



GEO-ENVIRONMENTAL AUDIT

PHASE 1 PRELIMINARY RISK ASSESSMENT

PHASE 2 SITE INVESTIGATIONS

PHASE 3 REMEDIATION STATEMENT

**PROPOSED RESIDENTIAL DEVELOPMENT
LAND AT SCHOFIELD STREET
HEYWOOD
ROCHDALE
OL10 1DH**

Author: Daniel Slattery
Client: B & L Homes Ltd
Reference: rep-tjba-B&L-schofield st-Phs1_2_3Env-200125.docx

Revision	Date	Reason
0	Jan 2025	Original to address planning condition.

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1. PHASE 1 - PRELIMINARY RISK ASSESSMENT.

1.1. Introduction.

T. J. Booth Associates have been appointed by B & L Homes to compile a report on a Phase 1 Preliminary Risk Assessment (PRA), existing Phase 2 Site Investigations, and to provide a Phase 3 Remediation Statement for a Site at Schofield Street, Heywood.

The Application Site has a planning history most recently related to a proposed NHS kidney centre. The proposal has recently been abandoned, and the Application Site & documents were sold to B & L Homes Ltd, who have instead proposed to turn the Site into a residential end use to match much of the surrounding local area.

As part of the past proposal for an NHS kidney centre, site investigations were undertaken by Sladen Associates between the dates of 9th August 2021 to 15th October 2021.

This report will reassess the Site to current environmental databases & using the existing site investigation information. The information will be reanalysed for the new proposed residential end use to current regulations/guidance.

At the time of writing, a planning application was being prepared. There are no current planning conditions to address.

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 Site comprises an L-shape piece of land, with a nominally 10-20m wide strip approximately 55m long down the west boundary adjacent to Schofield Street, and a square north part nominally 25m by 40m.

The proposed development is for the construction of 9No. 3 storey dwellings, comprising detached, semidetached and terrace townhouses.

Each property will have a small garden to the rear.

Plot Nos. 1-5 will each have private driveways, and plots 6-9 having a shared driveway and car park.

Refer to Proposed Plan in the Appendix.

1.3. Historic Maps.

DATE	ON-SITE	OFF-SITE/SURROUNDING AREA
c1851	The northeast part of the Site comprises a reservoir to an unnamed cotton mill. The Application Site was previously part of the mill site (mill to the northeast). It also comprises vacant land or yard area to the west side, and some unnamed buildings to the south.	The cotton mill within which the Application Site reservoir is associated is to the north and northeast of the red line boundary. There is another reservoir east off the site centre, outside of the red line boundary. The wider local area comprises a mix of residential terraced housing generally to the east north and south of the area.
c1890	No change.	Further development of the wider local area with both residential and commercial property, including mills, associated reservoirs smithies, breweries etc. Hey Mill (silk waste) now shown to the southeast neighbouring the Application Site, and associated with larger premises to the south of Mount Street to the south Application Site boundary The reservoir offsite (east off the site centre) appears to be associated with Hey Mills.
c1910	Rope walk now shown the entire west side of Site.	Hey Mill reservoir appears to have been infilled. Minor changes in the wider area including demolition of mills.

c1929	Some additional buildings erected associated with the rope walk.	Mills to which the Application Site reservoir is associated is now named Gooden Lane Mills. Hey Mills are now shown as disused.
c1938	Application Site reservoir appear to have been infilled. Some of the rope walk buildings have been demolished.	Changes to the wider area include further reduction of commercial property, with mill demolition being the primary reason. Replacement is generally with residential dwellings and associated amenities.
c1956	Site is mostly vacant, with Gooden Lane Rope Works to the north (offsite), and the associated rope walk to the west Application Site boundary.	To the northeast one of the former mill buildings is now Manwood Engineering Works, and a substation is shown to the northeast beyond this. Many of the buildings in the wider area have been demolished.
c1965	No change.	Much of the surrounding areas have been rebuilt with residential dwellings.
c1981-85	No change.	Residential housing estate now surrounding the Site especially to the northwest to southwest, and commercial buildings to the southeast & north.
c1990-92	No change. Site just noted as works.	No change.
2013	No change.	Residential housing development to the east/southeast on the former Hey Mills Site.
2017	Rope walk buildings remain to the west Site boundary. The rope walk buildings appear to be made up of asbestos cement sheet from electronic mapping databases.	No change.
2018	Rope walk buildings demolished.	No change.

1.4. Present Day Maps.

Site boundaries, outlines of structures and buildings:	Present day maps show a vacant plot of land. The Site appears to be unmade ground to the north, and concrete ground slabs to the centre/south. The existing Site entrance appears to be to the south boundary, adjacent an offsite substation. Commercial development surrounds to the northeast of the Site, and residential around the west, south and southwest.
Ground contours, natural drainage features:	A topographic survey has been undertaken which shows a level of c128.40m aOD at the southern entrance. The northwest Site corner is c125.50m aOD. The level of the Site is c126.00m aOD in the north area, falling by approximately $\frac{3}{4}$ of a metre to the surrounding commercial buildings. In the wider area overall topography falls to the north.
Watercourses:	None noted in the local area.
Below ground obstructions:	None noted on current maps/plans.

1.5. Geology.

Superficial geology:	The Site is underlain by Devensian glaciofluvial deposits (sand & gravel). The boundary with Devensian till is just to the south of the Site, and thus the glaciofluvial deposits are likely to be thin, underlain by Devensian till (boulder clay/diamicton).
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Bedrock geology:	The bedrock geology beneath the Site comprises Pennine Lower Coal Measures.
Coal seams:	BGS Maps suggest the Arley coal seam underlies the Site.
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.

No relevant boreholes in close proximity to the site boundaries.

1.7. Groundsure Environmental Data.

1.7.1. Historical Industrial Sites.

Potentially contaminative uses:	0 records noted on-site. 3 records within a 0-50m radius – relating to cotton mills.
Historical tank database:	0 records noted on-site. 0 records within a 0-50m radius.
Historical energy features:	4 records noted on-site - Electricity substation 1956 which is now north east of the new Application boundary. 0 records within a 0-50m radius.
Historical garage & motor vehicle repair:	0 records noted on-site. 8 records within a 0-50m radius – all relate to a garage 34-49m northwest between 1967-1999.
Potentially infilled land:	1 record noted on-site – relates to an on-site pond infilled c1890. 4 records within a 0-50m radius - relates to off-site ponds infilled 1851-1890. 35 records within a 51-250m radius.

1.7.2. Environmental Permits, Incidents & Registers.

Records of Part A & Part B activities & enforcements:	0 record noted on-site. 0 records within a 0-50m radius. 1 records within a 51-250m radius.
National incidents recording system:	0 record noted on-site. 0 records within a 0-50m radius. 2 records within a 51-250m radius.

1.7.3. Landfill & Other Waste Sites.

EA registered landfill sites:	0 record noted on-site. 0 records within a 0-50m radius. 0 records within a 51-250m radius.
EA historic landfill sites:	0 record noted on-site. 0 records within a 0-50m radius. 0 records within a 51-250m radius.
BGS landfill sites:	0 record noted on-site. 0 records within a 0-50m radius. 0 records within a 51-250m radius.
Operational & non-operational waste treatment, transfer & disposal sites:	0 record noted on-site. 0 records within a 0-50m radius. 1 record within a 51-250m radius – relates to a recycling centre 241m northeast.
EA licensed waste sites:	0 record noted on-site. 0 records within a 0-50m radius. 3 records within a 51-250m radius – all relate to a waste transfer station 172m northeast.

1.7.4. Current Land Uses.

Current Industrial Sites Data:	1 record noted on-site – relates to unspecified factories or works. 5 records within a 0-50m radius – relates to the existing substation to the south, and general works.
Records of petrol & fuel sites:	0 records noted on-site. 1 record within a 0-50m radius.

1.7.5. Hydrogeology & Hydrology.

Superficial 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.
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Bedrock aquifer:	Secondary Aquifer – A.
Source protection zone:	Not within a Source Protection Zone.
Groundwater abstraction licenses:	0 records noted on-site. 0 records within a 0-50m radius. 0 records within a 51-250m radius.
Surface water abstraction licences:	0 records noted on-site. 0 records within a 0-50m radius. 0 records within a 51-250m radius.
Potable water abstraction licences:	0 records noted on-site. 0 records within a 0-50m radius. 0 records within a 51-250m radius.
Source protection zones:	0 record noted on-site. 0 records within a 0-50m radius. 0 records within a 51-250m radius.
Groundwater vulnerability & soil leaching potential:	1 record noted on-site – relates to a minor aquifer/high leaching potential. The description is a generalised view of the local area assuming the soils to be highly permeable in the absence of site-specific information.

1.7.6. Natural hazards.

Natural ground subsidence risk:	Very low.
Potential for shrinking or swelling clay ground stability hazards:	Very low risk.
Potential for landslide ground stability hazards:	Very low risk.
Potential for ground dissolution stability hazards:	Negligible.
Potential for compressible ground stability hazards:	Negligible.
Potential for collapsible ground stability hazards:	Very low risk.
Potential for running sand ground stability hazards:	Very low risk.

1.8. 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:	The report indicates that the Site is within an area where coal may be at or close to the surface.
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 within a Development High Risk Area.
Abandonment Plan Data:	No data available.

1.9. Site Reconnaissance (Jan 2024).

A recent site walkover has been undertaken to assess if there has been any change on site since the site investigations were undertaken.

Details of existing structures:	Since the site investigation work c2021, no changes have occurred to the Site.
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	The Site generally comprises an L-shape, with a thinner nominally 10-20m wide strip approximately 55m long down the west boundary adjacent to Schofield Street, and a square north part nominally 25m by 40m. The strip down the west side generally comprised concrete slabs, presumably as the former access driveway/yard area, apart from immediately adjacent Schofield Street which comprised an unmade surface (where the now demolished rope walk building had been previously). The unmade ground in this area was very dark brown with brick, stone, macadam, and other relict building material apparent on the ground surface. The north square part of the Application Site comprised an unmade/made ground surface, similar to the west side. The west side was nominally level with Schofield Street, rising to the south and to the same level as the former site entrance with Mount Street. There was a metre or so fall to the external hardstanding of the adjacent works to the east side.
Adjacent properties:	The former mill exists to the north side, a current works/warehouse to the northeast side, and a relatively new housing estate to the southeast.
Water levels, directions of flow and rates in rivers:	No watercourses locally.
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:	Unmade areas of the site comprised relict historic building materials.

1.10. Identification of Source-Pathway-Receptor.

1.10.1. Environmental Summary.

The historic site assessment has shown no specific contaminative uses that would have contributed significant contamination into the ground. The site was historically occupied by a reservoir (northeast), and a rope walk (west boundary). External areas were and still are covered with concrete slabs.

The main issues surrounding contamination were from the asbestos sheet used to construct the ropewalk buildings, and the infilled reservoir ponds.

The former off-site mill would have originally been run on coal fired boiler & steam engines, utilising water from the reservoir. Although the reservoir was on site, the mill chimney was further to the east also offsite.

There are no specific historic records for the infill used in the reservoir, but records suggest it was infilled c1930.

Mills historically produced significant amounts of ash and clinker which would have been generated from the coal fired boilers, and this was usually deposited on site where room allowed.

Site reconnaissance noted made ground generally to the unmade parts of the site. The made ground appears to be comprised of general fill, likely building rubble and ash in a sand/clay matrix.

Fill of this type generally comprises metals, PAH, and asbestos. There may be some relict VOC/SVOC although no particular source has been identified.

