

Environmental
Geotechnical
Specialists



PHASE 2

ENVIRONMENTAL REPORT

job number	C4633/24/E/7122 Rev.1	date	09/04/2025
site address	Yew Tree Farm, The Village, Farnley Tyas, Huddersfield, West Yorkshire, HD4 6UQ		
written by	T. Merry	checked by	R. Palmer
issued by	T. Merry		



Please consider the environment before printing this report.



<ENVIRONMENTAL> <GEOTECHNICAL>



Environmental
Geotechnical
Specialists

Rogers Geotechnical Services Ltd
Offices 1 & 2 Barncliffe Business Park, Near Bank, Shelley, Huddersfield, HD8 8LU
☎ 01484 604354 Company No. 5130864

Contents

		Page
1.	Introduction	2
2.	Limitations	2
3.	Desk study	2
4.	Fieldworks	2
4.1	Trial Pits (Mechanical Plant)	2
4.2	Trial Pits (Hand-held Equipment)	3
5.	Geology	3
6.	Strata Conditions	4
6.1	General Strata	4
6.2	Groundwater	4
7.	Laboratory Testing - Environmental	4
8.	Discussion of Ground Conditions - Environmental	5
8.1	Discussion of Test Results	5
8.1.1	Soil Samples	5
8.1.2	Effect of Sulphates	6
8.2	Site Specific Risk Assessment	7
8.2.1	Approach	7
8.2.2	Conceptual Ground Model and Risk Assessment	7
8.3	Indicative Remediation Strategy	10
8.3.1	Remediation Objectives	10
8.3.2	Development Requirements	10
8.3.3	Outline Strategy	10
8.4	Fill Materials	12
8.5	Verification Report	14
9.	Recommendations for Further Work	14
10.	References	15

Appendices

1.	Site Plan
2.	Trial Pit Logs
3.	Laboratory Testing
4.	Soil Screening Values – ATRISK Comparison
5.	Fill Screening Values



Report on a Phase 2 Environmental Investigation

Location:	Yew Tree Farm The Village, Farnley Tyas, Huddersfield, West Yorkshire, HD4 6UQ.		
For:	Bright Young Consulting Limited		
Report No.	C4633/24/E/7122 Rev.1	Report date:	April 2025

For and on behalf of **Rogers Geotechnical Services Ltd**

	
Tobias Merry MSci (Hons), FGS Geo-environmental Engineer	Rob Palmer MSc FGS ACIEH Engineering Director

Report Summary¹

Item	Comments	Section
Development	Conversion of 8 existing properties and construction of 10 new residential properties with associated garden areas.	1.
Geology	Superficial geology – None. Solid geology – Grenoside Sandstone and Pennine Lower Coal Measures Formation.	5.
Strata Conditions	Localised made ground, overlying sandstone gravel.	6.1
Groundwater	None encountered during investigation.	6.2
Contamination	Hotspot of asbestos contamination.	8.1.1
Effect of Sulphates	DC-2z concrete.	8.1.2

¹ This summary should not be relied upon to provide a comprehensive review. All of the information contained in this document should be considered.

1. Introduction

It is understood that the land at Yew Tree Farm, Farnley Tyas is to be developed by the conversion of 8 existing farm buildings and construction of 10 new residential properties with associated garden areas now that existing farm buildings have been demolished. Consequently, a site investigation has been undertaken in accordance with the instruction from the client. This work was required in order to determine the nature of the underlying soils and to take into consideration the risk of any contamination present. This report describes the work undertaken, presents the data obtained and discusses the ground conditions in relation to the proposed works.

2. Limitations

The recommendations made and opinions expressed in this report are based on the ground conditions revealed by the site works, together with an assessment of the site and of the laboratory test results. Whilst opinions may be expressed relating to sub-soil conditions in parts of the site not investigated, for example between borehole positions, these are for guidance only and no liability can be accepted for their accuracy.

This report has been prepared in accordance with our understanding of current best practice. However, new information or legislation, or changes to best practice may necessitate revision of the report after the date of issue.

3. Desk Study

A combined Phase 1 & Phase 2 Geo-environmental Appraisal has been undertaken by Lithos Consulting and the results were presented as report number 3381/2 in July 2021. This report has been used extensively during the current intrusive investigation. This report was made available to Rogers Geotechnical Services for Review and to aid in scoping further investigative works. The investigation found that within the made ground of location WS01 at 0.10m depth had elevated hydrocarbon contamination, assumed to be from a fuel storage tank above the location.

4. Fieldworks

The fieldworks were undertaken on the 15th October 2024 and comprised six machine-dug trial pits. In addition, two additional hand-dug trial pits were undertaken on the 25th March 2025. The investigatory locations are shown on the site plan which is presented in Appendix 1 to this report.

4.1 Trial Pits (Mechanical Plant)

A total of six trial pits were excavated in order to reveal the nature of the near surface soils using a mini-digger. The soils were logged on site, and full descriptions are given on the trial pit records which are presented in Appendix 2. At regular intervals throughout the excavation of the pits, samples were taken for chemical testing. The test specimens were retained in the appropriate air tight containers within cool boxes for onward transition to the chemical laboratory.

Once excavations were completed, the trial pits were carefully re-instated with the arisings. Whilst every care was taken during the infilling process, including compacting of the infill at regular intervals with the arm of the excavator, it should be appreciated that some mounding of the surface may have resulted. Moreover, the infilled soils may be subjected to settlement over time, such that a depression in the surface may also occur. Therefore, the locations of any pits undertaken in this investigation should be conveyed to the current site user, as the mounds or depressions associated with the pits may present a risk to current site operations e.g. livestock or agricultural plant equipment. Furthermore, it must be realised that the infilled pits represent an area of disturbance within the site soils, thus the soils at the pit locations may vary characteristically compared to the undisturbed ground. As such, foundations placed in this disturbed material may not perform as anticipated.

4.2 Trial Pits (Hand-held Equipment)

Trial pits were excavated using hand-held digging equipment in order to reveal the nature of the near surface soils. The soils were logged on site in general accordance with BS5930: 2015+A1: 2020, and full descriptions are given on the trial pit records which are presented in Appendix 2. Samples were taken from the trial pits for both geotechnical and chemical testing. The chemical test specimens were retained in the appropriate air tight containers within cool boxes for onward transition to the chemical laboratory.

5. Geology

The available published geological data for the site has been examined and the following table presents the anticipated geology.

Table 1: Geological Data for the Site			
Strata Type	Strata Name ²	Previous Name ³	Description ³
Superficial Geology	N/A	N/A	Not indicated to underlie the site.
Solid Geology	Grenoside Sandstone (Majority of the site)	-	The Grenoside Sandstone is a fine-grained, thinly bedded, cross-laminated, micaceous and carbonaceous sandstone. Within this district it usually occurs as two units of interbedded sandstone and laminated grey micaceous mudstone.
	Pennine Lower Coal Measures Formation (North-western corner of the site)	Grey Measures of Yorkshire and Nottingham	Interbedded grey mudstone, siltstone and pale grey sandstone, commonly with mudstones containing marine fossils in the lower part, and more numerous and thicker coal seams in the upper part.

² Sources: British Geological Survey (NERC) Map Sheet 86; Glossop; Solid and Drift Edition, and Geology of Britain Viewer [online resource from www.bgs.ac.uk]

³ Sources: British Geological Survey (NERC) Lexicon of Named Rock Units [online resource from www.bgs.ac.uk]

6. Strata Conditions

In accordance with the geology of the area, the succession has been shown to include the following:

Table 2: Generalised Strata Profile

Depth m below ground level to underside of layer	Strata Type	Positions Encountered	Groundwater Strikes m below ground level
0.15 – 0.20	MADE GROUND (Silty very sandy GRAVEL with moderate cobble content).	TP01, TP02	None
+0.75	MADE GROUND (Very silty very sandy GRAVEL with moderate cobble content and low boulder content).	TP03	None
+0.05 – +0.70	Very silty very gravelly SAND with moderate cobble content. [Weathered Grenoside Sandstone]	TP04, TP05, HDTP01, HDTP02	None
+0.70	Very silty very gravelly SAND with moderate cobble content and moderate boulder content. [Weathered Grenoside Sandstone]	TP06	None
+0.75	Very silty very sandy GRAVEL with low to moderate cobble content. [Weathered Grenoside Sandstone]	TP01, TP02, TP03 (Reworked)	None

'+' denotes that the strata extended below the termination depth of the investigated positions, thus the extent of the deposit is only proven to the depths indicated

6.1 General Strata

In general, the trial pit records indicate that a 0.15 to 0.20m capping of granular made ground was revealed at TP01 and TP02, but granular made ground to termination of TP03 was shown to be exposed alongside reworked natural material of very silty very sandy gravel with low cobble content with an angled boundary through the trial pit.

Beneath this capping at positions TP01 and TP02, and from the surface of TP04, TP05, TP06, HDTP01 and HDTP02, very silty very sandy gravel and very silty very gravelly sand, with moderate cobble content and localised moderate boulder content. It is considered that this material is representative of the weathered fraction of the Grenoside Sandstone which is indicated to be present below the site.

6.2 Groundwater

No groundwater strikes were observed during the site investigation. However, it should be appreciated that the normal rate of boring does not permit the recording of an equilibrium water level for any one strike, moreover, groundwater levels are subject to seasonal variation or changes on local drainage conditions.

7. Laboratory Testing - Environmental

A suite of testing was conducted on samples from across the site and the following regime was undertaken.

- Metals – Cd, Cr(VI), Cu, Hg, Ni, Pb, V and Zn.
- Semi and Non-Metals - As, Se, Free CN⁻ and Phenols.
- Polycyclic aromatic hydrocarbons (PAHs).
- Petroleum hydrocarbons (TPHs).

- Others – pH, organic content and total/soluble SO_4^{2-} , VOCs and BTEX.
- Asbestos.

This testing was undertaken by i2 Analytical Ltd and the results of all of the chemical testing are presented in Appendix 4 of this report.

8. Discussion of Ground Conditions - Environmental

8.1 Discussion of Test Results

It is understood that the land at Yew Tree Farm, Farnley Tyas is to be developed by the conversion of 8 existing farm buildings and construction of 10 new residential properties with associated garden areas now that existing farm buildings have been demolished. Consequently, the site may be classified as residential with plant uptake.

8.1.1 Soil Samples

The results of the chemical testing undertaken on soil samples obtained during this investigation have been compared to the ATRISK soil screening values (SSVs) as compiled by WS Atkins plc. With respect to the results it should be appreciated that the soil organic matter (SOM) content for the samples tested was found to range between 0.4% and 1.4%. On this basis, it is considered that the screening values associated with 1% SOM should be adopted. These values have been derived in such a way as to adhere to the principles within the revised CLEA model and include the most current release of the SGVs. A list of subscribers is provided within the website⁴ and these include many local authorities.

A comparison of the results of the testing, together with the data given above, can be found within Appendix 4. These results indicate the following:

Table 3: Summary of contaminated areas

Location	Strata	Depth (m)	Contaminants found to be exceeding SSVs (Residential with plant uptake)
TP01	Gravel	0.20 – 0.75	None.
TP02	Made Ground	0.00 – 0.15	None.
TP03	Made Ground	0.00 – 0.30	Asbestos. PAHs (Chrysene, indeno(1,2,3-c,d)pyrene, benzo[g,h,i]perylene).
TP04	Sand	0.00 – 0.20	PAHs (Indeno(1,2,3-c,d)pyrene, benzo[g,h,i]perylene).
TP05	Sand	0.00 – 0.30	None.
TP06	Sand	0.00 – 0.30	None.
HDTP01	Sand	0.00 – 0.05	PAHs (Chrysene, indeno(1,2,3-c,d)pyrene, benzo[g,h,i]perylene).
HDTP02	Sand	0.00 – 0.10	None.

Concentrations of cadmium, chromium(VI), mercury, free cyanide, phenols (total), PAHs (Acenaphthylene, acenaphthene, fluorene, anthracene) and total petroleum hydrocarbons were below the detection limits for the tests. Detectable levels of all other contaminants were recorded, but these fell below the associated Atrisk Soil Screening Values.

⁴ <http://www.atrisksoil.co.uk/pages/general/subscribers.asp>

It should be appreciated that the soil screening values for PAHs and TPHs (where appropriate) represents vapour saturation limits. The inhalation of vapour pathway contributes less than 10% of total exposure, which is unlikely to significantly affect the combined assessment criterion⁵. In view of this, the ATRISK soil SSVs notes that the users may wish to consider using a combined assessment criterion if free product is not observed, the values for which are also provided on the summary of contamination analysis. It is therefore considered that the criteria for no free product should be adopted for the PAHs and TPHs at this site. The results of the contaminants found to exceed these screening values are tabulated below:

Table 4: Summary of areas contaminated by PAHs & TPHs

Location	Strata	Depth (m)	Contaminants found to be exceeding SSVs (Residential with plant uptake)
TP01	Gravel	0.20 – 0.75	None.
TP02	Made Ground	0.00 – 0.15	None.
TP03	Made Ground	0.00 – 0.30	None.
TP04	Sand	0.00 – 0.20	None.
TP05	Sand	0.00 – 0.30	None.
TP06	Sand	0.00 – 0.30	None.
HDTP01	Sand	0.00 – 0.05	None.
HDTP02	Sand	0.00 – 0.10	None.

