg/kg		
Aliphatic C6-C8: HS_1D_AL	DETSC 3321*	0.01	mg/kg		
Aliphatic C8-C10: HS_1D_AL	DETSC 3321*	0.01	mg/kg		
Aliphatic C10-C12: EH_CU_1D_AL	DETSC 3072#	1.5	mg/kg		
Aliphatic C12-C16: EH_CU_1D_AL	DETSC 3072#	1.2	mg/kg		
Aliphatic C16-C21: EH_CU_1D_AL	DETSC 3072#	1.5	mg/kg		
Aliphatic C21-C35: EH_CU_1D_AL	DETSC 3072#	3.4	mg/kg		
Aliphatic C35-C44: EH_CU_1D_AL	DETSC 3072*	3.4	mg/kg		
Aliphatic C10-C44: EH_CU_1D_AL	DETSC 3072*	10	mg/kg		
Aromatic C5-C7: HS_1D_AR	DETSC 3321*	0.01	mg/kg		
Aromatic C7-C8: HS_1D_AR	DETSC 3321*	0.01	mg/kg		
Aromatic C8-C10: HS_1D_AR	DETSC 3321*	0.01	mg/kg		
Aromatic C10-C12: EH_CU_1D_AR	DETSC 3072#	0.9	mg/kg		

Summary of Chemical Analysis

Soil Samples

Our Ref 24-09574

Client Ref ~ M3822A

Contract Title ~ Sofidel UK Limited, Brunel Way, Neath

Lab No	2335312	2335313
Sample ID ~	BH3	BH3
Depth ~	12.00-12.45	13.50-13.95
Other ID ~	410	412
Sample Type ~	SOIL	SOIL
Sampling Date ~	24/04/2024	24/04/2024
Sampling Time ~	n/s	n/s

Test	Method	LOD	Units		
Aromatic C12-C16: EH_CU_1D_AR	DETSC 3072#	0.5	mg/kg		
Aromatic C16-C21: EH_CU_1D_AR	DETSC 3072#	0.6	mg/kg		
Aromatic C21-C35: EH_CU_1D_AR	DETSC 3072#	1.4	mg/kg		
Aromatic C35-C44: EH_CU_1D_AR	DETSC 3072*	1.4	mg/kg		
Aromatic C10-C44: EH_CU_1D_AR	DETSC 3072*	10	mg/kg		
Ali/Aro C10-C44: EH_CU_1D_Total	DETSC 3072*	10	mg/kg		
Benzene	DETSC 3321#	0.01	mg/kg		
Ethylbenzene	DETSC 3321#	0.01	mg/kg		
Toluene	DETSC 3321#	0.01	mg/kg		
m+p Xylene	DETSC 3321#	0.01	mg/kg		
o Xylene	DETSC 3321#	0.01	mg/kg		
MTBE	DETSC 3321	0.01	mg/kg		
PAHs					
Naphthalene	DETSC 3301	0.1	mg/kg		
Acenaphthylene	DETSC 3301	0.1	mg/kg		
Acenaphthene	DETSC 3301	0.1	mg/kg		
Fluorene	DETSC 3301	0.1	mg/kg		
Phenanthrene	DETSC 3301	0.1	mg/kg		
Anthracene	DETSC 3301	0.1	mg/kg		
Fluoranthene	DETSC 3301	0.1	mg/kg		
Pyrene	DETSC 3301	0.1	mg/kg		
Benzo(a)anthracene	DETSC 3301	0.1	mg/kg		
Chrysene	DETSC 3301	0.1	mg/kg		
Benzo(b)fluoranthene	DETSC 3301	0.1	mg/kg		
Benzo(k)fluoranthene	DETSC 3301	0.1	mg/kg		
Benzo(a)pyrene	DETSC 3301	0.1	mg/kg		
Indeno(1,2,3-c,d)pyrene	DETSC 3301	0.1	mg/kg		
Dibenzo(a,h)anthracene	DETSC 3301	0.1	mg/kg		
Benzo(g,h,i)perylene	DETSC 3301	0.1	mg/kg		
PAH 16 Total	DETSC 3301	1.6	mg/kg		
Phenols					
Phenol - Monohydric	DETSC 2130#	0.3	mg/kg		

WASTE ACCEPTANCE CRITERIA TESTING ANALYTICAL REPORT

Our Ref 24-09574

Client Ref M3822A

Contract Title Sofidel UK Limited, Brunel Way, Neath

Sample Id M1 334 0.13-0.80

Sample Numbers 2335298 2335314 2335315

Date Analysed 17/05/2024

Test Results On Waste				
Determinand and Method Reference	Units	Result		
DETSC 2084# Total Organic Carbon	%	11.0		
DETSC 2003# Loss On Ignition	%	8.0		
DETSC 3321# BTEX	mg/kg	< 0.04		
DETSC 3401# PCBs (7 congeners)	mg/kg	0.09		
DETSC 3311# EPH (C10 - C40): EH_1D_Total	mg/kg	370.0		
DETSC 3301 PAHs	mg/kg	9.3		
DETSC 2008# pH	pH Units	10.3		
DETSC 2073* Acid Neutralisation Capacity (pH4)	mol/kg	< 1.0		
DETSC 2073* Acid Neutralisation Capacity (pH7)	mol/kg	< 1.0		

Test Results On Leachate				
Determinand and Method Reference	Conc in Eluate ug/l		Amount Leached* mg/kg	
	2:1	8:1	LS2	LS10
DETSC 2306 Arsenic as As	2.5	4	0.005	0.037
DETSC 2306 Barium as Ba	48	34	0.1	0.36
DETSC 2306 Cadmium as Cd	0.082	< 0.030	< 0.004	< 0.02
DETSC 2306 Chromium as Cr	4.2	45	< 0.02	0.38
DETSC 2306 Copper as Cu	5	1.7	0.01	0.023
DETSC 2306 Mercury as Hg	0.024	0.032	< 0.0004	< 0.002
DETSC 2306 Molybdenum as Mo	5.9	6.2	< 0.02	< 0.1
DETSC 2306 Nickel as Ni	0.7	< 0.50	< 0.02	< 0.1
DETSC 2306 Lead as Pb	0.28	0.23	< 0.01	< 0.05
DETSC 2306 Antimony as Sb	2.1	2	< 0.01	< 0.05
DETSC 2306 Selenium as Se	0.84	0.56	< 0.006	< 0.03
DETSC 2306 Zinc as Zn	7.9	< 1.3	0.016	0.013
DETSC 2055 Chloride as Cl	21000	7300	42	< 100
DETSC 2055* Fluoride as F	430	810	0.86	7.45
DETSC 2055 Sulphate as SO4	150000	64000	300	786.5
DETSC 2009* Total Dissolved Solids	310000	150000	620	1772.6
DETSC 2130 Phenol Index	< 100	< 100	< 0.2	< 1
DETSC 2085 Dissolved Organic Carbon	2600	2000	< 10	< 50

Additional Information		
DETSC 2008 pH	6.7	7.9
DETSC 2009 Conductivity uS/cm	441.0	214.0
* Temperature*	18.0	18.0

Mass of Sample Kg*	0.130
Mass of dry Sample Kg*	0.117

Stage 1	
Volume of Leachant L2*	0.222
Volume of Eluate VE1*	0.2

Stage 2	
Volume of Leachant L8*	0.939
Volume of Eluate VE2*	0.898

WAC Limit Values		
Inert Waste	SNRHW	Hazardous Waste
3	5	6
n/a	n/a	10
6	n/a	n/a
1	n/a	n/a
500	n/a	n/a
100	n/a	n/a
n/a	>6	n/a
n/a	TBE	TBE
n/a	TBE	TBE

WAC Limit Values		
Limit values for LS10 Leachate		
Inert Waste	SNRHW	Hazardous Waste
0.5	2	25
20	100	300
0.04	1	5
0.5	10	70
2	50	100
0.01	0.2	2
0.5	10	30
0.4	10	40
0.5	10	50
0.06	0.7	5
0.1	0.5	7
4	50	200
800	15,000	25,000
10	150	500
1000	20,000	50,000
4000	60,000	100,000
1	n/a	n/a
500	800	1000

TBE - To Be Evaluated		
SNRHW - Stable Non-Reactive		
Hazardous Waste		

TBE - To Be Evaluated
SNRHW - Stable Non-Reactive
Hazardous Waste

Disclaimer: The WAC limit values are provided for guidance only. DETS does not accept responsibility for errors or omissions. Values are correct at time of issue.

* DETS are accredited for the testing of leachates and not the leachate preparation stage which is unaccredited.

WASTE ACCEPTANCE CRITERIA TESTING ANALYTICAL REPORT

Our Ref 24-09574

Client Ref M3822A

Contract Title Sofidel UK Limited, Brunel Way, Neath

Sample Id BH3 387 0.18-1.20

Sample Numbers 2335310 2335316 2335317

Date Analysed 17/05/2024

Test Results On Waste			WAC Limit Values		
Determinand and Method Reference	Units	Result	Inert Waste	SNRHW	Hazardous Waste
DETSC 2084# Total Organic Carbon	%	4.6	3	5	6
DETSC 2003# Loss On Ignition	%	3.8	n/a	n/a	10
DETSC 3321# BTEX	mg/kg	< 0.04	6	n/a	n/a
DETSC 3401# PCBs (7 congeners)	mg/kg	0.05	1	n/a	n/a
DETSC 3311# EPH (C10 - C40): EH_1D_Total	mg/kg	410.0	500	n/a	n/a
DETSC 3301 PAHs	mg/kg	3.0	100	n/a	n/a
DETSC 2008# pH	pH Units	11.1	n/a	>6	n/a
DETSC 2073* Acid Neutralisation Capacity (pH4)	mol/kg	< 1.0	n/a	TBE	TBE
DETSC 2073* Acid Neutralisation Capacity (pH7)	mol/kg	< 1.0	n/a	TBE	TBE

Test Results On Leachate					WAC Limit Values		
Determinand and Method Reference	Conc in Eluate ug/l		Amount Leached* mg/kg		Limit values for LS10 Leachate		
	2:1	8:1	LS2	LS10	Inert Waste	SNRHW	Hazardous Waste
DETSC 2306 Arsenic as As	8.1	7.3	0.016	0.074	0.5	2	25
DETSC 2306 Barium as Ba	33	31	0.07	0.31	20	100	300
DETSC 2306 Cadmium as Cd	< 0.030	< 0.030	< 0.004	< 0.02	0.04	1	5
DETSC 2306 Chromium as Cr	5.2	36	< 0.02	0.31	0.5	10	70
DETSC 2306 Copper as Cu	14	5.6	0.028	0.071	2	50	100
DETSC 2306 Mercury as Hg	0.13	0.11	< 0.0004	< 0.002	0.01	0.2	2
DETSC 2306 Molybdenum as Mo	20	9	0.04	0.11	0.5	10	30
DETSC 2306 Nickel as Ni	0.56	< 0.50	< 0.02	< 0.1	0.4	10	40
DETSC 2306 Lead as Pb	1.2	0.4	< 0.01	< 0.05	0.5	10	50
DETSC 2306 Antimony as Sb	1.7	1.9	< 0.01	< 0.05	0.06	0.7	5
DETSC 2306 Selenium as Se	1.3	1	< 0.006	< 0.03	0.1	0.5	7
DETSC 2306 Zinc as Zn	< 1.3	< 1.3	< 0.002	< 0.01	4	50	200
DETSC 2055 Chloride as Cl	5000	2200	< 20	< 100	800	15,000	25,000
DETSC 2055* Fluoride as F	540	820	1.08	7.71	10	150	500
DETSC 2055 Sulphate as SO4	63000	33000	126	382.5	1000	20,000	50,000
DETSC 2009* Total Dissolved Solids	150000	120000	300	1252.5	4000	60,000	100,000
DETSC 2130 Phenol Index	< 100	< 100	< 0.2	< 1	1	n/a	n/a
DETSC 2085 Dissolved Organic Carbon	4700	2700	< 10	< 50	500	800	1000

Additional Information		
DETSC 2008 pH	9.5	10.4
DETSC 2009 Conductivity uS/cm	211.0	177.0
* Temperature*	18.0	19.0

Mass of Sample Kg*	0.130
Mass of dry Sample Kg*	0.122

Stage 1

Volume of Leachant L2*	0.235
Volume of Eluate VE1*	0.213

Stage 2

Volume of Leachant L8*	0.974
Volume of Eluate VE2*	0.921

TBE - To Be Evaluated
SNRHW - Stable Non-Reactive
Hazardous Waste

Disclaimer: The WAC limit values are provided for guidance only. DETS does not accept responsibility for errors or omissions. Values are correct at time of issue.

* DETS are accredited for the testing of leachates and not the leachate preparation stage which is unaccredited.

Summary of Asbestos Analysis Soil Samples

Our Ref 24-09574

Client Ref ~ M3822A

Contract Title ~ Sofidel UK Limited, Brunel Way, Neath

Lab No	Sample ID	Material Type	Result	Comment*	Analyst
2335298	M1 334 0.13-0.80	SOIL	Chrysotile Amosite	Bundles of Chrysotile & Amosite fibres	Darryl Fletcher
2335299	M2 330 0.70-1.20	SOIL	NAD	none	Darryl Fletcher
2335300	M3 328 0.14-0.40	SOIL	Chrysotile	Bundles of Chrysotile fibres	Darryl Fletcher
2335301	M4 327 0.13-0.60	SOIL	NAD	none	Darryl Fletcher
2335302	BH1 335 0.13-0.70	SOIL	Chrysotile	Bundles of visible & microscopic Chrysotile fibres	Darryl Fletcher
2335306	BH2 362 0.20-0.40	SOIL	NAD	none	Darryl Fletcher
2335307	BH2 367 2.00-2.45	SOIL	NAD	none	Darryl Fletcher
2335310	BH3 387 0.18-1.20	SOIL	Chrysotile	Bundles of Chrysotile fibres	Darryl Fletcher

Crocidolite = Blue Asbestos, Amosite = Brown Asbestos, Chrysotile = White Asbestos. Anthophyllite, Actinolite and Tremolite are other forms of Asbestos. Samples are analysed by DETSC 1101 using polarised light microscopy in accordance with HSG248 and documented in-house methods. NAD = No Asbestos Detected. Where a sample is NAD, the result is based on analysis of at least 2 sub-samples and should be taken to mean 'no asbestos detected in sample'. Key: * -not included in laboratory scope of accreditation.