PCBs are usually associated with substations, and although there is one offsite to the southwest boundary, PCBs are not mobile in the soil environment and are not considered to be a risk.

1.10.2. Potential Contaminant Sources.

CURRENT SOURCE/S	ORIGINAL ASSOCIATED SOURCE	CONTAMINANT/S
General existing Site soil/made ground.	Demolition of historic buildings, and associated minor made ground.	Metals, PAHs, sulphates, asbestos.
Northeast Site made ground.	Infilled reservoirs.	Metals, PAHs, sulphates, asbestos.

		CO ₂ , CH ₄ .
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1.10.3. 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

1.10.4. Potential Receptors.

Construction phase workforce.

Residents as the proposed end users.

Controlled waters: aquifers.

1.11. 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, 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 areas of made ground noted on the site walkover. Made ground was noted to comprise, ash & building rubble, which are a likely source of metals, PAH, and asbestos.	Medium.	High likelihood.	High risk.
PL2	Potential for mortars/plasters and associated effects on concrete.	Sulphates.	Contact with underground structures.	Building structures /concrete.	There is a potential pollutant linkage with areas of made ground noted on the site walkover. Made ground was noted to comprise, ash & building rubble, which are a likely source of sulphates.	Medium.	High likelihood.	High risk.
PL3	Potential historic use of hazardous PSRAS 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.	No specific sources noted although cannot be ruled out. Although the Site has a former use as a driveway & garage, the likelihood of hydrocarbon contamination is low. Site has never been used for industrial purposes and previous use was agricultural.	Medium.	Low likelihood.	Moderate to low risk.
PL4	Hydrocarbon contaminants in upper site soil/made ground, and effects on groundwater or watercourses as a receptor.	Potential hydrocarbons.	Groundwater via potential leaching and transport of potential contaminants.	Underlying aquifer or watercourse as a receptor.	No credible pollutant linkage. Although part of the site was used as a yard/driveway, there is a low likelihood of spillage, especially considering the hardstandings still in place. Any minor spills would have been local, and not representative of the general site. There may be minor spills elsewhere on site but no specific source noted. The aquifers beneath the site are Secondary A, which are not used for drinking, there are no abstractions locally, and the closest watercourse is approximately 500m distant.	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 Site residential occupants. Explosion, suffocation.	No credible pollutant linkage. There is a potential for shallow coal seams, although the coal report suggests these are unworked.	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.	No credible pollutant linkage. 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 (1-3% 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, infilled mill ponds.	CH ₄ , CO ₂ , other trace gases.	Diffusion through soil, substructures, aerial inhalation.	Human - future Site residential occupants. Explosion, suffocation.	There is a potential pollutant linkage considering the infilled reservoir on-site. However, this is likely to have been infilled with generally inert material. Site investigations will expose the risk if one exists.	Medium.	Low likelihood.	Moderate to 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. Sladen Associates, 09.08.2021 – 15.10.2021.

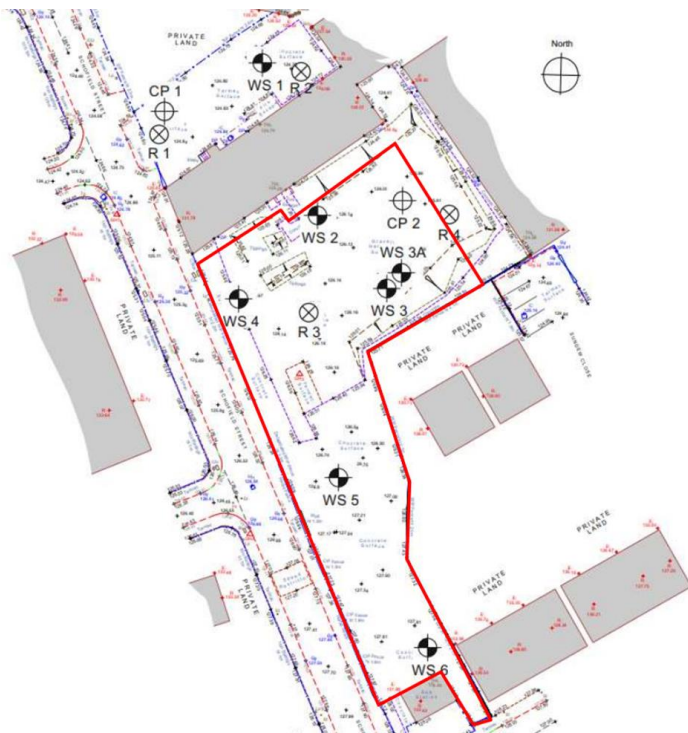
Site investigations have been previously undertaken by Sladen Associates between the dates of 9th August 2021 to 15th October 2021. The then application boundary also comprised the existing mill to the north.

The original investigation comprised the following:

- 7No. mini boreholes (WS1 to 3, 3A and 4 to 6).
- 2No. cable percussive boreholes (CP1-CP2).
- 4No. rotary boreholes (R1-R4).

Soil sampling and gas monitoring were also undertaken.

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



Since the investigations, no further use of the Site has occurred, and no new contaminants are considered to have been introduced.

Only the following boreholes are now within the current Application Site boundary & assessment area, as follows:

- 6No. mini boreholes (WS2 to 3, 3A and 4 to 6).
- 2No. cable percussive boreholes (CP2).
- 4No. rotary boreholes (R3-R4).

This report will reassess the Site to current environmental databases and existing site investigation information. The resulting information will be reanalysed for the new proposed end use to current regulations/guidance.

PID monitoring was undertaken during investigations, and generally no detectable VOC concentrations were recorded below the Application Site.

Soil samples were taken throughout the MADE GROUND profile, sealed in 1kg white plastic snap top containers, amber jars & vials where appropriate, and ALS Ltd to be tested for a range of common contaminants.

Samples taken beneath the Application Site were as follows:

WS2 0.0-0.9m

WS2	2.4-2.6m
WS3	0.0-1.0m
WS3	1.20m
WS4	0.0-0.5m
WS4	2.00m
WS6	0.2-0.6m
WS6	2.5m

2.1.2. Ground Conditions.

2.1.2.1. Made Ground.

The upper Site subsoil comprised MADE GROUND, generally between 0.5-1.0m deep over the Site, but deeper in the location of the former reservoir up to approximately 2.5m deep.

Upper MADE GROUND generally comprised sandy gravel with cobbles and occasional boulders. The gravel element comprised brick, sandstone, concrete, ash, clay pipe, pottery, coal, limestone, glass, plastic and occasional asbestos sheet. Where it was deeper in the location of the reservoir, the composition also comprised occasional ash layers, clay layers, and in WS4 a basal layer of black sand with an odour of hydrocarbons.

Soil sampling was undertaken in the MADE GROUND profile at varying depths

2.1.2.2. Glacial Till.

Below the MADE GROUND was glacial till nominally 2-3m thick, which extended to approximately 4m deep in the north part of the Site around the former reservoir, around 3m deep in the Site centre, and around 2m deep to the south side of the Site. The upper till comprised a soft/soft to firm yellow/brown sandy CLAY, becoming firm to stiff brown gravelly CLAY with depth. Occasional SAND lenses were noted.

2.1.2.3. Bedrock.

Bedrock comprised Coal Measures, generally mudstone. The upper metre or so appeared to comprise WEATHERED BEDROCK, generally comprising stiff clay with mudstone lithorelics, and becoming a weak mudstone BEDROCK nominally at around 6m (north/reservoir area), and around 3m deep at the south side of Site.

Deep rotary boreholes to 30m revealed Carboniferous Coal Measures of interbedded thin mudstone/sandstone bedding and no coal seams.

2.2. Final Risk Assessment.

2.2.1. Human Health Risk.

2.2.1.1. Shallow soil contamination.

The samples results have been assessed by TJ Booth Associates to common threshold comparison data for a residential end usage 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
WS2 0.0-0.9m	Lead, asbestos (loose fibre bundle in soil, gravimetric quantification 1.46%, PCOM quantification <0.001%)	FURTHER ACTION
WS2 2.4-2.6m	Asbestos (fibre bundles in soil, gravimetric quantification 0.001%, PCOM quantification <0.001%)	FURTHER ACTION
WS3 0.0-1.0m	Sulphate.	FURTHER ACTION
WS4 0.0-0.5m	Asbestos (loose fibres in soil, gravimetric quantification 0.0151%, PCOM quantification <0.001%), benzo[a]anthracene, benzo[a]pyrene (BaP), benzo[b]fluoranthene, dibenz[ah]anthracene.	FURTHER ACTION

Due to above elevated levels noted, existing upper made ground is considered mildly contaminated with metal & PAH. It also contains some asbestos, generally bundles or pieces of ACM, not widespread through the soil but still comprises a risk to the end user.

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

Although hydrocarbons were suspected in the investigation, contaminant analysis has recorded low levels.

2.2.1.2. Ground Gas Risk.

2.2.1.2.1. Historic landfill sites.

No pollutant linkage identified.

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

The historic and infilled reservoir has been investigated and found to comprise generally inert infill materials.

Ground conditions were recorded as sandy gravel with cobbles and occasional boulders. The gravel element comprised brick, sandstone, concrete, ash, clay pipe, pottery, coal, limestone, glass, plastic and occasional asbestos sheet. Deeper layers comprised occasional ash layers & clay.

Ground gas monitoring was undertaken by Sladen Associates between the dates of between the dates of 9th August 2021 to 15th October 2021.

The results have been analysed to produce gas screening values (GSVs) for both CH₄ & CO₂, as per CIRIA C665/BS 8485:2015+A1:2019.

The GSVs for both result in a Characteristic Situation 1, and therefore ground gas risk to the development is evaluated as low and no ground protection measures are required.

Ground Gas Monitoring Summary												
Client/Site: B & L Homes Ltd - Schofield Street, Heywood.												
BH No.	Date	CH ₄ %	CO ₂ %	O ₂ %	Press (mb)	Flow (l/hr)	ground water depth (m)	Max Flow l/hr	GSV CH ₄	GSV CO ₂	Characteristic Situation from GSV (CIRIA C665)	Increase in CS due >1% CH ₄ , >5% CO ₂ , or BH >70l/h (CIRIA C665)
1	13-Aug-21	0.00	1.10	19.40	1018	0.0	0.81	0	0	0	1	1
	19-Aug-21	0.00	0.30	19.30	1012	0.0	0.86	0	0	0	1	1
	25-Aug-21	0.00	1.50	19.00	1028	0.0	0.85	0	0	0	1	1
	3-Sep-21	0.00	1.00	19.50	1025	0.0	1.05	0	0	0	1	1
	7-Sep-21	0.00	1.10	17.60	1022	0.0	1.3	0	0	0	1	1
	14-Oct-21	0.00	0.20	19.70	1020	0.0	0.94	0	0	0	1	1
	max	0.00	1.50	19.70								
3A	13-Aug-21	0.00	0.80	20.30	1018	0.0	na	0	0	0	1	1
	19-Aug-21	0.00	0.70	20.40	1012	0.0	na	0	0	0	1	1
	25-Aug-21	0.00	0.90	20.00	1028	0.0	na	0	0	0	1	1
	3-Sep-21	0.00	0.90	20.10	1025	0.0	na	0	0	0	1	1
	7-Sep-21	0.00	0.60	20.10	1022	0.0	na	0	0	0	1	1
	14-Oct-21	0.00	0.50	20.50	1020	0.0	na	0	0	0	1	1
	max	0.00	0.90	20.50								
6	13-Aug-21	0.00	1.20	19.10	1018	0.0	2.62	0	0	0	1	1
	19-Aug-21	0.00	1.30	19.00	1012	0.0	2.6	0	0	0	1	1
	25-Aug-21	0.00	1.50	18.50	1028	0.0	2.61	0	0	0	1	1
	3-Sep-21	0.00	1.50	18.80	1025	0.0	2.62	0	0	0	1	1
	7-Sep-21	0.00	0.40	20.70	1022	0.0	2.63	0	0	0	1	1
	14-Oct-21	0.00	0.60	20.20	1020	0.0	na	0	0	0	1	1
	max	0.00	1.50	20.70								
	mean	0.00	1.08	19.38								

2.2.1.2.3. Radon.

No pollutant linkage identified.