On the basis of the above information, the results of the investigation have concluded that the site is generally uncontaminated with respect to the intended end use.

A previous investigation was undertaken by Lithos, reference No. 3381/2, comprising a series of boreholes. Two investigation locations, HDTP01, and HDTP02, were targeted to this location to ensure that contamination was no longer present following demolition and enabling works. The results indicate that the contamination in this area has been successfully removed from site. However, a 'hotspot' of asbestos contamination has been observed within the made ground position of TP03. Given the historical construction on the site where TP03 is located, it is considered that the contaminated made ground present within this area may be limited to the southern section of the site and will need capping or removing in order to classify the site as wholly uncontaminated.

8.1.2 Effect of Sulphates

In view of the nature of the underlying soils it is considered that the design sulphate class be assessed with reference to Table C2⁶, which is provided in BRE Special Digest 1, *Concrete in aggressive ground*: Part C. On the basis of this table and considering the soluble sulphate contents recorded, it can be shown that well compacted buried concrete should be designed in accordance with Class DS-1 requirements. Assuming mobile groundwater, the table also indicates that the aggressive chemical environment for concrete (ACEC) classification is AC-2z.

In order to evaluate the design chemical (DC) class for the buried concrete at this site reference should be made to Table D1⁷, which can be found in Part D, *Specifying concrete for general cast-in-*

⁵ Ref: ATRISK soil, SSVs derived using CLEA v1.071 for 1% SOM, Residential with home grown produce land use, 23.06.17.

⁶ Table C2, *Aggressive Chemical Environment for Concrete (ACEC) classification for brownfield locations*

⁷ Table D1, *Selection of the DC Class and the number of APMs for concrete elements where the hydraulic gradient due to groundwater is 5 or less: for general in-situ use of concrete.*

situ use, of BRE Special Digest 1. From this table it may be shown that for an intended working life of at least 50 years the concrete design class DC-2z is required.

8.2 Site Specific Risk Assessment

8.2.1 Approach

The presence of contamination hazards and the risks associated with them should be assessed in accordance with industry practice and the 'suitable for use' approach. This has been conducted with reference to The Department for Environment, Food and Rural Affairs (DEFRA) and The Environment Agency⁸ advice on the assessment of risks arising from the presence of contamination in soils and using the source-pathway-receptor approach.⁹ This method dictates that there must be a risk of contaminant produced at a 'source' in sufficient concentration to cause harm and there must be a 'pathway' for the contaminant to reach an identifiable 'receptor' for the linkage to be proved and a contamination hazard to be considered present. Not all substances are contaminants and not all contaminants are considered to be a risk. Indeed, DEFRA and The Environment Agency state that 'a contaminant is a substance which has the potential to cause harm, while a risk itself is considered to exist if such a substance is present in sufficient concentration to cause harm and a pathway exists for a receptor to be exposed to the substance.'¹⁰

8.2.2 Conceptual Ground Model and Risk Assessment

In view of the results of the chemical testing undertaken the conceptual site model is presented accordingly as Table 5. Sources of contamination include the following:

On-site – Made Ground (Asbestos).

The preliminary risk assessment has been evaluated with reference to the following ratings and definitions:

N/A -	A source-pathway-receptor linkage is not considered to exist and therefore a risk assessment is not required.
Low -	A pollution linkage is unlikely and/or the likelihood of harm occurring is low and of minor consequence.
Moderate -	The linkage exists but the likelihood of harm occurring is not considered to be significant although remedial action may be necessary
High -	The linkage exists and the available data indicates that significant harm may be caused and remedial action could be necessary.

The results of the risk assessment are presented in Table 5.

⁸ R&D Publication CLR 8, 'Assessment of Risks to Human Health from Land Contamination: An overview of the Development of Soil Guideline Values and Related Research'.

⁹ The pollution linkage approach was developed by 'Circular 2/2000 Contaminated Land: Implementation of Part II of The Environmental Protection Act 1990' which provides meanings for the terms contained in The Environmental Protection Act 1990 Part IIA, the primary legislation for addressing the issues of contaminated land.

¹⁰ See 'Circular 2/2000 Contaminated Land: Implementation of Part II of The Environmental Protection Act 1990', appendix A.

Table 5: Conceptual Site Model and Site-Specific Risk Assessment [Contamination: Asbestos]

Conceptual Site Model			Site Specific Risk Assessment	
Pathways	Receptor	Linkage Present?	Risk Rating	Notes
Direct contact/dermal absorption/soil ingestion	Operative	Yes – a hotspot of asbestos contamination found to be present at the site and contact with soil likely during works.	High	A hotspot of asbestos contamination is present within the made ground underlying the site. Precautionary measures will be required during the construction phase. Remediation will be required to either remove the contamination or break pathways.
	End User	Yes – a hotspot of asbestos contamination found to be present at the site and site to be developed into a residential housing with landscaped areas.	High	
	Neighbours	Yes – a hotspot of asbestos contamination found to be present at the site and a populated residential area surrounds the site.	High	
Inhalation of Dust/Vapours	Operative	Yes – dust may be derived from contaminated soils. However, asbestos contamination is not considered likely to represent a significant vapour risk.	High (Dust) Low (Vapours)	A hotspot of asbestos contamination is present within the made ground underlying the site. Precautionary measures will be required during the construction phase. Remediation will be required to either remove the contamination or break pathways.
	End User	Yes – dust may be derived from contaminated soils. However, asbestos contamination is not considered likely to represent a significant vapour risk.	High (Dust) Low (Vapours)	
	Neighbours	Yes – contamination found to be present at the site and residential properties located within 250m radius of the site. Possible inhalation of dust during the works.	High (Dust) Low (Vapours)	
Ingestion of fruit/vegetables and/or waters	Operative	No – no edible plants or contained water sources in the area of the proposed new works.	N/A	A hotspot of asbestos contamination is present in the soils underlying the site. Precautionary measures will be required during the construction phase. Remediation will be required to either remove the contamination or break pathways.
	End User	Yes – a hotspot of asbestos contamination found to be present at the site and site to be developed by the conversion of 8 existing properties and construction of 10 new residential properties with associated garden areas.	High	
	Neighbours	Yes – a hotspot of asbestos contamination found to be present at the site and residential area adjoins the site.	High	

Migration of hazardous gases via permeable strata or shallow mining activity	Operative	Yes – the site is considered low risk from the initial assessment in the Lithos report 3381/2.	Low	The site is considered low risk from the initial assessment in the Lithos report 3381/2.
	End User		Low	
	Neighbours	Yes – although there are adjoining structures present, the site is considered low risk from the initial assessment in the Lithos report 3381/2.	Low	
Spillage/loss/run off direct to receiving water	Controlled Waters	No – no known controlled waters within 250m. In addition, the asbestos contamination is not expected to be mobile.	N/A	A hotspot of asbestos contamination has is present in the soils underlying the site. Remediation will be required to either remove the contamination or break pathways. Old services to be removed or capped.
Migration via permeable unsaturated strata	Controlled Waters	No – a secondary A aquifer is present beneath the site and the site is underlain by granular soils. However, the asbestos contamination is not expected to be mobile.	N/A	
Run off via drainage/sewers etc	Controlled Waters	No – old services may be present on site. However, the asbestos contamination is not expected to be mobile.	N/A	
Direct contact with contaminated soils	Plants	Yes – a hotspot of contamination present at the site which may affect plants.	Low	A hotspot of asbestos contamination has is present in the soils underlying the site.
Uptake via root system			Low	Remediation will be required to either remove the contamination or break pathways.
Direct contact with contaminated soils	Building Materials	Yes – minor PAH contamination revealed at the site may represent a risk to building materials or plastic water pipes. Moreover, testing indicates that the aggressive chemical environment for concrete classification is AC-22.	Moderate (plastic services)	Please see section 8.3.3 for information on good building practice.
Direct contact with contaminated groundwater			Moderate (buried concrete)	
Exposure to Radon	Operative	Yes – The property is in a low probability radon area (<1% of homes are estimated to be at or above the Action Level).	Low	The publication BR211 states that no protection measures are necessary.
	End User			

8.3 Indicative Remediation Strategy

In view of the site-specific risk assessment it is considered that remediation will be required at this site. Such a strategy should include the following main elements.

8.3.1 Remediation Objectives

Based on the site-specific risk assessment the object of the remediation is likely to be as follows.

- To protect the site operatives during the construction process from the ingestion of soil or dust, dermal contact with the soil and inhalation of dust.
- To protect the end user from the ingestion of soil or dust, dermal contact with the soil and inhalation of dust.
- To protect neighbours from the inhalation and ingestion of dust during the construction process.
- To protect end users and neighbours from the ingestion of contaminated fruit and vegetables.
- To protect plants from direct contact with contamination and prevent uptake via root system.
- To ensure that contamination cannot enter the former services occupying the site which may return to controlled waters.
- To protect plastic services from being penetrated by, or degrading due to the presence of, contamination in the soil or groundwater.

8.3.2 Development Requirements

Whilst the precise nature of this development has not been finalised it is understood that it is to be developed by the conversion of 8 existing properties and construction of 10 new residential properties with associated garden areas. In view of the above a site-specific remediation strategy should be undertaken after the proposed development has been finalised. However, for preliminary design and costing the following remediation proposals are offered.

8.3.3 Outline Strategy

In order to fulfil the objectives defined above it is likely that the following remedial strategy could be utilised. It is recommended that a pragmatic approach be undertaken, with observational techniques being employed at each stage of the work.

Ground-works

During the ground-works phase of the development, protection to the site operatives is required. The risk to site operatives is considered under the Health and Safety at Work Act 1974, together with regulations made under the act, which includes the Control of Substances Hazardous to Health (COSHH) regulations. Therefore, the risks to site personnel must be considered under the Construction Design and Management (CDM) regulations at the planning stage and be

included in the contractor's Health and Safety Plan and site-specific Method Statements. These documents should include the following main elements.

- Site operatives at all levels should be made aware of the hazards of working with contaminated soils and the potential hazards associated with materials containing lead.
- Site operatives at all levels should be made aware of the hazards of working with potentially contaminated soils and the hazards of working in an area where accumulations of bulk ground gasses (carbon dioxide or methane) could occur.
- Personal hygiene facilities, including washing and messing, must be provided and site operatives be encouraged to use them.
- Access to the site by the general public should be restricted until remediation has taken place.
- Where work is undertaken in dry weather the site should be dampened down to avoid dust. In addition, dust masks must be provided to all site operatives for use in dry weather.
- In order for contaminated soils to be disposed of to an appropriate landfill, it may be necessary to carry out Waste Acceptance Criteria (WAC) testing in accordance with BS EN 12457.
- Any stockpiles of contaminated soil on site should be sheeted over to prevent excessive amounts of airborne dust and cross contamination of imported fill.
- Where vehicles are transferring soil to the landfill site they should be covered to prevent contamination of the surrounding area by dust.
- Where work is undertaken in wet weather, vehicle and wheel washing facilities are required to ensure that the vehicles leaving the site do not transfer contamination to surrounding areas.

On completion of the ground-works a careful site inspection of the sub-grade would be required. Should visual or olfactory evidence of contamination be revealed then further testing may become necessary.

Construction

During the construction phase of the contract the following items are required to protect the end user from the potential contaminants revealed at this site.

- Beneath buildings, pavements and hard-standings clean inert granular sub-base should be employed.
- Any redundant services revealed at this site should be de-commissioned and piped services sealed. Any existing services that are to be employed in the new development should be carefully inspected to ensure that they are serviceable.
- New plastic services should be constructed in a surround of clean inert material and selected in accordance with the recommendation given in the United Kingdom Water Industry Research (UKWIR) website under Report Ref. No. 10/WM/03/21 - 'Guidance for the Selection of Water Supply Pipes to be used in Brownfield Sites'. The statutory water authority for the area in which site is located may have a risk assessment form to complete which allows these recommendations to be met. However, further determinand specification contamination testing may be necessary.
- For buried concrete the results of the sulphate and pH testing indicate that the design sulphate class for the site should be DS-2z.

Hot-spot of Contamination - Landscaped & Hard-standing Areas

It has become apparent that a hot-spot of asbestos contamination has been identified. This appears to be associated with a localised demolition material. Therefore, prior to any remediation, the extent of this fill should be identified and then the remedial options declared in a separate statement.

Should the contaminated made ground be entirely removed from the site, then no contamination linkage would be present. Clear evidence of the removal will need to be submitted to the local authority and may require additional asbestos tests.

Should the hot-spot/area of demolition material be entirely capped by hard-standing/building footprints, then no contamination linkage would be present as the asbestos contamination would be buried, thereby breaking the pathway between source and end user.

Should the contaminated made ground not be entirely removed, then garden and landscaped areas within the affected area would need to incorporate a clean cover system. This system would need to employ a capping layer of say 500mm of inert material, which will put the contaminated ground out of the end users' dig range. At the base of this layer, a granular capillary break of say 100mm of free draining granular soil should be placed in order to prevent mobile contamination rising upward. This expedient should also provide a suitable root barrier to isolate the plants from the underlying contaminated ground.