Summary of Asbestos Quantification Analysis

Soil Samples

Our Ref 24-09574

Client Ref ~ M3822A

Contract Title ~ Sofidel UK Limited, Brunel Way, Neath

Lab No	2335298	2335300	2335302
Sample ID ~	M1	M3	BH1
Depth ~	0.13-0.80	0.14-0.40	0.13-0.70
Other ID ~	334	328	335
Sample Type ~			
Sampling Date ~	24/04/2024	24/04/2024	24/04/2024
Sampling Time ~			

Test	Method	Units				
Total Mass% Asbestos (a+b+c)	DETSC 1102	Mass %		0.035	0.003	0.034
Gravimetric Quantification (a)	DETSC 1102	Mass %		na	na	0.007
Detailed Gravimetric Quantification (b)	DETSC 1102	Mass %		0.035	0.003	0.027
Quantification by PCOM (c)	DETSC 1102	Mass %		na	na	na
Potentially Respirable Fibres (d)	DETSC 1102	Fibres/g		na	na	na
Breakdown of Gravimetric Analysis (a)						
Mass of Sample		g		788.30	916.16	952.14
ACMs present*		type				Bundles
Mass of ACM in sample		g				0.07
% ACM by mass		%				0.01
% asbestos in ACM		%				100
% asbestos in sample		%				0.007
Breakdown of Detailed Gravimetric Analysis (b)						
% Amphibole bundles in sample		Mass %		<0.001	na	na
% Chrysotile bundles in sample		Mass %		0.034	0.003	0.027
Breakdown of PCOM Analysis (c)						
% Amphibole fibres in sample		Mass %		na	na	na
% Chrysotile fibres in sample		Mass %		na	na	na
Breakdown of Potentially Respirable Fibre Analysis (d)						
Amphibole fibres		Fibres/g		na	na	na
Chrysotile fibres		Fibres/g		na	na	na

* Denotes test or material description outside of UKAS accreditation.
 % asbestos in Asbestos Containing Materials (ACMs) is determined by
 by reference to HSG 264.
 Recommended sample size for quantification is approximately 1kg
 # denotes deviating sample

Summary of Asbestos Quantification Analysis

Soil Samples

Our Ref 24-09574

Client Ref ~ M3822A

Contract Title ~ Sofidel UK Limited, Brunel Way, Neath

Lab No	2335310
Sample ID ~	BH3
Depth ~	0.18-1.20
Other ID ~	387
Sample Type ~	
Sampling Date ~	24/04/2024
Sampling Time ~	

Test	Method	Units	
Total Mass% Asbestos (a+b+c)	DETSC 1102	Mass %	0.003
Gravimetric Quantification (a)	DETSC 1102	Mass %	na
Detailed Gravimetric Quantification (b)	DETSC 1102	Mass %	0.003
Quantification by PCOM (c)	DETSC 1102	Mass %	na
Potentially Respirable Fibres (d)	DETSC 1102	Fibres/g	na

Breakdown of Gravimetric Analysis (a)

Mass of Sample		g	947.52
ACMs present*		type	
Mass of ACM in sample		g	
% ACM by mass		%	
% asbestos in ACM		%	
% asbestos in sample		%	

Breakdown of Detailed Gravimetric Analysis (b)

% Amphibole bundles in sample		Mass %	na
% Chrysotile bundles in sample		Mass %	0.003

Breakdown of PCOM Analysis (c)

% Amphibole fibres in sample		Mass %	na
% Chrysotile fibres in sample		Mass %	na

Breakdown of Potentially Respirable Fibre Analysis (d)

Amphibole fibres		Fibres/g	na
Chrysotile fibres		Fibres/g	na

* Denotes test or material description outside of UKAS accreditation.
 % asbestos in Asbestos Containing Materials (ACMs) is determined by
 by reference to HSG 264.
 Recommended sample size for quantification is approximately 1kg
 # denotes deviating sample

Information in Support of the Analytical Results

Our Ref 24-09574
 Client Ref ~ M3822A
 Contract ~ Sofidel UK Limited, Brunel Way, Neath

Containers Received & Deviating Samples

Lab No	Sample ID ~	Date Sampled ~	Containers Received	Holding time exceeded for tests	Inappropriate container for tests
2335298	M1 0.13-0.80 SOIL	24/04/24	GJ 250ml x2, GJ 60ml x2, PT 1L x2	Aliphatics/Aromatics (14 days), BTEX / C5-C10 (14 days), Naphthalene (14 days), PAH FID (14 days), pH + Conductivity (7 days), Cyanide/Mono pHoh (14 days), EPH/TPH (14 days)	
2335299	M2 0.70-1.20 SOIL	24/04/24	GJ 250ml, GJ 60ml, PT 1L	Aliphatics/Aromatics (14 days), BTEX / C5-C10 (14 days), Naphthalene (14 days), PAH FID (14 days), pH + Conductivity (7 days), Cyanide/Mono pHoh (14 days)	
2335300	M3 0.14-0.40 SOIL	24/04/24	GJ 250ml, GJ 60ml, PT 1L	Aliphatics/Aromatics (14 days), BTEX / C5-C10 (14 days), Naphthalene (14 days), PAH FID (14 days), pH + Conductivity (7 days), Cyanide/Mono pHoh (14 days)	
2335301	M4 0.13-0.60 SOIL	24/04/24	GJ 250ml, GJ 60ml, PT 1L	Aliphatics/Aromatics (14 days), BTEX / C5-C10 (14 days), Naphthalene (14 days), PAH FID (14 days), pH + Conductivity (7 days), Cyanide/Mono pHoh (14 days)	
2335302	BH1 0.13-0.70 SOIL	24/04/24	GJ 250ml, GJ 60ml, PT 1L	Aliphatics/Aromatics (14 days), BTEX / C5-C10 (14 days), Naphthalene (14 days), PAH FID (14 days), pH + Conductivity (7 days), Cyanide/Mono pHoh (14 days)	
2335303	BH1 3.00-3.45 SOIL	24/04/24	PT 1L	pH + Conductivity (7 days)	
2335304	BH1 6.00-6.45 SOIL	24/04/24	PT 1L	pH + Conductivity (7 days)	
2335305	BH1 9.00-9.45 SOIL	24/04/24	PT 1L	Ammonia Aqueous Extract (3 days), Total Sulphur ICP (7 days), pH + Conductivity (7 days)	
2335306	BH2 0.20-0.40 SOIL	24/04/24	GJ 250ml, GJ 60ml, PT 1L	Aliphatics/Aromatics (14 days), BTEX / C5-C10 (14 days), Naphthalene (14 days), PAH FID (14 days), pH + Conductivity (7 days), Cyanide/Mono pHoh (14 days)	
2335307	BH2 2.00-2.45 SOIL	24/04/24	GJ 250ml, GJ 60ml, PT 1L	Aliphatics/Aromatics (14 days), BTEX / C5-C10 (14 days), Naphthalene (14 days), PAH FID (14 days), pH + Conductivity (7 days), Cyanide/Mono pHoh (14 days)	
2335308	BH2 7.50-7.95 SOIL	24/04/24	PT 1L	pH + Conductivity (7 days)	
2335309	BH2 12.00-12.45 SOIL	24/04/24	PT 1L	pH + Conductivity (7 days)	
2335310	BH3 0.18-1.20 SOIL	24/04/24	GJ 250ml x2, GJ 60ml x2, PT 1L x2	Aliphatics/Aromatics (14 days), BTEX / C5-C10 (14 days), Naphthalene (14 days), PAH FID (14 days), pH + Conductivity (7 days), Cyanide/Mono pHoh (14 days), EPH/TPH (14 days)	
2335311	BH3 6.00-6.45 SOIL	24/04/24	PT 1L	pH + Conductivity (7 days)	
2335312	BH3 12.00-12.45 SOIL	24/04/24	PT 1L	pH + Conductivity (7 days)	
2335313	BH3 13.50-13.95 SOIL	24/04/24	PT 1L	Ammonia Aqueous Extract (3 days), Total Sulphur ICP (7 days), pH + Conductivity (7 days)	
2335314	M1 0.13-0.80 LEACHATE	24/04/24	GJ 250ml x2, GJ 60ml x2, PT 1L x2	pH/Cond (1 days), Cyanide/Mono pHoh (14 days)	
2335315	M1 0.13-0.80 LEACHATE	24/04/24	GJ 250ml x2, GJ 60ml x2, PT 1L x2	pH/Cond (1 days), Cyanide/Mono pHoh (14 days)	

Information in Support of the Analytical Results

Our Ref 24-09574
 Client Ref ~ M3822A
 Contract ~ Sofidel UK Limited, Brunel Way, Neath

Contract - Sander UK Limited, Brunel Way, Neath					Inappropriate container for tests
Lab No	Sample ID ~	Date Sampled ~	Containers Received	Holding time exceeded for tests	
2335316	BH3 0.18-1.20 LEACHATE	24/04/24	GJ 250ml x2, GJ 60ml x2, PT 1L x2	pH/Cond (1 days), Cyanide/Mono pHoh (14 days)	
2335317	BH3 0.18-1.20 LEACHATE	24/04/24	GJ 250ml x2, GJ 60ml x2, PT 1L x2	pH/Cond (1 days), Cyanide/Mono pHoh (14 days)	

Key: G-Glass P-Plastic J-Jar T-Tub

DETS cannot be held responsible for the integrity of samples received whereby the laboratory did not undertake the sampling. In this instance samples received may be deviating. Deviating Sample criteria are based on British and International standards and laboratory trials in conjunction with the UKAS note 'Guidance on Deviating Samples'. All samples received are listed above. However, those samples that have additional comments in relation to hold time, inappropriate containers etc are deviating due to the reasons stated. This means that the analysis is accredited where applicable, but results may be compromised due to sample deviations. If no sampled date (soils) or date+time (waters) has been supplied then samples are deviating. However, if you are able to supply a sampled date (and time for waters) this will prevent samples being reported as deviating where specific hold times are not exceeded and where the container supplied is suitable.

Soil Analysis Notes

Inorganic soil analysis was carried out on a dried sample, crushed to pass a 425µm sieve, in accordance with BS1377.

Organic soil analysis was carried out on an 'as received' sample. Organics results are corrected for moisture and expressed on a dry weight basis.

The Loss on Drying, used to express organics analysis on an air dried basis, is carried out at a temperature of 28°C +/-2°C.

Disposal

From the issue date of this test certificate, samples will be held for the following times prior to disposal :-

Soils - 1 month, Liquids - 2 weeks, Asbestos (test portion) - 6 months

Information in Support of the Analytical Results

List of HWOL Acronyms and Operators

Acronym	Description
HS	Headspace analysis
EH	Extractable Hydrocarbons - i.e. everything extracted by the solvent
CU	Clean-up - e.g. by florisil, silica gel
1D	GC - Single coil gas chromatography
2D	GC-GC - Double coil gas chromatography
Total	Aliphatics & Aromatics
AL	Aliphatics only
AR	Aromatics only
#1	EH_2D_Total but with humics mathematically subtracted
#2	EH_2D_Total but with fatty acids mathematically subtracted
_	Operator - underscore to separate acronyms (exception for +)
+	Operator to indicate cumulative eg. EH+HS_Total or EH_CU+HS_Total

Det	Acronym
Aliphatic C5-C6	HS_1D_AL
Aliphatic C6-C8	HS_1D_AL
Aliphatic C8-C10	HS_1D_AL
Aliphatic C10-C12	EH_CU_1D_AL
Aliphatic C12-C16	EH_CU_1D_AL
Aliphatic C16-C21	EH_CU_1D_AL
Aliphatic C21-C35	EH_CU_1D_AL
Aliphatic C35-C44	EH_CU_1D_AL
Aliphatic C10-C44	EH_CU_1D_AL
Aromatic C5-C7	HS_1D_AR
Aromatic C7-C8	HS_1D_AR
Aromatic C8-C10	HS_1D_AR
Aromatic C10-C12	EH_CU_1D_AR
Aromatic C12-C16	EH_CU_1D_AR
Aromatic C16-C21	EH_CU_1D_AR
Aromatic C21-C35	EH_CU_1D_AR
Aromatic C35-C44	EH_CU_1D_AR
Aromatic C10-C44	EH_CU_1D_AR
Ali/Aro C10-C44	EH_CU_1D_Total
TPH (C10-C40)	EH_1D_Total

Key:

~ Sample details are provided by the client and can affect the validity of the results

* -not accredited.

-MCERTS (accreditation only applies if report carries the MCERTS logo).

\$ -subcontracted.

n/s -not supplied.

I/S -insufficient sample.

U/S -unsuitable sample.

t/f -to follow.

nd -not detected.

End of Report



Certificate of Analysis

Certificate Number 24-10688

Issued: 03-Jun-24

Client Sub Surface Laboratories Ltd
3 Peel Street
Preston
Lancashire
PR2 2QS

Our Reference 24-10688

Client Reference ~ M3822A

Order No ~ (not supplied)

Contract Title ~ SOFIDEL UK LTD, BRUNEL WAY, BRITON FERRY, SA11 2HZ

Description 3 River Water samples.

Date Received 24-May-24

Date Started 24-May-24

Date Completed 03-Jun-24

Test Procedures Identified by prefix DETSn (details on request).

Notes Opinions and interpretations are outside the laboratory's scope of ISO 17025 accreditation. This certificate is issued in accordance with the accreditation requirements of the United Kingdom Accreditation Service. The results reported herein relate only to the material supplied to the laboratory. This certificate shall not be reproduced except in full, without the prior written approval of the laboratory.

Approved By



Kirk Bridgewood
General Manager



2139

Normec DETS Limited

Unit 2, Park Road Industrial Estate South, Consett, Co Durham, DH8 5PY

Symbol key at end of report Tel: 01207 582333 • email: info@dets.co.uk • www.dets.co.uk

Page 1 of 6

Summary of Chemical Analysis

Water Samples

Our Ref 24-10688

Client Ref ~ M3822A

Contract Title ~ SOFIDEL UK LTD, BRUNEL WAY, BRITON FERRY, SA11 2HZ

Lab No	2342266	2342267	2342268
Sample ID ~	BH1	BH2	BH3B
Depth ~	4.00	3.90	4.00
Other ID ~	558-560	561-563	564-566
Sample Type ~	Water	Water	Water
Sampling Date ~	22/05/2024	22/05/2024	22/05/2024
Sampling Time ~	1330	1345	1400

Test	Method	LOD	Units			
Metals						
Arsenic, Dissolved	DETSC 2306	0.16	ug/l	6.7	1.8	47
Boron, Dissolved	DETSC 2306*	12	ug/l	230	190	610
Cadmium, Dissolved	DETSC 2306	0.03	ug/l	< 0.03	< 0.03	0.07
Chromium, Dissolved	DETSC 2306	0.25	ug/l	0.33	< 0.25	3.1
Chromium, Hexavalent	DETSC 2203	7	ug/l	< 7.0	< 7.0	< 7.0
Copper, Dissolved	DETSC 2306	0.4	ug/l	< 0.4	< 0.4	13
Lead, Dissolved	DETSC 2306	0.09	ug/l	0.48	0.11	10
Mercury, Dissolved	DETSC 2306	0.01	ug/l	0.08	< 0.01	0.62
Molybdenum, Dissolved	DETSC 2306	1.1	ug/l	91	3.2	84
Nickel, Dissolved	DETSC 2306	0.5	ug/l	2.1	4.3	8.1
Selenium, Dissolved	DETSC 2306	0.25	ug/l	0.91	0.64	8.6
Zinc, Dissolved	DETSC 2306	1.3	ug/l	150	59	210
Inorganics						
pH	DETSC 2008		pH	7.4	7.4	9.2
Cyanide, Total	DETSC 2130	0.04	mg/l	< 0.04	< 0.04	< 0.04
Sulphate as SO4	DETSC 2055	0.1	mg/l	140	34	100
Sulphide	DETSC 2208	0.01	mg/l	0.02	0.02	0.16
Petroleum Hydrocarbons						
Aliphatic C5-C6: HS_1D_AL	DETSC 3322	0.1	ug/l	< 0.1	< 0.1	< 0.1
Aliphatic C6-C8: HS_1D_AL	DETSC 3322	0.1	ug/l	< 0.1	< 0.1	< 0.1
Aliphatic C8-C10: HS_1D_AL	DETSC 3322	0.1	ug/l	< 0.1	< 0.1	< 0.1
Aliphatic C10-C12: EH_CU_1D_AL	DETSC 3072*	1	ug/l	< 1.0	< 1.0	< 1.0
Aliphatic C10-C44: EH_CU_1D_AL	DETSC 3072*	1	ug/l	< 1.0	< 1.0	< 1.0
Aliphatic C12-C16: EH_CU_1D_AL	DETSC 3072*	1	ug/l	< 1.0	< 1.0	< 1.0
Aliphatic C16-C21: EH_CU_1D_AL	DETSC 3072*	1	ug/l	< 1.0	< 1.0	< 1.0
Aliphatic C21-C35: EH_CU_1D_AL	DETSC 3072*	1	ug/l	< 1.0	< 1.0	< 1.0
Aliphatic C35-C44: EH_CU_1D_AL	DETSC 3072*	1	ug/l	< 1.0	< 1.0	< 1.0
Aromatic C5-C7: HS_1D_AR	DETSC 3322	0.1	ug/l	< 0.1	< 0.1	< 0.1
Aromatic C7-C8: HS_1D_AR	DETSC 3322	0.1	ug/l	< 0.1	< 0.1	< 0.1
Aromatic C8-C10: HS_1D_AR	DETSC 3322	0.1	ug/l	< 0.1	< 0.1	< 0.1
Aromatic C10-C12: EH_CU_1D_AR	DETSC 3072*	1	ug/l	< 1.0	< 1.0	< 1.0
Aromatic C12-C16: EH_CU_1D_AR	DETSC 3072*	1	ug/l	< 1.0	< 1.0	< 1.0
Aromatic C16-C21: EH_CU_1D_AR	DETSC 3072*	1	ug/l	< 1.0	< 1.0	< 1.0
Aromatic C21-C35: EH_CU_1D_AR	DETSC 3072*	1	ug/l	< 1.0	< 1.0	< 1.0
Aromatic C35-C44: EH_CU_1D_AR	DETSC 3072*	1	ug/l	< 1.0	< 1.0	< 1.0
Aromatic C10-C44: EH_CU_1D_AR	DETSC 3072*	1	ug/l	< 1.0	< 1.0	< 1.0
Ali/Aro C10-C44: EH_CU_1D_Total	DETSC 3072*	1	ug/l	< 1.0	< 1.0	< 1.0
Benzene	DETSC 3322	1	ug/l	< 1.0	< 1.0	< 1.0
Toluene	DETSC 3322	1	ug/l	< 1.0	< 1.0	< 1.0
Ethylbenzene	DETSC 3322	1	ug/l	< 1.0	< 1.0	< 1.0
m+p Xylene	DETSC 3322	1	ug/l	< 1.0	< 1.0	< 1.0