2.2.1.2.4. Alluvium.

No pollutant linkage identified.

2.2.1.3. Buildings & services.

2.2.1.3.1. Water pipes.

United Utilities pipeline risk assessment methodology follows the PSRAS (Pipe selection risk assessment summary) table, whereby contaminants known to negatively affect polyethylene (PE) water pipes have a maximum allowed concentration/PE threshold.

The following contaminants are known to be a risk in general made ground, and where no other specific sources suggest additional contaminants:

Total VOCs, Total BTEX & MTBE, Total SVOCs (excluding PAH, phenols & chlorinated phenols), EC5-10 aliphatic & aromatic hydrocarbons, EC10-16 aliphatic & aromatic hydrocarbons, EC16-40 aliphatic & aromatic hydrocarbons, phenols, and cresols & chlorinated phenols.

The contaminant data obtained from soil sampling is tabulated below, highlighted (red) where it fails the PSRAS PE threshold:

Comparison with UU PSRAS Contaminant Test Groups							
Determinand	Units	max PE threshold	WS2	WS2	WS3	WS4	WS6
			0.0-0.9m	2.4-2.6m	0.0-1.0m	0.0-0.5m	0.2-0.6m
benzene (EC 6.5)	mg/kg		0.009	0.18	0.009	0.18	0.009
toluene (EC 7.58)	mg/kg		0.007	0.14	0.007	0.14	0.007
ethylbenzene (EC 8.5)	mg/kg		0.004	0.08	0.004	0.08	0.004
m-xylene (EC ~8.6)	mg/kg		0.01	0.2	0.01	0.2	0.01
p-xylene (EC ~8.6)	mg/kg		0.01	0.2	0.01	0.2	0.01
o-xylene (EC ~8.6)	mg/kg		0.01	0.2	0.01	0.2	0.01
MTBE (methyl tert-butyl ether)	mg/kg		0.01	0.2	0.01	0.2	0.01
Total BTEX & MTBE	mg/kg	0.1	0.06	1.2	0.06	1.2	0.06
aliphatic EC 5-6	mg/kg		0.01	0.0753	0.01	0.01	0.01
aliphatic EC 6-8	mg/kg		0.01	0.183	0.01	0.01	0.01
aliphatic EC 8-10	mg/kg		0.01	0.143	0.01	0.01	0.01
aromatic EC 5-7, Benzene	mg/kg		0.01	0.01	0.01	0.01	0.01
aromatic EC 7-8, Toluene	mg/kg		0.01	0.01	0.01	0.01	0.01
aromatic EC 8-10	mg/kg		0.01	0.0951	0.01	0.01	0.01
Total EC 5-10	mg/kg	2	0.06	0.5164	0.06	0.06	0.06
aliphatic EC 10-12	mg/kg		1	1	1	1.73	1
aliphatic EC 12-16	mg/kg		1	24.2	1	4.91	1.06
aromatic EC 10-12	mg/kg		1	1	1	1.14	1
aromatic EC 12-16	mg/kg		1	5.96	1.24	32.4	1
Total EC 10-12	mg/kg	10	4	32.16	4.24	40.18	4.06
aliphatic EC 16-35	mg/kg		8.51	4439	50.88	13.58	20.95
aliphatic EC 35-44	mg/kg		1	4750	11	1.46	1
aromatic EC 16-21	mg/kg		1.97	35.1	2.81	160	4.5
aromatic EC 21-35	mg/kg		10.4	342	47.6	438	26
aromatic EC 35-44	mg/kg		1	1	1.69	93.5	1
Total PE threshold EC 16-40	mg/kg	500	22.88	9567.1	113.98	706.54	53.45
Total cresols	mg/kg	2	0.0222		0.0678	0.01	0.01

There are exceedances in the PE pipe threshold level in the made ground around the location of the reservoir/north area (WS2 & WS4). However, there was no exceedance in the south area (WS6). The logs also show minimal made ground in the southern part of the Site.

Where PE pipe is to be routed through made ground in the access road and to plots 6-9 barrier pipe will be required.

Plots 1-5 may utilise standard PE pipe.

2.2.1.3.2. Sulphate.

Sulphate was recorded at worst case DS2 AC2 in WS3. All other samples were DS1.

2.2.2. Controlled Waters Risk.

Where soil leachate or 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.

The only consideration for controlled waters risk is groundwater contamination, potentially of the aquifers beneath the Site.

The superficial aquifer designation based on BGS geology mapping is as a Secondary A aquifer for both bedrock and superficial aquifers. The superficial aquifer in particular is based upon the potential for alluvial SAND & GRAVEL deposits, generally deposited above the glacial CLAY.

The Bedrock Secondary A aquifer may comprise permeable layers that can support local water supplies, and may form an important source of base flow to rivers. However, there are no watercourses or abstractions in the local area.

Site investigation boreholes across the Site have recorded glacial till (boulder CLAY) beneath the MADE GROUND profile. Glacial CLAY usually has a designation of Secondary Undifferentiated, or Unproductive; which are both minor value aquifers not capable of transmitting large amount of water – and will essentially act as an aquiclude protecting the lower bedrock aquifer.

Due to only minor & low levels of contamination being noted, as well as the glacial CLAY noted in the investigation, the groundwater and leaching vulnerability of the Site will be classed as low.



Notwithstanding the above, leachate tests were undertaken on the lower MADE GROUND samples in the reservoir area (WS2), as well as beside it (WS4), and particularly mobile contaminants such as hydrocarbons recorded lower than the limit of detection for all speciated hydrocarbon fractions.

The risk to aquifers is considered to be low.

2.2.2.2. Watercourses.

No watercourses in the local area.

Risk is considered as low due to the lack of pathway (glacial CLAY), and source (only distant watercourses), 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, PAHs, 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 metals, PAH and asbestos noted in shallow soil sampling.	Medium.	High likelihood.	High risk.	REMEDIATION REQUIRED. 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.	Sulphate was recorded at worst case DS2 AC2 in WS3 0.0-0.1m in 1No surface sample. All other samples were DS1.	Medium.	Unlikely.	Low risk.	NO REMEDIATION REQUIRED.
PL3	Potential historic use of hazardous PSRAS 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.	There is a potential pollutant linkage with hydrocarbon fractions above the threshold for PE pipe.	Medium.	Likely.	Moderate risk.	REMEDIATION REQUIRED. BARRIER PIPE TO ACCESS ROAD AND PLOTS 5-9 ONLY (REMOVAL OF PATHWAY). PLOTS 1-5 MAY USE STANDARD PE PIPE.
PL4	Hydrocarbon contaminants in upper site soil/made ground, and effects on groundwater or watercourses as a receptor.	Potential hydrocarbons.	Groundwater via potential leaching and transport of potential contaminants.	Underlying aquifer or watercourse as a receptor.	No credible pollutant linkage. Mobile contaminants have been assessed as low risk. Superficial clay act as an aquitard to the lower Secondary A aquifer. No abstractions or watercourses locally.	Mild.	Low likelihood.	Low risk.	NO REMEDIATION REQUIRED.



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 credible pollutant linkage. Deep boreholes c30m deep were undertaken and revealed no coal seams. CH ₄ & CO ₂ readings were also recorded at 0%.	Mild.	Unlikely.	Very low risk.	NO REMEDIATION REQUIRED.
PL7	Anthropogenic ground gas from historic/present landfill, infilled mill ponds.	CH ₄ , CO ₂ , other trace gases.	Diffusion through soil, substructures, aerial inhalation.	Human - future residential Site occupants. Explosion, suffocation.	Ground gas monitoring and subsequent risk assessment has concluded CS1 designation.	Medium.	Unlikely.	Low risk.	NO REMEDIATION 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.
- Ensure the water supplies are safe for the end user.

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.
- PL3: Potential historic use of hazardous PSRAS chemicals & effects on PE water pipes.

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.

PL3: Potential historic use of hazardous PSRAS chemicals & effects on PE water pipes.

There are exceedances of PE pipe threshold level recorded in the made ground around the location of the reservoir/north area (WS2 & WS4). However, there was no exceedance in the south area (WS6). The logs also show minimal made ground in the southern part of the Site.

Where PE pipe is to be routed through made ground in the access road and to plots 6-9 barrier pipe will be required.

Plots 1-5 may utilise standard PE pipe.

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...

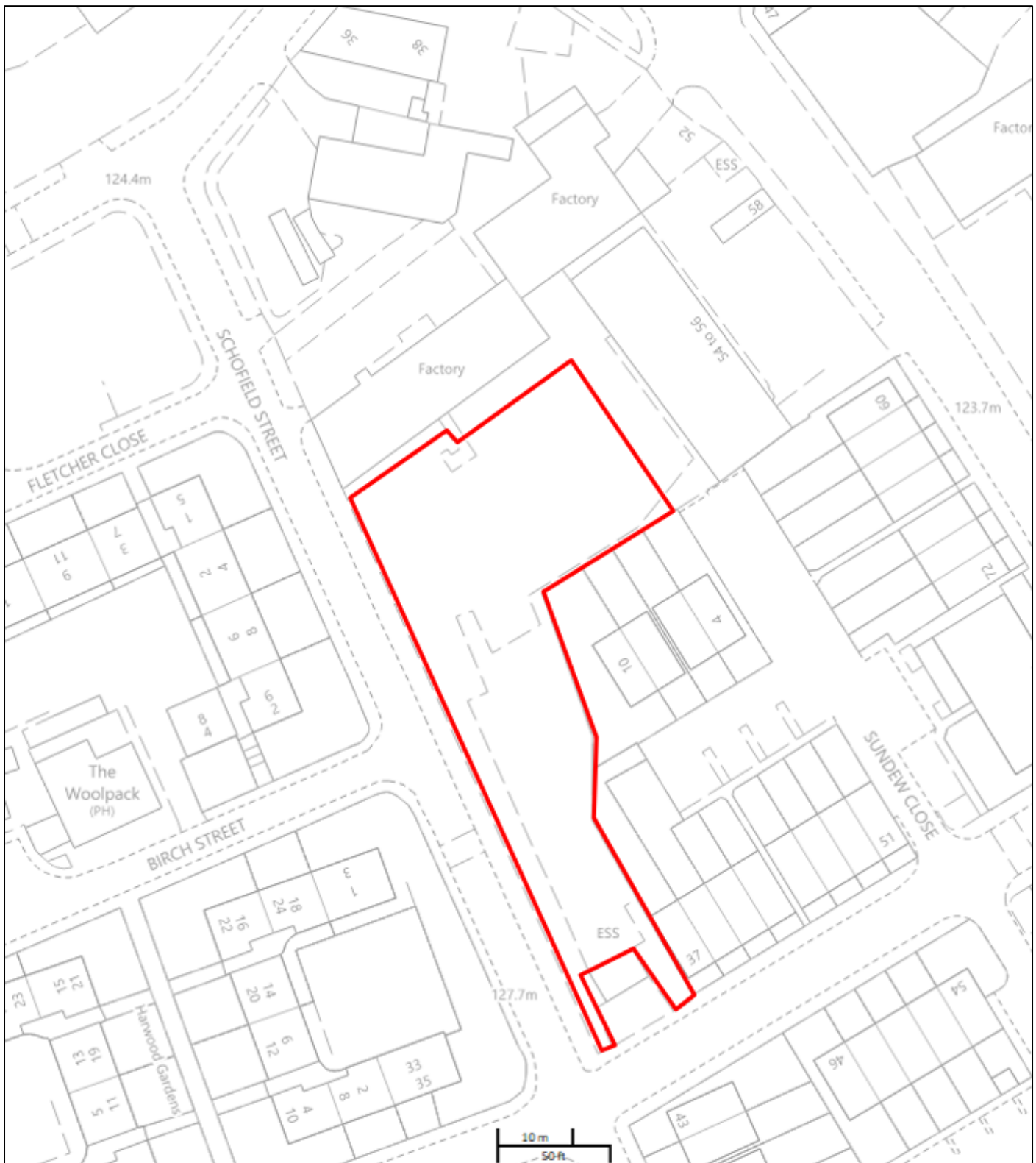


T J Booth BSc (Hons), C. Eng. C. Env. MICE.