Evidently some further investigation will be required before remedial proposals can be finalised, after which a remediation statement will need to be produced.

8.4 Fill Materials

It should also be appreciated that any fill material, either site-won or imported, to be employed at the site should be subjected to the following assessment to determine its suitability.

Fill materials should be initially screened, by a suitably qualified engineer to establish that:

- It is a suitable growing media if it is to be employed as such, including compliance with BS3883 (2007)
- It is free from obvious contamination i.e. visual or olfactory evidence
- It has not come from areas where Japanese Knotweed or other invasive or injurious plants are suspected to be growing
- It is not a statutory nuisance, such as being odorous
- It is free from unsuitable material i.e. whole bricks, brick ties, timber or glass.

It should also be appreciated that any fill should be subjected to validation testing to assess its suitability. The following table has been taken from YALPAG¹¹ documentation and may be used as a guide. Depending on the origin and nature of the material, not all fill will require the sampling frequency and testing indicated, although this should be in agreement with any regulatory bodies (such as the Local Authority).

¹¹ YALPAG Technical Guidance for Developers, Landowners and Consultants – Verification Requirements for Cover Systems V3.3 Appendix 1a, October 2016.

Table 6: Validation sampling and testing

Fill Type	Frequency	Minimum Determinands
Virgin Quarried Material	1 or 2 depending on the type of stone (to confirm the inert nature of the material)	Standard metals/metalloids (As, Cd, Cr, Cr(VI), Cu, Hg, Ni, Pb, Se, Zn)
Crushed Hardcore, Stone, Brick	Minimum 1 per 1000m ³	Standard metals/metalloids as above plus PAH (16 USEPA) and Asbestos
Greenfield/ Manufactured Soils	The greater of a minimum of 3 or 1 per 250m ³	Standard metals/metalloids as above plus PAH (16 USEPA) and Asbestos
Brownfield/ Screened Soils	The greater of a minimum of 6 or 1 per 100m ³	Standard metals/metalloids as above plus PAH (16 USEPA), TPH (CWG banded) and Asbestos Any additional analysis dependant on the history of the donor site.

The screening values for the above regime should also be agreed with any regulatory bodies; however, the following is recommended in the first instance.

Table 7: Fill screening values

Contaminant	Screening Value (Residential with Plant Uptake) (mg/kg)		Reference
	1% SOM	6% SOM	
As	37	37	Atrisk ^{SOIL} SSVs
Cd	22.1	22.1	Atrisk ^{SOIL} SSVs
Cr(VI)	3.62	3.63	Atrisk ^{SOIL} SSVs
Cu	4730	4790	Atrisk ^{SOIL} SSVs
Hg	8.81	15.8	Atrisk ^{SOIL} SSVs
Ni	136	136	Atrisk ^{SOIL} SSVs
Pb	200	200	Atrisk ^{SOIL} SSVs
V	136	138	Atrisk ^{SOIL} SSVs
Zn	20000	20300	Atrisk ^{SOIL} SSVs
TPH CWG	See attached summary sheet		Atrisk ^{SOIL} SSVs
PAH 16 USEPA	See attached summary sheet		Atrisk ^{SOIL} SSVs

The above screening values should be considered with respect to the Soil Organic Matter (SOM) of the subject material i.e. 1% SOM would be typical for granular fill and 6% SOM for topsoil. Testing should comply with UKAS and MCERTS, where applicable, and undertaken by an accredited laboratory.

Where the material has been derived from a commercial company, certificates or other industry quality protocol compliance i.e. WRAP should be obtained. However, it will be necessary to ensure that this documentation specifically related to the material being imported, it is no more than two months old and complies with the screening and frequency requirements given above.

Suitable fill materials should be either placed immediately or sufficiently quarantined to prevent cross-contamination. If it is necessary, the quarantined material should be placed on appropriate sheeting and covered to prevent it becoming mixed with contaminated soils or dust, or penetrated by mobile contaminants.

8.5 Verification Report

In order to demonstrate that the remedial works have been sufficiently carried out where applicable, it will be necessary to produce a verification report for submission to any statutory authorities.

The report should be produced by a suitably qualified engineer. The number of verification areas for the development should be confirmed with any statutory authorities for the site.

9. Recommendations for Further Work

- This report should be forwarded to the relevant authorities as soon as practicable to ensure they have sufficient time to review and discuss any issues.
- Further discussions with the client and investigation to ascertain the lateral extent of the contamination fill.
- Produce a remediation statement.
- Discussions with ground work contractors in relation to the requirement for testing of materials to be disposed off-site (Waste Acceptance Criteria) and the suitability of imported materials.
- Discussions with service providers regarding suitable materials for pipe work given the nature of chemical determinands found within the soils on site.
- Produce a validation report to demonstrate that the geo-environmental risks discussed in this report have been mitigated.

Clearly Rogers Geotechnical Services Ltd would be happy to offer advice with respect to the above and assist where necessary.

10. References

- British Geological Survey (NERC) (2025), BGS, Keyworth.
 - Geology of Britain Viewer:
(http://maps.bgs.ac.uk/geologyviewer_google/googleviewer.html)
 - Lexicon of Named Rock Units:
(<http://www.bgs.ac.uk/lexicon/>)
- British Standards Institution (1990) BS1377: *British standard methods of test for soils for civil engineering purposes*, B.S.I., London.
- British Standards Institution (2015) BS5930: *Code of practice for site investigations*, B.S.I., London.
- British Standards Institution (2011), BS 10175: *Investigation of potentially contaminated sites – Code of Practice*, British Standards Institute.
- British Standards Institution (2015) BS8485: *Code of practice for the design of protective measures for methane and carbon dioxide ground gases for new buildings*, B.S.I., London.
- British Standards Institution (2013), BS 8576 *Guidance on Investigations for Ground Gas – Permanent Gases and Volatile Organic Compounds*.
- British Standards Institution (2004) BS EN ISO 14688: *Geotechnical investigation and testing – Identification and classification of soil, incorporating corrigendum no.1 (2007)*, B.S.I., London.
- Building Research Establishment (BRE) Special Digest 1 (2005), Third Edition: *Concrete in aggressive ground*, BRE Press, Garston.
 - Part C: *Assessing the aggressive chemical environment*.
 - Part D: *Specifying concrete for general cast-in-situ use*.
- Department for Environment, Food and Rural Affairs and the Environment Agency (2009) DEFRA Science Report – Final SC050021/SR2, *Human Health toxicological assessment of contaminants in soil*. Environment Agency, Bristol.
- Department for Environment, Food and Rural Affairs and the Environment Agency (2009) DEFRA Science Report – SC050021/SR3, *Updated technical background to the CLEA model*. Environment Agency, Bristol.
- Department for Environment, Food and Rural Affairs (2014) SP1010: *Development of Category 4 Screening Levels for Assessment of Land Affected by Contamination – Policy Companion Document*.
- Wilson S, Oliver S, Mallet H, Hutchings H, Card G, *Assessing risks posed by ground gasses to buildings*, CIRIA Report C665.

Appendix 1

Site Plan



Notes:
Investigation positions approximated from site operative's notes.



Rogers Geotechnical Services Ltd

Offices 1 & 2, Barncliffe Business Park,
Near Bank, Shelley, Huddersfield, HD8 8LU

Telephone: 0843 50 66 87
www.rogersgeotech.co.uk

Client:
Bright Young Consulting Limited

Job Number:
C4633/24/E/7122 Rev.1

Project Details:
Yew Tree Farm, Farnley Tyas

Scale: Not to scale - reference only



Appendix 2

Trial Pit Logs





Trial Pit Log

Trialpit No

TP02

Sheet 1 of 1

Project Name: Yew Tree Farm

Project No.
C4633/24/E/7122Co-ords: -
Level:Date
15/10/2024

Location: The Village, Farnley Tyas, Huddersfeild, West Yorkshire, HD4 6UQ

Dimensions (m):

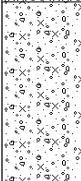
1.1

Client: Manage Construct Achieve Ltd

Depth
0.75

0.35

Scale
1:25Logged
TM

Water Strike	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
	Depth	Type	Results				
	0.00 - 0.15	B + D					
	0.15 - 0.70	B + D		0.15			MADE GROUND (Brown, silty, very sandy angular to rounded and fine to coarse GRAVEL of various lithologies, with moderate cobble content. Sand is fine to coarse. Cobbles are angular to sub-angular and <200mm of sandstone).
				0.75			Yellowish brown, very silty, very sandy angular to sub-angular and fine to coarse GRAVEL of sandstone, with moderate cobble content. Sand is fine to coarse. Cobbles are angular to sub-angular and <250mm of sandstone.
							WEATHERED GRENOSIDE SANDSTONE End of pit at 0.75 m

1

2

3

4

5

Remarks: Termination Reason: Refusal in natural material.

Stability: Stable



Rogers Geotechnical Services Ltd

Offices 1&2 Barncliffe Business Park,
Near Bank, Shelley,
Huddersfield
HD8 8LU.

www.rogersgeotech.co.uk

Tel : 0843 50 666 87

Job No:

CL633/24/E/7122

Sheet No:

1 of 1

Prepared By:

TM

Date:

01/11/2024

Checked By:

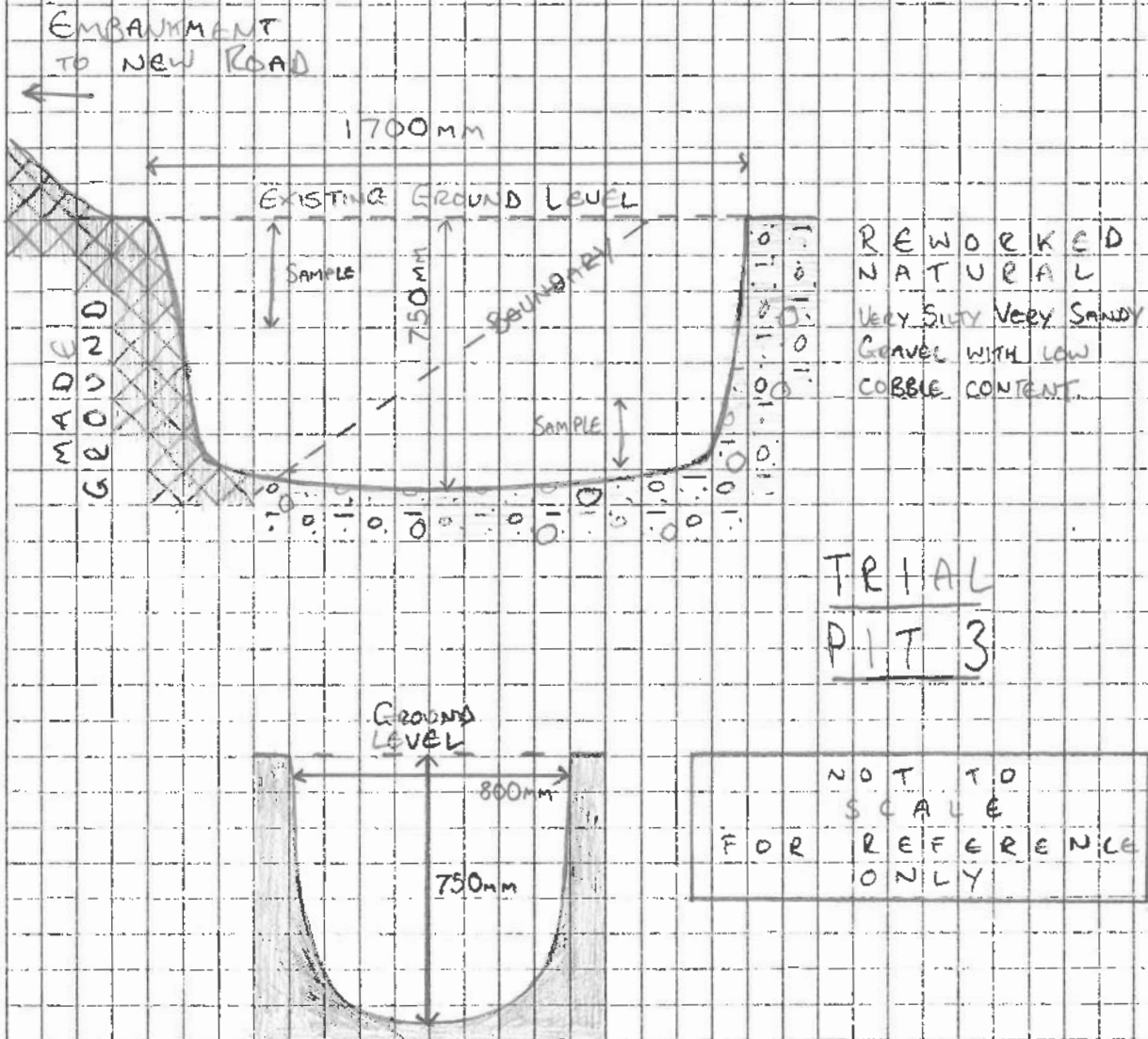
RP

Date:

01/11/2024

Title:

YEW TREE FARM, FARNLEY TWS - TPO3







Trial Pit Log

Trialpit No

TP05

Sheet 1 of 1

Project Name: Yew Tree Farm

Project No.
C4633/24/E/7122Co-ords: -
Level:Date
15/10/2024

Location: The Village, Farnley Tyas, Huddersfeild, West Yorkshire, HD4 6UQ

Dimensions (m):
1.4
Depth 0.70Scale
1:25Logged
TM

Client: Manage Construct Achieve Ltd

Water Strike	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
	Depth	Type	Results				
	0.00 - 0.30	B + D		0.70			Yellowish brown, very silty, very gravelly fine to coarse SAND, with moderate cobble content. Gravel is angular to sub-angular and fine to coarse of sandstone. Cobbles are angular to sub-angular and <300mm of sandstone. REWORKED GRENOSIDE SANDSTONE
							End of pit at 0.70 m

1

2

3

4

5

Remarks: Termination Reason: Refusal in natural material.