Summary of Chemical Analysis

Water Samples

Our Ref 24-10688

Client Ref ~ M3822A

Contract Title ~ SOFIDEL UK LTD, BRUNEL WAY, BRITON FERRY, SA11 2HZ

Lab No	2342266	2342267	2342268
Sample ID ~	BH1	BH2	BH3B
Depth ~	4.00	3.90	4.00
Other ID ~	558-560	561-563	564-566
Sample Type ~	Water	Water	Water
Sampling Date ~	22/05/2024	22/05/2024	22/05/2024
Sampling Time ~	1330	1345	1400

Test	Method	LOD	Units			
o Xylene	DETSC 3322	1	ug/l	< 1.0	< 1.0	< 1.0
MTBE	DETSC 3322	1	ug/l	< 1.0	< 1.0	< 1.0
PAHs						
Naphthalene	DETSC 3304	0.05	ug/l	< 0.05	0.12	0.07
Acenaphthylene	DETSC 3304	0.01	ug/l	< 0.01	0.03	0.01
Acenaphthene	DETSC 3304	0.01	ug/l	0.02	0.04	0.05
Fluorene	DETSC 3304	0.01	ug/l	< 0.01	0.05	0.04
Phenanthrene	DETSC 3304	0.01	ug/l	0.09	0.27	0.21
Anthracene	DETSC 3304	0.01	ug/l	< 0.01	0.02	0.04
Fluoranthene	DETSC 3304	0.01	ug/l	0.19	0.26	0.22
Pyrene	DETSC 3304	0.01	ug/l	0.16	0.24	0.16
Benzo(a)anthracene	DETSC 3304*	0.01	ug/l	0.04	0.07	0.07
Chrysene	DETSC 3304	0.01	ug/l	0.03	0.07	0.07
Benzo(b)fluoranthene	DETSC 3304	0.01	ug/l	0.03	0.09	0.09
Benzo(k)fluoranthene	DETSC 3304	0.01	ug/l	0.01	0.04	0.04
Benzo(a)pyrene	DETSC 3304	0.01	ug/l	< 0.01	0.04	0.05
Indeno(1,2,3-c,d)pyrene	DETSC 3304	0.01	ug/l	< 0.01	0.04	0.04
Dibenzo(a,h)anthracene	DETSC 3304	0.01	ug/l	< 0.01	< 0.01	< 0.01
Benzo(g,h,i)perylene	DETSC 3304	0.01	ug/l	< 0.01	0.04	0.04
PAH Total	DETSC 3304	0.2	ug/l	0.57	1.4	1.2
Phenols						
Phenol - Monohydric	DETSC 2130	0.1	mg/l	< 0.1	< 0.1	< 0.1

Information in Support of the Analytical Results

Our Ref 24-10688
 Client Ref ~ M3822A
 Contract ~ SOFIDEL UK LTD, BRUNEL WAY, BRITON FERRY, SA11 2HZ

Containers Received & Deviating Samples

					Inappropriate container for tests
Lab No	Sample ID ~	Date	Containers Received	Holding time exceeded for tests	
		Sampled ~			
2342266	BH1 WATER	22/05/24	GB 1L, GV, PB 1L	pH/Cond (1 days)	
2342267	BH2 WATER	22/05/24	GB 1L, GV, PB 1L	pH/Cond (1 days)	
2342268	BH3 WATER	22/05/24	GB 1L, GV, PB 1L	pH/Cond (1 days)	

Key: G-Glass P-Plastic B-Bottle V-Vial

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Disposal

From the issue date of this test certificate, samples will be held for the following times prior to disposal :-

Soils - 1 month, Liquids - 2 weeks, Asbestos (test portion) - 6 months

Information in Support of the Analytical Results

List of HWOL Acronyms and Operators

Acronym	Description
HS	Headspace analysis
EH	Extractable Hydrocarbons - i.e. everything extracted by the solvent
CU	Clean-up - e.g. by florisil, silica gel
1D	GC - Single coil gas chromatography
2D	GC-GC - Double coil gas chromatography
Total	Aliphatics & Aromatics
AL	Aliphatics only
AR	Aromatics only
#1	EH_2D_Total but with humics mathematically subtracted
#2	EH_2D_Total but with fatty acids mathematically subtracted
_	Operator - underscore to separate acronyms (exception for +)
+	Operator to indicate cumulative eg. EH+HS_Total or EH_CU+HS_Total

Det	Acronym
Aliphatic C5-C6	HS_1D_AL
Aliphatic C6-C8	HS_1D_AL
Aliphatic C8-C10	HS_1D_AL
Aliphatic C10-C12	EH_CU_1D_AL
Aliphatic C10-C44	EH_CU_1D_AL
Aliphatic C12-C16	EH_CU_1D_AL
Aliphatic C16-C21	EH_CU_1D_AL
Aliphatic C21-C35	EH_CU_1D_AL
Aliphatic C35-C44	EH_CU_1D_AL
Aromatic C5-C7	HS_1D_AR
Aromatic C7-C8	HS_1D_AR
Aromatic C8-C10	HS_1D_AR
Aromatic C10-C12	EH_CU_1D_AR
Aromatic C12-C16	EH_CU_1D_AR
Aromatic C16-C21	EH_CU_1D_AR
Aromatic C21-C35	EH_CU_1D_AR
Aromatic C35-C44	EH_CU_1D_AR
Aromatic C10-C44	EH_CU_1D_AR
Ali/Aro C10-C44	EH_CU_1D_Total

Key:

~ Sample details are provided by the client and can affect the validity of the results

* -not accredited.

-MCERTS (accreditation only applies if report carries the MCERTS logo).

\$ -subcontracted.

n/s -not supplied.

I/S -insufficient sample.

U/S -unsuitable sample.

t/f -to follow.

nd -not detected.

End of Report

Certificate of Analysis

Certificate Number 25-03734

Issued: 03-Mar-25

Client Sub Surface Laboratories Ltd
3 Peel Street
Preston
Lancashire
PR2 2QS

Our Reference 25-03734

Client Reference ~ M3822F

Order No ~ (not supplied)

Contract Title ~ Sofidel UK Ltd, Brunel Way, Briton Ferry, SA11 2HZ

Description 3 Groundwater samples.

Date Received 20-Feb-25

Date Started 20-Feb-25

Date Completed 03-Mar-25

Test Procedures Identified by prefix DETSn (details on request).

Notes Opinions and interpretations are outside the laboratory's scope of ISO 17025 accreditation. This certificate is issued in accordance with the accreditation requirements of the United Kingdom Accreditation Service. The results reported herein relate only to the material supplied to the laboratory. This certificate shall not be reproduced except in full, without the prior written approval of the laboratory.

Approved By

A handwritten signature in black ink, appearing to read "Louise".

Louise Cook
Contracts Manager



Summary of Chemical Analysis

Water Samples

Our Ref 25-03734

Client Ref ~ M3822F

Contract Title ~ Sofidel UK Ltd, Brunel Way, Briton Ferry, SA11 2HZ

Lab No	2467318	2467319	2467320
Sample ID ~	R1	R2	R3
Depth ~	4.11	4.01	4.13
Other ID ~	861-863	864-866	867-869
Sample Type ~	GROUND WATER	GROUND WATER	GROUND WATER
Sampling Date ~	18/02/2025	18/02/2025	18/02/2025
Sampling Time ~	1010	1040	1100

Test	Method	LOD	Units			
Metals						
Arsenic, Dissolved	DETSC 2306	0.16	ug/l	14	12	79
Boron, Dissolved	DETSC 2306*	12	ug/l	426.1	229.5	327.2
Cadmium, Dissolved	DETSC 2306	0.03	ug/l	0.07	< 0.03	< 0.03
Chromium, Dissolved	DETSC 2306	0.25	ug/l	0.62	0.42	0.44
Chromium, Hexavalent	DETSC 2203	7	ug/l	< 7.0	< 7.0	< 7.0
Copper, Dissolved	DETSC 2306	0.4	ug/l	2.1	0.7	1.3
Lead, Dissolved	DETSC 2306	0.09	ug/l	0.18	< 0.09	< 0.09
Mercury, Dissolved	DETSC 2306	0.01	ug/l	0.01	< 0.01	0.03
Molybdenum, Dissolved	DETSC 2306	1.1	ug/l	47	10	3.4
Nickel, Dissolved	DETSC 2306	0.5	ug/l	3.4	1.5	1.8
Selenium, Dissolved	DETSC 2306	0.25	ug/l	0.88	2.6	0.35
Zinc, Dissolved	DETSC 2306	1.3	ug/l	88	94	83
Inorganics						
pH	DETSC 2008		pH	7.6	7.6	7.6
Cyanide, Total	DETSC 2130	0.04	mg/l	< 0.04	< 0.04	< 0.04
Sulphate as SO4	DETSC 2055	0.1	mg/l	140	52	36
Sulphide	DETSC 2208	0.01	mg/l	0.01	0.01	0.01
Petroleum Hydrocarbons						
Aliphatic C5-C6: HS_1D_AL	DETSC 3322	0.1	ug/l	< 0.1	< 0.1	< 0.1
Aliphatic C6-C8: HS_1D_AL	DETSC 3322	0.1	ug/l	< 0.1	< 0.1	< 0.1
Aliphatic C8-C10: HS_1D_AL	DETSC 3322	0.1	ug/l	< 0.1	< 0.1	< 0.1
Aliphatic C10-C12: EH_CU_1D_AL	DETSC 3072*	1	ug/l	< 1.0	< 1.0	< 1.0
Aliphatic C10-C44: EH_CU_1D_AL	DETSC 3072*	1	ug/l	20	660	70
Aliphatic C12-C16: EH_CU_1D_AL	DETSC 3072*	1	ug/l	< 1.0	< 1.0	< 1.0
Aliphatic C16-C21: EH_CU_1D_AL	DETSC 3072*	1	ug/l	< 1.0	40	< 1.0
Aliphatic C21-C35: EH_CU_1D_AL	DETSC 3072*	1	ug/l	83	500	58
Aliphatic C35-C44: EH_CU_1D_AL	DETSC 3072*	1	ug/l	83	120	12
Aromatic C5-C7: HS_1D_AR	DETSC 3322	0.1	ug/l	< 0.1	< 0.1	< 0.1
Aromatic C7-C8: HS_1D_AR	DETSC 3322	0.1	ug/l	< 0.1	< 0.1	< 0.1
Aromatic C8-C10: HS_1D_AR	DETSC 3322	0.1	ug/l	< 0.1	< 0.1	< 0.1
Aromatic C10-C12: EH_CU_1D_AR	DETSC 3072*	1	ug/l	< 1.0	< 1.0	< 1.0
Aromatic C12-C16: EH_CU_1D_AR	DETSC 3072*	1	ug/l	< 1.0	9.3	< 1.0
Aromatic C16-C21: EH_CU_1D_AR	DETSC 3072*	1	ug/l	6.1	60	< 1.0
Aromatic C21-C35: EH_CU_1D_AR	DETSC 3072*	1	ug/l	54	350	59
Aromatic C35-C44: EH_CU_1D_AR	DETSC 3072*	1	ug/l	< 1.0	8.9	< 1.0
Aromatic C10-C44: EH_CU_1D_AR	DETSC 3072*	1	ug/l	60	430	59
Ali/Aro C10-C44: EH_CU_1D_Total	DETSC 3072*	1	ug/l	160	1100	130
Benzene	DETSC 3322	1	ug/l	< 1.0	< 1.0	< 1.0
Toluene	DETSC 3322	1	ug/l	< 1.0	< 1.0	< 1.0
Ethylbenzene	DETSC 3322	1	ug/l	< 1.0	< 1.0	< 1.0
m+p Xylene	DETSC 3322	1	ug/l	< 1.0	< 1.0	< 1.0

Summary of Chemical Analysis

Water Samples

Our Ref 25-03734

Client Ref ~ M3822F

Contract Title ~ Sofidel UK Ltd, Brunel Way, Briton Ferry, SA11 2HZ

Lab No	2467318	2467319	2467320
Sample ID ~	R1	R2	R3
Depth ~	4.11	4.01	4.13
Other ID ~	861-863	864-866	867-869
Sample Type ~	GROUND WATER	GROUND WATER	GROUND WATER
Sampling Date ~	18/02/2025	18/02/2025	18/02/2025
Sampling Time ~	1010	1040	1100

Test	Method	LOD	Units			
o Xylene	DETSC 3322	1	ug/l	< 1.0	< 1.0	< 1.0
MTBE	DETSC 3322	1	ug/l	< 1.0	< 1.0	< 1.0
PAHs						
Naphthalene	DETSC 3304	0.05	ug/l	< 0.05	0.30	0.12
Acenaphthylene	DETSC 3304	0.01	ug/l	0.01	0.05	0.03
Acenaphthene	DETSC 3304	0.01	ug/l	< 0.01	0.07	0.02
Fluorene	DETSC 3304	0.01	ug/l	0.02	0.16	0.04
Phenanthrene	DETSC 3304	0.01	ug/l	0.10	0.73	0.24
Anthracene	DETSC 3304	0.01	ug/l	0.04	0.20	0.09
Fluoranthene	DETSC 3304	0.01	ug/l	0.15	0.79	0.27
Pyrene	DETSC 3304	0.01	ug/l	< 0.01	0.61	0.20
Benzo(a)anthracene	DETSC 3304*	0.01	ug/l	0.08	0.43	0.17
Chrysene	DETSC 3304	0.01	ug/l	0.08	0.37	0.13
Benzo(b)fluoranthene	DETSC 3304	0.01	ug/l	0.10	0.52	0.20
Benzo(k)fluoranthene	DETSC 3304	0.01	ug/l	0.04	0.18	0.07
Benzo(a)pyrene	DETSC 3304	0.01	ug/l	0.06	0.41	0.14
Indeno(1,2,3-c,d)pyrene	DETSC 3304	0.01	ug/l	0.03	0.27	0.09
Dibenzo(a,h)anthracene	DETSC 3304	0.01	ug/l	< 0.01	< 0.01	0.02
Benzo(g,h,i)perylene	DETSC 3304	0.01	ug/l	0.04	0.21	0.08
PAH Total	DETSC 3304	0.2	ug/l	0.76	5.3	1.9
Phenols						
Phenol - Monohydric	DETSC 2130	0.1	mg/l	< 0.1	< 0.1	< 0.1

Information in Support of the Analytical Results

Our Ref 25-03734

Client Ref ~ M3822F

Contract ~ Sofidel UK Ltd, Brunel Way, Briton Ferry, SA11 2HZ

Containers Received & Deviating Samples

Lab No	Sample ID ~	Date	Containers Received	Holding time exceeded for tests	Inappropriate container for tests
		Sampled ~			
2467318	R1 4.11 GROUND WATER	18/02/25	GB 1L, GV, PB 1L	pH/Cond (1 days)	
2467319	R2 4.01 GROUND WATER	18/02/25	GB 1L, GV, PB 1L	pH/Cond (1 days)	
2467320	R3 4.13 GROUND WATER	18/02/25	GB 1L, GV, PB 1L	pH/Cond (1 days)	

Key: G-Glass P-Plastic B-Bottle V-Vial

Normec DETS cannot be held responsible for the integrity of samples received whereby the laboratory did not undertake the sampling. In this instance samples received may be deviating. Deviating Sample criteria are based on British and International standards and laboratory trials in conjunction with the UKAS note 'Guidance on Deviating Samples'. All samples received are listed above. However, those samples that have additional comments in relation to hold time, inappropriate containers etc are deviating due to the reasons stated. This means that the analysis is accredited where applicable, but results may be compromised due to sample deviations. If no sampled date (soils) or date+time (waters) has been supplied then samples are deviating. However, if you are able to supply a sampled date (and time for waters) this will prevent samples being reported as deviating where specific hold times are not exceeded and where the container supplied is suitable.

