



GEO-ENVIRONMENTAL AUDIT

PHASE 1 PRELIMINARY RISK ASSESSMENT

PHASE 2 SITE INVESTIGATIONS

PHASE 3 REMEDIATION STATEMENT

PROPOSED RESIDENTIAL DEVELOPMENT
PLATTING LANE
ROCHDALE
OL11 2JT

Author: Daniel Slattery
Client: B&L Homes Ltd
Reference: rep-tjba-B&L-platting lane-Phs1_2_3Env-161224.docx

Revision	Date	Reason
0	July 2024	Original for planning application validation.
1	Dec 2024	Phase 2 SI & 3 remediation statement added.
2	Feb 2025	Updated arch prop plan J.

T J Booth Associates.
20A Eastgate St,
Rochdale,
Lancs,
OL16 1DH.
Tel: 01706 868288.
Email: office@tjba.co.uk

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1. PHASE 1 - PRELIMINARY RISK ASSESSMENT.

1.1. Introduction.

T. J. Booth Associates were appointed by B & L Homes Ltd to undertake a Phase 1 Preliminary Risk Assessment (PRA) in July 2024, in order to validate a planning application for residential development.

The Application Site is a vacant plot of land, formerly a garage site in a residential area, and adjacent Sudden Brook.

A planning application for the development of 2 semi-detached residential dwellings is proposed.

Site investigations were undertaken in December 2024 forming the basis of the Phase 2 & 3 update to the report.

This report provides a desk-based study & intrusive ground investigation based on current UK guidance for environmental investigation within the construction industry. Principal to the assessment is the potential for contamination pollutant linkages via the Land Contamination Risk Management (LCRM) source-pathway-receptor methodology. Assessment of potential pollution linkages is primarily undertaken in strict accordance with BS 5930:2015, BS 10175:2011+A2:2017, CIRIA C665, and BS 8485:2015+A1:2019 et al.

1.2. Proposed Development.

The proposed development is for the development of 2No. semi-detached residential dwellings.

Each dwelling will have private driveways & patios/gardens.

1.3. Historic Maps.

DATE	ON-SITE	OFF-SITE/SURROUNDING AREA
c1851	Buildings noted to the full extent of the site boundaries.	Sudden Brook forms the east boundary. Surrounding area primarily made up of agricultural fields, with other buildings of residential size, chapels etc noted on Platting Lane. Some unnamed mills/works gasometers etc noted over 100m from the Application Site.
c1893	Smaller scale maps suggest the buildings are residential, built around a central courtyard.	Much of the local area comprises residential dwellings as well as local amenities such as schools, chapels. Green Mill (woollen) & Eagle Mill (cotton), noted approx 75m northwest & 125m west respectively.
c1911	No change.	No overall change.
c1930	No change.	No overall change.
c1956-58	Buildings to the south side of the site are noted as "Green Cottages". Buildings to the north side of the Site also have house numbers.	Further construction of housing estates in the wider area.
c1962-73	Green Cottages by now demolished. The south half of the Site is now taken up by garages. Dwellings to the north side remain standing.	Further construction of housing estates in the wider area.
c1985	Dwellings to the north side now demolished. Three garages noted central to the site.	Many of the mills in the wider area now demolished or dramatically reduced in size.
c1988	Two garages noted central to the site & one to the southeast corner.	Much of the wider area formerly taken up by industrial mills is now shown as vacant land. The former quarries are now shown as a park.
1992	No change.	Wider area much as in the present day.

1.4. Present Day Maps.

Site boundaries, outlines of structures and buildings:	Present day maps show an open plot of land fronting Platting Lane, bound by footpaths to the north and south boundaries, and Sudden Brook to the east. The existing site plan & digital maps show a structure to the centre of the Site (garage slab) and a garage to the southeast corner.
Ground contours, natural drainage features:	No topographic survey has yet been undertaken. Contours suggest the Site is relatively level with a gentle fall to the north.
Water courses:	Sudden Brook to the rear.
Below ground obstructions:	None noted on current maps/plans.

1.5. Geology.

Bedrock geology:	Pennine Lower Coal Measures Formation - Mudstone, siltstone and sandstone. Sedimentary bedrock formed between 319 and 318 million years ago during the Carboniferous period.
Superficial geology:	Hummocky (moundy) Glacial Deposits, Devensian - Diamicton. Sedimentary superficial deposit formed between 116 and 11.8 thousand years ago during the Quaternary period.
Coal seams:	No coal seams underlie the Application Site at shallow depth.
Radon Maps:	Updated current radon maps indicate the maximum radon potential to be 1-3% based upon the worst case in a 1km grid square.

1.6. Boreholes Records.

Borehole records in the local area suggest the hummocky deposits beneath the Application Site and local area comprise CLAY with layers of silty SAND & GRAVEL to a minimum depth of 10m bGL.

1.7. Planning Data.

No past planning applications were noted that are pertinent to the environmental assessment.

1.8. Landmark Environmental Data.

1.8.1. Agency & Hydrological.

Discharge consents:	None noted within a 250m Site radius.
Pollution incidents to controlled waters:	None noted within a 250m Site radius.
Prosecutions relating to controlled waters:	None noted within a 250m Site radius.
Local Authority pollution prevention & controls:	2No. records noted within a 250m Site radius, related to air pollution control 190m northwest & 241m southwest.
Water abstractions:	2No. records noted within a 250m Site radius, both related to commercial boiler feeds 159m northwest.

Bedrock aquifer:	Secondary Aquifer – A. Secondary A aquifers comprise permeable layers that can support local water supplies, and may form an important source of base flow to rivers.
Superficial aquifer:	Secondary Aquifer – A.
Source protection zone:	Not within a Source Protection Zone.

1.8.2. Waste.

BGS recorded landfill sites:	None noted within a 250m radius.
Historic landfill sites:	None noted within a 250m radius.
Registered landfill sites:	None noted within a 250m radius.

1.8.3. Hazardous Substances.

Planning hazardous substance consents:	No records within a 250m radius of the Site.
Planning hazardous substance enforcements:	No records within a 250m radius of the Site.

1.8.4. Geological.

Coal mining affected areas:	Site is within a coal mining area.
CBSCB compensation district:	Not within the CBSCB brine district.
Potential for collapsible ground stability hazards:	Very low risk.
Potential for compressible ground stability hazards:	No hazard.
Potential for ground dissolution stability hazards:	No hazard.
Potential for landslide ground stability hazards:	Very low risk.
Potential for running sand ground stability hazards:	Very low risk.
Potential for shrinking or swelling clay ground stability hazards:	Low risk.
Radon potential - radon affected areas:	The property is in a Lower probability radon area (less than 1% of homes are estimated to be at or above the Action Level). The level of accuracy is based upon a much more refined grid square analysis, giving Site specific risk analysis.
Radon potential - radon protection measures:	No radon protection measures are required.

1.9. Environment Agency Data.

Flood Zone:	Site is in flood zone 2.
Drinking Water Protected Area (Surface Water):	Not in area.
Drinking Water Safeguard Zone (Surface Water):	Not in area.
Drinking Water Safeguard Zone (Groundwater):	Not in area.
Source Protection Zone:	Not in area.