Stability: Stable





Trial Pit Log

Trialpit No

TP06

Sheet 1 of 1

Project Name: Yew Tree Farm

Project No.
C4633/24/E/7122Co-ords: -
Level:Date
15/10/2024

Location: The Village, Farnley Tyas, Huddersfeild, West Yorkshire, HD4 6UQ

Dimensions (m):

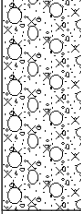
1.5

Client: Manage Construct Achieve Ltd

Depth
0.70

0.8

Scale
1:25Logged
TM

Water Strike	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
	Depth	Type	Results				
	0.00 - 0.30	B + D		0.70			Yellowish brown, very silty, very gravelly fine to coarse SAND, with moderate cobble content and moderate boulder content. Gravel is angular to sub-angular and fine to coarse of sandstone. Cobbles are angular to sub-angular <620mm of sandstone. REWORKED GRENOSIDE SANDSTONE
							End of pit at 0.70 m

1

2

3

4

5

Remarks: Termination Reason: Refusal in natural material.

Stability: Stable





Photo 1: TP01 - Overview



Photo 2: TP01 - Profile view.



Photo 3: TP01 - Down pit.



Photo 4: TP01 - Spoil (Made Ground).



Rogers Geotechnical Services Ltd

Offices 1 & 2, Barncliffe Business Park,
Near Bank, Shelley,
Huddersfield,

Job No:

C4633/24/E/7122 Rev.1

Site:

Yew Tree Farm,
The Village, Farnley Tyas,
Huddersfield,
West Yorkshire,
HD4 6UQ

Client:

Bright Young Consulting Limited





Photo 5: TP01 - Spoil (Natural)



Photo 6: TP01 - Location



Photo 7: TP02 - Overview



Photo 8: TP02 - Profile view



Rogers Geotechnical Services Ltd

Offices 1 & 2, Barncliffe Business Park,
Near Bank, Shelley,
Huddersfield,

Job No:

C4633/24/E/7122 Rev.1

Site:

Yew Tree Farm,
The Village, Farnley Tyas,
Huddersfield,
West Yorkshire,
HD4 6UQ

Client:

Bright Young Consulting Limited





Photo 9: TP02 - Spoil



Photo 10: TP02 - Reinstatement and location



Photo 11: TP03 - Overview



Photo 12: TP03 - Profile view (angled boundary between the demolition material and reworked natural soils)



Rogers Geotechnical Services Ltd

Offices 1 & 2, Barncliffe Business Park,
Near Bank, Shelley,
Huddersfield,

Job No:

C4633/24/E/7122 Rev.1

Site:

Yew Tree Farm,
The Village, Farnley Tyas,
Huddersfield,
West Yorkshire,
HD4 6UQ

Client:

Bright Young Consulting Limited



... delivered using our own drilling rigs / crews / soils lab / engineers



Photo 13: TP03 - Spoil



Photo 14: TP03 - Reinstatement and location



Photo 15: TP04 - Overview



Photo 16: TP04 - Profile view



Rogers Geotechnical Services Ltd

Offices 1 & 2, Barncliffe Business Park,
Near Bank, Shelley,
Huddersfield,

Job No:

C4633/24/E/7122 Rev.1

Site:

Yew Tree Farm,
The Village, Farnley Tyas,
Huddersfield,
West Yorkshire,
HD4 6UQ

Client:

Bright Young Consulting Limited



... delivered using our own drilling rigs / crews / soils lab / engineers



Photo 17: TP04 - Spoil



Photo 18: TP04 - Reinstatement and location



Photo 19: TP05 - Overview



Photo 20: TP05 - Profile view



Rogers Geotechnical Services Ltd

Offices 1 & 2, Barncliffe Business Park,
Near Bank, Shelley,
Huddersfield,

Job No:

C4633/24/E/7122 Rev.1

Site:

Yew Tree Farm,
The Village, Farnley Tyas,
Huddersfield,
West Yorkshire,
HD4 6UQ

Client:

Bright Young Consulting Limited





Photo 21: TP05 - Spoil



Photo 22: TP06 - Overview



Photo 23: TP06 - Profile view



Photo 24: TP06 - Reinstatement



Rogers Geotechnical Services Ltd

Offices 1 & 2, Barncliffe Business Park,
Near Bank, Shelley,
Huddersfield,

Job No:

C4633/24/E/7122 Rev.1

Site:

Yew Tree Farm,
The Village, Farnley Tyas,
Huddersfield,
West Yorkshire,
HD4 6UQ

Client:

Bright Young Consulting Limited



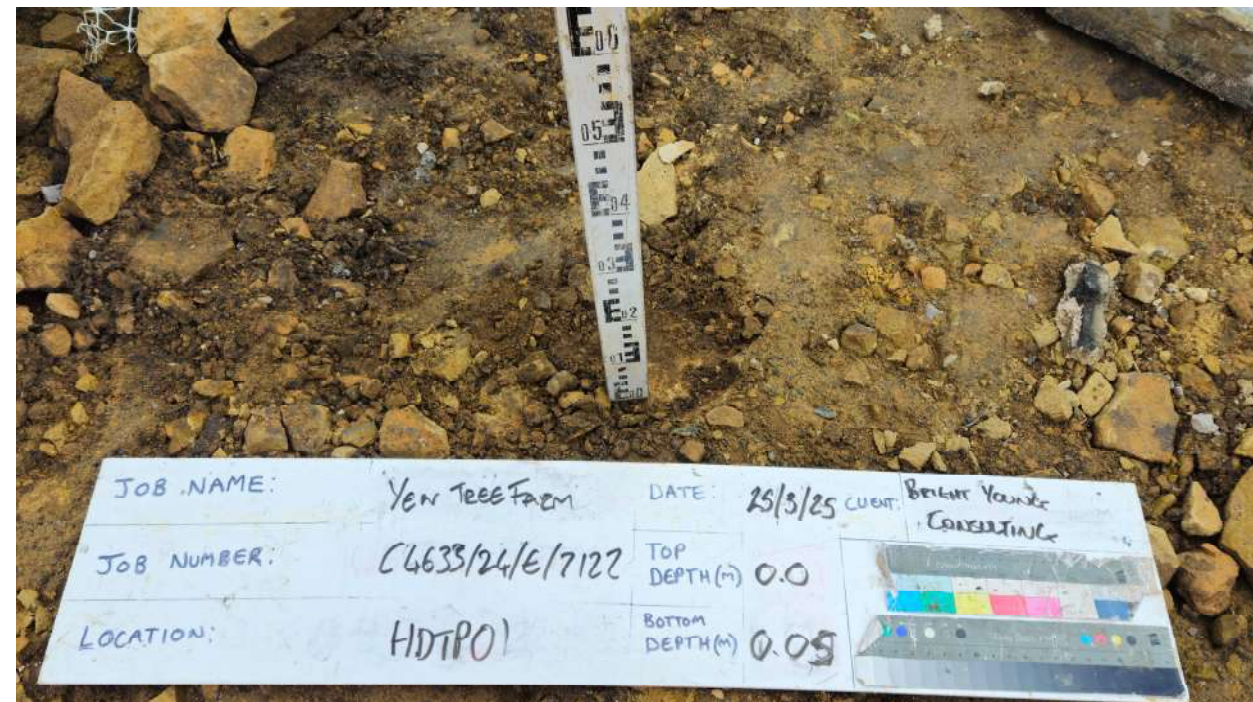


Photo 25: HDTP01 - Overview



Photo 26: HDTP01 - Close-up



Photo 27: HDTP01 - Surrounds



Photo 28: Site level drop between HDTP01 and HDTP02



Rogers Geotechnical Services Ltd

Offices 1 & 2, Barncliffe Business Park,
Near Bank, Shelley,
Huddersfield,

Job No:

C4633/24/E/7122 Rev.1

Site:

Yew Tree Farm,
The Village, Farnley Tyas,
Huddersfield,
West Yorkshire,
HD4 6UQ

Client:

Bright Young Consulting Limited





Photo 29: HDTP02 - Overview



Photo 30: HDTP02 - Close-up



Photo 31: HDTP02 - Surrounds



Photo 32: Site level drop showing Made Ground has been removed.



Rogers Geotechnical Services Ltd

Offices 1 & 2, Barncliffe Business Park,
Near Bank, Shelley,
Huddersfield,

Job No:

C4633/24/E/7122 Rev.1

Site:

Yew Tree Farm,
The Village, Farnley Tyas,
Huddersfield,
West Yorkshire,
HD4 6UQ

Client:

Bright Young Consulting Limited





Photo 33: Large site level drop to west of site showing made ground is removed.



Photo 34: Original position of WS01 - now covered with hardstanding.



Photo 35: Original position of WS01 - now covered with hardstanding.

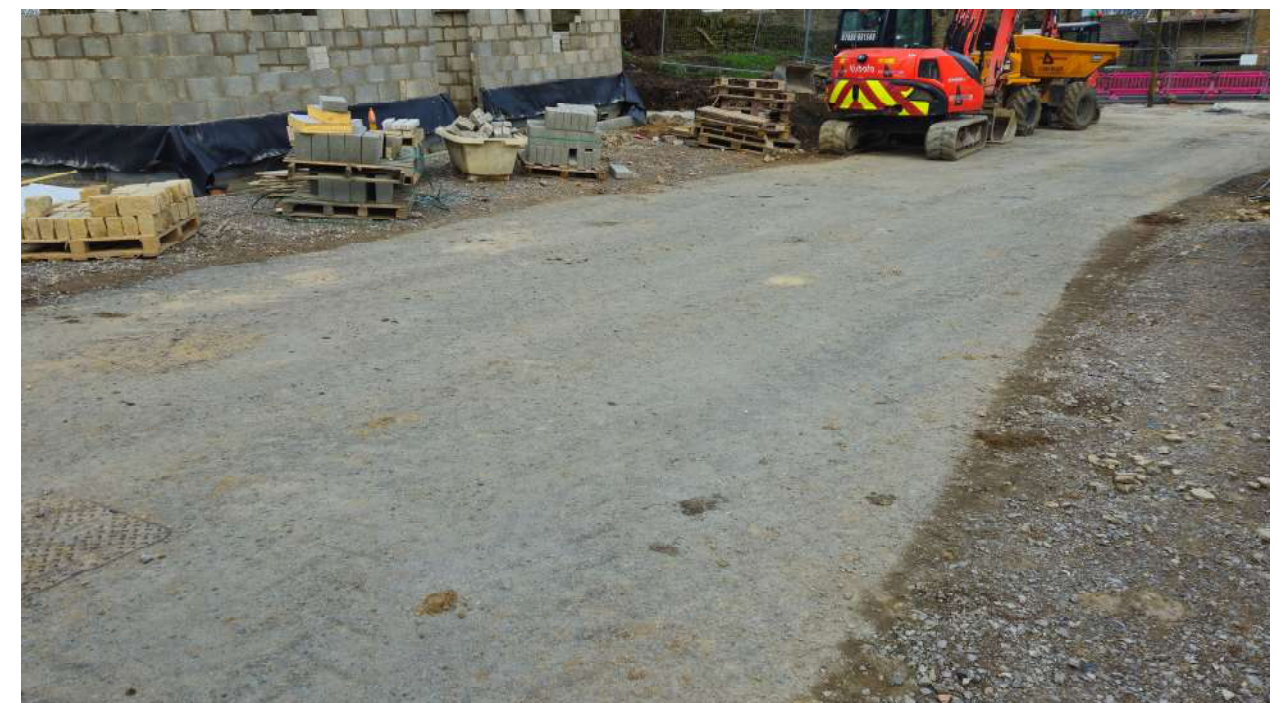


Photo 36: Original position of WS01 - now covered with hardstanding.