Disposal

From the issue date of this test certificate, samples will be held for the following times prior to disposal :-

Soils - 1 month, Liquids - 2 weeks, Asbestos (test portion) - 6 months

Information in Support of the Analytical Results

List of HWOL Acronyms and Operators

Acronym	Description
HS	Headspace analysis
EH	Extractable Hydrocarbons - i.e. everything extracted by the solvent
CU	Clean-up - e.g. by florisil, silica gel
1D	GC - Single coil gas chromatography
2D	GC-GC - Double coil gas chromatography
Total	Aliphatics & Aromatics
AL	Aliphatics only
AR	Aromatics only
#1	EH_2D_Total but with humics mathematically subtracted
#2	EH_2D_Total but with fatty acids mathematically subtracted
_	Operator - underscore to separate acronyms (exception for +)
+	Operator to indicate cumulative eg. EH+HS_Total or EH_CU+HS_Total

Det	Acronym
Aliphatic C5-C6	HS_1D_AL
Aliphatic C6-C8	HS_1D_AL
Aliphatic C8-C10	HS_1D_AL
Aliphatic C10-C12	EH_CU_1D_AL
Aliphatic C10-C44	EH_CU_1D_AL
Aliphatic C12-C16	EH_CU_1D_AL
Aliphatic C16-C21	EH_CU_1D_AL
Aliphatic C21-C35	EH_CU_1D_AL
Aliphatic C35-C44	EH_CU_1D_AL
Aromatic C5-C7	HS_1D_AR
Aromatic C7-C8	HS_1D_AR
Aromatic C8-C10	HS_1D_AR
Aromatic C10-C12	EH_CU_1D_AR
Aromatic C12-C16	EH_CU_1D_AR
Aromatic C16-C21	EH_CU_1D_AR
Aromatic C21-C35	EH_CU_1D_AR
Aromatic C35-C44	EH_CU_1D_AR
Aromatic C10-C44	EH_CU_1D_AR
Ali/Aro C10-C44	EH_CU_1D_Total

Key:

~ Sample details are provided by the client and can affect the validity of the results

* -not accredited.

-MCERTS (accreditation only applies if report carries the MCERTS logo).

\$ -subcontracted.

n/s -not supplied.

I/S -insufficient sample.

U/S -unsuitable sample.

t/f -to follow.

nd -not detected.

End of Report

Certificate of Analysis

Certificate Number 25-04958

Issued: 12-Mar-25

Client Sub Surface Laboratories Ltd
3 Peel Street
Preston
Lancashire
PR2 2QS

Our Reference 25-04958

Client Reference ~ M3822F

Order No ~ (not supplied)

Contract Title ~ SOFIDEL UK LTD, BRUNEL WAY, BRISTON FERRY, SA11 2HZ

Description 3 Water samples.

Date Received 06-Mar-25

Date Started 06-Mar-25

Date Completed 12-Mar-25

Test Procedures Identified by prefix DETSn (details on request).

Notes Opinions and interpretations are outside the laboratory's scope of ISO 17025 accreditation. This certificate is issued in accordance with the accreditation requirements of the United Kingdom Accreditation Service. The results reported herein relate only to the material supplied to the laboratory. This certificate shall not be reproduced except in full, without the prior written approval of the laboratory.

Approved By

A handwritten signature in black ink, appearing to read "JCoffey".

John Coffey
Quality Manager



Summary of Chemical Analysis

Water Samples

Our Ref 25-04958

Client Ref ~ M3822F

Contract Title ~ SOFIDEL UK LTD, BRUNEL WAY, BRISTON FERRY, SA11 2HZ

Lab No	2474565	2474566	2474567
Sample ID ~	R1	R2	R3
Depth ~	3.92	3.89	4.06
Other ID ~	900-902	903-905	906-908
Sample Type ~	WATER	WATER	WATER
Sampling Date ~	04/03/2025	04/03/2025	04/03/2025
Sampling Time ~	0810	0840	0915

Test	Method	LOD	Units			
Metals						
Arsenic, Dissolved	DETSC 2306	0.16	ug/l	33	28	56
Boron, Dissolved	DETSC 2306*	12	ug/l	361.6	224.8	326.9
Cadmium, Dissolved	DETSC 2306	0.03	ug/l	< 0.03	0.08	< 0.03
Chromium, Dissolved	DETSC 2306	0.25	ug/l	< 0.25	0.49	0.28
Chromium, Hexavalent	DETSC 2203	7	ug/l	< 7.0	< 7.0	< 7.0
Copper, Dissolved	DETSC 2306	0.4	ug/l	2.5	2.5	0.8
Lead, Dissolved	DETSC 2306	0.09	ug/l	0.17	0.12	< 0.09
Mercury, Dissolved	DETSC 2306	0.01	ug/l	0.04	0.02	0.02
Molybdenum, Dissolved	DETSC 2306	1.1	ug/l	16	11	2.1
Nickel, Dissolved	DETSC 2306	0.5	ug/l	3.5	1.9	1.4
Selenium, Dissolved	DETSC 2306	0.25	ug/l	< 0.25	1.8	< 0.25
Zinc, Dissolved	DETSC 2306	1.3	ug/l	47	30	86
Inorganics						
pH	DETSC 2008		pH	7.6	7.9	7.7
Cyanide, Total	DETSC 2130	0.04	mg/l	< 0.04	< 0.04	< 0.04
Sulphate as SO4	DETSC 2055	0.1	mg/l	75	64	47
Sulphide	DETSC 2208	0.01	mg/l	0.02	0.02	0.02
Petroleum Hydrocarbons						
Aliphatic C5-C6: HS_1D_AL	DETSC 3322	0.1	ug/l	< 0.1	< 0.1	< 0.1
Aliphatic C6-C8: HS_1D_AL	DETSC 3322	0.1	ug/l	< 0.1	< 0.1	< 0.1
Aliphatic C8-C10: HS_1D_AL	DETSC 3322	0.1	ug/l	< 0.1	< 0.1	< 0.1
Aliphatic C10-C12: EH_CU_1D_AL	DETSC 3072*	1	ug/l	< 1.0	< 1.0	< 1.0
Aliphatic C10-C44: EH_CU_1D_AL	DETSC 3072*	1	ug/l	< 1.0	< 1.0	27
Aliphatic C12-C16: EH_CU_1D_AL	DETSC 3072*	1	ug/l	< 1.0	< 1.0	< 1.0
Aliphatic C16-C21: EH_CU_1D_AL	DETSC 3072*	1	ug/l	< 1.0	< 1.0	7.0
Aliphatic C21-C35: EH_CU_1D_AL	DETSC 3072*	1	ug/l	< 1.0	< 1.0	20
Aliphatic C35-C44: EH_CU_1D_AL	DETSC 3072*	1	ug/l	< 1.0	< 1.0	< 1.0
Aromatic C5-C7: HS_1D_AR	DETSC 3322	0.1	ug/l	< 0.1	< 0.1	< 0.1
Aromatic C7-C8: HS_1D_AR	DETSC 3322	0.1	ug/l	< 0.1	< 0.1	< 0.1
Aromatic C8-C10: HS_1D_AR	DETSC 3322	0.1	ug/l	< 0.1	< 0.1	< 0.1
Aromatic C10-C12: EH_CU_1D_AR	DETSC 3072*	1	ug/l	< 1.0	< 1.0	< 1.0
Aromatic C12-C16: EH_CU_1D_AR	DETSC 3072*	1	ug/l	< 1.0	< 1.0	< 1.0
Aromatic C16-C21: EH_CU_1D_AR	DETSC 3072*	1	ug/l	< 1.0	< 1.0	< 1.0
Aromatic C21-C35: EH_CU_1D_AR	DETSC 3072*	1	ug/l	< 1.0	< 1.0	< 1.0
Aromatic C35-C44: EH_CU_1D_AR	DETSC 3072*	1	ug/l	< 1.0	< 1.0	< 1.0
Aromatic C10-C44: EH_CU_1D_AR	DETSC 3072*	1	ug/l	< 1.0	< 1.0	< 1.0
Ali/Aro C10-C44: EH_CU_1D_Total	DETSC 3072*	1	ug/l	< 1.0	< 1.0	27
Benzene	DETSC 3322	1	ug/l	< 1.0	< 1.0	< 1.0
Toluene	DETSC 3322	1	ug/l	< 1.0	< 1.0	< 1.0
Ethylbenzene	DETSC 3322	1	ug/l	< 1.0	< 1.0	< 1.0
m+p Xylene	DETSC 3322	1	ug/l	< 1.0	< 1.0	< 1.0

Summary of Chemical Analysis

Water Samples

Our Ref 25-04958

Client Ref ~ M3822F

Contract Title ~ SOFIDEL UK LTD, BRUNEL WAY, BRISTON FERRY, SA11 2HZ

Lab No	2474565	2474566	2474567
Sample ID ~	R1	R2	R3
Depth ~	3.92	3.89	4.06
Other ID ~	900-902	903-905	906-908
Sample Type ~	WATER	WATER	WATER
Sampling Date ~	04/03/2025	04/03/2025	04/03/2025
Sampling Time ~	0810	0840	0915

Test	Method	LOD	Units			
o Xylene	DETSC 3322	1	ug/l	< 1.0	< 1.0	< 1.0
MTBE	DETSC 3322	1	ug/l	< 1.0	< 1.0	< 1.0
PAHs						
Naphthalene	DETSC 3304	0.05	ug/l	< 0.25	< 0.05	< 0.50
Acenaphthylene	DETSC 3304	0.01	ug/l	< 0.05	< 0.01	< 0.10
Acenaphthene	DETSC 3304	0.01	ug/l	< 0.05	< 0.01	< 0.10
Fluorene	DETSC 3304	0.01	ug/l	0.08	0.01	0.13
Phenanthrene	DETSC 3304	0.01	ug/l	0.42	0.09	0.90
Anthracene	DETSC 3304	0.01	ug/l	0.14	< 0.01	0.30
Fluoranthene	DETSC 3304	0.01	ug/l	0.64	0.11	1.6
Pyrene	DETSC 3304	0.01	ug/l	0.50	< 0.01	1.3
Benzo(a)anthracene	DETSC 3304*	0.01	ug/l	0.32	0.06	0.72
Chrysene	DETSC 3304	0.01	ug/l	0.28	0.05	0.65
Benzo(b)fluoranthene	DETSC 3304	0.01	ug/l	0.45	0.08	0.79
Benzo(k)fluoranthene	DETSC 3304	0.01	ug/l	0.20	0.03	0.37
Benzo(a)pyrene	DETSC 3304	0.01	ug/l	0.33	0.06	0.55
Indeno(1,2,3-c,d)pyrene	DETSC 3304	0.01	ug/l	0.18	0.03	0.22
Dibenzo(a,h)anthracene	DETSC 3304	0.01	ug/l	< 0.05	< 0.01	< 0.10
Benzo(g,h,i)perylene	DETSC 3304	0.01	ug/l	< 0.05	0.03	0.33
PAH Total	DETSC 3304	0.2	ug/l	3.5	0.55	7.9
Phenols						
Phenol - Monohydric	DETSC 2130	0.1	mg/l	< 0.1	< 0.1	< 0.1

Information in Support of the Analytical Results

Our Ref 25-04958

Client Ref ~ M3822F

Contract ~ SOFIDEL UK LTD, BRUNEL WAY, BRISTON FERRY, SA11 2HZ

Containers Received & Deviating Samples

Lab No	Sample ID ~	Date	Containers Received	Holding time exceeded for tests	Inappropriate container for tests
		Sampled ~			
2474565	R1 3.92 WATER	04/03/25	GB 1L, GV, PB 1L	pH/Cond (1 days)	
2474566	R2 3.89 WATER	04/03/25	GB 1L, GV, PB 1L	pH/Cond (1 days)	
2474567	R3 4.06 WATER	04/03/25	GB 1L, GV, PB 1L	pH/Cond (1 days)	

Key: G-Glass P-Plastic B-Bottle V-Vial

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Disposal

From the issue date of this test certificate, samples will be held for the following times prior to disposal :-

Soils - 1 month, Liquids - 2 weeks, Asbestos (test portion) - 6 months

Information in Support of the Analytical Results

List of HWOL Acronyms and Operators

Acronym	Description
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1D	GC - Single coil gas chromatography
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Total	Aliphatics & Aromatics
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#1	EH_2D_Total but with humics mathematically subtracted
#2	EH_2D_Total but with fatty acids mathematically subtracted
_	Operator - underscore to separate acronyms (exception for +)
+	Operator to indicate cumulative eg. EH+HS_Total or EH_CU+HS_Total

Det	Acronym
Aliphatic C5-C6	HS_1D_AL
Aliphatic C6-C8	HS_1D_AL
Aliphatic C8-C10	HS_1D_AL
Aliphatic C10-C12	EH_CU_1D_AL
Aliphatic C10-C44	EH_CU_1D_AL
Aliphatic C12-C16	EH_CU_1D_AL
Aliphatic C16-C21	EH_CU_1D_AL
Aliphatic C21-C35	EH_CU_1D_AL
Aliphatic C35-C44	EH_CU_1D_AL
Aromatic C5-C7	HS_1D_AR
Aromatic C7-C8	HS_1D_AR
Aromatic C8-C10	HS_1D_AR
Aromatic C10-C12	EH_CU_1D_AR
Aromatic C12-C16	EH_CU_1D_AR
Aromatic C16-C21	EH_CU_1D_AR
Aromatic C21-C35	EH_CU_1D_AR
Aromatic C35-C44	EH_CU_1D_AR
Aromatic C10-C44	EH_CU_1D_AR
Ali/Aro C10-C44	EH_CU_1D_Total

Key:

~ Sample details are provided by the client and can affect the validity of the results

* -not accredited.

-MCERTS (accreditation only applies if report carries the MCERTS logo).

\$ -subcontracted.

n/s -not supplied.

I/S -insufficient sample.

U/S -unsuitable sample.

t/f -to follow.

nd -not detected.