1.10. Coal Authority.

Mine Shafts, Pits, Adits/Entries:	No coal entries within 20m of the site boundaries
Past Recorded Underground Mining.	No recorded workings noted beneath the Site.
Present/Future Underground Mining.	Not known to be a risk.
Unrecorded Probable/Potential Shallow Underground Workings:	No probable coal workings locally.
Past/Present/Future Surface Mining/Opencast:	None noted locally.
Mining Geology and Subsidence:	Not noted.
Hazards and Mine Gas:	Unknown.
Development High Risk Area:	The Site is NOT within a Development High Risk Area.
Abandonment Plan Data:	No data available.

1.11. Industry Profiles.

N/A.

1.12. Site Reconnaissance (July 2024).

Details of existing structures:	The Application Site was accessed from Platting Lane. The Site was relatively level with land elevation gently falling to the north. The boundary was open, and the site comprised a grass surface with trees/vegetation along the perimeter with Sudden Brook. The only other structures were a former garage slab nominally central to the site, and a macadam access drive to a dilapidated garage to the southeast corner. The garage to the southeast corner was full of household rubbish/tipping.
Adjacent properties:	Terraces along Clough Street to the south. Car park to the north. Footpaths immediately bounded the north and south Site boundaries.
Water levels, directions of flow and rates in rivers:	Sudden Brook was noted to the east boundary, flowing north. It was approximately 1.9m below Site level at its central point.
Old mine or quarry workings:	None noted.
Obvious/immediate hazards to health/safety:	None noted.
Areas of discoloured soil, polluted water, vegetation, and significant odours:	Minor inclusions of brick and glass noted in topsoils.

1.13. Identification of Source-Pathway-Receptor.

1.13.1. Potential Contaminant Sources.

CURRENT SOURCE/S	ORIGINAL ASSOCIATED SOURCE	CONTAMINANT/S
Existing Site soil, minor areas of made ground.	Former construction & demolition of historic dwellings, and associated made ground.	Metals, PAHs, sulphates, asbestos.



	Garages & storage of fuels/oils.	Hydrocarbons.
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1.13.2. Potential Pathways.

The potential pathways to/from the Development Site include (not an exhaustive list but a summary of the main points):

PATHWAY	MEDIA
Soil and dust ingestion	Soil and indoor dust
Consumption of home-grown fruit and vegetables	Produce
Skin contact (indoors)	Indoor dust
Skin contact (outdoors)	Soil
Inhalation of dust (indoors)	Air
Inhalation of dust (outdoors)	Air
Vapours (indoors)	Air
Vapours (outdoors)	Air

1.13.3. Potential Receptors.

Receptors mainly comprise workers in the construction phase, and workforce for the proposed end use.

Controlled waters: River.

1.14. Preliminary Conceptual Model.

POLLUTANT RISK IDENTIFIER	SOURCE	CONTAMINANT TYPE	PATHWAY	RECEPTOR	POLLUTION LINKAGE	CONSEQUENCE	PROBABILITY	RISK
PL1	General contaminants in upper site soil/made ground, and effects on humans/animals/ecology as a receptor.	Metals, PAHs, inorganics, organics/hydrocarbons, asbestos.	Direct ingestion, aerial ingestion, dermal contact, drinking water. Crops.	Primarily human - Site construction operatives & future residential Site occupants. Pets. Ecological systems.	There is a potential pollutant linkage with minor areas of made ground expected which are a likely source of metals, PAH, sulphates, and asbestos. The former buildings may have had cellars, and thus made ground in parts may be in excess of 2m deep. Although the Site has a former use as a garage Site, the likelihood of significant hydrocarbon contamination is low.	Medium.	High likelihood.	High risk.
PL2	Potential for mortars/plasters and associated effects on concrete.	Sulphates.	Contact with underground structures.	Building structures /concrete.	Limited potential across the Site. Only minor areas of made ground expected (if any), and limited thickness of topsoil expected.	Medium.	Likely.	Moderate risk.
PL3	Potential historic use of hazardous PSRA chemicals & effects on PE water pipes.	Hydrocarbons, BTEX & MTBE, VOCs/SVOCs, phenols, cresols and chlorinated phenols.	Contact with water pipes/services.	Water pipes/services & human/pet end users.	Potential to affect potable water pipes.	Mild.	Low likelihood.	Low risk.
PL4	Hydrocarbon contaminants in upper site soil/made ground, and effects on groundwater or watercourses as a receptor.	Potential hydrocarbons from garages.	Groundwater via potential leaching and transport of potential contaminants.	Underlying aquifer or watercourse as a receptor.	Underlying aquifer is Secondary A, moderately productive aquifer, where flow is virtually all through fractures and other discontinuities which mainly provides baseflow to rivers etc. However, due to the adjacent watercourse, and the associated groundwater table (river level), the watercourse will be the primary receptor. It is unlikely that significant contamination will be found on site, and subsequently the risk is low – although there is a pollutant linkage.	Mild.	Low likelihood.	Low risk.
PL5	Geological ground gas from coal seams/workings.	CH ₄ , CO ₂ , other trace gases.	Diffusion through soil, substructures, aerial inhalation.	Human - future residential Site occupants. Explosion, suffocation.	No shallow coal mines or seams. Source missing, no pollutant linkage.	Mild.	Unlikely.	Very low risk.



PL6	Geological ground gas, radon sources in Namurian deposits.	Rn.	Diffusion through soil, substructures, aerial inhalation.	Human - future Site residential occupants.	The landmark data report is based on a refined site-specific risk analysis which has identified that the property is within a lower probability radon area (<1% of homes estimated to be at or above the action level). No radon protection measures are required.	Mild.	Unlikely.	Low risk.
PL7	Anthropogenic ground gas from historic/present landfill.	CH ₄ , CO ₂ , other trace gases.	Diffusion through soil, substructures, aerial inhalation.	Human - future Site residential occupants. Explosion, suffocation.	No landfill sites noted within a 250m radius of the Application Site. Source missing, no pollutant linkage.	Mild.	Unlikely.	Low risk.
PL8	Anthropogenic ground gas sources from alluvium.	CH ₄ , CO ₂ .	Diffusion through soil, substructures, aerial inhalation.	Human - future Site residential occupants. Explosion, suffocation.	No alluvial deposits noted beneath the Site. Source missing, no pollutant linkage.	Mild.	Unlikely.	Low risk.