Rogers Geotechnical Services Ltd

Offices 1 & 2, Barncliffe Business Park,
Near Bank, Shelley,
Huddersfield,

Job No:

C4633/24/E/7122 Rev.1

Site:

Yew Tree Farm,
The Village, Farnley Tyas,
Huddersfield,
West Yorkshire,
HD4 6UQ

Client:

Bright Young Consulting Limited



... delivered using our own drilling rigs / crews / soils lab / engineers



Appendix 3

Laboratory Testing



Rogers Geotechnical Services Ltd
Offices 1&2 Barncliffe Business Pk
Near Bank, Shelley
Huddersfield
West Yorkshire
HD8 8LU

t: 01484 604354

e: harry.letch@rogersgeotech.co.uk

i2 Analytical Ltd.
7 Woodshots Meadow,
Croxley Green
Business Park,
Watford,
Herts,
WD18 8YS

t: 01923 225404

f: 01923 237404

e: reception@i2analytical.com

Analytical Report Number : 24-048197

Project / Site name:	Yew Tree Farm, Farnley Tyas	Samples received on:	16/10/2024
Your job number:	C4633 24 E 7122	Samples instructed on/ Analysis started on:	16/10/2024
Your order number:		Analysis completed by:	24/10/2024
Report Issue Number:	1	Report issued on:	24/10/2024
Samples Analysed:	6 soil samples		

Signed: _____

Anna Goc
PL Head of Reporting Team
For & on behalf of i2 Analytical Ltd.

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41-711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

Standard sample disposal times, unless otherwise agreed with the laboratory, are :

soils - 4 weeks from reporting
leachates - 2 weeks from reporting
waters - 2 weeks from reporting
asbestos - 6 months from reporting

Excel copies of reports are only valid when accompanied by this PDF certificate.

Any assessments of compliance with specifications are based on actual analytical results with no contribution from uncertainty of measurement.
Application of uncertainty of measurement would provide a range within which the true result lies.
An estimate of measurement uncertainty can be provided on request.



Analytical Report Number: 24-048197

Project / Site name: Yew Tree Farm, Farnley Tyas

Lab Sample Number	350825	350826	350827	350828	350829
Sample Reference	TP01	TP02	TP03	TP04	TP05
Sample Number	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)	0.20-0.75	0.00-0.15	0.00-0.30	0.00-0.20	0.00-0.30
Date Sampled	15/10/2024	15/10/2024	15/10/2024	15/10/2024	15/10/2024
Time Taken	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Test Limit of detection	Test Accreditation Status		

Stone Content	%	0.1	NONE	41.5	< 0.1	62	< 0.1	28.6
Moisture Content	%	0.01	NONE	9.1	15	9.8	12	12
Total mass of sample received	kg	0.1	NONE	0.8	0.8	0.8	0.8	0.8

Asbestos

Asbestos in Soil Detected/Not Detected	Type	N/A	ISO 17025	Not-detected	Not-detected	Detected	Not-detected	Not-detected
Asbestos Analyst ID	N/A	N/A	N/A	DSA	DSA	DSA	DSA	DSA
Actinolite detected	Type	N/A	ISO 17025	-	-	Not-detected	-	-
Amosite detected	Type	N/A	ISO 17025	-	-	Not-detected	-	-
Anthophyllite detected	Type	N/A	ISO 17025	-	-	Not-detected	-	-
Chrysotile detected	Type	N/A	ISO 17025	-	-	Detected	-	-
Crocidolite detected	Type	N/A	ISO 17025	-	-	Not-detected	-	-
Tremolite detected	Type	N/A	ISO 17025	-	-	Not-detected	-	-

Asbestos % by hand picking/weighing	%	0.001	ISO 17025	-	-	< 0.001	-	-
-------------------------------------	---	-------	-----------	---	---	---------	---	---

Asbestos Containing Material Types Detected (ACM)	Type	N/A	ISO 17025	-	-	Loose Fibres	-	-
---	------	-----	-----------	---	---	--------------	---	---

General Inorganics

pH (L099)	pH Units	N/A	MCERTS	6.3	7.4	11.3	7.8	5.6
Free Cyanide	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Total Sulphate as SO ₄	%	0.005	MCERTS	0.057	0.045	0.262	0.027	0.058
Water Soluble Sulphate as SO ₄ 16hr extraction (2:1)	mg/kg	2.5	MCERTS	300	190	470	90	150
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	148	96.8	234	44.9	73.7
Organic Matter (automated)	%	0.1	MCERTS	0.7	1.4	1.2	0.9	0.4

Total Phenols

Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
----------------------------	-------	---	--------	-------	-------	-------	-------	-------

Speciated PAHs

Naphthalene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	0.08	0.06	< 0.05
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Fluorene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Phenanthrene	mg/kg	0.05	MCERTS	< 0.05	0.12	0.29	0.26	< 0.05
Anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Fluoranthene	mg/kg	0.05	MCERTS	< 0.05	0.17	0.84	0.28	< 0.05
Pyrene	mg/kg	0.05	MCERTS	< 0.05	0.12	0.73	0.23	< 0.05
Benzo(a)anthracene	mg/kg	0.05	MCERTS	< 0.05	0.06	0.37	0.14	< 0.05
Chrysene	mg/kg	0.05	MCERTS	< 0.05	0.07	0.47	0.16	< 0.05
Benzo(b)fluoranthene	mg/kg	0.05	ISO 17025	< 0.05	< 0.05	0.47	0.16	< 0.05
Benzo(k)fluoranthene	mg/kg	0.05	ISO 17025	< 0.05	< 0.05	0.25	0.06	< 0.05
Benzo(a)pyrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	0.39	0.11	< 0.05
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	0.23	0.07	< 0.05
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	0.24	0.08	< 0.05

Total PAH

Speciated Total EPA-16 PAHs	mg/kg	0.8	ISO 17025	< 0.80	< 0.80	4.35	1.59	< 0.80
-----------------------------	-------	-----	-----------	--------	--------	------	------	--------

Analytical Report Number: 24-048197

Project / Site name: Yew Tree Farm, Farnley Tyas

Lab Sample Number	350825	350826	350827	350828	350829
Sample Reference	TP01	TP02	TP03	TP04	TP05
Sample Number	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)	0.20-0.75	0.00-0.15	0.00-0.30	0.00-0.20	0.00-0.30
Date Sampled	15/10/2024	15/10/2024	15/10/2024	15/10/2024	15/10/2024
Time Taken	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Test Limit of detection	Test Accreditation Status		

Heavy Metals / Metalloids

Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	4.5	7.7	4.5	4	1.8
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
Chromium (hexavalent)	mg/kg	1.8	MCERTS	< 1.8	< 1.8	< 1.8	< 1.8	< 1.8
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	25	20	53	18	16
Copper (aqua regia extractable)	mg/kg	1	MCERTS	13	15	12	11	4.2
Lead (aqua regia extractable)	mg/kg	1	MCERTS	12	42	18	12	93
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	18	15	13	14	14
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	1.2	< 1.0	< 1.0	2
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	28	24	18	22	23
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	38	53	55	39	30

Petroleum Hydrocarbons

TPHCWG - Aliphatic >EC5 - EC6 _{HS_1D_AL}	mg/kg	0.01	MCERTS	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
TPHCWG - Aliphatic >EC6 - EC8 _{HS_1D_AL}	mg/kg	0.01	MCERTS	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
TPHCWG - Aliphatic >EC8 - EC10 _{HS_1D_AL}	mg/kg	0.01	MCERTS	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
TPHCWG - Aliphatic >EC10 - EC12 _{EH_CU_1D_AL}	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPHCWG - Aliphatic >EC12 - EC16 _{EH_CU_1D_AL}	mg/kg	2	MCERTS	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
TPHCWG - Aliphatic >EC16 - EC21 _{EH_CU_1D_AL}	mg/kg	8	MCERTS	< 8.0	< 8.0	< 8.0	< 8.0	< 8.0
TPHCWG - Aliphatic >EC21 - EC35 _{EH_CU_1D_AL}	mg/kg	8	MCERTS	< 8.0	< 8.0	< 8.0	< 8.0	< 8.0
TPHCWG - Aliphatic >EC5 - EC35 _{EH_CU+HS_1D_AL}	mg/kg	10	NONE	< 10	< 10	< 10	< 10	< 10

TPHCWG - Aromatic >EC5 - EC7 _{HS_1D_AR}	mg/kg	0.01	MCERTS	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
TPHCWG - Aromatic >EC7 - EC8 _{HS_1D_AR}	mg/kg	0.01	MCERTS	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
TPHCWG - Aromatic >EC8 - EC10 _{HS_1D_AR}	mg/kg	0.02	MCERTS	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020
TPHCWG - Aromatic >EC10 - EC12 _{EH_CU_1D_AR}	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPHCWG - Aromatic >EC12 - EC16 _{EH_CU_1D_AR}	mg/kg	2	MCERTS	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
TPHCWG - Aromatic >EC16 - EC21 _{EH_CU_1D_AR}	mg/kg	10	MCERTS	< 10	< 10	< 10	< 10	< 10
TPHCWG - Aromatic >EC21 - EC35 _{EH_CU_1D_AR}	mg/kg	10	MCERTS	< 10	< 10	< 10	< 10	< 10
TPHCWG - Aromatic >EC5 - EC35 _{EH_CU+HS_1D_AR}	mg/kg	10	NONE	< 10	< 10	< 10	< 10	< 10

VOCs

MTBE (Methyl Tertiary Butyl Ether)	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Benzene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Toluene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Ethylbenzene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
p & m-Xylene	µg/kg	8	MCERTS	< 8.0	< 8.0	< 8.0	< 8.0	< 8.0
o-Xylene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0

U/S = Unsuitable Sample I/S = Insufficient Sample ND = Not detected

Analytical Report Number: 24-048197

Project / Site name: Yew Tree Farm, Farnley Tyas

Lab Sample Number				350830
Sample Reference				TP06
Sample Number				None Supplied
Depth (m)				0.00-0.30
Date Sampled				15/10/2024
Time Taken				None Supplied
Analytical Parameter (Soil Analysis)	Units	Test Limit of detection	Test Accreditation Status	

Stone Content	%	0.1	NONE	35.7
Moisture Content	%	0.01	NONE	12
Total mass of sample received	kg	0.1	NONE	0.8

Asbestos

Asbestos in Soil Detected/Not Detected	Type	N/A	ISO 17025	Not-detected
Asbestos Analyst ID	N/A	N/A	N/A	DSA
Actinolite detected	Type	N/A	ISO 17025	-
Amosite detected	Type	N/A	ISO 17025	-
Anthophyllite detected	Type	N/A	ISO 17025	-
Chrysotile detected	Type	N/A	ISO 17025	-
Crocidolite detected	Type	N/A	ISO 17025	-
Tremolite detected	Type	N/A	ISO 17025	-

Asbestos % by hand picking/weighing	%	0.001	ISO 17025	-
-------------------------------------	---	-------	-----------	---

Asbestos Containing Material Types Detected (ACM)	Type	N/A	ISO 17025	-
---	------	-----	-----------	---

General Inorganics

pH (L099)	pH Units	N/A	MCERTS	6.3
Free Cyanide	mg/kg	1	MCERTS	< 1.0
Total Sulphate as SO ₄	%	0.005	MCERTS	0.035
Water Soluble Sulphate as SO ₄ 16hr extraction (2:1)	mg/kg	2.5	MCERTS	190
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	97.4
Organic Matter (automated)	%	0.1	MCERTS	0.6

Total Phenols

Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0
----------------------------	-------	---	--------	-------

Speciated PAHs

Naphthalene	mg/kg	0.05	MCERTS	< 0.05
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05
Fluorene	mg/kg	0.05	MCERTS	< 0.05
Phenanthrene	mg/kg	0.05	MCERTS	< 0.05
Anthracene	mg/kg	0.05	MCERTS	< 0.05
Fluoranthene	mg/kg	0.05	MCERTS	< 0.05
Pyrene	mg/kg	0.05	MCERTS	< 0.05
Benzo(a)anthracene	mg/kg	0.05	MCERTS	< 0.05
Chrysene	mg/kg	0.05	MCERTS	< 0.05
Benzo(b)fluoranthene	mg/kg	0.05	ISO 17025	< 0.05
Benzo(k)fluoranthene	mg/kg	0.05	ISO 17025	< 0.05
Benzo(a)pyrene	mg/kg	0.05	MCERTS	< 0.05
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	< 0.05
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	< 0.05

Total PAH

Speciated Total EPA-16 PAHs	mg/kg	0.8	ISO 17025	< 0.80
-----------------------------	-------	-----	-----------	--------

Analytical Report Number: 24-048197

Project / Site name: Yew Tree Farm, Farnley Tyas

Lab Sample Number				350830
Sample Reference				TP06
Sample Number				None Supplied
Depth (m)				0.00-0.30
Date Sampled				15/10/2024
Time Taken				None Supplied
Analytical Parameter (Soil Analysis)	Units	Test Limit of detection	Test Accreditation Status	

Heavy Metals / Metalloids

Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	3
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2
Chromium (hexavalent)	mg/kg	1.8	MCERTS	< 1.8
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	17
Copper (aqua regia extractable)	mg/kg	1	MCERTS	6.7
Lead (aqua regia extractable)	mg/kg	1	MCERTS	8.6
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	12
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	17
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	22