End of Report

BOREHOLE RECORD SHEETS

S SUB SURFACE SITE INVESTIGATION, GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS 3 Peel Street, Preston, PR2 2QS. Tel. (01772) 561135 Fax (01772) 204907 Site SOFIDEL UK LIMITED, BRUNEL WAY, BAGLAN ENERGY PARK, BRITON FERRY, SA11 2HZ Borehole Number BH1										
Boring Method CABLE PERCUSSIVE BOREHOLE		Casing Diameter 200mm cased to 10.50m 150mm cased to 14.90m		Ground Level (mOD) 7.64		Client VITAL ENERGI		Job Number M3822A		
		Location As Shown on Figure 3.		Dates 16/04/2024-18/04/2024		Architect BRADSHAW GASS & HOPE		Sheet 1/2		
Depth (m)	Sample / Tests	Casing Depth (m)	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water	Instr
0.13-0.70	B			16/04/2024:DRY	7.51	(0.13)	MADE GROUND: bituminous macadam surfacing.			
				17/04/2024:DRY						
0.70-1.20	B						MADE GROUND: black ashy gravelly fine to coarse sand, with low sandstone and slag cobble content and with occasional wood fragments. Gravel sized fragments are fine to coarse slag, clinker and sandstone.			
1.20-1.65 1.20-1.65 1.20-1.65	SPT N=22 B D			5,3/4,5,6,7		(2.87)	...below 1.20m no cobbles.			
2.00-2.31 2.00-2.31 2.00-2.45	SPT 25*/100 50/210 D B			16,9/15,17,18			...below 2.45m no wood fragments.			
2.80	D				4.64	3.00	Dense dark brown gravelly slightly silty medium SAND. Gravel is subangular to rounded fine to medium sandstone and siltstone.			
3.00-3.45 3.00-3.45 3.00-3.45	SPT N=43 B D			3,6/7,8,14,14		(1.00)				
4.00-4.45 4.00-4.45 4.00-4.45	SPT N=34 B D			3,4/6,8,8,12	3.64	4.00	Dense becoming medium dense greyish brown slightly gravelly slightly silty medium SAND with occasional shell fragments. Gravel is angular to subrounded fine sandstone and siltstone. ...below 4.45m no clay.			
5.00-5.45 5.00-5.45 5.00-5.45	SPT(C) N=28 B D			3,4/4,6,8,10		(2.00)	...below 5.00m: medium dense			
6.00-6.45 6.00-6.45 6.00-6.45	SPT(C) N=30 B D			3,3/4,6,8,12	1.64	6.00	Medium dense becoming very dense greyish brown slightly silty fine to medium SAND with occasional shell fragments.			
7.50-7.95 7.50-7.95 7.50-7.95	SPT(C) N=14 B D			2,1/2,3,3,6						
9.00-9.45 9.00-9.45 9.00-9.45	SPT(C) N=11 B D			2,1/2,3,3,3						
				17/04/2024:5.00m						
				18/04/2024:3.70m						
Remarks Hand excavated inspection pit to 1.20m to check for services - 1 hour. Water added below 1.20m to assist drilling, probably masking water entries. On completion backfilled with arisings to 5.00m then installed a 50mm hdpe monitoring standpipe with a gas valve, with a gravel surround from 5.00m to 1.00m, a bentonite seal from 1.00m to 0.20m and a concreted in protective steel cover from 0.20m to 0.00m.								Scale (approx) 1:50	Logged By TE/DJ	Figure No. M3822A.BH1
Logged in accordance BS5930:1999 A2										



SOFIDEL UK LIMITED, BRUNEL WAY, BAGLAN ENERGY
PARK, BRITON FERRY, SA11 2HZ

S S SUB SURFACE SITE INVESTIGATION, GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS 3 Peel Street, Preston, PR2 2QS. Tel. (01772) 561135 Fax (01772) 204907					Site SOFIDEL UK LIMITED, BRUNEL WAY, BAGLAN ENERGY PARK, BRITON FERRY, SA11 2HZ		Borehole Number BH2			
Boring Method CABLE PERCUSSIVE BOREHOLE		Casing Diameter 150mm cased to 14.90m		Ground Level (mOD) 7.57		Client VITAL ENERGI		Job Number M3822A		
		Location As Shown on Figure 3.		Dates 18/04/2024-19/04/2024		Architect BRADSHAW GASS & HOPE		Sheet 1/2		
Depth (m)	Sample / Tests	Casing Depth (m)	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water	Instr
0.15-0.20 0.20-0.40 0.40-1.20	B B B				7.42 7.37	(0.15) 0.15 0.20	MADE GROUND: bituminous macadam surfacing. MADE GROUND: black ashy gravelly fine to coarse sand, with with occasional plastic fragments. Gravel sized fragments are fine to coarse stone and clinker. MADE GROUND: dark brown ashy gravelly silty fine to coarse sand with occasional shell fragments. Gravel sized fragments are fine to coarse quartz slag, and stone.			
1.20-1.65 1.20-1.65 1.20-1.65	SPT(C) N=28 B D			3,4/7,7,7,7						
2.00-2.31 2.00-2.45 2.00-2.45	SPT(C) 6*/100 20/210 B D			3,3/4,4,5,7		(3.80)				
3.00-3.45 3.00-3.45 3.00-3.45	SPT(C) N=24 B D			2,2/4,5,6,9						
4.00-4.45 4.00-4.45 4.00-4.45	SPT(C) N=20 B D			2,3/4,5,5,6	3.57	4.00 (1.00)	Medium dense dark brown gravelly silty medium SAND. Gravel is subangular to rounded fine to coarse sandstone and quartz.			
5.00-5.45 5.00-5.45 5.00-5.45	SPT(C) N=12 B D			2,2/3,3,3,3	2.57	5.00	Medium dense locally loose greyish brown slightly gravelly silty fine to medium SAND with occasional shell fragments. Gravel is subangular to subrounded fine to medium sandstone and quartz.			
6.00-6.45 6.00-6.45	SPT(C) N=5 D			2,1/1,1,1,2			...between 6.00m and 9.00m: loose			
7.00	B			18/04/2024:4.00m 19/04/2024:3.70m						
7.50-7.95 7.50-7.95 7.50-7.95	SPT(C) N=8 B D			1,1/1,1,3,3		(5.50)				
9.00-9.45 9.00-9.45 9.00-9.45	SPT(C) N=18 B D			2,2/4,4,4,6						
Remarks Hand excavated inspection pit to 1.20m to check for services - 1 hour Water added below 1.20m to assist drilling, probably masking water entries. On completion backfilled with arisings to 5.00m then installed a 50mm hdpe monitoring standpipe with a gas valve, with a gravel surround from 5.00m to 1.00m, a bentonite seal from 1.00m to 0.20m and a concreted in protective steel cover from 0.20m to 0.00m.								Scale (approx) 1:50	Logged By TE/DJ	
								Figure No. M3822A.BH1		
Logged in accordance BS5930:1999 A2										

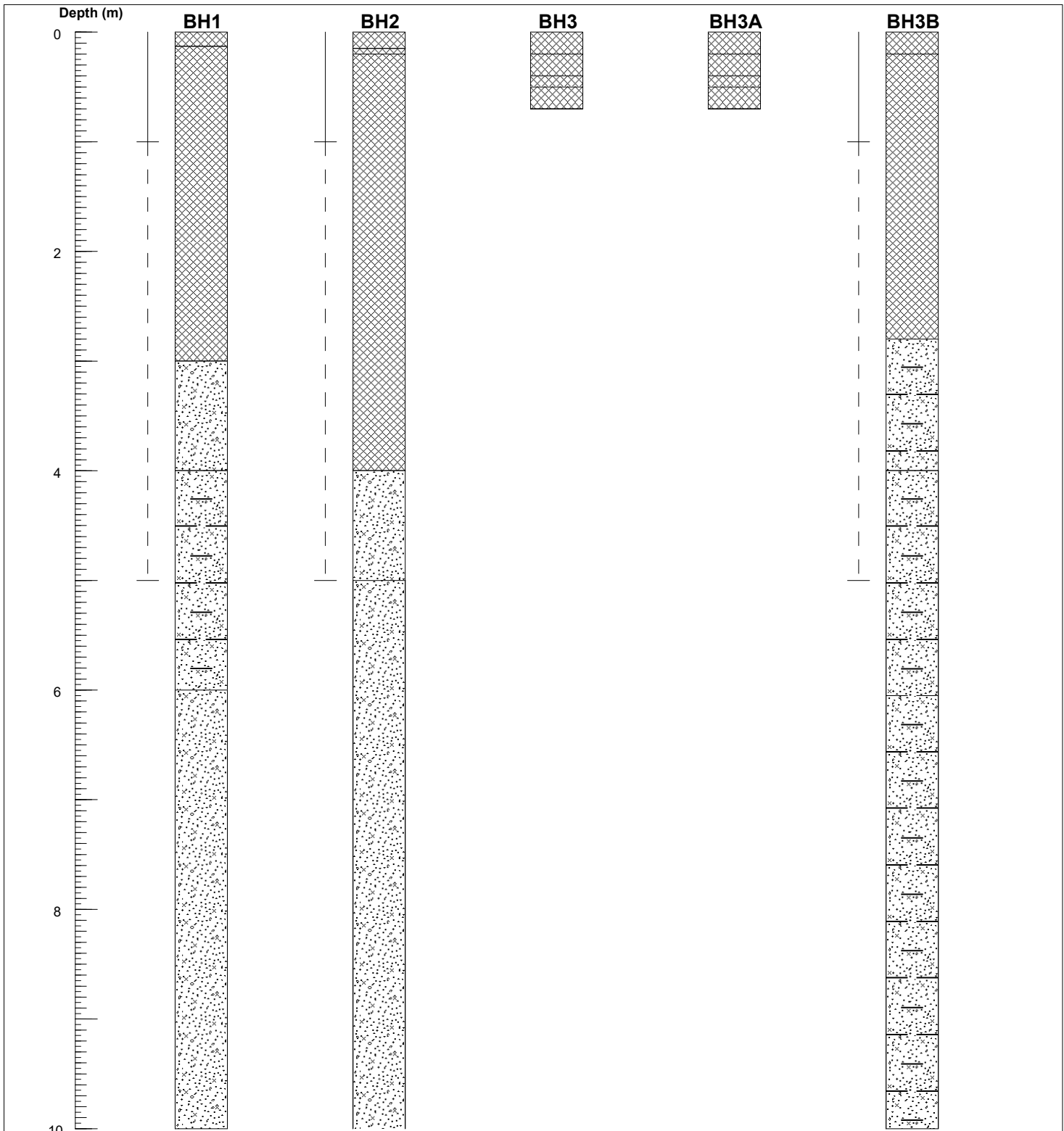
S S SUB SURFACE SITE INVESTIGATION, GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS 3 Peel Street, Preston, PR2 2QS. Tel. (01772) 561135 Fax (01772) 204907					Site SOFIDEL UK LIMITED, BRUNEL WAY, BAGLAN ENERGY PARK, BRITON FERRY, SA11 2HZ			Borehole Number BH2		
Boring Method CABLE PERCUSSIVE BOREHOLE		Casing Diameter 150mm cased to 14.90m			Ground Level (mOD) 7.57		Client VITAL ENERGI		Job Number M3822A	
		Location As Shown on Figure 3.			Dates 18/04/2024-19/04/2024		Architect BRADSHAW GASS & HOPE		Sheet 2/2	
Depth (m)	Sample / Tests	Casing Depth (m)	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water	Instr
10.50-10.95 10.50-10.95 10.50-10.95	SPT(C) N=14 B D			2,2/3,3,4,4	-2.93	10.50	Medium dense dark brown gravelly very silty fine to medium SAND. Gravel is subangular to rounded fine to coarse sandstone and quartz.			
12.00-12.40 12.00-12.40 12.00-12.45	SPT(C) 50/245 D B			8,8/8,17,19,6		(4.65)	Medium dense becoming very dense dark brown slightly gravelly slightly clayey slightly silty fine to medium SAND with occasional shell fragments and pockets of organic silt. Gravel is subangular to subrounded fine to medium sandstone and quartz. ...below 10.95m no organic silt.			
12.00-12.40 12.00-12.40 12.00-12.45	SPT(C) 50/245 D B			8,8/8,17,19,6		(4.65)	...below 12.15 very dense.			
13.50-13.74 13.50-13.74 13.50-13.95	SPT(C) 25*/125 50/115 D B			15,10/25,25			...below 13.95 no shell fragments			
13.50-13.74 13.50-13.74 13.50-13.95	SPT(C) 25*/125 50/115 D B			15,10/25,25			...below 13.95 no shell fragments			
15.00-15.15 15.00-15.15	SPT(C) 25*/105 50/40 D			19,6/50 19/04/2024:2.00m	-7.58	15.15	Complete at 15.15m			
Remarks								Scale (approx)	Logged By	
								1:50	TE/DJ	
								Figure No. M3822A.BH1		
Logged in accordance BS5930:1999 A2										

 SUB SURFACE SITE INVESTIGATION, GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS 3 Peel Street, Preston, PR2 2QS. Tel. (01772) 561135 Fax (01772) 204907						Site SOFIDEL UK LIMITED, BRUNEL WAY, BAGLAN ENERGY PARK, BRITON FERRY, SA11 2HZ		Borehole Number BH3	
Boring Method CABLE PERCUSSIVE BOREHOLE		Casing Diameter		Ground Level (mOD) 7.66		Client VITAL ENERGI		Job Number M3822A	
		Location As Shown on Figure 3		Dates 22/04/2024		Architect BRADSHAW GASS & HOPE		Sheet 1/1	
Depth (m)	Sample / Tests	Casing Depth (m)	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
					7.46	(0.20)	MADE GROUND: Bituminous macadam surfacing.		
					7.26	(0.20)	MADE GROUND: fragments of slag and ash (driller's description).		
					7.16	(0.40)			
					6.96	(0.50)	MADE GROUND: brown sand (driller's description).		
						(0.20)	MADE GROUND: slag (driller's description). ...at 0.70m obstruction.		
						0.70	Complete at 0.70m		
Remarks Hand excavated inspection pit to 1.20m to check for services - 1 hour Chiselling from 0.50m to 0.70m - 1 hour. Borehole terminated on an obstruction at 0.70m - location was moved over and re-drilled as BH3A.								Scale (approx) 1:50	Logged By TE/DJ
Logged in accordance BS5930:1999 A2								Figure No. M3822A.BH3	

 SUB SURFACE SITE INVESTIGATION, GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS 3 Peel Street, Preston, PR2 2QS. Tel. (01772) 561135 Fax (01772) 204907						Site SOFIDEL UK LIMITED, BRUNEL WAY, BAGLAN ENERGY PARK, BRITON FERRY, SA11 2HZ			Borehole Number BH3A	
Boring Method CABLE PERCUSSIVE BOREHOLE		Casing Diameter		Ground Level (mOD) 7.68		Client VITAL ENERGI		Job Number M3822A		
		Location As Shown on Figure 3		Dates 22/04/2024		Architect BRADSHAW GASS & HOPE		Sheet 1/1		
Depth (m)	Sample / Tests	Casing Depth (m)	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water	
					7.48 7.28 7.18 6.98	(0.20) (0.20) (0.40) (0.50) (0.20) 0.70	MADE GROUND: Bituminous macadam surfacing. MADE GROUND: fragments of slag and ash (driller's description). MADE GROUND: brown sand (driller's description). MADE GROUND: slag (driller's description). ...at 0.70m obstruction. Complete at 0.70m			
Remarks Hand excavated inspection pit to 1.20m to check for services - 1 hour Chiselling from 0.50m to 0.70m - 1 hour. Borehole terminated on an obstruction at 0.70m - location was moved over and re-drilled as BH3B.								Scale (approx) 1:50	Logged By TE/DJ	
Logged in accordance BS5930:1999 A2								Figure No. M3822A.BH3A		