2. PHASE 2 – SITE INVESTIGATIONS & ASSESSMENT.

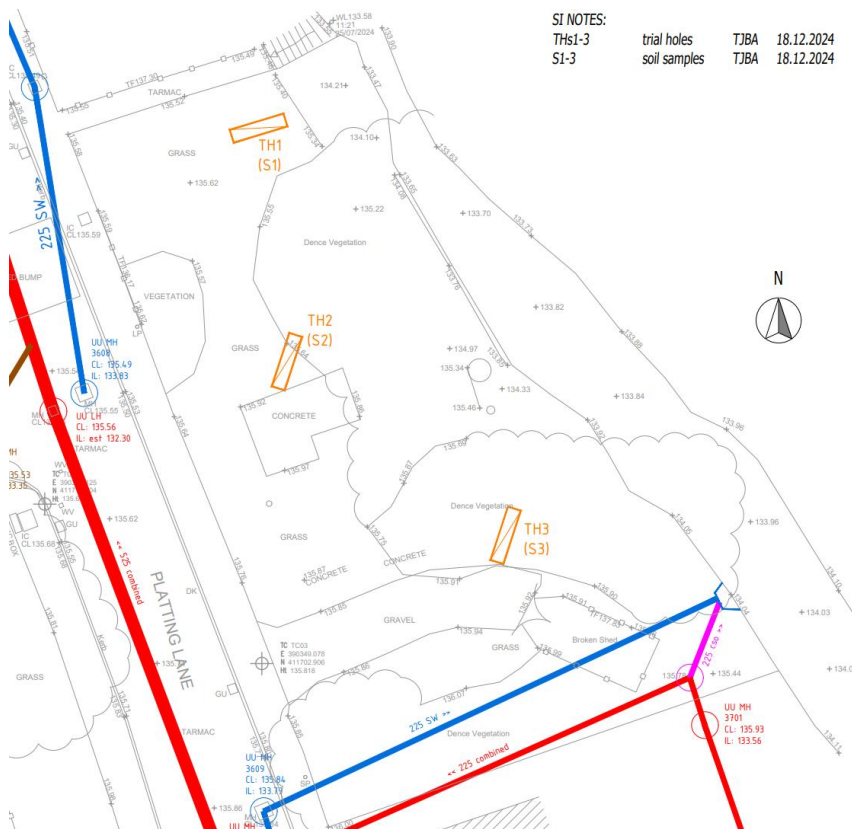
2.1. Site Investigations.

2.1.1. Investigation Summary.

A single investigation has been undertaken to date, on the 18th December 2024. The investigation comprised trial holes and soil sampling.

2.1.2. Site Investigation Plan.

An excerpt of the Site Investigation Plan is given below (refer to full plan in Appendix):



2.1.3. 18.12.2024.

Site Investigations were undertaken by T J Booth Associates and comprised 3No. trial holes (THs 1-3), undertaken with a 1.5t back acting excavator. 3No. soil samples were also taken for chemical analysis of the upper site soils (S1-3).

Trial holes & soil samples were located in nominally equidistant positions across the Site.

In summary the Site is generally underlain by up to approximately 1m of MADE GROUND, with between 500-700mm virgin SAND beneath, and SAND & GRAVEL recorded below to a max depth of around 2m.

No visual or olfactory evidence of hydrocarbon contamination was noted in any of the trial holes, and there was no groundwater noted.

Former foundations were noted in THs 1 & 2, although no former basements were located.

Soil samples were sealed in 1kg white plastic snap top containers & amber jars & vials and sent to Envirolab Ltd to be tested for a range of common contaminants.

Samples were tested for metals, speciated PAH, inorganics & sulphates, SOM, & asbestos screening in accordance with the conceptual model.

2.2. Final Risk Assessment.

2.2.1. Human Health Risk.

2.2.1.1. Shallow soil contamination.

On return the samples were assessed by TJ Booth Associates to common threshold comparison data in the following order: Defra Category 4 Screening Levels (C4SLs) > LQM/CIEH (S4ULs) > EIC/AGS/CL:AIRE 2010.

Testing of made ground revealed contaminant levels above residential threshold values with elevated levels of the following contaminants of concern, (refer to testing certificates, and full analysis spreadsheets in the Appendix):

Trial Hole/Soil Sample	Made ground horizon	Mitigation/Action
TH1/S1	No exceedances.	PASS
TH2/S2	Lead, asbestos identified & quantified (<0.001%).	FURTHER ACTION
TH3/S3	Arsenic, lead.	FURTHER ACTION

Due to above elevated levels noted, existing upper made ground is considered mildly contaminated and unsuitable for the proposed end use.

The existing made ground will either need to be remediated, or pathways removed to remove the pollutant linkage.

2.2.1.2. Ground Gas Risk.

2.2.1.2.1. Historic landfill sites.

No sources noted.

No credible risk is attributed to this source.

2.2.1.2.2. On-site refuse tips/infilled ponds/infilled land.

No sources noted.

No credible risk is attributed to this source.

2.2.1.2.3. Radon.

No sources noted.

No credible risk is attributed to this source.

2.2.1.2.4. Alluvium.

No alluvium in the local area or beneath the Site.

No credible risk is attributed to this source.

2.2.1.3. Buildings & services.

2.2.1.3.1. Water pipes.

The proposed properties are to be situated to the front of the Site/directly adjacent the highway, and potable water pipes will not route through Site made ground.

No credible risk is attributed to this source.

2.2.1.3.2. Sulphate.

Sulphate was recorded below action level (DS1) for all soil samples taken across the Site.

No groundwater was noted.

The risk from sulphate attack is low.

2.2.2. Controlled Waters Risk.

Where ground/surface water sampling is undertaken, samples are assessed by TJ Booth Associates to common threshold comparison data. Groundwater samples are generally compared against the drinking water standards (UK DWI 2016 & WHO 2022), and Environment Quality Standards for Freshwater (EQS). Surface water samples are primarily compared against the against the EQS.

2.2.2.1. Groundwater.

No groundwater noted on Site & no samples taken.

There was no evidence of mobile contaminants of concern such as hydrocarbons on site investigations.

Risk is low, as per the preliminary risk assessment.

2.2.2.2. Watercourses.

Only minor made ground noted on Site.

No particular mobile contamination noted which may negatively impact the adjacent watercourse & no groundwater noted,

Risk is considered as low, as per the preliminary risk assessment.



2.3. Final Conceptual Model.

POLLUTANT RISK IDENTIFIER	SOURCE	CONTAMINANT TYPE	PATHWAY	RECEPTOR	POLLUTION LINKAGE	CONSEQUENCE	PROBABILITY	RISK	MITIGATION PROPOSED
PL1	General contaminants in upper site soil/made ground, and effects on humans/animals /ecology as a receptor.	Metals, asbestos.	Direct ingestion, aerial ingestion, dermal contact, drinking water. Crops.	Primarily human - Site construction operatives & future residential Site occupants. Pets. Ecological systems.	There is a potential pollutant linkage with minor areas of made ground expected which are a likely source of metals, and asbestos (although asbestos levels were acceptably low when quantified).	Medium.	High likelihood.	High risk.	EITHER REMOVAL & REPLACEMENT OF EXISTING SITE SOIL (REMOVAL OF SOURCE), OR SUITABLE COVER LAYER PROVIDED (REMOVAL OF PATHWAY).
PL2	Potential for mortars/plasters and associated effects on concrete.	Sulphates.	Contact with underground structures.	Building structures /concrete.	No exceedances found.	Medium.	Unlikely.	Low risk.	NONE REQUIRED.

3. PHASE 3 - REMEDIATION STATEMENT.

3.1. Basic Site Details.

Full details included in the Phase 1 & 2 PRA/Site Investigation Introduction & subsequent sections.