Petroleum Hydrocarbons

TPHCWG - Aliphatic >EC5 - EC6 _{HS_1D_AL}	mg/kg	0.01	MCERTS	< 0.010
TPHCWG - Aliphatic >EC6 - EC8 _{HS_1D_AL}	mg/kg	0.01	MCERTS	< 0.010
TPHCWG - Aliphatic >EC8 - EC10 _{HS_1D_AL}	mg/kg	0.01	MCERTS	< 0.010
TPHCWG - Aliphatic >EC10 - EC12 _{EH_CU_1D_AL}	mg/kg	1	MCERTS	< 1.0
TPHCWG - Aliphatic >EC12 - EC16 _{EH_CU_1D_AL}	mg/kg	2	MCERTS	< 2.0
TPHCWG - Aliphatic >EC16 - EC21 _{EH_CU_1D_AL}	mg/kg	8	MCERTS	< 8.0
TPHCWG - Aliphatic >EC21 - EC35 _{EH_CU_1D_AL}	mg/kg	8	MCERTS	< 8.0
TPHCWG - Aliphatic >EC5 - EC35 _{EH_CU+HS_1D_AL}	mg/kg	10	NONE	< 10

TPHCWG - Aromatic >EC5 - EC7 _{HS_1D_AR}	mg/kg	0.01	MCERTS	< 0.010
TPHCWG - Aromatic >EC7 - EC8 _{HS_1D_AR}	mg/kg	0.01	MCERTS	< 0.010
TPHCWG - Aromatic >EC8 - EC10 _{HS_1D_AR}	mg/kg	0.02	MCERTS	< 0.020
TPHCWG - Aromatic >EC10 - EC12 _{EH_CU_1D_AR}	mg/kg	1	MCERTS	< 1.0
TPHCWG - Aromatic >EC12 - EC16 _{EH_CU_1D_AR}	mg/kg	2	MCERTS	< 2.0
TPHCWG - Aromatic >EC16 - EC21 _{EH_CU_1D_AR}	mg/kg	10	MCERTS	< 10
TPHCWG - Aromatic >EC21 - EC35 _{EH_CU_1D_AR}	mg/kg	10	MCERTS	< 10
TPHCWG - Aromatic >EC5 - EC35 _{EH_CU+HS_1D_AR}	mg/kg	10	NONE	< 10

VOCs

MTBE (Methyl Tertiary Butyl Ether)	µg/kg	5	MCERTS	< 5.0
Benzene	µg/kg	5	MCERTS	< 5.0
Toluene	µg/kg	5	MCERTS	< 5.0
Ethylbenzene	µg/kg	5	MCERTS	< 5.0
p & m-Xylene	µg/kg	8	MCERTS	< 8.0
o-Xylene	µg/kg	5	MCERTS	< 5.0

U/S = Unsuitable Sample I/S = Insufficient Sample ND = Not detected



Analytical Report Number: 24-048197
Project / Site name: Yew Tree Farm, Farnley Tyas
Your Order No:

Certificate of Analysis - Asbestos Quantification

Methods:

Qualitative Analysis

The samples were analysed qualitatively for asbestos by polarising light and dispersion staining as described by the Health and Safety Executive in HSG 248.

Quantitative Analysis

The analysis was carried out using our documented in-house method A006 based on HSE Contract Research Report No: 83/1996: Development and Validation of an analytical method to determine the amount of asbestos in soils and loose aggregates (Davies et al, 1996) and HSG 248. Our method includes initial examination of the entire representative sample, then fractionation and detailed analysis of each fraction, with quantification by hand picking and weighing.

The limit of detection (reporting limit) of this method is 0.001 %.

The method has been validated using samples of at least 100 g, results for samples smaller than this should be interpreted with caution.

Both Qualitative and Quantitative Analyses are UKAS accredited.

Sample Number	Sample ID	Sample Depth (m)	Sample Weight (g)	Asbestos Containing Material Types Detected (ACM)	PLM Results	Asbestos by hand picking/weighing (%)	Total % Asbestos in Sample
350827	TP03	0.00-0.30	155	Loose Fibres	Chrysotile	< 0.001	< 0.001

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

Analytical Report Number : 24-048197

Project / Site name: Yew Tree Farm, Farnley Tyas

* These descriptions are only intended to act as a cross check if sample identities are questioned. The major constituent of the sample is intended to act with respect to MCERTS validation. The laboratory is accredited for sand, clay and loam (MCERTS) soil types. Data for unaccredited types of solid should be interpreted with care.

Stone content of a sample is calculated as the % weight of the stones not passing a 10 mm sieve. Results are not corrected for stone content.

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
350825	TP01	None Supplied	0.20-0.75	Brown loam with gravel and stones
350826	TP02	None Supplied	0.00-0.15	Brown loam and clay with gravel
350827	TP03	None Supplied	0.00-0.30	Brown sand with gravel and stones
350828	TP04	None Supplied	0.00-0.20	Brown sand with gravel
350829	TP05	None Supplied	0.00-0.30	Brown sand with stones
350830	TP06	None Supplied	0.00-0.30	Brown sand with gravel and stones

Analytical Report Number : 24-048197

Project / Site name: Yew Tree Farm, Farnley Tyas

Water matrix abbreviations:

Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Asbestos identification in Soil	Asbestos Identification with the use of polarised light microscopy in conjunction with dispersion staining techniques	In-house method based on HSG 248, 2021	A001B	D	ISO 17025
Asbestos Quantification - Gravimetric	Asbestos quantification by gravimetric method - in house method based on references	HSE Report No: 83/1996, HSG 248 (2021), HSG 264 (2012) & SCA Blue Book (draft)	A006B	D	ISO 17025
Organic matter (Automated) in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate (Walkley Black Method)	In-house method	L009B	D	MCERTS
Moisture Content	Moisture content, determined gravimetrically (up to 30°C)	In-house method	L019B	W	NONE
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight	In-house method based on British Standard Methods and MCERTS requirements.	L019B	D	NONE
Metals in soil by ICP-OES	Determination of metals in soil by aqua-regia digestion followed by ICP-OES	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil	L038B	D	MCERTS
Total sulphate (as SO ₄ in soil)	Determination of total sulphate in soil by extraction with 10% HCl followed by ICP-OES	In-house method	L038B	D	MCERTS
Sulphate, water soluble, in soil (16hr extraction)	Sulphate, water soluble, in soil (16hr extraction)	In-house method	L038B	D	MCERTS
Speciated PAHs and/or Semi-volatile organic compounds in soil	Determination of semi-volatile organic compounds (including PAH) in soil by extraction in dichloromethane and hexane followed by GC-MS	In-house method based on USEPA 8270	L064B	D	MCERTS
BTEX and/or Volatile organic compounds in soil	Determination of volatile organic compounds in soil by headspace GC-MS	In-house method based on USEPA 8260	L073B	W	MCERTS
Total petroleum hydrocarbons with carbon banding by GC-FID/GC-MS HS in soil	Determination of total petroleum hydrocarbons in soil by GC-FID/GC-MS HS with carbon banding aliphatic and aromatic	In-house method	L076B/L088-PL	D/W	MCERTS
Hexavalent chromium in soil	Determination of hexavalent chromium in soil by extraction in NaOH and addition of 1,5 diphenylcarbazide followed by colorimetry	In-house method	L080-PL	W	MCERTS
Free cyanide in soil	Determination of free cyanide by distillation followed by colorimetry	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L080-PL	W	MCERTS
Monohydric phenols in soil	Determination of phenols in soil by extraction with sodium hydroxide followed by distillation followed by colorimetry	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L080-PL	W	MCERTS

Analytical Report Number : 24-048197

Project / Site name: Yew Tree Farm, Farnley Tyas

Water matrix abbreviations:

Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
pH in soil (automated)	Determination of pH in soil by addition of water followed by automated electrometric measurement	In-house method	L099-PL	D	MCERTS

For method numbers ending in 'UK' or 'A' analysis have been carried out in our laboratory in the United Kingdom (Watford).

For method numbers ending in 'F' analysis have been carried out in our laboratory in the United Kingdom (East Kilbride).

For method numbers ending in 'PL' or 'B' analysis have been carried out in our laboratory in Poland.

Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.

Unless otherwise indicated, site information, order number, project number, sampling date, time, sample reference and depth are provided by the client. The instructed on date indicates the date on which this information was provided to the laboratory.

Information in Support of Analytical Results

List of HWOL Acronyms and Operators

Acronym	Descriptions
HS	Headspace Analysis
MS	Mass spectrometry
FID	Flame Ionisation Detector
GC	Gas Chromatography
EH	Extractable Hydrocarbons (i.e. everything extracted by the solvent(s))
CU	Clean-up - e.g. by Florisil®, silica gel
1D	GC - Single coil/column gas chromatography
2D	GC-GC - Double coil/column gas chromatography
Total	Aliphatics & Aromatics
AL	Aliphatics
AR	Aromatics
#1	EH_2D_Total but with humics mathematically subtracted
#2	EH_2D_Total but with fatty acids mathematically subtracted
-	Operator - underscore to separate acronyms (exception for +)
+	Operator to indicate cumulative e.g. EH+HS_Total or EH_CU+HS_Total

Quality control parameter failure associated with individual result applies to calculated sum of individuals.

The result for sum should be interpreted with caution

Rogers Geotechnical Services Ltd
Offices 1&2 Barncliffe Business Pk
Near Bank, Shelley
Huddersfield
West Yorkshire
HD8 8LU

t: 01484 604354

e: harry.letch@rogersgeotech.co.uk

i2 Analytical Ltd.
7 Woodshots Meadow,
Croxley Green
Business Park,
Watford,
Herts,
WD18 8YS

t: 01923 225404

f: 01923 237404

e: reception@i2analytical.com

Analytical Report Number : 25-015315

Project / Site name:	Yew Tree Farm, Farnley Tyas	Samples received on:	26/03/2025
Your job number:	C4633 24 E 7803	Samples instructed on/ Analysis started on:	26/03/2025
Your order number:		Analysis completed by:	02/04/2025
Report Issue Number:	1	Report issued on:	02/04/2025
Samples Analysed:	2 soil samples		

Signed:



Rafał Szczepańczyk
Technical Reviewer
For & on behalf of i2 Analytical Ltd.

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41-711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

Standard sample disposal times, unless otherwise agreed with the laboratory, are :

soils	- 4 weeks from reporting
leachates	- 2 weeks from reporting
waters	- 2 weeks from reporting
asbestos	- 6 months from reporting
air	- once the analysis is complete

Excel copies of reports are only valid when accompanied by this PDF certificate.

Retention period for records and reports is minimum 6 years from the date of issue of the final report.
Some records may be kept for longer according to other legal/best practice requirements.

Any assessments of compliance with specifications are based on actual analytical results with no contribution from uncertainty of measurement.
Application of uncertainty of measurement would provide a range within which the true result lies.
An estimate of measurement uncertainty can be provided on request.

Analytical Report Number: 25-015315

Project / Site name: Yew Tree Farm, Farnley Tyas

Lab Sample Number				494744	494745
Sample Reference				HDTP01	HDTP02
Sample Number				None Supplied	None Supplied
Water Matrix				N/A	N/A
Depth (m)				0.00-0.05	0.00-0.10
Date Sampled				25/03/2025	25/03/2025
Time Taken				None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Test Limit of detection	Test Accreditation Status		

Stone Content	%	0.1	NONE	< 0.1	52.3
Moisture Content	%	0.01	NONE	10	9.2
Total mass of sample received	kg	0.1	NONE	0.9	0.9

Asbestos

Asbestos in Soil Detected/Not Detected	Type	N/A	ISO 17025	Not-detected	Not-detected
Asbestos Analyst ID	N/A	N/A	N/A	JSW	JSW
Analysis completed	N/A	N/A	N/A	31/03/2025	31/03/2025

General Inorganics

pH (L099)	pH Units	N/A	MCERTS	8.5	8
Free Cyanide	mg/kg	1	MCERTS	< 1.0	< 1.0
Total Sulphate as SO ₄	%	0.005	MCERTS	0.057	0.029
Water Soluble Sulphate as SO ₄ 16hr extraction (2:1)	mg/kg	2.5	MCERTS	260	54
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	131	26.9
Organic Matter (automated)	%	0.1	MCERTS	1.6	0.8

Total Phenols

Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0	< 1.0
----------------------------	-------	---	--------	-------	-------

Speciated PAHs

Naphthalene	mg/kg	0.05	MCERTS	0.06	< 0.05
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	0.07	< 0.05
Fluorene	mg/kg	0.05	MCERTS	0.05	< 0.05
Phenanthrene	mg/kg	0.05	MCERTS	0.56	< 0.05
Anthracene	mg/kg	0.05	MCERTS	0.1	< 0.05
Fluoranthene	mg/kg	0.05	MCERTS	0.83	0.11
Pyrene	mg/kg	0.05	MCERTS	0.74	0.16
Benzo(a)anthracene	mg/kg	0.05	MCERTS	0.36	0.06
Chrysene	mg/kg	0.05	MCERTS	0.47	0.08
Benzo(b)fluoranthene	mg/kg	0.05	ISO 17025	0.52	0.07
Benzo(k)fluoranthene	mg/kg	0.05	ISO 17025	0.28	< 0.05
Benzo(a)pyrene	mg/kg	0.05	MCERTS	0.45	0.05
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	0.24	< 0.05
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	0.28	< 0.05

Total PAH

Speciated Total EPA-16 PAHs	mg/kg	0.8	ISO 17025	5.03	< 0.80
-----------------------------	-------	-----	-----------	------	--------