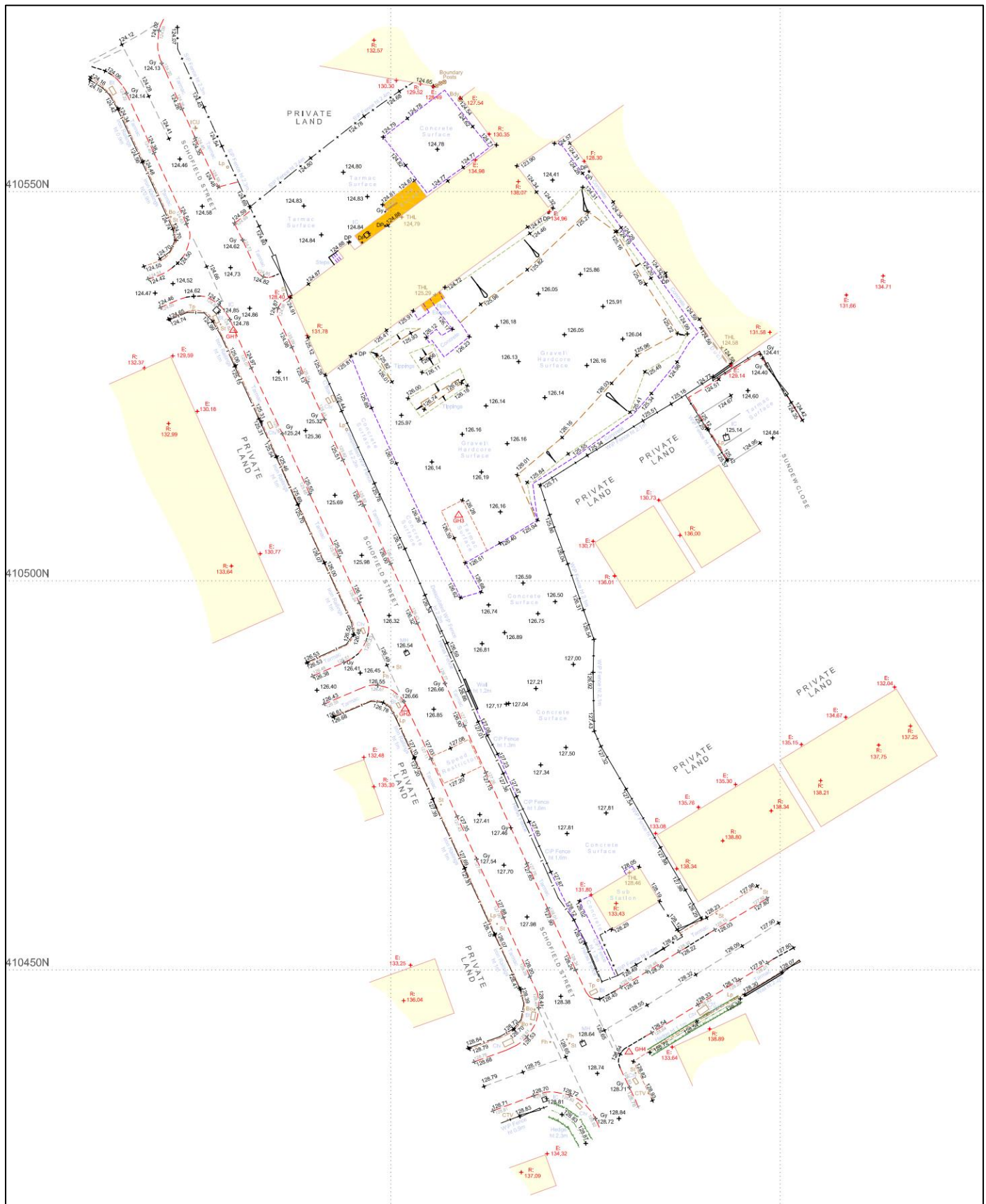
T J Booth Associates.

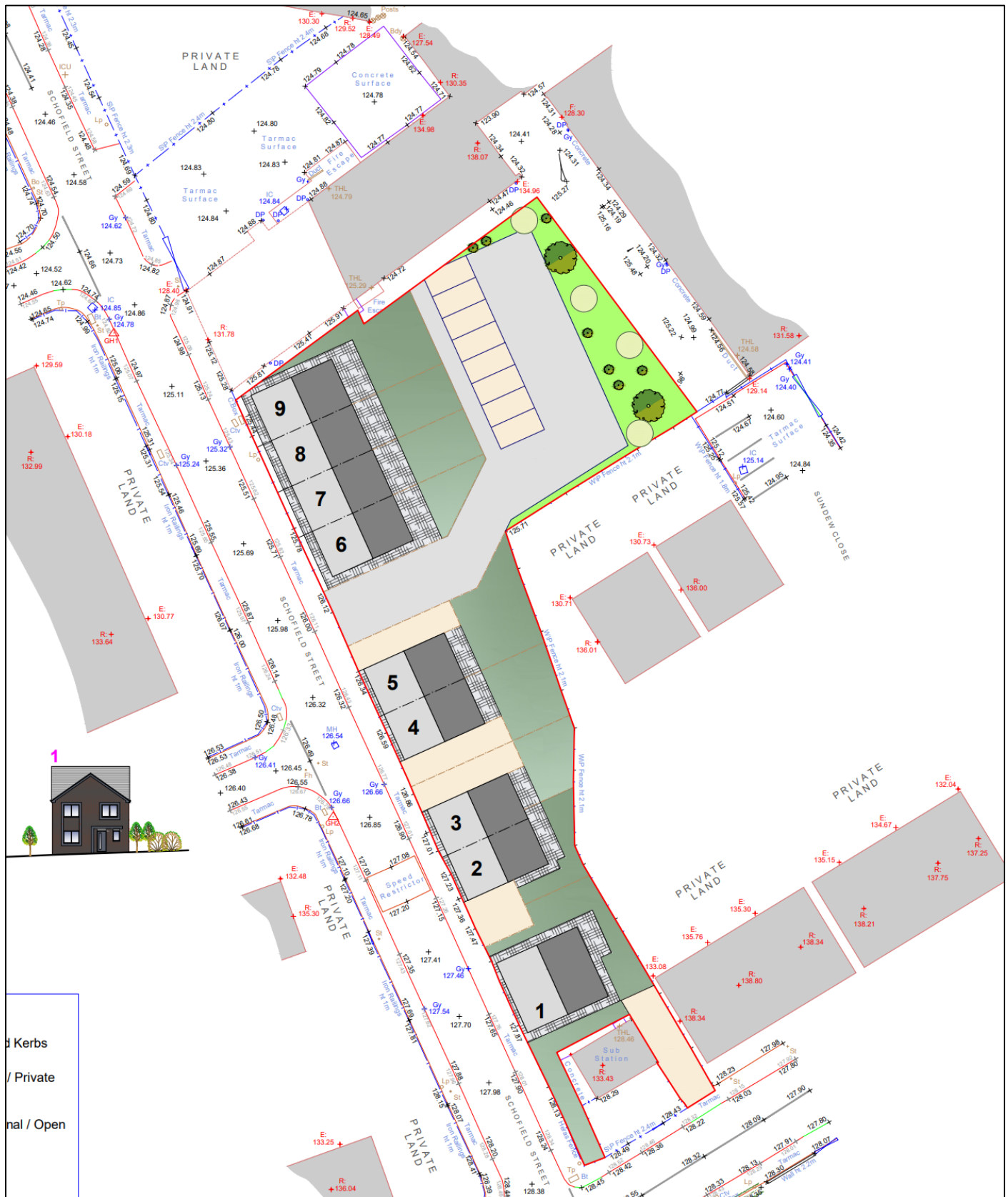
5. APPENDIX A: FIGURES.