S SUB SURFACE SITE INVESTIGATION, GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS 3 Peel Street, Preston, PR2 2QS. Tel. (01772) 561135 Fax (01772) 204907 Site SOFIDEL UK LIMITED, BRUNEL WAY, BAGLAN ENERGY PARK, BRITON FERRY, SA11 2HZ Borehole Number BH3B										
Boring Method CABLE PERCUSSIVE BOREHOLE		Casing Diameter 200mm cased to 5.00m 150mm cased to 14.90m		Ground Level (mOD) 7.66		Client VITAL ENERGI		Job Number M3822A		
		Location As Shown on Figure 3.		Dates 22/04/2024-23/04/2024		Architect BRADSHAW GASS & HOPE		Sheet 1/2		
Depth (m)	Sample / Tests	Casing Depth (m)	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water	Instr
0.18-1.20	B				7.46	(0.20) 0.20	MADE GROUND: bituminous macadam surfacing.			
1.20-1.50	SPT(C) 25*/145			10,15/20,25,5		(2.60)	MADE GROUND: black ashy slightly sandy fine to coarse gravel sized fragments of stone, clinker, slag, and brick with low sandstone cobble content. ...at 0.60m: pushing on obstruction			
1.20-1.50	50/150									
1.20-1.65	D			22/04/2024:DRY						
2.00-2.28	SPT(C) 25*/130			23/04/2024:DRY						
2.00-2.45	50/145			10,15/23,27						
2.00-2.45	B									
2.80	D				4.86	2.80	Loose dark brown slightly gravelly slightly silty medium SAND with occasional shell fragments. Gravel is subangular to rounded fine to coarse sandstone and quartz.			
3.00-3.45	SPT(C) N=9			1,2/1,2,3,3		(1.20)				
3.00-3.45	B									
3.00-3.45	D									
4.00-4.45	SPT(C) N=29			4,5/6,6,8,9	3.66	4.00	Medium dense locally dense becoming very dense greyish brown slightly gravelly silty fine to medium SAND with occasional shell fragments. Gravel is subangular to sub rounded fine to medium sandstone, siltstone and quartz.			
4.00-4.45	B									
4.00-4.45	D									
5.00-5.45	SPT(C) N=10			1,2/2,2,2,4						
5.00-5.45	B									
5.00-5.45	D									
6.00-6.45	SPT(C) N=24			3,3/4,5,6,9						
6.00-6.45	B									
6.00-6.45	D									
7.50-7.95	SPT(C) N=43			3,4/6,7,14,16			...at 7.50m: dense			
7.50-7.95	B									
7.50-7.95	D									
9.00-9.45	SPT(C) N=21			2,2/3,4,6,8		(11.08)				
9.00-9.45	B									
9.00-9.45	D									
Remarks Hand excavated inspection pit to 1.20m to check for services - 1 hour Water added below 1.60m to assist drilling, probably masking water entries. On completion backfilled with arisings to 5.00m then installed a 50mm hdpe monitoring standpipe with a gas valve, with a gravel surround from 5.00m to 1.00m, a bentonite seal from 1.00m to 0.20m and a concreted in protective steel cover from 0.20m to 0.00m.								Scale (approx) 1:50	Logged By TE/DJ	Figure No. M3822A.BH1
Logged in accordance BS5930:1999 A2										

S SUB SURFACE SITE INVESTIGATION, GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS 3 Peel Street, Preston, PR2 2QS. Tel. (01772) 561135 Fax (01772) 204907 Site SOFIDEL UK LIMITED, BRUNEL WAY, BAGLAN ENERGY PARK, BRITON FERRY, SA11 2HZ Borehole Number BH3B											
Boring Method CABLE PERCUSSIVE BOREHOLE		Casing Diameter 200mm cased to 5.00m 150mm cased to 14.90m			Ground Level (mOD) 7.66		Client VITAL ENERGI			Job Number M3822A	
		Location As Shown on Figure 3.			Dates 22/04/2024-23/04/2024		Architect BRADSHAW GASS & HOPE			Sheet 2/2	
Depth (m)	Sample / Tests	Casing Depth (m)	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water	Instr	
10.00	D						Medium dense locally dense becoming very dense greyish brown slightly gravelly silty fine to medium SAND with occasional shell fragments. Gravel is subangular to sub rounded fine to medium sandstone, siltstone and quartz.				
10.50-10.95 10.50-10.95 10.50-10.95	SPT(C) N=22 B D			1,1/3,4,5,10							
12.00-12.45 12.00-12.45 12.00-12.45	SPT(C) N=17 B D			1,2/3,4,4,6							
13.50-13.60 13.50-13.60 13.50-13.90	SPT(C) 25*/45 50/50 D B			25/50			...below 13.5m very dense.				
15.00-15.08 15.00-15.08	SPT(C) 25*/40 50/40 D			25/50 23/04/2024:3.00m	-7.42	15.08	Complete at 15.08m				
Remarks								Scale (approx) 1:50	Logged By TE/DJ		
								Figure No. M3822A.BH1			
Logged in accordance BS5930:1999 A2											



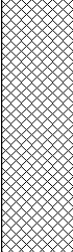
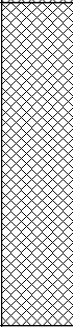
Key	
	Groundwater Strike
	Strike Rise Level
	Highest recorded piezo level
	Piezometer Tip
	Slotted Standpipe
	MADE GROUND
	Clayey silty gravelly SAND
	Silty gravelly SAND

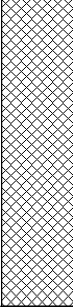
S SUB SURFACE
 SITE INVESTIGATION SPECIALISTS, GEOTECHNICAL & ENVIRONMENTAL CONSULTANTS
 3 Peel Street, Preston, Lancashire, PR2 2QS. Tel: (01772) 561135 Fax: (01772) 204907

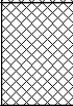
Nominal Section

Site SOFIDEL UK LIMITED, BRUNEL WAY, BAGLAN ENERGY PARK, BRITON FERRY, SA11 2HZ	Date Drawn 31/05/2024	Date Checked	Sheet 1/1	Job Number M3822A
Client VITAL ENERGI	Drawn By	Checked By	Scale 1:50[V]	Figure No. M3822A.1

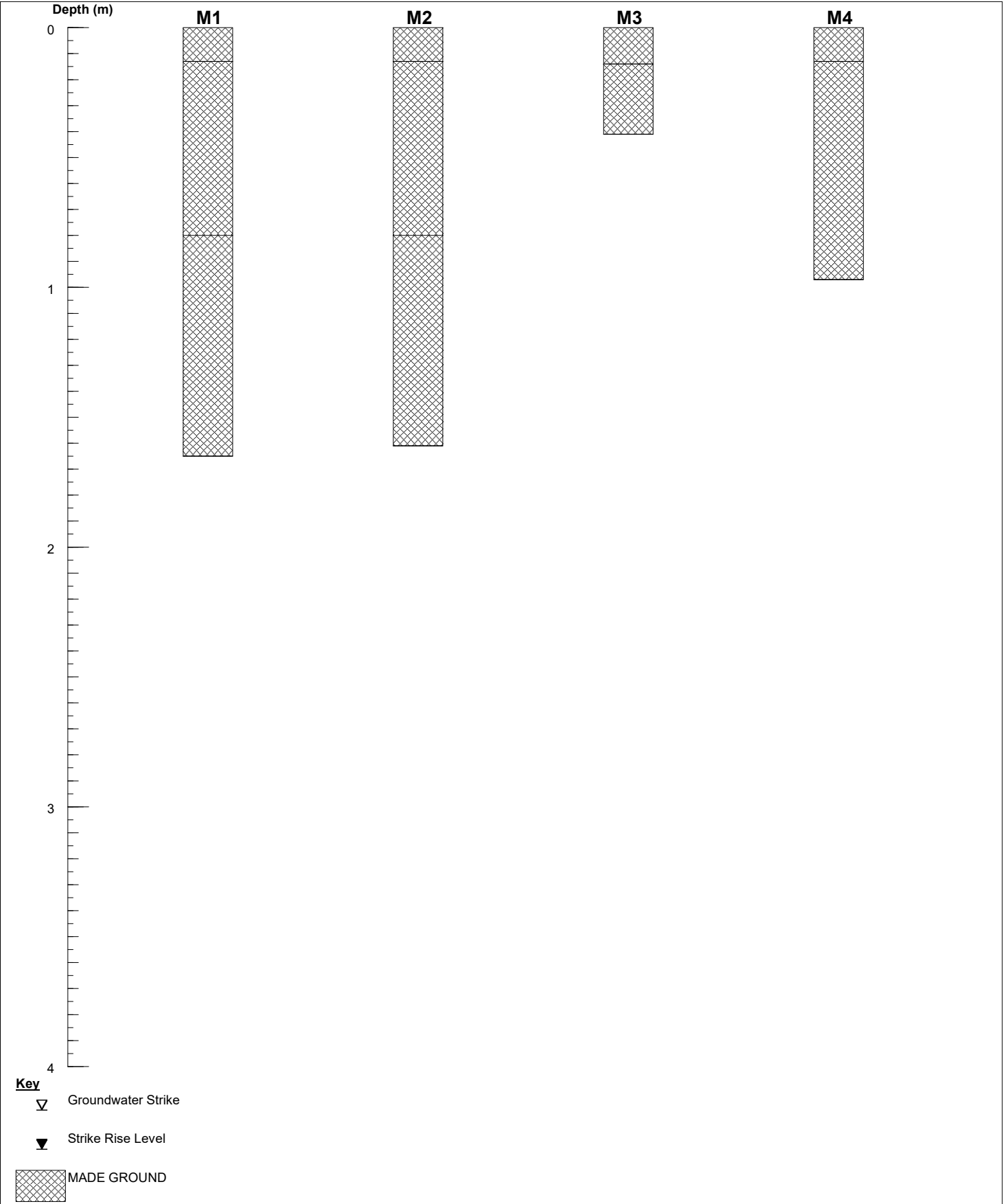
MINI BOREHOLE RECORD SHEETS

 SUB SURFACE SITE INVESTIGATION, GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS 3 Peel Street, Preston, PR2 2QS. Tel. (01772) 561135 Fax (01772) 204907							Site SOFIDEL UK LIMITED, BRUNEL WAY, BAGLAN ENERGY PARK, BRITON FERRY, SA11 2HZ			Borehole Number M1	
Boring Method MINI PERCUSSIVE BOREHOLE		Casing Diameter		Ground Level (mOD) 7.61		Client VITAL ENERGI		Job Number M3822A			
		Location AS Shown on fig 3		Dates 16/04/2024		Architect BRADSHAW GASS & HOPE		Sheet 1/1			
Depth (m)	Sample / Tests	Casing Depth (m)	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water		
0.13-0.80	B				7.48	(0.13) 0.13	MADE GROUND: bituminous macadam surfacing.				
						(0.67)	MADE GROUND: black very gravelly fine to coarse sand with high slag cobble content. Gravel sized fragments are fine to coarse clinker and slag.				
0.80-1.20	B				6.81	0.80	MADE GROUND:dark brown ashy slightly gravelly fine to coarse sand. Gravel sized fragments are fine to coarse clinker and slag.				
1.20-1.65 1.20-1.65	SPT 51/295 D			10,12/13,13,12,13		(0.85)					
				16/04/2024:DRY	5.96	1.65	...at 1.65m: obstruction Complete at 1.65m				
Remarks Hand dug inspection pit to 1.20m to check for services. On completion backfilled with arisings.								Scale (approx) 1:20	Logged By TE/DL		
Logged in accordance BS5930:1999 A2								Figure No. M3822A.M1			

 SUB SURFACE SITE INVESTIGATION, GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS 3 Peel Street, Preston, PR2 2QS. Tel. (01772) 561135 Fax (01772) 204907							Site SOFIDEL UK LIMITED, BRUNEL WAY, BAGLAN ENERGY PARK, BRITON FERRY, SA11 2HZ			Borehole Number M2	
Boring Method MINI PERCUSSIVE BOREHOLE		Casing Diameter		Ground Level (mOD) 7.66		Client VITAL ENERGI		Job Number M3822A			
		Location 273122.4 E 192808.4 N		Dates 16/04/2024		Architect BRADSHAW GASS & HOPE		Sheet 1/1			
Depth (m)	Sample / Tests	Casing Depth (m)	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water		
0.13-0.70	B				7.53	(0.13) 0.13	MADE GROUND: bituminous macadam surfacing.				
						(0.67)	MADE GROUND: black very gravelly fine to coarse sand with high slag cobble content. Gravel sized fragments are fine to coarse clinker and slag.				
0.70-1.20	B				6.86	0.80	MADE GROUND:dark brown ashy slightly gravelly fine to coarse sand. Gravel sized fragments are fine to coarse clinker and slag.				
1.20-1.61 1.20-1.61	SPT 25*/145 50/265 D			12,13/13,15,14,8		(0.81)					
				16/04/2024:DRY	6.05	1.61	...at 1.61m: obstruction Complete at 1.61m				
Remarks Hand dug inspection pit to 1.20m to check for services. On completion backfilled with arisings.								Scale (approx) 1:20	Logged By TE/DL		
Logged in accordance BS5930:1999 A2								Figure No. M3822A.M1			

 SUB SURFACE SITE INVESTIGATION, GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS 3 Peel Street, Preston, PR2 2QS. Tel. (01772) 561135 Fax (01772) 204907						Site SOFIDEL UK LIMITED, BRUNEL WAY, BAGLAN ENERGY PARK, BRITON FERRY, SA11 2HZ		Borehole Number M3	
Boring Method MINI PERCUSSIVE BOREHOLE		Casing Diameter		Ground Level (mOD) 7.55		Client VITAL ENERGI		Job Number M3822A	
		Location 273123.6 E 192819.2 N		Dates 16/04/2024		Architect BRADSHAW GASS & HOPE		Sheet 1/1	
Depth (m)	Sample / Tests	Casing Depth (m)	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
0.13-0.40	B				7.41	(0.14) 0.14	MADE GROUND: bituminous macadam surfacing.		
0.40-0.41	SPT 25*/10 50/0			25/50 16/04/2024: DRY	7.14	(0.27) 0.41	MADE GROUND: black ashy gravelly fine to coarse sand with high stone cobble content. Gravel sized fragments are fine to coarse brick, stone and clinker.		
0.40-0.41	D						...at 0.41m: obstruction		
							Complete at 0.41m		
Remarks Hand dug inspection pit to 1.20m to check for services. On completion backfilled with arisings.								Scale (approx) 1:20	Logged By TE/DL
Logged in accordance BS5930:1999 A2								Figure No. M3822A.M1	

SUB SURFACE						Site		Borehole Number		
SITE INVESTIGATION, GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS 3 Peel Street, Preston, PR2 2QS. Tel. (01772) 561135 Fax (01772) 204907						SOFIDEL UK LIMITED, BRUNEL WAY, BAGLAN ENERGY PARK, BRITON FERRY, SA11 2HZ		M4		
Boring Method MINI PERCUSSIVE BOREHOLE		Casing Diameter			Ground Level (mOD) 7.59		Client VITAL ENERGI		Job Number M3822A	
		Location 273135.7 E 192807.4 N			Dates 16/04/2024		Architect BRADSHAW GASS & HOPE		Sheet 1/1	
Depth (m)	Sample / Tests	Casing Depth (m)	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water	
0.13-0.60	B				7.46	(0.13) 0.13	MADE GROUND: bituminous macadam surfacing.			
0.60-0.97	SPT 25*/125 50/245 D			13,12/14,14,15,7		(0.84)	MADE GROUND: dark brown ashy gravelly fine to coarse sand. Gravel sized fragments are fine to coarse brick, stone and clinker.			
0.60-0.97				16/04/2024:DRY	6.62	0.97		...at 0.97m: obstruction Complete at 0.97m		
Remarks Hand dug inspection pit to 1.20m to check for services. On completion backfilled with arisings.								Scale (approx)	Logged By	
								1:20	TE/DL	
Logged in accordance BS5930:1999 A2								Figure No. M3822A.M4		



SS SUB SURFACE SITE INVESTIGATION SPECIALISTS, GEOTECHNICAL & ENVIRONMENTAL CONSULTANTS 3 Peel Street, Preston, Lancashire, PR2 2QS. Tel: (01772) 561135 Fax: (01772) 204907		Nominal Section		
Site SOFIDEL UK LIMITED, BRUNEL WAY, BAGLAN ENERGY PARK, BRITON FERRY, SA11 2HZ	Date Drawn 31/05/2024	Date Checked	Sheet 1/1	Job Number M3822A
Client VITAL ENERGI	Drawn By	Checked By	Scale 1:20[V]	Figure No. M3822A.1

ROTARY BOREHOLE RECORD SHEETS



SOFIDEL UK LIMITED, BRUNEL WAY, BAGLAN ENERGY
PARK, BRITON FERRY, SA11 2HZ

**Job
Number**
M3822F

Sheet
1/1

Remarks On completion installed a 50mm hdpe monitoring standpipe with a gas valve, with a gravel surround from 7.00m to 1.00m, a bentonite seal from 1.00m to 0.20m and a concreted in protective steel cover from 0.20m to 0.00m.	Scale (approx)	Logged By
	1:40	DJ
	Figure No. M3822F.R1	