3.2. Site & Remedial Objectives.

There is one remedial objective for the Site:

- Ensure the garden areas are suitable for the residential end use.

3.3. Conceptual Model (Final) & Relevant Pollution Linkages.

Site investigations undertaken as part of the Phase 2, comprised soil sampling, with minor areas of made ground noted.

Only 1 pollutant linkage from the Phase 2 site investigation was confirmed in the ground investigation:

- PL1: General contaminants in upper site soil/made ground, and effects on humans/animals/ecology as a receptor.

The risk is specific to the end use, and required to ensure Site soils are safe for the end user.

3.4. Recommended Remediation.

Made Ground/Soil Risk:

PL1: General contaminants in upper site soil/made ground, and effects on humans/animals/ecology as a receptor.

While made ground may remain on site beneath permanent hardstandings such as buildings, roads, pavements & pathways etc; to mitigate the risk to receptors, it is advised that a cover layer of clean inert soil is imported for garden and soft landscaping areas ONLY.

Dependent on the final finished levels, existing made ground within proposed soft landscaping areas, should either be covered with 600mm of imported soil, or excavated to 600mm from finish levels and replaced with a clean imported cover soil to suit finishes. The 600mm cover system is adopted for the following reasons:

Root systems for shrubs are typically up to 600 mm;

Excavations are unlikely to be deeper than 600 mm in typical gardening activities;

Bio-turbation is typically limited to the top 600 mm of the soil profile;

Excavations by children or pets are unlikely to exceed 600 mm.

Imported soil should be clean/inert and free from deleterious materials and should be suitable for use in a residential end use setting. It should be able to pass testing of metals, speciated PAH, inorganics & sulphates, SOM, and asbestos screening to current Defra Category 4 Screening Levels (C4SLs) where available, and then to the LQM/CIEH (S4ULs), for use in a residential end use setting.

3.5. Verification (Phase 4 requirements).

Verification of the imported soil may be required for Planning or Building Control/Building Regulations submission. Should this be required, it will need to be undertaken by suitably qualified consultants and comprise the following:

- Import source material.
- Characterisation & suitability of material.
- Soil sampling should be undertaken as per YALPAG Guidelines as per the following ratios:

Virgin quarried materials, 1-2 samples to confirm inert nature.

Crushed hardcore, stone, brick, min 1 sample per 500cum.

Greenfield/manufactured, generally 1 sample per 250cum (min 3 samples).

Brownfield, generally 1 sample per 50cum (min 6 samples).

Samples should be tested for the following contamination suites: metals, inorganics, PAH USEPA16 speciated, and asbestos screening. Defra Category 4 Screening Levels (C4SLs) > LQM/CIEH (S4ULs) > EIC/AGS/CL:AIRE 2010; for use in a residential end use setting..



- Verification Depth.
- Reporting (including photographic evidence).

3.6. Additional Notes.

Before any further work is undertaken, this report should be submitted to and agreed by the Local Planning Authority Contaminated Land Department/Building Control Department as necessary.

We trust that the above clear, but should you require further advice please contact the undersigned.

Signed.....

D.S. Slattery BSc (Hons).

T J Booth Associates.

Authorised...

T J Booth BSc (Hons), C. Eng. C. Env. MICE.

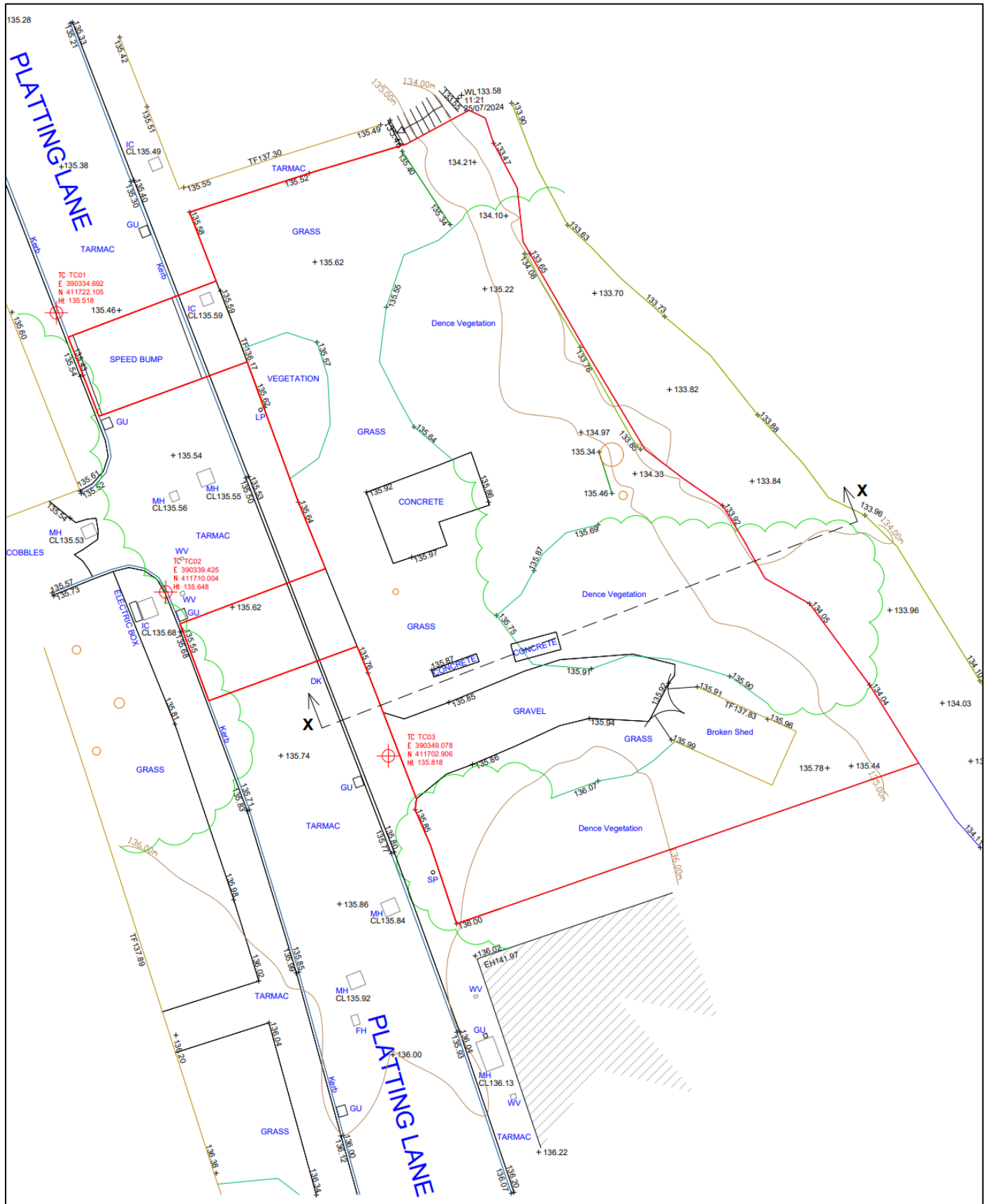
T J Booth Associates.