5.1. Location Plan.

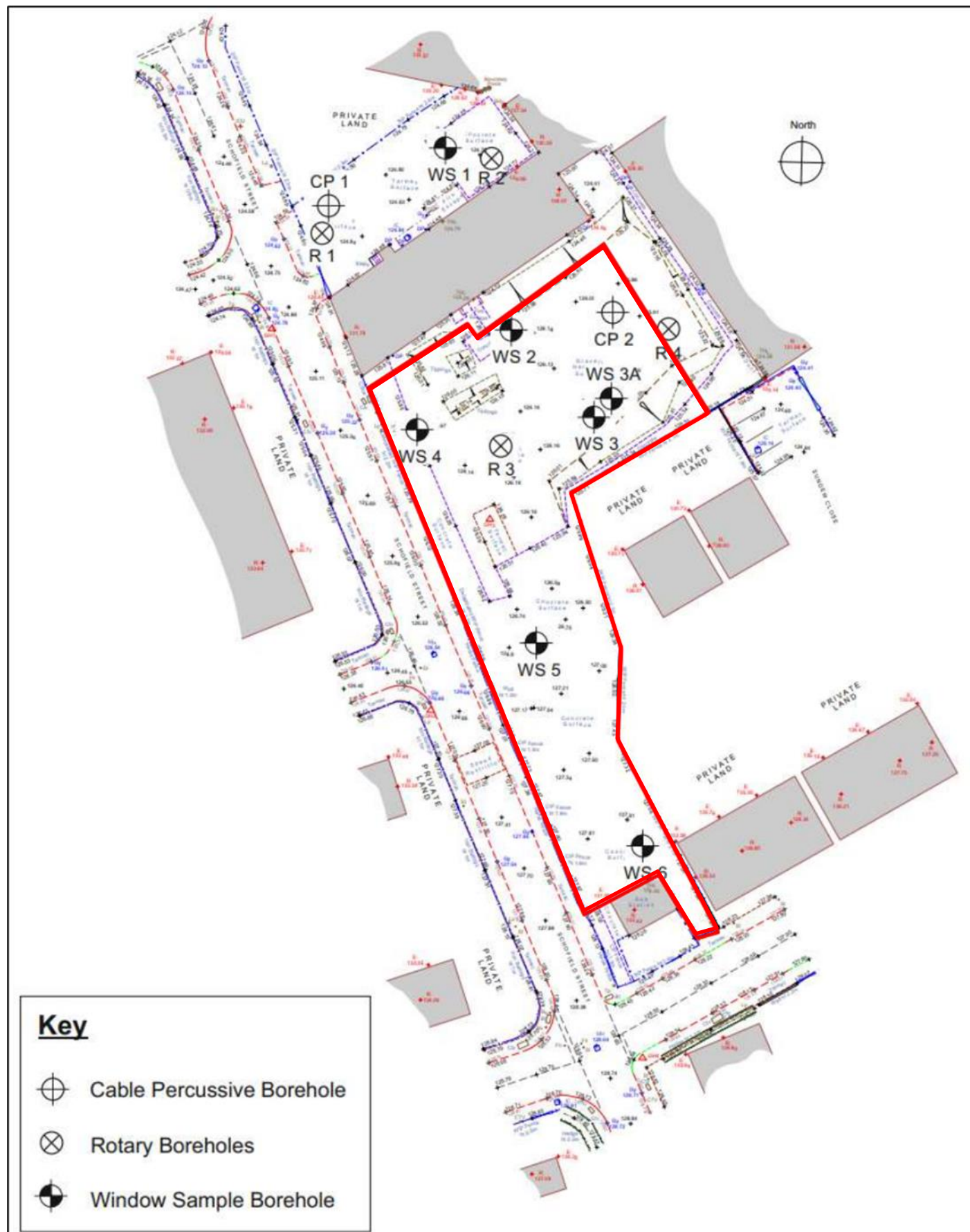


5.2. Ex Site Plan/Topographic Survey.





5.4. Site Investigation Plan.



5.5. Sladen Associates Site Investigation Logs.

SLADEN ASSOCIATES Unit 5, Netherton Workshops, Highley, Bridgnorth, Shropshire, WV16 6NN Tel:01746 860222 Fax:01746 862330				Borehole No: WS1 Page 1 of 1					
Equipment & Methods Mini Rig/Window Sampler		Job No: 21-1732-2 Project: Proposed Kidney Care Centre, Heywood, Rochdale							
Carried out for Fresenius Medical Care Renal Services Ltd		Ground Level 0		Coordinates E N		Date 09-08-21			
Descriptions	Legend	Depth	Reduced Level	Samples/Tests/Notes			Field Records	Well	
				Depth	Sample Type	Sample No.			Test
Reinforced concrete. (MADE GROUND)		0.00 to 1.00	-0.20	0.00 to 1.00	U	1	PID	<0.1ppm	
		0.10 to 6.00		0.10 to 6.00	CPT	2	DPSH Test	see separate	
Medium dense, becoming loose brown, dark grey and orange slightly sandy GRAVEL. Gravels are fine to coarse angular brick, slag and mudstone. (MADE GROUND)		1.00 to 2.00		1.00 to 2.00	U	3	PID	<0.1ppm	
Soft brown sandy, slightly gravelly CLAY. Gravels are fine to medium rounded to subrounded quartz, sandstone, siltstone and carbonaceous fragments. (GLACIAL TILL)		1.30	-1.30						
		1.70	-1.70						
Loose to medium dense, becoming medium dense brown gravelly fine to medium SAND. Gravels are fine to coarse rounded top subrounded quartz, sandstone, siltstone, mudstone and carbonaceous fragments. (FLUVIOGLACIAL)		2.00 to 3.00		2.00 to 3.00	U	4			
		2.20		2.20	Note	5	PID	<0.1ppm	
		2.40	-2.40	2.40	Note	6	PID	10.0ppm	
		2.60		2.60	Note	7	PID	10.0ppm	
		2.80		2.80	Note	8	PID	3.0ppm	
		3.00 to 3.45		3.00 to 3.45	SPT	9	N=22	2,3,5,6,5,6	
End of Borehole		3.45	-3.45						
Additional Comments Log based on limited returns due to sampling method - depths are approximate. Continuous dynamic probe put down prior borehole - see separate record. Groundwater: damp at 2.0m. Poor recovery 2.0-3.0m. 50mm groundwater/gas monitoring standpipe installed 0.0m to 0.5m, plain pipe with bentonite seal 0.5m to 1.61m slotted pipe with gravel surround.								Logged by ADNS	
								Figure	

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Borehole No: WS2

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Equipment & Methods Mini Rig/Window Sampler		Job No: 21-1732-2							
Carried out for Fresenius Medical Care Renal Services Ltd		Ground Level 0		Coordinates E N			Date 09-08-21		
Descriptions	Legend	Depth	Reduced Level	Samples/Tests/Notes			Field Records		
				Depth	Sample Type No.	Test			
Loose dark grey to dark brown very gravelly fine to coarse SAND with many cobbles. Gravels are fine to coarse angular brick, concrete, sandstone, pottery, clay pipe and plastic with occasional asbestos sheets. (MADE GROUND)		0.30	-0.30	0.00 to 0.90	B	1	PID	<0.1ppm	
Loose brown slightly gravelly fine to medium SAND with some cobbles and some boulders. Gravels are fine to coarse angular to rounded concrete, sandstone and quartz. Cobbles and boulders are angular concrete and sandstone. (MADE GROUND)		1.10	-1.10	1.00 to 1.45 1.00 to 2.00	SPT U	2 3	N=5 PID	2,1,2,1,1,1 <0.1ppm	
Loose dark brown silty, slightly gravelly fine SAND. Gravels are fine to medium angular brick and carbonaceous fragments. Many roots 1.6-1.7m. (MADE GROUND)		1.90	-1.90	2.00 to 2.45 2.00 to 3.00	SPT U	4 5	N=7 PID	2,2,3,2,2,0 <0.1ppm	
Loose to medium dense grey to dark brown and orange sandy GRAVEL. Gravels are fine to coarse angular brick, concrete and limestone. Black at base. (MADE GROUND) Strong odour of hydrocarbons 2.4-2.5m.		2.50	-2.50	3.00 to 3.45	SPT	6	N=21	4,3,3,4,6,8	
Firm to stiff, becoming stiff dark brown to dark grey slightly gravelly CLAY. Gravels are fine to coarse rounded to subrounded quartz, sandstone, siltstone, mudstone and carbonaceous fragments. Firm and black 2.5-2.6m. (GLACIAL TILL) Strong odour of hydrocarbons 2.5-2.6m. Slight odour of hydrocarbons 2.6-3.0m.		3.45	-3.45						
End of Borehole									
Additional Comments Log based on limited returns due to sampling method - depths are approximate. Continuous dynamic probe put down prior borehole - see separate record. Groundwater: damp 2.0-2.5m. Trial Pit to 1.1m to clear obstructions then backfilled followed by Window Sample Borehole.									Logged by ADNS Figure

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Borehole No: WS3

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Equipment & Methods Mini Rig/Window Sampler		Job No: 21-1732-2						
Carried out for Fresenius Medical Care Renal Services Ltd		Project: Proposed Kidney Care Centre, Heywood, Rochdale						
		Ground Level 0		Coordinates E N			Date 09-08-21	
Descriptions	Legend	Depth	Reduced Level	Samples/Tests/Notes			Field Records	
				Depth	Sample			Test
					Type	No.		
Loose dark brown to dark grey, locally black very gravelly fine SAND with many cobbles and boulders. Gravels are fine to coarse angular brick, glass, plastic, clay pipe, concrete, sandstone, coal, pottery and ash with occasional asbestos sheet. Cobbles are angular brick, concrete and sandstone. Boulders are angular sandstone and concrete. Black ash lens 0.85-1.0m. Occasional brown clay bands below 1.0m. (MADE GROUND)		0.00 to 1.10		B	1	PID	<0.1ppm	
		1.10 to 2.00		U	2	PID	<0.1ppm	
Soft to firm brown sandy, slightly gravelly CLAY. Gravel is fine to coarse rounded to subrounded sandstone and quartz. (PROBABLE MADE GROUND)		1.70	-1.70					
		2.00	-2.00					
End of Borehole								
Additional Comments Log based on limited returns due to sampling method - depths are approximate. Continuous dynamic probe put down prior borehole - see separate record. Groundwater: none encountered. Trial Pit to 1.6m to clear obstructions then backfilled followed by Window Sample Borehole. Rods going offline, moved to position BH3A.							Logged by ADNS	
							Figure	

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Borehole No: WS3A

Page 1 of 1

Equipment & Methods Mini Rig/Window Sampler		Job No: 21-1732-2 Project: Proposed Kidney Care Centre, Heywood, Rochdale							
Carried out for Fresenius Medical Care Renal Services Ltd		Ground Level 0		Coordinates E N				Date 09-08-21	
Descriptions	Legend	Depth	Reduced Level	Samples/Tests/Notes			Field Records	Well	
				Depth	Sample				Test
					Type	No.			
Loose dark brown silty fine SAND with many rootlets. (MADE GROUND)		0.10	-0.10	0.00 to 1.00	U	1	PID	<0.1ppm	
Loose, becoming loose to medium dense dark brown very gravelly fine SAND with many cobbles. Gravels are fine to coarse angular brick, glass, plastic, concrete, sandstone, limestone, ash and slag with occasional metal and carbonaceous fragments. Cobbles are angular brick. (MADE GROUND)				1.00 to 1.45	SPT	2	N=4	5.2,1,1,1,1	
				1.00 to 2.00	U	3	PID	<0.1ppm	
				2.00 to 2.45	SPT	4	N=8	2.4,1,1,1,8	
End of Borehole		2.45	-2.45						
Additional Comments								Logged by ADNS	
Log based on limited returns due to sampling method - depths are approximate. Continuous dynamic probe put down prior borehole - see separate record. Groundwater: none encountered. Sample depth due to rods going offline. See notes on WS3 regarding Trial Pit. 50mm groundwater/gas monitoring standpipe installed 0.0m to 0.5m, plain pipe with bentonite seal 0.5m to 1.92m slotted pipe with gravel surround.								Figure	

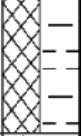
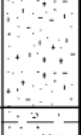
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Borehole No: WS4

Page 1 of 1

Equipment & Methods		Job No: 21-1732-2						
Mini Rig/Window Sampler		Project: Proposed Kidney Care Centre, Heywood, Rochdale						
Carried out for		Ground Level		Coordinates			Date	
Fresenius Medical Care Renal Services Ltd		0		E N			09-08-21	
Descriptions	Legend	Depth	Reduced Level	Samples/Tests/Notes			Field Records	
				Depth	Sample Type	Sample No.		Test
Medium dense dark brown silty fine SAND with many rootlets. (MADE GROUND)		0.10	-0.10	0.00 to 1.00 0.00 to 5.00	U CPT	1 2	PID DPSH Test	<0.1ppm see separate record
Medium dense, becoming loose to medium dense dark grey to black very gravelly fine to coarse SAND with some cobbles. Gravels are fine to coarse angular ash, slag, brick, sandstone and carbonaceous fragments. Cobbles are angular brick and sandstone. (MADE GROUND)								
Soft dark brown organic silty, gravelly CLAY. Gravel is fine to medium subrounded to subangular carbonaceous fragments with occasional sandstone and quartz. (OLD TOPSOIL) Slight organic [plant] odour.		0.80	-0.80					
		1.00	-1.00	1.00 to 2.00	U	3	PID	<0.1ppm
Soft, becoming soft to firm yellowish brown and grey sandy, gravelly CLAY. Gravels are fine to coarse rounded to subrounded quartz, sandstone and siltstone. (GLACIAL TILL)		1.55	-1.55					
Firm to stiff, becoming stiff brown sandy, gravelly CLAY with some sand bands. Gravels are fine to coarse rounded to subangular quartz, sandstone, siltstone, mudstone and carbonaceous fragments. Very stiff at base. (GLACIAL TILL)				2.00 to 3.00	U	4	PID	<0.1ppm
				3.00 to 3.45	SPT	5	N=>50	8,11,13,12,13,17
End of Borehole		3.45	-3.45					
Additional Comments								
Log based on limited returns due to sampling method - depths are approximate.								Logged by
Continuous dynamic probe put down prior borehole - see separate record.								ADNS
Groundwater: none encountered.								Figure