 SUB SURFACE SITE INVESTIGATION, GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS 3 Peel Street, Preston, PR2 2QS. Tel. (01772) 561135 Fax (01772) 204907						Site SOFIDEL UK LIMITED, BRUNEL WAY, BAGLAN ENERGY PARK, BRITON FERRY, SA11 2HZ			Borehole Number R2	
Boring Method ROTARY OPENHOLE WATER FLUSHING MEDIUM		Casing Diameter 150mm cased to 7.00m		Ground Level (mOD) 7.68		Client VITAL ENERGI		Job Number M3822F		
		Location AS PLAN.		Dates 05/02/2025		Architect BRADSHAW GASS & HOPE		Sheet 1/1		
Depth (m)	Sample / Tests	Casing Depth (m)	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water	Instr
					7.48	(0.20) 0.20	MADE GROUND: bituminous macadam surfacing.			
							MADE GROUND: dark grey gravelly sand.			
						(1.00)				
					6.48	1.20	MADE GROUND: Brown gravelly SAND			
						(1.40)				
					5.08	2.60	Light brown SAND and GRAVEL.			
				Water inflow(1) at 3.70m.					▽1	
						(4.40)				
				05/02/2025:	0.68	7.00	Complete at 7.00m			
Remarks On completion installed a 50mm hdpe monitoring standpipe with a gas valve, with a gravel surround from 7.00m to 1.00m, a bentonite seal from 1.00m to 0.20m and a concreted in protective steel cover from 0.20m to 0.00m.								Scale (approx)	Logged By	
								1:40	DJ	
								Figure No. M3822F.R1		



SOFIDEL UK LIMITED, BRUNEL WAY, BAGLAN ENERGY
PARK, BRITON FERRY, SA11 2HZ

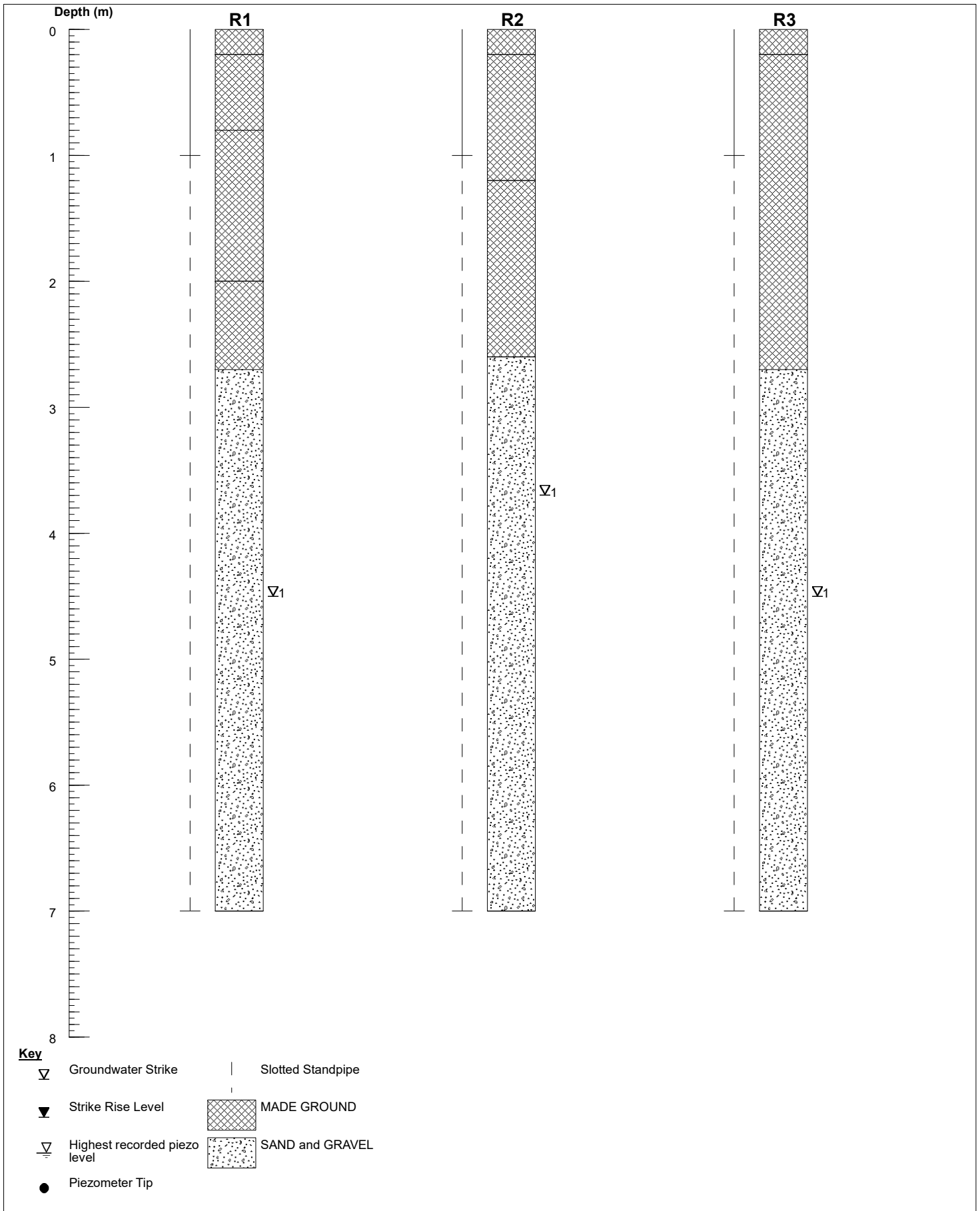
**Borehole
Number**
R3

Job
Number
M3822F

Sheet
1/1

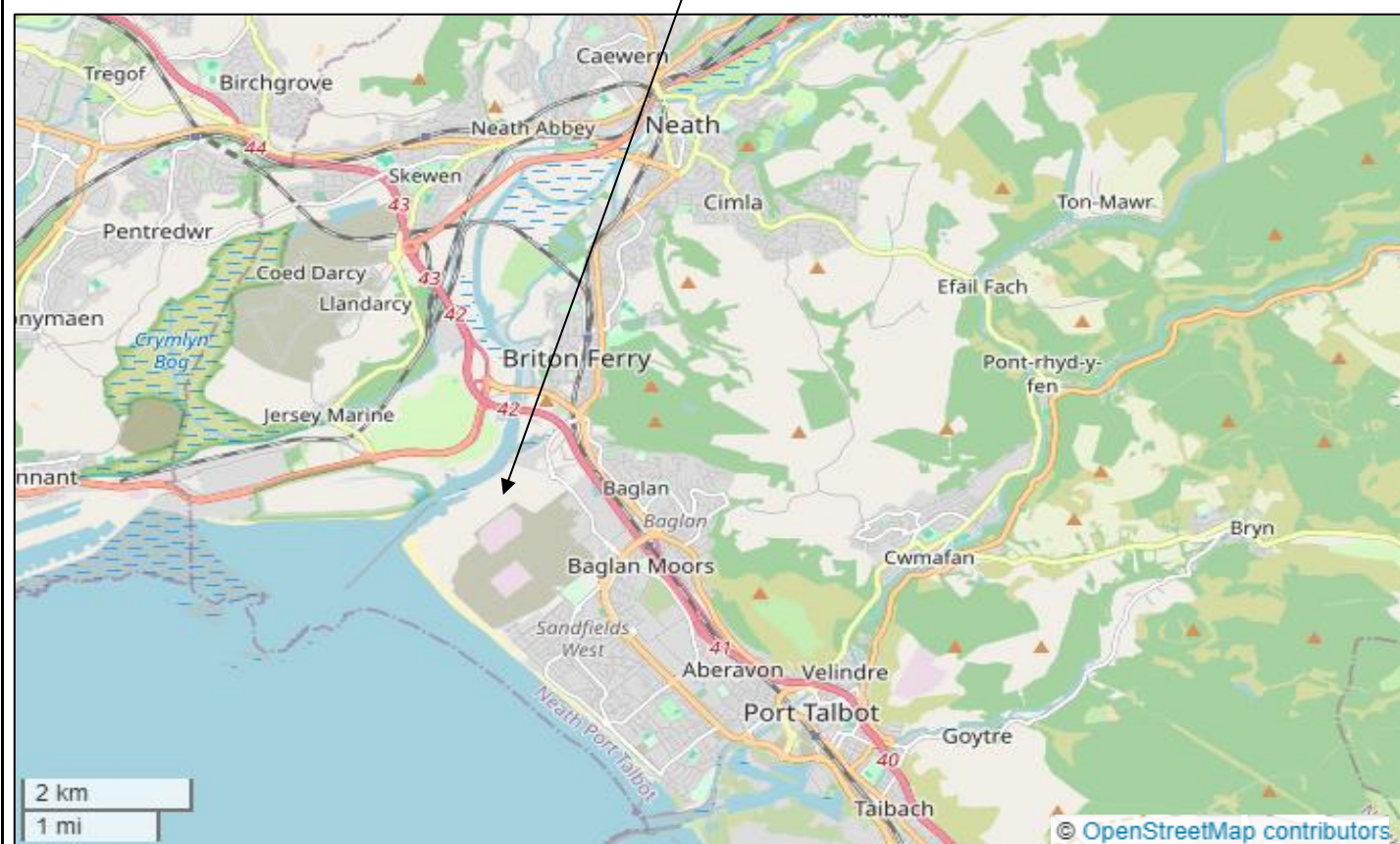
Remarks On completion installed a 50mm hdpe monitoring standpipe with a gas valve, with a gravel surround from 7.00m to 1.00m, a bentonite seal from 1.00m to 0.20m and a concreted in protective steel cover from 0.20m to 0.00m.	Scale (approx) 1:40	Logged By DJ
	Figure No. M3822F.R1	

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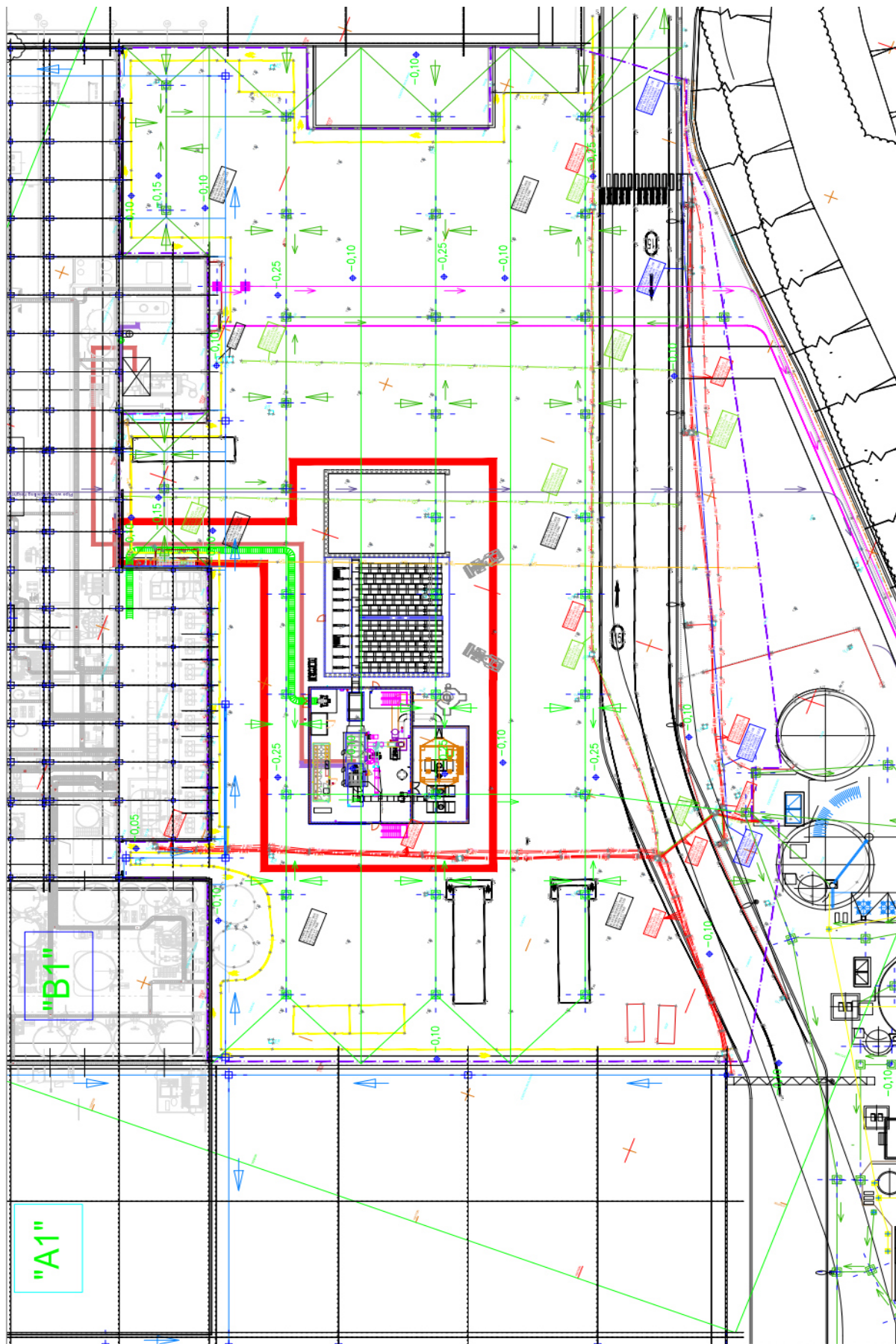


S SUB SURFACE SITE INVESTIGATION, GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS 3 Peel Street, Preston, PR2 2QS. Tel. (01772) 561135 Fax (01772) 204907		Nominal Section		
Site SOFIDEL UK LIMITED, BRUNEL WAY, BAGLAN ENERGY PARK, BRITON FERRY, SA11 2HZ		Date Drawn 20/03/2025	Date Checked	Sheet 1/1
Client VITAL ENERGI		Drawn By	Checked By	Job Number M3822F
			Scale 1:40[V]	Figure No. M3822F.1

FIGURES



 SUB SURFACE SITE INVESTIGATION AND SPECIALIST GEOTECHNICAL CONSULTANTS 3 Peel Street, Preston, PR2 2QS. Tel. (01772) 561135 Fax (01772) 204907	Site Location			
Site SOFIDEL UK LIMITED, BRUNEL WAY, BAGLAN ENERGY PARK, BRITON FERRY, SA11 2HZ	Date Drawn 20/05/2024	Date Checked -	Orientation 	Job No. M3822A
Client VITAL ENERGI	Drawn By DJ	Checked By -	Scale -	Figure No. 1



SUB SURFACE

SITE INVESTIGATION AND SPECIALIST GEOTECHNICAL CONSULTANTS
3 Peel Street, Preston, PR2 2QS. Tel. (01772) 561135 Fax (01772) 204907