4. APPENDIX A: FIGURES.

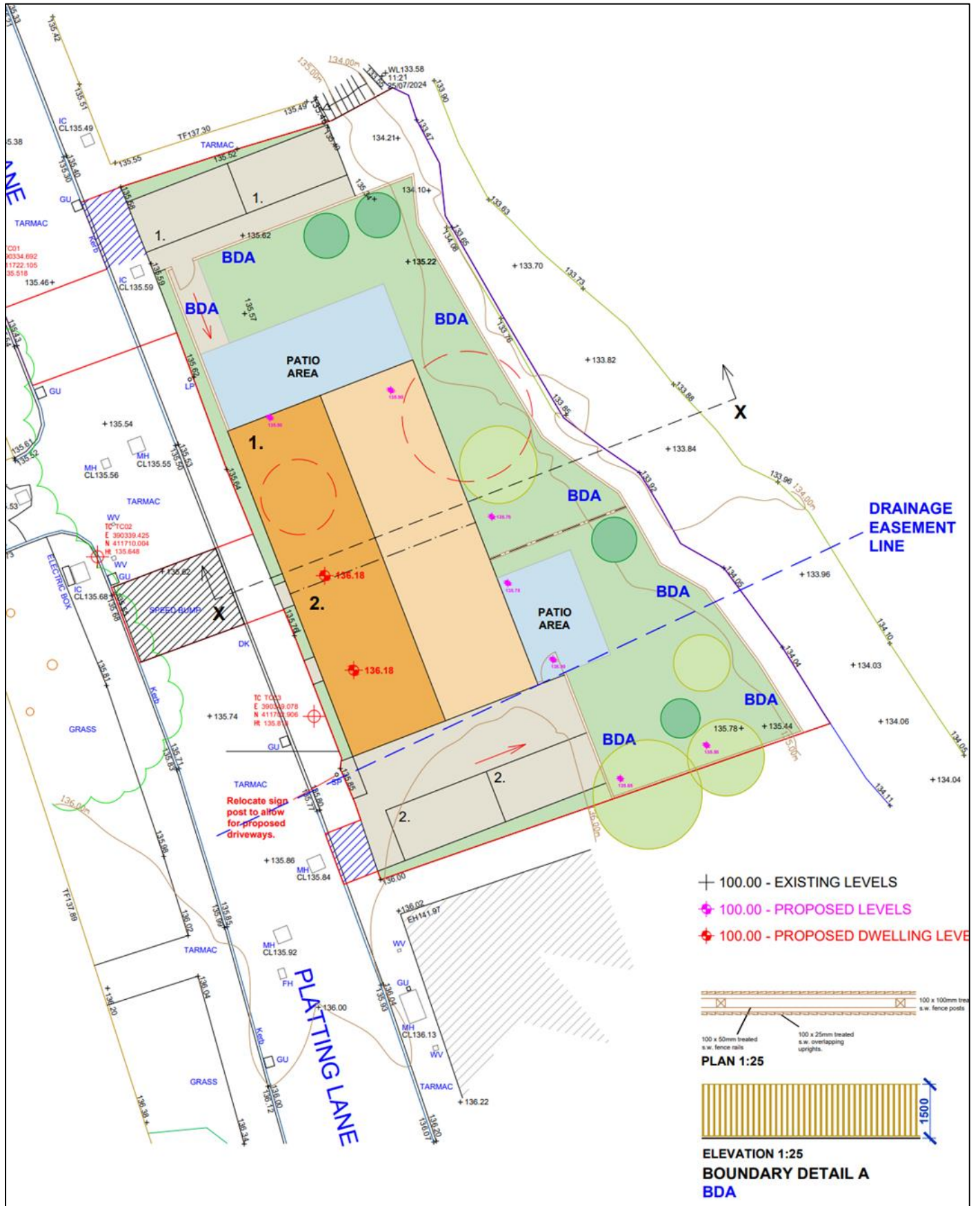
4.1. Location Plan.



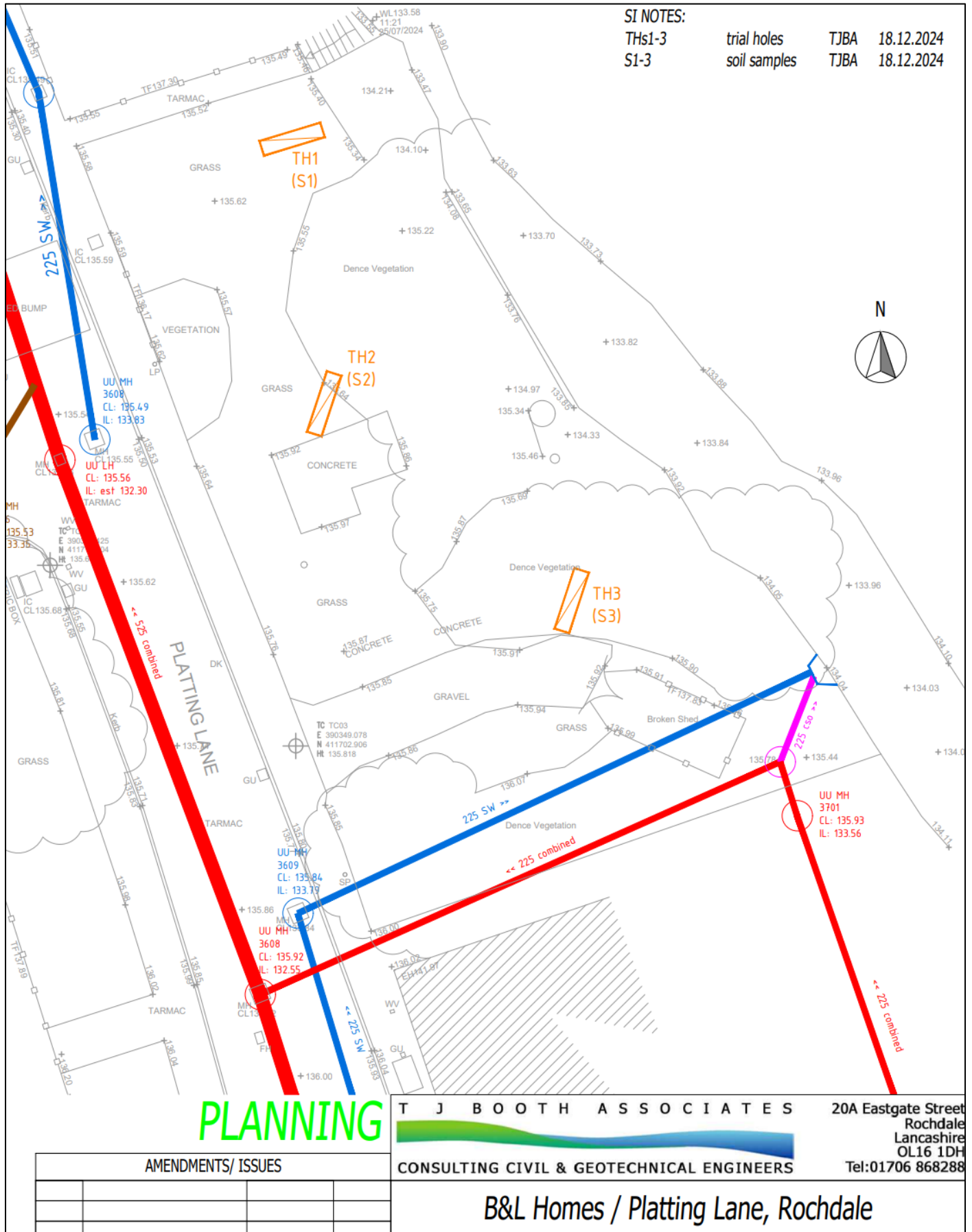
4.2. Ex Site Plan/Topographic Survey.