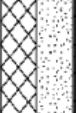
SLADEN ASSOCIATES				Borehole No: WS5				
Unit 5, Netherton Workshops, Highley, Bridgnorth, Shropshire, WV16 6NN Tel:01746 860222 Fax:01746 862330				Page 1 of 1				
Equipment & Methods		Job No: 21-1732-2						
Mini Rig/Window Sampler		Project: Proposed Kidney Care Centre, Heywood, Rochdale						
Carried out for		Ground Level		Coordinates			Date	
Fresenius Medical Care Renal Services Ltd		0		E N			05-08-21	
Descriptions	Legend	Depth	Reduced Level	Samples/Tests/Notes			Field Records	
				Depth	Sample Type	Test No.		
Reinforced concrete. (MADE GROUND)		0.15	-0.15	0.00 to 1.00	U	1	PID	<0.1ppm
Medium dense dark brown to dark grey and orange sandy GRAVEL with many cobbles. Gravels are fine to coarse angular brick, ash and carbonaceous fragments. Cobbles are angular brick. (MADE GROUND)		0.60	-0.60	0.30 to 3.30	CPT	2	DPSH Test	see separate record
Soft to firm dark brown to dark grey slightly gravelly, silty CLAY. Gravels are fine to coarse angular brick and carbonaceous fragments. (MADE GROUND)		1.10	-1.10	1.00 to 2.00	U	3	PID	<0.1ppm
Firm becoming firm to stiff yellowish brown to brownish grey sandy, slightly gravelly CLAY. Gravels are fine to coarse rounded to subrounded quartz, sandstone and carbonaceous fragments. (GLACIAL TILL)		2.20	-2.20	2.00 to 3.00	U	4	PID	<0.1ppm
Medium dense brown to yellowish brown silty fine to medium SAND. (FLUVIOGLACIAL)		2.60	-2.60					
Stiff, becoming very stiff brown slightly sandy, gravelly CLAY. Gravels are fine to coarse rounded to subangular quartz, sandstone, siltstone, mudstone and carbonaceous fragments. (GLACIAL TILL)		2.95	-2.95	3.00 to 3.45	SPT	5	N=>50	14,11,16,13,14,18
Very stiff grey to dark grey with many mudstone lithorelicts. (WEATHERED LOWER COAL MEASURE FORMATION)		3.45	-3.45					
End of Borehole								
Additional Comments								Logged by
Log based on limited returns due to sampling method - depths are approximate.								ADNS
Continuous dynamic probe put down prior borehole - see separate record.								
Groundwater: damp below 2.0m. Very poor recovery SPT 3.0-3.45m.								Figure

SLADEN ASSOCIATES

Unit 5, Netherlton Workshops, Highley, Bridgnorth, Shropshire, WV16 6NN Tel:01746 860222 Fax:01746 862330

Borehole No: WS6

Page 1 of 1

Equipment & Methods Mini Rig/Window Sampler	Job No: 21-1732-2						
Carried out for Fresenius Medical Care Renal Services Ltd	Project: Proposed Kidney Care Centre, Heywood, Rochdale						
	Ground Level 0	Coordinates E N		Date 09-08-21			
Descriptions	Legend	Depth	Reduced Level	Samples/Tests/Notes			Field Records
				Depth	Sample Type	Test No.	
Reinforced concrete. (MADE GROUND)		0.10	-0.10	0.00 to 1.00 0.10 to 4.50	U CPT	1 2	PID DPSH Test
Medium dense dark grey and orange very gravelly fine SAND with many cobbles. Gravels are fine to coarse angular ash, brick and sandstone. (MADE GROUND)		0.55	-0.55				<0.1ppm see separate
Soft, becoming soft to firm yellowish brown and grey very sandy CLAY. (PROBABLE GLACIAL TILL)		1.10	-1.10	1.00 to 2.00	U	3	PID <0.1ppm
Loose to medium dense yellowish brown and grey very sandy CLAY. (FLUVIOGLACIAL)		1.30	-1.30				
Firm, becoming firm to stiff brown to grey slightly sandy, gravelly CLAY. Gravels are fine to coarse rounded to subrounded sandstone, siltstone, ironstone, mudstone and carbonaceous fragments. (GLACIAL TILL)		2.00	-2.00	2.00 to 3.00	U	4	PID <0.1ppm
Stiff, becoming very stiff grey to dark grey CLAY with many mudstone mudstone lithorelicts. (WEATHERED LOWER COAL MEASURES FORMATION)		3.00	-3.00	3.00 to 3.07	SPT	5	N=>50 15,10,20,19,11 blows for 50mm
Very weak dark grey MUDSTONE. (LOWER COAL MEASURES FORMATION)		3.07	-3.07				
End of Borehole							
Additional Comments Log based on limited returns due to sampling method - depths are approximate. Continuous dynamic probe put down prior borehole - see separate record. Groundwater: damp below 2.0m. 50mm groundwater/gas monitoring standpipe installed 0.0m to 0.5m, plain pipe with bentonite seal 0.5m to 2.76m slotted pipe with gravel surround.							Logged by ADNS
							Figure

SLADEN ASSOCIATES

Unit 5, Netherton Workshops, Higley, Bridgnorth, Shropshire, WV16 6NN Tel:01746 860222 Fax:01746 862330

Borehole No: CP1

Page 1 of 1

Equipment & Methods	Job No: 21-1732-2						
Cable Tool	Project: Proposed Kidney Care Centre, Heywood, Rochdale						
Carried out for	Ground Level	Coordinates				Date	
Fresenius Medical Care Renal Services Ltd 0	0	E N				07-09-21	
Descriptions	Legend	Depth	Reduced Level	Samples/Tests/Notes			Field Records
				Depth	Sample Type	Test No.	
Asphalt. (MADE GROUND)		0.07	-0.07	0.10 to 0.20	B	1	PID <0.1ppm
Brown sand with some gravels [drillers description]. (MADE GROUND)		0.30	-0.30	0.30 to 0.40	B	2	PID <0.1ppm
Loose to medium dense light grey gravelly fine SAND with occasional cobbles. Gravels are fine to coarse angular ash and brick. Cobbles are angular brick. (MADE GROUND)		0.75	-0.75	0.75 to 0.85	B	3	PID <0.1ppm
Soft dark grey to dark brown organic sandy, slightly gravelly CLAY. Gravels are fine to coarse angular to subangular sandstone with occasional brick. (MADE GROUND) Slight organic [plant] odour.		1.00	-1.00	1.00 to 1.45	SPT	4	N=1 1,0,0,0,1,0
Soft, becoming soft to firm grey and brown sandy, gravelly CLAY. Gravels are fine to coarse subangular to subrounded sandstone, siltstone and mudstone with occasional carbonaceous fragments. (GLACIAL TILL)		1.50	-1.50	1.50 to 1.60	B	5	PID <0.1ppm
		2.00	-2.00	2.00 to 2.45	SPT	6	N=10 1,1,1,3,3,3
Loose to medium dense brown very clayey, slightly gravelly fine to medium SAND. Gravels are fine to coarse subrounded to subangular sandstone and siltstone. (FLUVIOGLACIAL)		2.50	-2.50	2.50 to 2.60	B	7	PID <0.1ppm
		3.00	-3.00	3.00 to 3.45	SPT	8	N=8 1,1,2,2,2,2
		3.50	-3.50	3.50 to 3.60	B	9	PID <0.1ppm
Soft to firm, becoming firm brownish grey slightly sandy, slightly gravelly CLAY. Gravels are fine to medium subrounded to rounded sandstone, quartz, siltstone and carbonaceous fragments. (GLACIAL TILL)		4.00	-4.00	4.00 to 4.45	SPT	10	N=17 1,1,4,4,5,4
		4.20	-4.20	4.50 to 4.60	B	11	PID <0.1ppm
Medium dense brown fine to medium SAND. (FLUVIOGLACIAL)		4.80	-4.80	4.80 to 4.90	B	12	PID <0.1ppm
Very weak yellowish brown clayey SANDSTONE. (LOWER COAL MEASURES FORMATION)		4.90	-4.90	4.90 to 5.28	SPT	13	N=>50 5,9,10,18,22 blows for 80mm
		5.20	-5.20	5.20 to 5.30	B	14	PID <0.1ppm
Very weak greenish brown silty MUDSTONE. (LOWER COAL MEASURES FORMATION)		5.40	-5.40	5.40 to 5.85	SPT	15	N=>50 10,14,15,15,11,13
		5.85	-5.85				
End of Borehole							
Additional Comments Cased to 3.0m. Chiseled: 5.0-5.3m, 0.5hr. Groundwater: damp 2.5m.							Logged by GLD
							Figure

SLADEN ASSOCIATES

Unit 5, Netherton Workshops, Highley, Bridgnorth, Shropshire, WV16 6NN Tel:01746 860222 Fax:01746 862330

Borehole No: CP2

Page 1 of 1

Equipment & Methods		Job No: 21-1732-2						
Cable Tool		Project: Proposed Kidney Care Centre, Heywood, Rochdale						
Carried out for		Ground Level		Coordinates			Date	
Fresenius Medical Care Renal Services Ltd 0		0		E N			07-09-21	
Descriptions	Legend	Depth	Reduced Level	Samples/Tests/Notes			Field Records	
				Depth	Sample Type	Test No.		
Loose dark brown to dark grey very gravelly fine SAND with many cobbles and occasional boulders. Gravels are fine to coarse angular brick, concrete, wood, timber, ash and slag. Cobbles are angular brick and concrete. Boulders are angular brick and concrete. (MADE GROUND)		0.30	-0.30	0.50 to 0.60	B	1	PID	<0.1ppm
Loose brown slightly gravelly fine SAND. Gravels are fine to coarse angular quartz and brick. (MADE GROUND)		1.20	-1.20	1.00 to 1.45	SPT	2	N=5	1,1,2,1,1,1
Loose grey and orange very gravelly COBBLES with many boulders. Gravels are fine to coarse angular brick and concrete with occasional glass. Cobbles are angular brick and concrete. Boulders are angular brick and concrete. (MADE GROUND) Slight odour of stagnant water.		2.90	-2.90	1.50 to 1.60	B	3	PID	<0.1ppm
				2.00 to 2.45	SPT	4	N=4	1,0,1,1,1,1
				2.50 to 2.60	B	5	PID	<0.1ppm
				2.90 to 3.00	B	6	PID	<0.1ppm
Soft to firm, becoming firm grey slightly silty, locally sandy, gravelly CLAY. Gravels are fine to medium subangular to rounded mudstone, siltstone, siltstone, sandstone, carbonaceous fragments and quartz. (GLACIAL TILL) Slight odour of hydrocarbons 2.9-3.0m.		3.80	-3.80	3.00 to 3.45	SPT	7	N=4	1,2,1,1,1,1
				3.50 to 3.60	B	8	PID	<0.1ppm
Very stiff greenish brown silty friable CLAY with many mudstone and siltstone lithorelicts. (WEATHERED LOWER COAL MEASURES FORMATION)		4.00	-4.00	3.80 to 3.90	B	9	PID	<0.1ppm
				4.00 to 4.45	SPT	10	N=>50	7,9,14,18,18 blows for 50mm
Very weak grey and brown MUDSTONE. (WEATHERED LOWER COAL MEASURES FORMATION)		5.33	-5.33	4.50 to 4.60	B	11	PID	<0.1ppm
				5.00 to 5.33	SPT	12	N=>50	9,13,19,20,11 blows for 35mm
End of Borehole								
Additional Comments								Logged by
Cased to 4.0m. Chiseled: 4.7-5.0m, 0.5hr.								GLD
Groundwater: wet at 3.2m. No recovery SPT 2.0-2.45m.								Figure
Trial pit taken to 2.3m to check for buried concrete, backfilled prior to boring.								