Proposed Development Layout

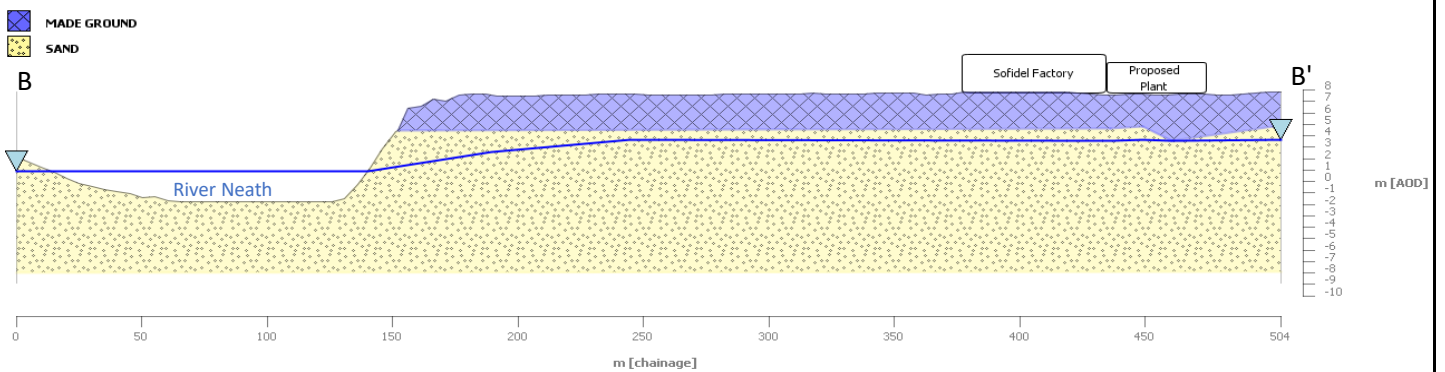
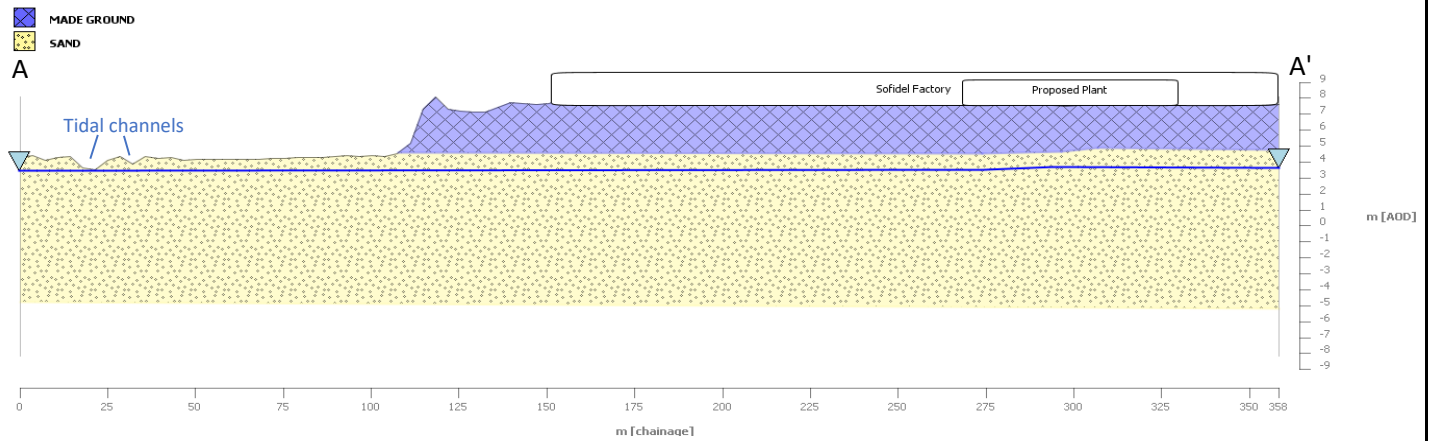
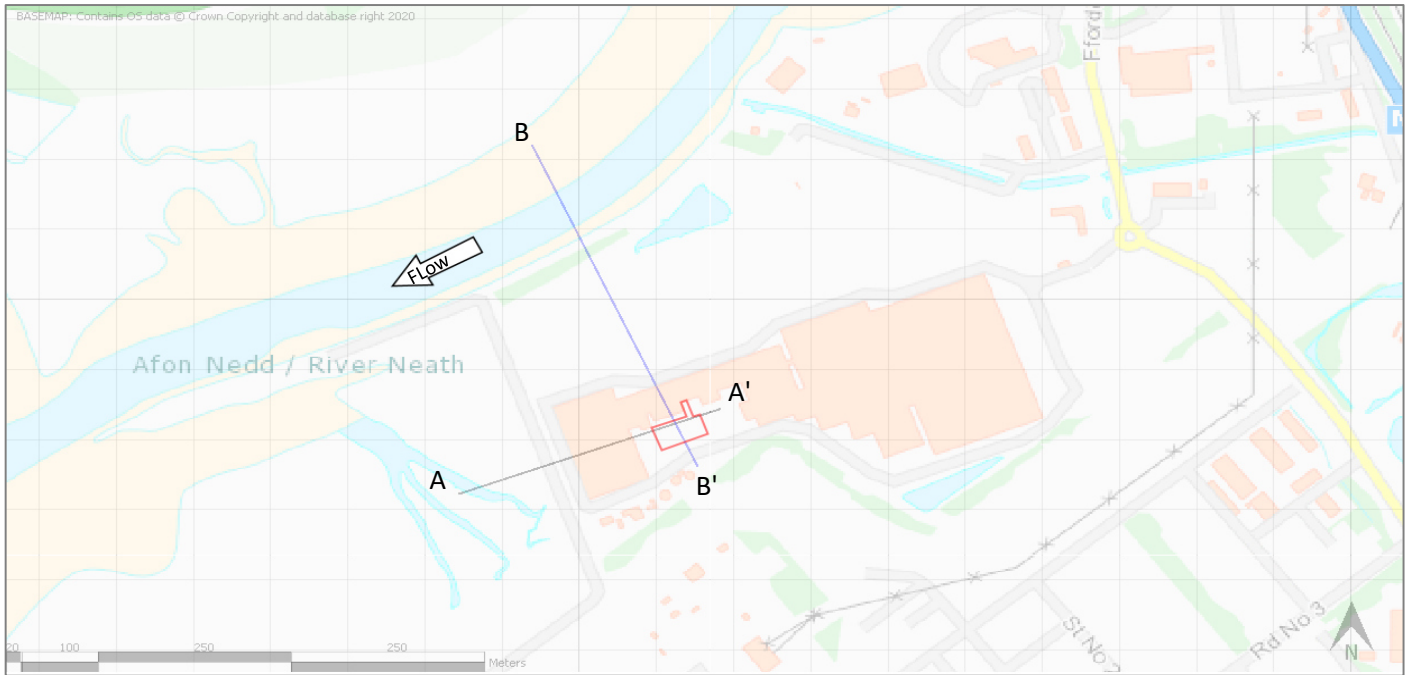
Site SOFIDEL UK LIMITED, BRUNEL WAY, BAGLAN ENERGY PARK, BRITON FERRY, SA11 2HZ	Date Drawn 20-May-24	Date Checked	Orientation 	Job No. M3822A
Client VITAL ENERGI	Drawn By DJ	Checked By	Scale —	Figure No. 2



SITE INVESTIGATION AND SPECIALIST GEOTECHNICAL CONSULTANTS
3 Peel Street, Preston, PR2 2QS. Tel. (01772) 561135 Fax (01772) 204907

Client **VITAL ENERGY**

Figure No.	
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River Neath water level based on information from NRW River levels, rainfall and sea data

Vertical scales exaggerated x5.0

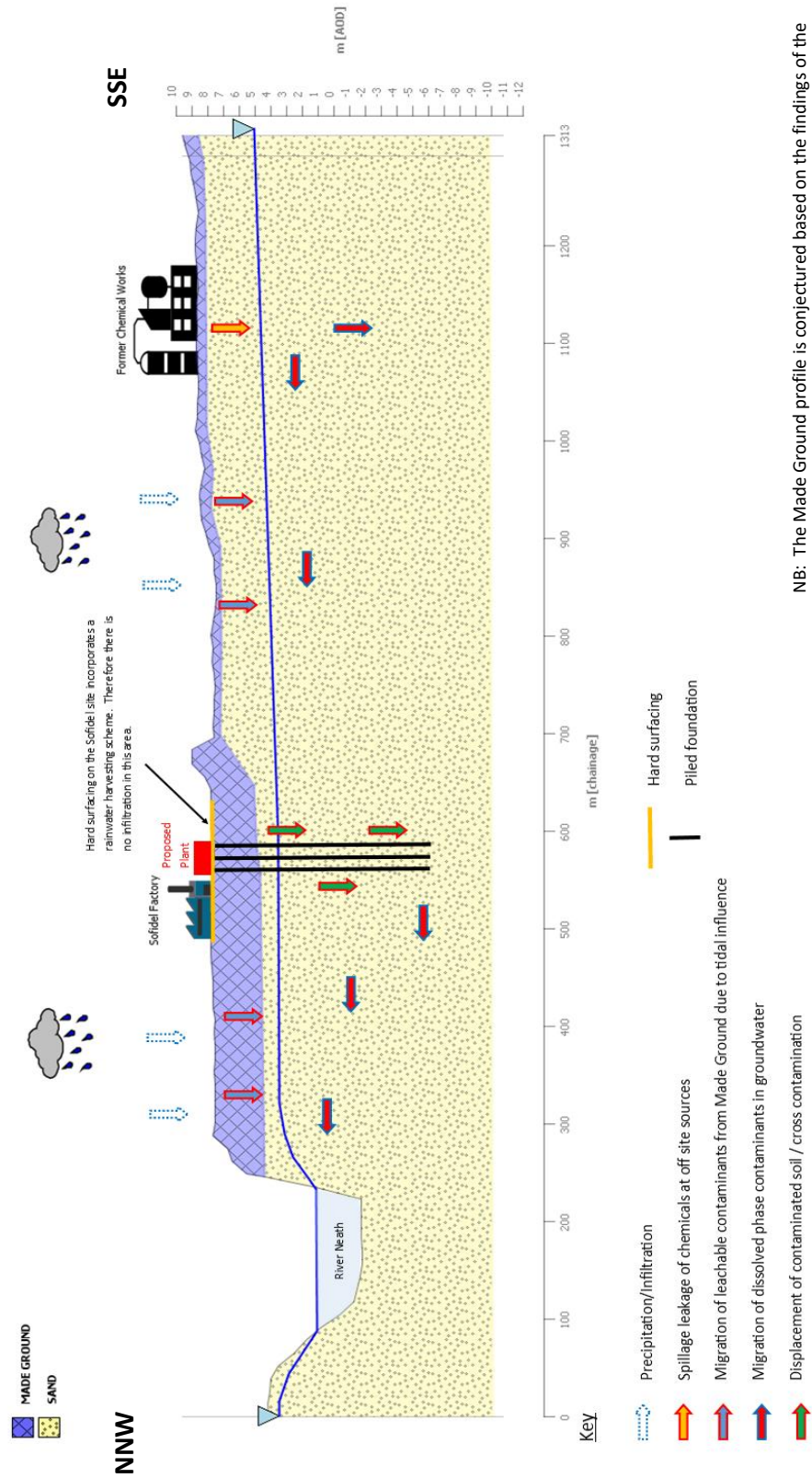
Surface profile based on NRW LIDAR DTM

Cross Sections created using BGS Groundhog.

NB: The Made Ground profile is conjectured based on the findings of the exploratory holes and evidence of estuarine floodplain reclamation indicated on the early Ordnance Survey plans of the area.

 SUB SURFACE SITE INVESTIGATION AND SPECIALIST GEOTECHNICAL CONSULTANTS 3 Peel Street, Preston, PR2 2QS. Tel. (01772) 561135 Fax (01772) 204907	Cross Sections			
Site SOFIDEL UK LIMITED, BRUNEL WAY, BAGLAN ENERGY PARK, BRITON FERRY, SA11 2HZ	Date Drawn 24-Jan-25	Date Checked	Orientation 	Job No. M3822A
Client VITAL ENERGI	Drawn By DJ	Checked By	Scale —	Figure No. 4

Vertical Scale Exaggerated x15
Surface profile based on NRW LIDAR survey

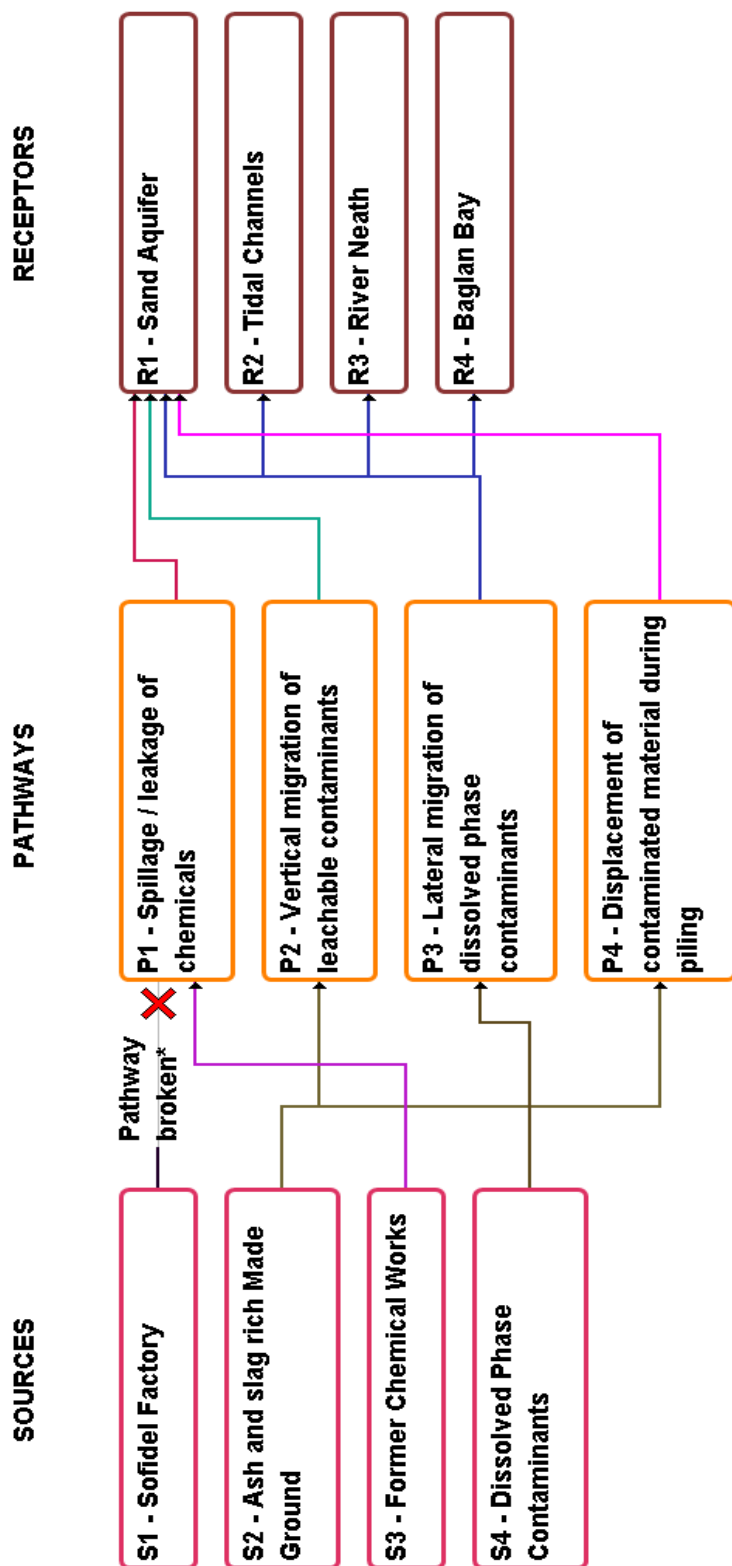


SUB SURFACE

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Illustrative Conceptual Model Relating to Controlled Waters

Site	SOFIDEL UK LIMITED, BRUNEL WAY, BAGLAN ENERGY PARK, BRITON FERRY, SA11 2HZ	Date Drawn	24-Jan-25	Date Checked		Orientation	As Shown	Job No.	M3822A
Client	VITAL ENERGI	Drawn By	DJ	Checked By		Scale	As Shown	Figure No.	5



*The site is underlain by well maintained hard surfacing throughout with an integrated drainage scheme.

 SUB SURFACE SITE INVESTIGATION AND SPECIALIST GEOTECHNICAL CONSULTANTS 3 Peel Street, Preston, PR2 2QS. Tel. (01772) 561135 Fax (01772) 204907	Network Diagram Potential Risks to Controlled Waters			
Site SOFIDEL UK LIMITED, BRUNEL WAY, BAGLAN ENERGY PARK, BRITON FERRY, SA11 2HZ	Date Drawn 24-Jan-25	Date Checked	Orientation As Shown	Job No. M3822A
Client VITAL ENERGI	Drawn By DJ	Checked By	Scale As Shown	Figure No. 6