4.3. Proposed Development.



4.4. Site Investigation Plan.



4.5. Trial Hole Logs.

Trial pit reference TH1				Sheet 1 of 1
Water	Reduced Level (m)	Legend	Depth (m)	Description
	135.50			
	135.00	X X X X X X	(0.50) 0.50	Dark brown slightly sandy silt (topsoil) MADE GROUND. (S1)
	134.40	X X X X X X	(0.60) 1.10	Loose brown silty sand & gravel MADE GROUND. Gravel is brick & stone. Former founs noted to N & E sides.
	134.00	o o o o o o o o	(0.40) 1.50	Medium dense orange/brown slightly gravelly SAND
	133.60	o o o o o o o o	(0.40) 1.90	Medium dense orange/brown SAND AND GRAVEL
	133.50	o o o o	2.00	Orange/brown silty SAND AND GRAVEL
				Trial pit ends

Not shown to scale

Additional notes: No groundwater.



Trial pit reference TH2				Sheet 1 of 1
Water	Reduced Level (m)	Legend	Depth (m)	Description
	135.65			
	135.25	X X X X	(0.40) 0.40	Loose black sand & gravel MADE GROUND. Sand & gravel is brick, stone, slate, glass, ash. (S2)
	134.55	X X X X X X X X	(0.70) 1.10	Loose dark brown/black sand & gravel MADE GROUND Sand & gravel is brick, stone, ash, motar, plaster.
	133.85	: : : : : : : : : : : :	(0.70) 1.80	Medium dense light brown/grey SAND
	133.75	: o : o :	1.90	Medium dense light brown/grey SAND AND GRAVEL
				Trial pit ends

Not shown to scale

Additional notes: No groundwater.



Trial pit reference TH3				Sheet 1 of 1
Water	Reduced Level (m)	Legend	Depth (m)	Description
	135.90			
	135.35	X X X X X X	(0.55) 0.55	Loose dark brown/black sand & gravel MADE GROUND. Sand & gravel is predominantly ash. (S3)
	134.90	X X X X X X	(0.45) 1.00	Dark brown slightly sandy, slightly gravelly, clayey MADE GROUND. Gravel is brick and stone.
	134.45	: : : : : : : : : : : :	(0.45) 1.45	Medium dense light brown/grey SAND
	134.30	: o : o :	1.60	Medium dense light brown/grey SAND AND GRAVEL
				Trial pit ends

Not shown to scale

Additional notes: No groundwater.



4.6. TJBA Soil Analysis.

CLIENT/SITE:		B&L - Platting Lane, Rochdale						
SAMPLE TYPE:		SOILS						
SAMPLING DATE:		18.12.2024						
Contaminant		No	Max	Mean	t 95	RESIDENTIAL (with or without plant uptake)		
						Pass/Fail		Comment
METAL	Arsenic	3	55	30.6667	52.2	37	FURTHER ACTION	S3
METAL	Boron	3	1	1	1	290	PASS	
METAL	Cadmium	3	1.8	0.93333	1.67	22	PASS	
METAL	Chromium as Cr(III)	3	38	23.33	35.90	910	PASS	
METAL	Chromium as Cr(VI)	3	1	1	1	21	PASS	
METAL	Copper	3	193	156	192.9	2400	PASS	
METAL	Lead	3	674	511.333	673.4	200	FURTHER ACTION	S2 & S3
METAL	Mercury (inorganic)	3	0.51	0.28333	0.476	40	PASS	
METAL	Nickel	3	65	40.3333	62.1	130	PASS	
METAL	Selenium	3	1	1	1	250	PASS	
METAL	Zinc as Zn	3	477	267	446.3	3700	PASS	
INORGANIC	Cyanide (Total)	3	1	1	1	34	PASS	
INORGANIC	Sulphate (Total) as SO4	3	0.11	0.07767	0.1064	0.24	PASS	
INORGANIC	Sulphide	3	5	5	5	250	PASS	
INORGANIC	pH	3	8.46	7.69667	8.389	6 to 8	ALKALINE	
INORGANIC	Sulphur (Elemental)	3	23	11.6667	21.4	100	PASS	
INORGANIC	Asbestos Identification	3	1	0.33333	0.9	0	FURTHER ACTION	S2
INORGANIC	Asbestos quantification	1	0.001	0.001	0.001	0.001	PASS	S2 <0.001%
ORGANIC	SOM	3	6	6	6			
PAH	acenaphthene	3	0.06	0.05	0.059	1100	PASS	
PAH	acenaphthylene	3	0.01	0.01	0.01	920	PASS	
PAH	anthracene	3	0.1	0.08333	0.099	11000	PASS	
PAH	benzo[a]anthracene	3	0.48	0.33667	0.46	13	PASS	
PAH	benzo[a]pyrene (BaP)	3	0.45	0.31	0.431	5	PASS	
PAH	benzo[b]fluoranthene	3	0.6	0.42333	0.576	3.7	PASS	
PAH	benzo[g,h,i]perylene	3	0.28	0.19667	0.269	350	PASS	
PAH	benzo[k]fluoranthene	3	0.21	0.14333	0.201	100	PASS	
PAH	chrysene	3	0.57	0.39667	0.546	27	PASS	
PAH	dibenz[ah]anthracene	3	0.04	0.04	0.04	0.3	PASS	
PAH	fluoranthene	3	0.96	0.7	0.927	890	PASS	
PAH	fluorene	3	0.04	0.03	0.039	860	PASS	
PAH	indeno[123-cd]pyrene	3	0.3	0.2	0.286	41	PASS	
PAH	naphthalene	3	0.03	0.03	0.03	13	PASS	
PAH	phenanthrene	3	0.52	0.40333	0.503	440	PASS	
PAH	pyrene	3	0.86	0.62333	0.831	2000	PASS	
PHENOLS AND CHLOROPHENOLS (SVOC)	Phenol	3	0.2	0.2	0.2	380	PASS	
Comments Key Asbestos: A=amosite (brown), CH=chrysotile (white), CR=crocidolite (blue)								

4.7. Envirolab Ltd Certificates.



Hattersley Science & Technology Park
Stockport Road, Hattersley, SK14 3QU

FINAL ANALYTICAL TEST REPORT

Envirolab Job Number: 24/12366
Issue Number: 1
Date: 06 January, 2025

Client: T J Booth Associates
20a East Gate Street
Rochdale
Rochdale
Greater Manchester
UK
OL16 1DH