ROTARY BOREHOLE INVESTIGATIONPROPOSED KIDNEY CARE CENTRE, HEYWOOD, ROCHDALEALL DEPTHS ARE GIVEN IN METRES (Driller's Description)BOREHOLE R1

				Flush Return
GL	-	5.00	Made ground	-
5.00	-	6.00	Brown clay, firm drilling	100%
6.00	-	9.60	Grey and brown mudstone, very hard drilling	100%
9.60	-	17.40	Light grey mudstone with bands of hard siltstone, firm / hard drilling	100%
17.40	-	19.00	Brown sandstone, firm drilling	100%
19.00	-	20.00	Light grey sandstone, firm drilling	100%
20.00	-	21.00	Fissured ground, firm drilling	0%
21.00	-	30.00	Hard drilling	0%

Borehole cased to 5.00 m

Water flush

Borehole backfilled with arisings & bentonite cement

Ground Gas: CH₄ - 0%; CO₂ - 0%; O₂ - 20.1%

Drilled: 14-10-21

BOREHOLE R2

				Flush Return
GL	-	5.00	Made ground	-
5.00	-	9.00	Grey / brown mudstone, firm drilling	100%
9.00	-	11.50	Grey mudstone, firm drilling	100%
11.50	-	13.00	Grey sandstone, firm drilling	100%
13.00	-	13.60	Light grey mudstone, firm drilling	100%
13.60	-	18.00	Fractured ground, soft drilling	0%
18.00	-	30.00	Hard drilling	0%

Borehole cased to 5.00 m

Water flush

Borehole backfilled with arisings & bentonite cement

Ground Gas: CH₄ - 0%; CO₂ - 0%; O₂ - 19.7%

Drilled: 14-10-21

BOREHOLE R3

				Flush Return
GL	-	5.00	Made ground	-
5.00	-	6.20	Brown clay, firm drilling	100%
6.20	-	8.00	Light brown mudstone, firm drilling	100%
8.00	-	10.30	Grey mudstone, firm drilling	100%
10.30	-	12.00	Brown sandstone, firm drilling	100%
12.00	-	12.80	Grey mudstone, firm drilling	100%
12.80	-	14.00	Brown sandstone, firm drilling	100%
14.00	-	15.00	Grey mudstone, firm drilling	100%
15.00	-	17.00	Brown sandstone, firm drilling	100%
17.00	-	18.70	Fissured sandstone, firm drilling	Reducing to 0%
18.70	-	30.00	Grey mudstone, firm drilling	50%

Borehole cased to 5.00 m

Water flush

Borehole backfilled with arisings & bentonite cement

Ground Gas: CH₄ - 0%; CO₂ - 0%; O₂ - 20.1%

Drilled: 15-10-21

BOREHOLE R4

				Flush Return
GL	-	4.00	Made ground	-
4.00	-	6.00	Brown clay, firm drilling	100%
6.00	-	9.00	Light grey mudstone, firm drilling	100%
9.00	-	10.30	Grey siltstone, firm drilling	100%
10.30	-	11.30	Light grey mudstone, firm drilling	100%
11.30	-	12.00	Brown sandstone, firm drilling	100%
12.00	-	14.00	Grey & brown sandstone, firm drilling	100%
14.00	-	16.30	Grey sandstone, firm drilling	100%
16.30	-	20.00	Brown sandstone, firm drilling	100%
20.00	-	30.00	Light grey mudstone with hard bands of siltstone, firm / hard drilling	100%

Borehole cased to 4.00 m

Water flush

Borehole backfilled with arisings & bentonite cement

Ground Gas: CH₄ - 0%; CO₂ - 0%; O₂ - 20.0%

Drilled: 15-10-21

5.6. Sladen Associates Gas Monitoring Results.

Date	BH	Atmospheric Pressure (bar)	CH ₄ (%)	CO ₂ (%)	O ₂ (%)	Gas Flow Rate	Depth to Groundwater
13-08-21	1	1018 (steady)	0	1.1	19.4	None	0.81 (1.61)
	3A		0	0.8	20.3	None	Dry (1.92)
	6		0	1.2	19.1	None	2.62 (2.76)
19-08-21	1	1012 (falling)	0	0.3	19.3	None	0.86
	3A		0	0.7	20.4	None	Dry
	6		0	1.3	19.0	None	2.60
25-08-21	1	1028 (steady)	0	1.5	19.0	None	0.85
	3A		0	0.9	20.0	None	Dry
	6		0	1.5	18.5	None	2.61
03-09-21	1	1025 (falling)	0	1.0	19.5	None	1.05
	3A		0	0.9	20.1	None	Dry
	6		0	1.5	18.8	None	2.62
07-09-21	1	1022 (falling)	0	1.1	17.6	None	1.30
	3A		0	0.6	20.1	None	Dry
	6		0	0.4	20.7	None	2.63
14-10-21	1	1020 (falling)	0	0.2	19.7	None	0.94
	3A		0	0.5	20.5	None	Dry
	6		0	0.6	20.2	None	Dry

5.7. TJBA Soil Analysis.

CLIENT/SITE:		B&L Homes Ltd - Schofield Street, Heywood					
SAMPLE TYPE:		SOILS					
SAMPLING DATE:		Sladen Associates 11.08.2021-11.09.2021					
Contaminant		No	Max	Mean	t 95	RESIDENTIAL (with or without plant uptake)	
						Pass/Fail	Comment
METAL	Arsenic	4	15.7	14.675	15.685	37	PASS
METAL	Boron	4	1	1	1	290	PASS
METAL	Cadmium	4	0.252	0.161	0.24795	22	PASS
METAL	Chromium as Cr(III)	4	35.2	17.23	31.86	910	PASS
METAL	Chromium as Cr(VI)	4	0.6	0.6	0.6	21	PASS
METAL	Copper	4	447	155.475	392.67	2400	PASS
METAL	Lead	4	245	154.4	233.15	200	FURTHER ACTION
METAL	Mercury (inorganic)	4	0.1	0.1	0.1	40	PASS
METAL	Nickel	4	44.4	28.125	41.37	130	PASS
METAL	Selenium	4	1.96	1.24	1.816	250	PASS
METAL	Zinc as Zn	4	1360	534.475	1226.05	3700	PASS
METAL	Vanadium	4	42.4	32.225	41.17	410	PASS
INORGANIC	Cyanide (Total)	4	1	1	1	34	PASS
INORGANIC	Sulphate (Total) as SO ₄	4	0.361	0.1074	0.312265	0.24	FURTHER ACTION
INORGANIC	Sulphate (Water Soluble) SO ₄	7	1200	195.629	853.44	250	FURTHER ACTION
INORGANIC	Sulphide	4	91.7	34.175	80.195	500	PASS
INORGANIC	pH	7	8.11	7.25143	8.092	6 to 8	ALKALINE
INORGANIC	Sulphur (Elemental)	4	253	73.675	217.825	100	comment
INORGANIC	Asbestos Identification	5	1	0.6	1	0	FURTHER ACTION
INORGANIC	Asbestos quantification	3	1.46	0.49203	1.31551	0.001	FURTHER ACTION
ORGANIC	SOM	5	6	5.3	6		
PAH	acenaphthene	4	7.09	1.836	6.0451	1100	PASS
PAH	acenaphthylene	4	0.24	0.10165	0.222	920	PASS
PAH	anthracene	4	11.5	2.99275	9.81505	11000	PASS
PAH	benzo[a]anthracene	4	27.7	7.25705	23.64805	13	FURTHER ACTION
PAH	benzo[a]pyrene (BaP)	4	27.1	7.092	23.13505	5	FURTHER ACTION
PAH	benzo[b]fluoranthene	4	33.1	8.65255	28.249	3.7	FURTHER ACTION
PAH	benzo[g,h,i]perylene	4	16.1	4.22405	13.7441	350	PASS
PAH	benzo[k]fluoranthene	4	12.1	3.18018	10.33045	100	PASS
PAH	chrysene	4	26.7	7.0069	22.7964	27	PASS
PAH	dibenz[ah]anthracene	4	2.62	0.7357	2.2615	0.3	FURTHER ACTION
PAH	fluoranthene	4	62.5	16.3313	53.3485	890	PASS
PAH	fluorene	4	5.2	1.35525	4.43665	860	PASS
PAH	indeno[123-cd]pyrene	4	16.4	4.34798	14.0132	41	PASS
PAH	naphthalene	4	4.45	1.15063	3.796	13	PASS
PAH	phenanthrene	4	44.2	11.5778	37.747	440	PASS
PAH	pyrene	4	57.3	14.9731	48.912	2000	PASS
FUEL	aliphatic EC 5-6	5	0.0753	0.02306	0.06224	160	PASS
FUEL	aliphatic EC 6-8	5	0.183	0.0446	0.1484	530	PASS
FUEL	aliphatic EC 8-10	5	0.143	0.0366	0.1164	150	PASS
FUEL	aliphatic EC 10-12	5	1.73	1.146	1.584	760	PASS
FUEL	aliphatic EC 12-16	5	24.2	6.434	20.342	4300	PASS
FUEL	aliphatic EC 16-35	5	4439	906.584	3561.376	110000	PASS
FUEL	aliphatic EC 35-44	5	4750	952.892	3802.2	110000	PASS
FUEL	aromatic EC 5-7, Benzene	5	0.01	0.01	0.01	300	PASS
FUEL	aromatic EC 7-8, Toluene	5	0.01	0.01	0.01	660	PASS
FUEL	aromatic EC 8-10	5	0.0951	0.02702	0.07808	190	PASS
FUEL	aromatic EC 10-12	5	1.14	1.028	1.112	380	PASS
FUEL	aromatic EC 12-16	5	32.4	8.32	27.112	660	PASS
FUEL	aromatic EC 16-21	5	160	40.876	135.02	930	PASS
FUEL	aromatic EC 21-35	5	438	172.8	418.8	1700	PASS
FUEL	aromatic EC 35-44	5	93.5	19.638	75.138	1700	PASS
BTEX (VOC)	benzene (EC 6.5)	5	0.18	0.0774	0.18	0.87	PASS
BTEX (VOC)	toluene (EC 7.58)	5	0.14	0.0602	0.14	660	PASS
BTEX (VOC)	ethylbenzene (EC 8.5)	5	0.08	0.0344	0.08	260	PASS
BTEX (VOC)	m-xylene (EC ~8.6)	5	0.2	0.086	0.2	320	PASS
BTEX (VOC)	p-xylene (EC ~8.6)	5	0.2	0.086	0.2	310	PASS
BTEX (VOC)	o-xylene (EC ~8.6)	5	0.2	0.086	0.2	330	PASS
BTEX (VOC)	MTBE (methyl tert-butyl ether)	5	0.2	0.086	0.2	160	PASS
PHENOLS AND CHLOROPHENOLS (SVOC)	Phenol	4	0.01	0.01	0.01	380	PASS

Comments Key

Asbestos: A=amosite (brown), CH=chrysotile (white), CR=crocidolite (blue)