Analytical Report Number: 25-015315

Project / Site name: Yew Tree Farm, Farnley Tyas

Lab Sample Number				494744	494745
Sample Reference				HDTP01	HDTP02
Sample Number				None Supplied	None Supplied
Water Matrix				N/A	N/A
Depth (m)				0.00-0.05	0.00-0.10
Date Sampled				25/03/2025	25/03/2025
Time Taken				None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Test Limit of detection	Test Accreditation Status		

Heavy Metals / Metalloids

Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	6.6	5.4
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	0.4	< 0.2
Chromium (hexavalent)	mg/kg	1.8	MCERTS	< 1.8	< 1.8
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	19	20
Copper (aqua regia extractable)	mg/kg	1	MCERTS	23	12
Lead (aqua regia extractable)	mg/kg	1	MCERTS	36	21
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	14	13
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	20	18
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	59	24

Petroleum Hydrocarbons

TPHCWG - Aliphatic >EC5 - EC6 _{HS_1D_AL}	mg/kg	0.01	MCERTS	< 0.010	< 0.010
TPHCWG - Aliphatic >EC6 - EC8 _{HS_1D_AL}	mg/kg	0.01	MCERTS	< 0.010	< 0.010
TPHCWG - Aliphatic >EC8 - EC10 _{HS_1D_AL}	mg/kg	0.01	MCERTS	< 0.010	< 0.010
TPHCWG - Aliphatic >EC10 - EC12 _{EH_CU_1D_AL}	mg/kg	1	MCERTS	< 1.0	< 1.0
TPHCWG - Aliphatic >EC12 - EC16 _{EH_CU_1D_AL}	mg/kg	2	MCERTS	< 2.0	< 2.0
TPHCWG - Aliphatic >EC16 - EC21 _{EH_CU_1D_AL}	mg/kg	8	MCERTS	< 8.0	< 8.0
TPHCWG - Aliphatic >EC21 - EC35 _{EH_CU_1D_AL}	mg/kg	8	MCERTS	< 8.0	29
TPHCWG - Aliphatic >EC5 - EC35 _{EH_CU+HS_1D_AL}	mg/kg	10	NONE	< 10	29

TPHCWG - Aromatic >EC5 - EC7 _{HS_1D_AR}	mg/kg	0.01	MCERTS	< 0.010	< 0.010
TPHCWG - Aromatic >EC7 - EC8 _{HS_1D_AR}	mg/kg	0.01	MCERTS	< 0.010	< 0.010
TPHCWG - Aromatic >EC8 - EC10 _{HS_1D_AR}	mg/kg	0.02	MCERTS	< 0.020	< 0.020
TPHCWG - Aromatic >EC10 - EC12 _{EH_CU_1D_AR}	mg/kg	1	MCERTS	< 1.0	< 1.0
TPHCWG - Aromatic >EC12 - EC16 _{EH_CU_1D_AR}	mg/kg	2	MCERTS	< 2.0	< 2.0
TPHCWG - Aromatic >EC16 - EC21 _{EH_CU_1D_AR}	mg/kg	10	MCERTS	< 10	< 10
TPHCWG - Aromatic >EC21 - EC35 _{EH_CU_1D_AR}	mg/kg	10	MCERTS	< 10	19
TPHCWG - Aromatic >EC5 - EC35 _{EH_CU+HS_1D_AR}	mg/kg	10	NONE	< 10	19

VOCs

MTBE (Methyl Tertiary Butyl Ether)	µg/kg	5	MCERTS	< 5.0	< 5.0
Benzene	µg/kg	5	MCERTS	< 5.0	< 5.0
Toluene	µg/kg	5	MCERTS	< 5.0	< 5.0
Ethylbenzene	µg/kg	5	MCERTS	< 5.0	< 5.0
p & m-Xylene	µg/kg	8	MCERTS	< 8.0	< 8.0
o-Xylene	µg/kg	5	MCERTS	< 5.0	< 5.0

U/S = Unsuitable Sample I/S = Insufficient Sample ND = Not detected

Analytical Report Number : 25-015315

Project / Site name: Yew Tree Farm, Farnley Tyas

* These descriptions are only intended to act as a cross check if sample identities are questioned. The major constituent of the sample is intended to act with respect to MCERTS validation. The laboratory is accredited for sand, clay and loam (MCERTS) soil types. Data for unaccredited types of solid should be interpreted with care.

Stone content of a sample is calculated as the % weight of the stones not passing a 10 mm sieve. Results are not corrected for stone content.

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
494744	HDP01	None Supplied	0.00-0.05	Brown clay and sand with gravel
494745	HDP02	None Supplied	0.00-0.10	Brown sand with gravel and stones

Analytical Report Number : 25-015315

Project / Site name: Yew Tree Farm, Farnley Tyas

Water matrix abbreviations:

Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters Heating/Cooling (PrW) DI Process Water (DI PrW)

Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Asbestos identification in Soil	Asbestos Identification with the use of polarised light microscopy in conjunction with dispersion staining techniques	In-house method based on HSG 248, 2021	A001B	D	ISO 17025
Organic matter (Automated) in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate (Walkley Black Method)	In-house method	L009B	D	MCERTS
Moisture Content	Moisture content, determined gravimetrically (up to 30°C)	In-house method	L019B	W	NONE
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight	In-house method based on British Standard Methods and MCERTS requirements.	L019B	D	NONE
Metals in soil by ICP-OES	Determination of metals in soil by aqua-regia digestion followed by ICP-OES	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil	L038B	D	MCERTS
Total sulphate (as SO ₄ in soil)	Determination of total sulphate in soil by extraction with 10% HCl followed by ICP-OES	In-house method	L038B	D	MCERTS
Sulphate, water soluble, in soil (16hr extraction)	Sulphate, water soluble, in soil (16hr extraction)	In-house method	L038B	D	MCERTS
Speciated PAHs and/or Semi-volatile organic compounds in soil	Determination of semi-volatile organic compounds (including PAH) in soil by extraction in dichloromethane and hexane followed by GC-MS	In-house method based on USEPA 8270	L064B	D	MCERTS
BTEX and/or Volatile organic compounds in soil	Determination of volatile organic compounds in soil by headspace GC-MS	In-house method based on USEPA 8260	L073B	W	MCERTS
Total petroleum hydrocarbons with carbon banding by GC-FID/GC-MS HS in soil	Determination of total petroleum hydrocarbons in soil by GC-FID/GC-MS HS with carbon banding aliphatic and aromatic	In-house method	L076B/L088-PL	D/W	MCERTS
Hexavalent chromium in soil	Determination of hexavalent chromium in soil by extraction in NaOH and addition of 1,5 diphénylcarbazide followed by colorimetry	In-house method	L080-PL	W	MCERTS
Free cyanide in soil	Determination of free cyanide by distillation followed by colorimetry	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L080-PL	W	MCERTS

Analytical Report Number : 25-015315

Project / Site name: Yew Tree Farm, Farnley Tyas

Water matrix abbreviations:

Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters Heating/Cooling (PrW) DI Process Water (DI PrW)

Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Monohydric phenols in soil	Determination of phenols in soil by extraction with sodium hydroxide followed by distillation followed by colorimetry	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L080-PL	W	MCERTS
pH in soil (automated)	Determination of pH in soil by addition of water followed by automated electrometric measurement	In-house method	L099-PL	D	MCERTS

For method numbers ending in 'UK' or 'A' analysis have been carried out in our laboratory in the United Kingdom (Watford).

For method numbers ending in 'F' analysis have been carried out in our laboratory in the United Kingdom (East Kilbride).

For method numbers ending in 'PL' or 'B' analysis have been carried out in our laboratory in Poland.

Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.

Unless otherwise indicated, site information, order number, project number, sampling date, time, sample reference and depth are provided by the client. The instructed on date indicates the date on which this information was provided to the laboratory.

Quality control parameter failure associated with individual result applies to calculated sum of individuals.

The result for sum should be interpreted with caution

Appendix 4

Soil Screening Values – ATRISK Comparison



Rogers Geotechnical Services: Soil Screening Values Comparison Sheet



Rogers Geotechnical Services Ltd: Soil Screening Value (SSV) Comparison Sheet													
Job Number	C4633/24/E/7122			A = WS Atkins PLC, Atrisk Soil Screening Values. A+ = Values updated June 2017. A* = Atrisk's SSV is lower than I2's detectable limit for this compound. B = health criterion values, which are available from toxicological reviews published in the C4SL project methodology report. C = Category 4 Screening Levels (C4SLs) based on 6% soil organic matter. D = Value provided is based on Methyl Mercury. Should elemental mercury be observed or a source be known then a limit of 102 should be used. KEY Exceeds SSV Exceeds 2017, Below 2015 Below limit of detection (LOD)									
Job Name	Yew Tree Farm, Farnley Tyas												
Date	29/10/2024			Sample Location	TP01	TP02	TP03	TP04	TP05	TP06			
Client	Manage Construct Achieve Ltd			Depth Top	0.20	0.00	0.00	0.00	0.00	0.00			
				Depth Base	0.75	0.15	0.30	0.20	0.30	0.30			
Determinand	Units	Ref	LOD	Residential With Plant Uptake 1%									
				Atrisk 2015 (No Free Product)	Atrisk 2017								
Cadmium	mg/kg	C	0.2		22.1	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2		
Chromium (Hexavalent)	mg/kg	B/C	1.8	20.5	3.62	< 1.8	< 1.8	< 1.8	< 1.8	< 1.8	< 1.8		
Copper	mg/kg	A+	1.0		4730	13.00	15.00	12.00	11.00	4.20	6.70		
Mercury	mg/kg	A/D	0.3		8.81	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3		
Nickel	mg/kg	A+	1.0		136	18.00	15.00	13.00	14.00	14.00	12.00		
Lead	mg/kg	C	1.0		200	12.00	42.00	18.00	12.00	93.00	8.60		
Zinc	mg/kg	A+	1.0		20000	38.00	53.00	55.00	39.00	30.00	22.00		
Vanadium	mg/kg	A+	1.0		136	28.00	24.00	18.00	22.00	23.00	17.00		
Arsenic	mg/kg	C	1.0		37	4.50	7.70	4.50	4.00	1.80	3.00		
Selenium	mg/kg	A	1.0		375	< 1.0	1.20	< 1.0	< 1.0	2.00	< 1.0		
Cyanide (Free)	mg/kg	A	1.0		34	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0		
Total Phenols	mg/kg	A	1.0		267	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0		
Naphthalene	mg/kg	A+	0.05		0.829	< 0.05	< 0.05	0.08	0.06	< 0.05	< 0.05		
Acenaphthylene	mg/kg		0.05			< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05		
Acenaphthene	mg/kg	A+	0.05	608	157	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05		
Fluorene	mg/kg	A+	0.05		735	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05		
Phenanthrene	mg/kg		0.05			< 0.05	0.12	0.29	0.26	< 0.05	< 0.05		
Anthracene	mg/kg	A+	0.05		10200	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05		
Fluoranthene	mg/kg	A+	0.05		983	< 0.05	0.17	0.84	0.28	< 0.05	< 0.05		
Pyrene	mg/kg	A+	0.05		668	< 0.05	0.12	0.73	0.23	< 0.05	< 0.05		
Benzo[a]anthracene	mg/kg	A	0.05	4.52	1.71	< 0.05	0.06	0.37	0.14	< 0.05	< 0.05		
Chrysene	mg/kg	A	0.05	585	0.44	< 0.05	0.07	0.47	0.16	< 0.05	< 0.05		
Benzo[b]fluoranthene	mg/kg	A	0.05	7.72	1.22	< 0.05	< 0.05	0.47	0.16	< 0.05	< 0.05		
Benzo[k]fluoranthene	mg/kg	A	0.05	84.4	0.686	< 0.05	< 0.05	0.25	0.06	< 0.05	< 0.05		
Benzo[a]pyrene	mg/kg	B/C	0.05	4.95	1.51	< 0.05	< 0.05	0.39	0.11	< 0.05	< 0.05		
Indeno(1,2,3-c,d)Pyrene	mg/kg	A*	0.05	7.31	0.0614	< 0.05	< 0.05	0.23	0.07	< 0.05	< 0.05		
Dibenz(a,h)Anthracene	mg/kg	A	0.05	0.838	0.00393	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05		
Benzo[g,h,i]perylene	mg/kg	A	0.05	96.2	0.0187	< 0.05	< 0.05	0.24	0.08	< 0.05	< 0.05		
Total Of 16 PAH's	mg/kg		0.8			< 0.8	< 0.8	4.35	1.59	< 0.8	< 0.8		
Aliphatic TPH >C5-C6	mg/kg	A+	0.01		42.7	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010		
Aliphatic TPH >C6-C8	mg/kg	A+	0.01		99.3	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010		
Aliphatic TPH >C8-C10	mg/kg	A+	0.02		13.9	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020		
Aliphatic TPH >C10-C12	mg/kg	A+	1.0	81.7	49.9	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0		
Aliphatic TPH >C12-C16	mg/kg	A+	2.0	385	20.9	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0		
Aliphatic TPH >C16-C21	mg/kg	A+	10.0		210000	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0		
Aliphatic TPH >C21-C35	mg/kg	A+	10.0		210000	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0		
Total Aliphatic Hydrocarbons	mg/kg		10.0			< 10.0	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0		
Aromatic TPH >C5-C7	mg/kg	A+	0.01		0.137	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010		
Aromatic TPH >C7-C8	mg/kg	A+	0.01		113	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010		