Project Manager: Daniel Slattery
Project Name: B & L - Platting Lane, Rochdale
Project Ref: N/A
Order No: N/A
Date Samples Received: 19/12/24
Date Instructions Received: 20/12/24
Date Analysis Completed: 06/01/25

Approved by:

Gemma Berrisford
Deputy Client Services Supervisor





Envirolab Job Number: 24/12366

Client Project Name: B & L - Platting Lane, Rochdale

Client Project Ref: N/A

Lab Sample ID	24/12366/1	24/12366/2	24/12366/3					Units	Limit of Detection	Method ref
Client Sample No	S1	S2	S3							
Client Sample ID	TH1	TH2	TH3							
Depth to Top	0.00	0.00	0.00							
Depth To Bottom	0.50	0.40	0.55							
Date Sampled	18-Dec-24	18-Dec-24	18-Dec-24							
Sample Type	SOIL	SOIL	SOIL							
Sample Matrix Code	6AE	6ABE	6ABDE							
% Stones >10mm _A	<0.1	<0.1	<0.1					% w/w	0.1	A-T-044
pH _{MS}	6.88	8.46	7.75					pH	0.01	A-T-031s
Sulphate (acid soluble) _D ^{MS}	490	740	1100					mg/kg	200	A-T-028s
Cyanide (total) _A ^{MS}	<1	<1	<1					mg/kg	1	A-T-042sTCN
Phenols - Total by HPLC _A	<0.2	<0.2	<0.2					mg/kg	0.2	A-T-050s
Sulphide _A	<5	<5	<5					mg/kg	5	A-T-043-s
Sulphur (elemental) _D ^{MS}	7	<5	23					mg/kg	5	A-T-029s
Organic Matter _D ^{MS}	5.80	20.1	22					% w/w	0.14	A-T-032s
Arsenic _D ^{MS}	10	27	55					mg/kg	1	A-T-024s
Boron (water soluble) _D ^{MS}	<1.0	<1.0	<1.0					mg/kg	1	A-T-027s
Cadmium _D ^{MS}	0.5	<0.5	1.8					mg/kg	0.5	A-T-024s
Copper _D ^{MS}	192	83	193					mg/kg	1	A-T-024s
Chromium _D ^{MS}	17	15	38					mg/kg	1	A-T-024s
Chromium (hexavalent) _D	<1	<1	<1					mg/kg	1	A-T-040s
Lead _D ^{MS}	192	668	674					mg/kg	1	A-T-024s
Mercury _D	<0.17	0.51	<0.17					mg/kg	0.17	A-T-024s
Nickel _D ^{MS}	20	36	65					mg/kg	1	A-T-024s
Selenium _D ^{MS}	<1	<1	<1					mg/kg	1	A-T-024s
Zinc _D ^{MS}	170	154	477					mg/kg	5	A-T-024s



Envirolab Job Number: 24/12366

Client Project Name: B & L - Platting Lane, Rochdale

Client Project Ref: N/A

Lab Sample ID	24/12366/1	24/12366/2	24/12366/3					Units	Limit of Detection	Method ref
Client Sample No	S1	S2	S3							
Client Sample ID	TH1	TH2	TH3							
Depth to Top	0.00	0.00	0.00							
Depth To Bottom	0.50	0.40	0.55							
Date Sampled	18-Dec-24	18-Dec-24	18-Dec-24							
Sample Type	SOIL	SOIL	SOIL							
Sample Matrix Code	6AE	6ABE	6ABDE							
Asbestos in Soil (inc. matrix)										
Asbestos in soil ^o	NAD	Chrysotile	NAD							A-T-045
Asbestos Matrix (visual) ^o	-	-	-							A-T-045
Asbestos Matrix (microscope) ^o	-	Loose Fibres	-							A-T-045
Asbestos ACM - Suitable for Water Absorption Test? ^o	N/A	N/A	N/A							A-T-045
Asbestos in Soil Quantification % (Hand Picking & Weighing)										
Asbestos in soil % composition (hand picking and weighing) ^o	-	<0.001	-					% w/w	0.001	A-T-054



Envirolab Job Number: 24/12366

Client Project Name: B & L - Platting Lane, Rochdale

Client Project Ref: N/A

Lab Sample ID	24/12366/1	24/12366/2	24/12366/3					Units	Limit of Detection	Method ref
Client Sample No	S1	S2	S3							
Client Sample ID	TH1	TH2	TH3							
Depth to Top	0.00	0.00	0.00							
Depth To Bottom	0.50	0.40	0.55							
Date Sampled	18-Dec-24	18-Dec-24	18-Dec-24							
Sample Type	SOIL	SOIL	SOIL							
Sample Matrix Code	6AE	6ABE	6ABDE							
PAH-16MS										
Acenaphthene _A ^{MS}	0.06	0.05	0.04					mg/kg	0.01	A-T-019s
Acenaphthylene _A ^{MS}	0.01	<0.01	<0.01					mg/kg	0.01	A-T-019s
Anthracene _A ^{MS}	0.10	0.06	0.09					mg/kg	0.02	A-T-019s
Benzo(a)anthracene _A ^{MS}	0.48	0.28	0.25					mg/kg	0.04	A-T-019s
Benzo(a)pyrene _A ^{MS}	0.45	0.26	0.22					mg/kg	0.04	A-T-019s
Benzo(b)fluoranthene _A ^{MS}	0.60	0.36	0.31					mg/kg	0.05	A-T-019s
Benzo(ghi)perylene _A ^{MS}	0.28	0.17	0.14					mg/kg	0.05	A-T-019s
Benzo(k)fluoranthene _A ^{MS}	0.21	0.12	0.10					mg/kg	0.07	A-T-019s
Chrysene _A ^{MS}	0.57	0.33	0.29					mg/kg	0.06	A-T-019s
Dibenzo(ah)anthracene _A ^{MS}	<0.04	<0.04	<0.04					mg/kg	0.04	A-T-019s
Fluoranthene _A ^{MS}	0.96	0.63	0.51					mg/kg	0.08	A-T-019s
Fluorene _A ^{MS}	0.04	0.02	0.03					mg/kg	0.01	A-T-019s
Indeno(123-cd)pyrene _A ^{MS}	0.30	0.16	0.14					mg/kg	0.03	A-T-019s
Naphthalene _A ^{MS}	<0.03	<0.03	<0.03					mg/kg	0.03	A-T-019s
Phenanthrene _A ^{MS}	0.52	0.34	0.35					mg/kg	0.03	A-T-019s
Pyrene _A ^{MS}	0.86	0.57	0.44					mg/kg	0.07	A-T-019s
Total PAH-16MS _A ^{MS}	5.44	3.35	2.91					mg/kg	0.01	A-T-019s



Report Notes

General

- This report shall not be reproduced, except in full, without written approval from Envirolab.
- The client Sample No, Client Sample ID, Depth to top, Depth to Bottom and Date Sampled are all provided by the client and can affect the validity of results.
- The results reported herein relate only to the material supplied to the laboratory.
- The residue of any samples contained within this report, and any received within the same delivery, will be disposed of **four weeks** after the initial scheduling. For samples tested for Asbestos we will retain a portion of the dried sample for a minimum of **six months** after the initial Asbestos testing is completed.
- Analytical results reflect the quality of the sample at the time of analysis only.
- Opinions and Interpretations expressed are outside our scope of accreditation.
- A deviating sample report is appended and will indicate if samples or tests have been found to be deviating. Any test results affected may not be an accurate record of the concentration at the time of sampling and, as a result, may be invalid.
- If a sample is outside of the calibration range or affected by interferences then it may need diluting. This will result in the limit of detection (LOD) being raised.
- Subcontracted Analysis: Please see the appended report for any deviations, current LODs and accreditation status of the test.

Key

Superscript "#"	Accredited to ISO 17025
Superscript "M"	Accredited to MCertS
Superscript "U"	Individual result not accredited
None of the above symbols	Analysis unaccredited
Subscript "A"	Analysis performed on as-received Sample
Subscript "D"	Analysis performed on the dried sample, crushed to pass 2mm sieve.
Subscript "D" on Asbestos	Analysis performed on a dried aliquot of sample provided.
Subscript "A"	Analysis has dependant options against results. Details appear in the comments of your Sample receipt
IS	Insufficient Sample for analysis
US	Unsuitable Sample for analysis
NDP	No Determination Possible
NAD	No Asbestos Detected
Trace	Asbestos found not suitable for Gravimetric Quantification – not enough to accurately weigh.
N/A	Not applicable

Asbestos

Identification: Asbestos in soil analysis is performed on a dried aliquot of the submitted sample and cannot guarantee to identify asbestos if only present in small numbers as discrete fibres/fragments in the original sample.

Stones etc. are not removed from the sample prior to analysis

"Trace Asbestos Identified" will be reported if there is not enough present to verify the type.

Quantification: Generally a 2 stage process including visual identification, hand picking and weighing, and fibre counting. Where ACMs are found a percentage asbestos is assigned to each with reference to 'HSG264, Asbestos: The survey guide' and the calculated asbestos content is expressed as a percentage of the dried soil sample aliquot used. If asbestos is identified as being present but is not in a form that is suitable for analysis by hand picking and weighing (normally if the asbestos is present as free fibres), "TRACE" will be reported as a quantification result.

PLEASE INFORM THE LABORATORY IF YOU WOULD LIKE THE STAGE 3 SEDIMENTATION PROCESS CARRIED OUT. Note this will be subcontracted.

Assigned Matrix Codes

1	SAND	6	CLAY/LOAM	A	Contains Stones
2	LOAM	7	OTHER	B	Contains Construction Rubble
3	CLAY	8	Asbestos Bulk (Only Asbestos ID accredited)	C	Contains visible hydrocarbons
4	LOAM/SAND	9	Incinerator Ash (some Metals accredited)	D	Contains glass / metal
5	SAND/CLAY			E	Contains roots / twigs

Note: 7,8,9 matrices are not covered by our ISO 17025 or MCertS accreditation, unless stated above.

Soil Chemical Analysis:

All results are reported as dry weight (<40°C).

For samples with Matrix Codes 1 - 6 natural stones, brick and concrete fragments >10mm and any extraneous material (visible glass, metal or twigs) are removed and excluded from the sample prior to analysis and reported results corrected to a whole sample basis. This is reported as '% stones >10mm'.

For samples with Matrix Code 7 the whole sample is dried and crushed prior to analysis and this supersedes any "A" subscripts

All analysis is performed on the sample as received for soil samples which are positive for asbestos or the client has informed asbestos may be present and/or if they are from outside the European Union and this supersedes any "D" subscripts.

TPH by method A-T-007:

For waters, free and visible oils are excluded from the sample used for analysis, so the reported result represents the dissolved phase only.

Results "with Clean up" indicates samples cleaned up with Silica during extraction.

EPH CWG (method A-T-055) from TPH CWG:

EPH CWG results have humics mathematically subtracted through instrument calculation.

Where these humic substances have been identified in any IDs from "TPH CWG with clean up" please note that the concentration is **NOT** included in the quantified results but present in the ID for information.

Electrical Conductivity of water by method A-T-037:

Results greater than 12900µS/cm @ 25°C / 11550µS/cm @ 20°C fall outside the calibration range and as such are unaccredited.

Please contact your client manager if you require any further information.



Envirolab Deviating Samples Report

Hattersley Science & Technology Park, Stockport Road, Hattersley, SK14 3QU
Tel. 0161 368 4921 email. ask@envirolab.co.uk

Client: T J Booth Associates, 20a East Gate Street, Rochdale, Rochdale, Greater Manchester, UK, OL16 1DH
Project: B & L - Platting Lane, Rochdale
Clients Project No: N/A

Project No: 24/12366
Date Received: 20/12/2024 (am)
Cool Box Temperatures (°C): 9.3

NO DEVIATIONS IDENTIFIED

If, at any point before reaching the laboratory, the temperature of the samples has breached those set in published standards, e.g. BS-EN 5667-3, ISO 18400-102:2017, then the concentration of any affected analytes may differ from that at the time of sampling.



Envirolab Analysis Dates

Lab Sample ID	24/12366/1	24/12366/2	24/12366/3
Client Sample No	S1	S2	S3
Client Sample ID/Depth	TH1 0.00-0.50m	TH2 0.00-0.40m	TH3 0.00-0.55m
Date Sampled	18/12/24	18/12/24	18/12/24
A-T-019s	23/12/2024	23/12/2024	23/12/2024
A-T-024s	03/01/2025	03/01/2025	03/01/2025
A-T-027s	03/01/2025	03/01/2025	03/01/2025
A-T-028s	03/01/2025	03/01/2025	03/01/2025
A-T-029s	03/01/2025	03/01/2025	03/01/2025
A-T-031s	03/01/2025	03/01/2025	03/01/2025
A-T-032s	06/01/2025	03/01/2025	06/01/2025
A-T-040s	03/01/2025	03/01/2025	03/01/2025
A-T-042sTCN	23/12/2024	23/12/2024	23/12/2024
A-T-043-s	20/12/2024	20/12/2024	20/12/2024
A-T-044	03/01/2025	03/01/2025	03/01/2025
A-T-045	23/12/2024	23/12/2024	23/12/2024
A-T-050s	23/12/2024	23/12/2024	23/12/2024
A-T-054		03/01/2025	

The above dates are the analysis completion dates, please note that these are not necessarily the date that the analysis was weighed/extracted.

End of Report

5. APPENDIX B: PHASE 1 PRA PHOTOS.



View towards northeast corner, 12.07.2024.



View towards southeast corner, 12.07.2024.



View towards northeast corner, 12.07.2024.



View from central west boundary towards Sudden Brook, 12.07.2024.



View towards southeast corner, 12.07.2024.



View from northeast corner towards Sudden Brook, 12.07.2024.

6. APPENDIX C: LANDMARK ENVIROCHECK.