Rogers Geotechnical Services: Soil Screening Values Comparison Sheet



Rogers Geotechnical Services Ltd: Soil Screening Value (SSV) Comparison Sheet													
Job Number	C4633/24/E/7122			A = WS Atkins PLC, Atrisk Soil Screening Values. A+ = Values updated June 2017. A* = Atrisk's SSV is lower than I2's detectable limit for this compound. B = health criterion values, which are available from toxicological reviews published in the C4SL project methodology report. C = Category 4 Screening Levels (C4SLs) based on 6% soil organic matter. D = Value provided is based on Methyl Mercury. Should elemental mercury be observed or a source be known then a limit of 102 should be used.									
Job Name	Yew Tree Farm, Farnley Tyas			KEY Exceeds SSV Exceeds 2017, Below 2015 Below limit of detection (LOD) 									
Date	29/10/2024			Sample Location	TP01	TP02	TP03	TP04	TP05	TP06			
Client	Manage Construct Achieve Ltd			Depth Top	0.20	0.00	0.00	0.00	0.00	0.00			
				Depth Base	0.75	0.15	0.30	0.20	0.30	0.30			
Determinand	Units	Ref	LOD	Residential With Plant Uptake 1%									
Aromatic TPH >C8-C10	mg/kg	A+	0.05		20.5	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020		
Aromatic TPH >C10-C12	mg/kg	A+	1.0		70	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0		
Aromatic TPH >C12-C16	mg/kg	A+	2.0	165	155	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0		
Aromatic TPH >C16-C21	mg/kg	A+	10.0		319	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0		
Aromatic TPH >C21-C35	mg/kg	A+	10.0		1120	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0		
Total Aromatic Hydrocarbons	mg/kg		10.0			< 10.0	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0		
pH			N/A			6.30	7.40	11.30	7.80	5.60	6.30		
Sulphate (2:1 Water Soluble) as SO4	g/l		0.00125			0.1480	0.0968	0.2340	0.0449	0.0737	0.0974		
ACM Type			N/A			Not-detected	Not-detected	Loose Fibres	Not-detected	Not-detected	Not-detected		
Asbestos Identification	%					Not-detected	Not-detected	< 0.001	Not-detected	Not-detected	Not-detected		
ACM Detection Stage			N/A			Not-detected	Not-detected	Chrysotile	Not-detected	Not-detected	Not-detected		
Moisture	%		0.01			9.10	15.00	9.80	12.00	12.00	12.00		
Soil Colour			N/A			Brown	Brown	Brown	Brown	Brown	Brown		
Other Material			N/A			Grav/Stone	Gravel	Grav/Stone	Gravel	Stones	Grav/Stone		
Soil Texture			N/A			Loam	Loam/Clay	Sand	Sand	Sand	Sand		
Sulphate (Total)	%		0.005			0.057	0.045	0.262	0.027	0.058	0.035		
Organic Matter	%		0.1			0.70	1.40	1.20	0.90	0.40	0.60		



Rogers Geotechnical Services: Soil Screening Values Comparison Sheet



Rogers Geotechnical Services Ltd: Soil Screening Value (SSV) Comparison Sheet													
Job Number	C4633/25/E/7803			A = WS Atkins PLC, Atrisk Soil Screening Values. A+ = Values updated June 2017. A* = Atrisk's SSV is lower than I2's detectable limit for this compound. B = health criterion values, which are available from toxicological reviews published in the C4SL project methodology report. C = Category 4 Screening Levels (C4SLs) based on 6% soil organic matter. D = Value provided is based on Methyl Mercury. Should elemental mercury be observed or a source be known then a limit of 102 should be used.									
Job Name	Yew Tree Farm, Farnley Tyas			KEY Exceeds SSV Exceeds 2017, Below 2015 Below limit of detection (LOD)									
Date	09/04/2025			Sample Location	HDTPO1	HDTPO2							
Client	Manage Construct Achieve Ltd			Depth Top	0.00	0.00							
				Depth Base	0.05	0.10							
Determinand	Units	Ref	LOD	Residential With Plant Uptake 1%									
				Atrisk 2015 (No Free Product)	Atrisk 2017								
Cadmium	mg/kg	C	0.2		22.1	0.40	< 0.2						
Chromium (Hexavalent)	mg/kg	B/C	1.8	20.5	3.62	< 1.8	< 1.8						
Copper	mg/kg	A+	1.0		4730	23.00	12.00						
Mercury	mg/kg	A/D	0.3		8.81	< 0.3	< 0.3						
Nickel	mg/kg	A+	1.0		136	14.00	13.00						
Lead	mg/kg	C	1.0		200	36.00	21.00						
Zinc	mg/kg	A+	1.0		20000	59.00	24.00						
Vanadium	mg/kg	A+	1.0		136	20.00	18.00						
Arsenic	mg/kg	C	1.0		37	6.60	5.40						
Selenium	mg/kg	A	1.0		375	< 1.0	< 1.0						
Cyanide (Free)	mg/kg	A	1.0		34	< 1.0	< 1.0						
Total Phenols	mg/kg	A	1.0		267	< 1.0	< 1.0						
Naphthalene	mg/kg	A+	0.05		0.829	0.06	< 0.05						
Acenaphthylene	mg/kg		0.05			< 0.05	< 0.05						
Acenaphthene	mg/kg	A+	0.05	608	157	0.07	< 0.05						
Fluorene	mg/kg	A+	0.05		735	0.05	< 0.05						
Phenanthrene	mg/kg		0.05			0.56	< 0.05						
Anthracene	mg/kg	A+	0.05		10200	0.10	< 0.05						
Fluoranthene	mg/kg	A+	0.05		983	0.83	0.11						
Pyrene	mg/kg	A+	0.05		668	0.74	0.16						
Benzo[a]anthracene	mg/kg	A	0.05	4.52	1.71	0.36	0.06						
Chrysene	mg/kg	A	0.05	585	0.44	0.47	0.08						
Benzo[b]fluoranthene	mg/kg	A	0.05	7.72	1.22	0.52	0.07						
Benzo[k]fluoranthene	mg/kg	A	0.05	84.4	0.686	0.28	< 0.05						
Benzo[a]pyrene	mg/kg	B/C	0.05	4.95	1.51	0.45	0.05						
Indeno(1,2,3-c,d)Pyrene	mg/kg	A*	0.05	7.31	0.0614	0.24	< 0.05						
Dibenz(a,h)Anthracene	mg/kg	A	0.05	0.838	0.00393	< 0.05	< 0.05						
Benzo[g,h,i]perylene	mg/kg	A	0.05	96.2	0.0187	0.28	< 0.05						
Total Of 16 PAH's	mg/kg		0.8			< 0.8	< 0.8						
Aliphatic TPH >C5-C6	mg/kg	A+	0.01		42.7	< 0.010	< 0.010						
Aliphatic TPH >C6-C8	mg/kg	A+	0.01		99.3	< 0.010	< 0.010						
Aliphatic TPH >C8-C10	mg/kg	A+	0.01		13.9	< 0.010	< 0.010						
Aliphatic TPH >C10-C12	mg/kg	A+	1.0	81.7	49.9	< 1.0	< 1.0						
Aliphatic TPH >C12-C16	mg/kg	A+	2.0	385	20.9	< 2.0	< 2.0						
Aliphatic TPH >C16-C21	mg/kg	A+	8.0		210000	< 8.0	< 8.0						
Aliphatic TPH >C21-C35	mg/kg	A+	8.0		210000	< 8.0	29.00						
Total Aliphatic Hydrocarbons	mg/kg		10.0			< 10.0	29.00						
Aromatic TPH >C5-C7	mg/kg	A+	0.01		0.137	< 0.010	< 0.010						
Aromatic TPH >C7-C8	mg/kg	A+	0.01		113	< 0.010	< 0.010						



Rogers Geotechnical Services: Soil Screening Values Comparison Sheet



Rogers Geotechnical Services Ltd: Soil Screening Value (SSV) Comparison Sheet													
Job Number	C4633/25/E/7803			A = WS Atkins PLC, Atrisk Soil Screening Values. A+ = Values updated June 2017. A* = Atrisk's SSV is lower than I2's detectable limit for this compound. B = health criterion values, which are available from toxicological reviews published in the C4SL project methodology report. C = Category 4 Screening Levels (C4SLs) based on 6% soil organic matter. D = Value provided is based on Methyl Mercury. Should elemental mercury be observed or a source be known then a limit of 102 should be used.									
Job Name	Yew Tree Farm, Farnley Tyas			KEY Exceeds SSV Exceeds 2017, Below 2015 Below limit of detection (LOD)									
Date	09/04/2025			Sample Location	HDTP01	HDTP02							
Client	Manage Construct Achieve Ltd	Depth Top			0.00	0.00							
		Depth Base			0.05	0.10							
Determinand	Units	Ref	LOD	Residential With Plant Uptake 1%									
Aromatic TPH >C8-C10	mg/kg	A+	0.02	0	20.5	< 0.020	< 0.020						
Aromatic TPH >C10-C12	mg/kg	A+	1.0		70	< 1.0	< 1.0						
Aromatic TPH >C12-C16	mg/kg	A+	2.0	165	155	< 2.0	< 2.0						
Aromatic TPH >C16-C21	mg/kg	A+	10.0		319	< 10.0	< 10.0						
Aromatic TPH >C21-C35	mg/kg	A+	10.0		1120	< 10.0	19.00						
Total Aromatic Hydrocarbons	mg/kg		10.0			< 10.0	19.00						
pH			N/A			8.50	8.00						
Sulphate (2:1 Water Soluble) as SO4	g/l		0.00125			0.1310	0.0269						
ACM Type			N/A			Not-detected	Not-detected						
Asbestos Identification	%					Not-detected	Not-detected						
ACM Detection Stage			N/A			Not-detected	Not-detected						
Moisture	%		0.01			10.00	9.20						
Soil Colour			N/A			Brown	Brown						
Other Material			N/A			Gravel	Grav/Stones						
Soil Texture			N/A			Clay/Sand	Sand						
Sulphate (Total)	%		0.005			0.057	0.029						
Organic Matter	%		0.1			1.60	0.80						

Appendix 5

Fill Screening Values

Rogers Geotechnical Services Ltd.

Atkins ATRISK Soil Screening Values (SSVs) - Residential With Plant Uptake Landuse

Tox Data Report No.	Compound	Residential with Homegrown Produce Landuse (mg/kg)				Reference
	<i>Metals</i>	SOM: 1%		SOM: 6%		
3	Cadmium	22.1		22.1		C
4	Chromium VI	3.62	20.5	3.62	20.5	B/C
	Copper	4730		4790		A+
7	Mercury	8.81		15.80		A/D
8	Nickel	136		136		A+
	Lead	200		200		C
	Zinc	20000		20300		A+
	Vanadium	136		138		A+
	<i>Semi and Non Metals</i>					
1	Arsenic	37		37		C
10	Selenium	375		375		A
	Free Cyanide	34		34		A
9	Phenols (total)	267		1200		A
	<i>Poly Aromatic Hydrocarbons</i>	Free product	No free product	Free product	No free product	
20	Napthalene	0.829		12.2		A+
	Acenaphthene	157	608	2760		A+
	Fluorene	735		2610		A+
	Anthracene	10200		26200		A+
	Fluoranthene	983		2980		A+
	Pyrene	668		2120		A+
	Benzo(a)anthracene	1.71	4.52	8.54		A
2	Chrysene	0.44	585	2.64	927	A
2	Benzo(b)fluoranthene	1.22	7.72	7.29	9.86	A
2	Benzo(k)fluoranthene	0.686	84.4	4.12	100	A
2	Benzo(a)pyrene	1.51	4.95	0.998	5	B/C
2	Dibenzo(a,h)anthracene	0.00393	0.838	2.05	4.95	A*
2	Indeno(1,2,3-cd)pyrene	0.0614	7.31	0.368	9.75	A
2	Benzo(g,h,i)perylene	0.0187	96.2	0.112	103	A
	<i>Petroleum Hydrocarbons</i>					
	Aliphatic C5-C6	42.7		369		A+
	Aliphatic C6-C8	99.3		768	1240	A+
	Aliphatic C8-C10	13.9		204		A+
	Aliphatic C10-C12	49.9	81.7	297	1180	A+
	Aliphatic C12-C16	20.9	385	125	4130	A+
	Aliphatic C16-C21	210000		210100		A+
	Aliphatic C21-C35	210000		210100		A+
	Aromatic C5-C7 (Benzene)	0.137		0.871		A+
	Aromatic C7-C8 (Toluene)	113		780		A+
	Aromatic C8-C10	20.5		232		A+
	Aromatic C10-C12	70		468		A+
	Aromatic C12-C16	155	165	830		A+
	Aromatic C16-C21	319		1040		A+
	Aromatic C21-C35	1120		1710		A+
A+ = Values update June 2017.						
A* Atrisk's SSV is lower than Chemtest's detectable limit for this compound.						
B = Health Criterion Values (available from toxicological reviews published in the C4SL project methodology report).						
C = Category 4 Screening Levels (C4SLs).						
D = SSV provided is for Methyl Mercury.						