5.8. ALS Certificates.

CERTIFICATE OF ANALYSIS					Validated
	SDG: 210811-106	Client Reference: 21-1732-2	Report Number: 611200		
	Location: Rochdale Kidney Centre	Order Number: 1732-2	Superseded Report: 610517		
Received Sample Overview					
Lab Sample No(s)	Customer Sample Ref.	AGS Ref.	Depth (m)	Sampled Date	
24787447	WS 1		0.30 - 0.80	09/08/2021	
24787448	WS 2		0.00 - 0.90	09/08/2021	
24787453	WS 2		2.40 - 2.60	09/08/2021	
24787449	WS 3		0.00 - 1.00	09/08/2021	
24787455	WS 3		1.20	09/08/2021	
24787450	WS 4		0.00 - 0.50	09/08/2021	
24787461	WS 4		2.00	09/08/2021	
24787451	WS 6		0.20 - 0.60	09/08/2021	
24787462	WS 6		2.50	09/08/2021	
Only received samples which have had analysis scheduled will be shown on the following pages.					
15:41:57 31/08/2021 Page 2 of 20					



CERTIFICATE OF ANALYSIS

Validated

SDG: 210811-106

Client Reference: 21-1732-2

Report Number: 611200

Location: Rochdale Kidney Centre

Order Number: 1732-2

Superseded Report: 610517

Results Legend



Test



No Determination Possible

Sample Types -

S - Soil/Solid
 UNS - Unspecified Solid
 GW - Ground Water
 SW - Surface Water
 LE - Land Leachate
 PL - Prepared Leachate
 PR - Process Water
 SA - Saline Water
 TE - Trade Effluent
 TS - Treated Sewage
 US - Untreated Sewage
 RE - Recreational Water
 DW - Drinking Water Non-regulatory
 UNL - Unspecified Liquid
 SL - Sludge
 G - Gas
 OTH - Other

Lab Sample No(s)	Customer Sample Reference	AGS Reference	Depth (m)	Container	Sample Type
24787447	WS 1		0.30 - 0.60	250g Amber Jar (ALE210) 1kg TUB with Handle (ALE260)	S
24787448	WS 2		0.00 - 0.90	250g Amber Jar (ALE210) 1kg TUB with Handle (ALE260)	S
24787453	WS 2		2.40 - 2.60	250g Amber Jar (ALE210) 1kg TUB with Handle (ALE260)	S
24787449	WS 3		0.00 - 1.00	250g Amber Jar (ALE210) 1kg TUB with Handle (ALE260)	S
24787455	WS 3		1.20	250g Amber Jar (ALE210) 1kg TUB with Handle (ALE260)	S
24787450	WS 4		0.00 - 0.50	250g Amber Jar (ALE210) 1kg TUB with Handle (ALE260)	S
24787461	WS 4		2.00	250g Amber Jar (ALE210) 1kg TUB with Handle (ALE260)	S
24787451	WS 6		0.20 - 0.60	250g Amber Jar (ALE210) 1kg TUB with Handle (ALE260)	S
Anions by Kone (soil)	All	NDPs: 0 Tests: 8			
Asbestos ID in Solid Samples	All	NDPs: 0 Tests: 6			
Asbestos Quantification - Full	All	NDPs: 0 Tests: 3			
Boron Water Soluble	All	NDPs: 0 Tests: 5			
Chromium III	All	NDPs: 0 Tests: 5			
Cyanide Comp/Free/Total/Thiocyanate	All	NDPs: 0 Tests: 5			
Dissolved Metals by ICP-MS	All	NDPs: 0 Tests: 1			
Easily Liberated Sulphide	All	NDPs: 0 Tests: 5			
Elemental Sulphur	All	NDPs: 0 Tests: 5			
EPH CWG (Aliphatic) Aqueous GC (W)	All	NDPs: 0 Tests: 2			
EPH CWG (Aromatic) Aqueous GC (W)	All	NDPs: 0 Tests: 2			
EPH CWG GC (S)	All	NDPs: 0 Tests: 6			
GRO by GC-FID (S)	All	NDPs: 0 Tests: 6			
GRO by GC-FID (W)	All	NDPs: 0 Tests: 2			
Hexavalent Chromium (s)	All	NDPs: 0 Tests: 5			

		CERTIFICATE OF ANALYSIS						Validated		
SDG: 210811-106 Location: Rochdale Kidney Centre		Client Reference: 21-1732-2 Order Number: 1732-2		Report Number: 611200 Superseded Report: 610517						
Results Legend X Test N No Determination Possible Sample Types - S - Soil/Solid UNS - Unspecified Solid GW - Ground Water SW - Surface Water LE - Land Leachate PL - Prepared Leachate PR - Process Water SA - Saline Water TE - Trade Effluent TS - Treated Sewage US - Untreated Sewage RE - Recreational Water DW - Drinking Water Non-regulatory UNL - Unspecified Liquid SL - Sludge G - Gas OTH - Other	Lab Sample No(s)	24787447	24787448	24787453	24787449	24787455	24787450	24787461	24787451	
	Customer Sample Reference	WS 1	WS 2	WS 2	WS 3	WS 3	WS 4	WS 4	WS 6	
	AGS Reference									
	Depth (m)	0.30 - 0.80	0.00 - 0.90	2.40 - 2.60	0.00 - 1.00	1.20	0.00 - 0.50	2.00	0.20 - 0.60	
	Container	250g Amber Jar (ALE210) 1kg TUB with Handle (ALE260)	250g Amber Jar (ALE210) 1kg TUB with Handle (ALE260)	250g Amber Jar (ALE210) 60g VOC (ALE215)	250g Amber Jar (ALE210) 1kg TUB with Handle (ALE260)	250g Amber Jar (ALE210) 60g VOC (ALE215)	250g Amber Jar (ALE210) 1kg TUB with Handle (ALE260)	250g Amber Jar (ALE210) 60g VOC (ALE215)	250g Amber Jar (ALE210) 1kg TUB with Handle (ALE260)	60g VOC (ALE215)
	Sample Type	S	S	S	S	S	S	S	S	
Metals in solid samples by OES	All	NDPs: 0 Tests: 5	X	X		X	X		X	
NRA Leachate	All	NDPs: 0 Tests: 3			X	X	X			
PAH by GCMS	All	NDPs: 0 Tests: 5	X	X		X	X		X	
PAH Spec MS - Aqueous (W)	All	NDPs: 0 Tests: 1					X			
pH	All	NDPs: 0 Tests: 8	X	X		X	X	X	X	
Phenols by HPLC (S)	All	NDPs: 0 Tests: 5	X	X		X	X		X	
Sample description	All	NDPs: 0 Tests: 9	X	X	X	X	X	X	X	
Total Organic Carbon	All	NDPs: 0 Tests: 6	X	X	X	X	X		X	
Total Sulphate	All	NDPs: 0 Tests: 5	X	X		X	X		X	
TPH CWG (W)	All	NDPs: 0 Tests: 2			X		X			
TPH CWG GC (S)	All	NDPs: 0 Tests: 6	X	X	X	X	X		X	
VOC MS (S)	All	NDPs: 0 Tests: 6		X	X			X		
VOC MS (W)	All	NDPs: 0 Tests: 2			X		X		X	

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CERTIFICATE OF ANALYSIS

Validated

SDG: 210811-106

Client Reference: 21-1732-2

Report Number: 611200

Location: Rochdale Kidney Centre

Order Number: 1732-2

Superseded Report: 610517

Sample Descriptions

Grain Sizes

very fine	<0.063mm	fine	0.063mm - 0.1mm	medium	0.1mm - 2mm	coarse	2mm - 10mm	very coarse	>10mm
-----------	----------	------	-----------------	--------	-------------	--------	------------	-------------	-------

Lab Sample No(s)	Customer Sample Ref.	Depth (m)	Colour	Description	Inclusions	Inclusions 2
24787447	WS 1	0.30 - 0.80	Dark Brown	Loamy Sand	Stones	Crushed Brick
24787448	WS 2	0.00 - 0.90	Dark Brown	Loamy Sand	Stones	Crushed Brick
24787453	WS 2	2.40 - 2.60	Black	Silt Loam	Oil/Petroleum	Crushed Brick
24787449	WS 3	0.00 - 1.00	Dark Brown	Loamy Sand	Stones	Crushed Brick
24787455	WS 3	1.20	Light Brown	Sandy Clay	Stones	None
24787450	WS 4	0.00 - 0.50	Dark Brown	Loamy Sand	Stones	Crushed Brick
24787461	WS 4	2.00	Light Brown	Silty Clay	Stones	None
24787451	WS 6	0.20 - 0.60	Dark Brown	Loamy Sand	Stones	Crushed Brick
24787462	WS 6	2.50	Dark Brown	Silty Clay	None	None

These descriptions are only intended to act as a cross check if sample identities are questioned, and to provide a log of sample matrices with respect to MCERTS validation. They are not intended as full geological descriptions.

We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials - whether these are derived from naturally occurring soil profiles, or from fill/made ground, as long as these materials constitute the major part of the sample.

Other coarse granular materials such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.



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Validated

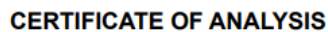
SDG: 210811-106
Location: Rochdale Kidney Centre

Client Reference: 21-1732-2
Order Number: 1732-2

Report Number: 611200
Superseded Report: 610517

Results Legend			Customer Sample Ref.	WS 1	WS 2	WS 2	WS 3	WS 3	WS 4
#	ISO17025 accredited.		Depth (m)	0.30 - 0.80	0.00 - 0.90	2.40 - 2.60	0.00 - 1.00	1.20	0.00 - 0.50
M	mCERIS accredited.		Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
aq	Aqueous / settled sample.		Date Sampled	09/08/2021	09/08/2021	09/08/2021	09/08/2021	09/08/2021	09/08/2021
diss.filt	Dissolved / filtered sample.		Sample Time						
tot.unfilt	Total / unfiltered sample.		Date Received	11/08/2021	11/08/2021	11/08/2021	11/08/2021	11/08/2021	11/08/2021
*	Subcontracted - refer to subcontractor report for accreditation status.		SDG Ref	210811-106	210811-106	210811-106	210811-106	210811-106	210811-106
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery		Lab Sample No. (k)	24787447	24787448	24787453	24787449	24787455	24787450
(F)	Trigger leach confirmed		AGS Reference						
1-4xSD	Sample deviation (see appendix)								
Component	LOD/Units	Method							
Moisture Content Ratio (% of as received sample)	%	PM024		13	10	30	12	15	14
Phenol	<0.01 mg/kg	TM062 (S)		<0.01	<0.01		<0.01		<0.01
				M	M		M		M
Cresols	<0.01 mg/kg	TM062 (S)		<0.01	0.0222		0.0678		<0.01
				M	M		M		M
Xylenols	<0.015 mg/kg	TM062 (S)		<0.015	<0.015		<0.015		<0.015
				M	M		M		M
Phenols, Total Detected monohydric	<0.035 mg/kg	TM062 (S)		<0.035	<0.035		0.0678		<0.035
				M	M		M		M
Soil Organic Matter (SOM)	<0.35 %	TM132		3.74	4.09	9.28	4.59		11.8
				#	#	#	#		#
pH	1 pH Units	TM133		12.6	7.84		8.05	6.66	8.11
				M	M		M	M	M
Sulphur, Elemental	<10 mg/kg	TM136		10.3	13.2		18.5		253
				M	M		M		M
Chromium, Hexavalent	<0.6 mg/kg	TM151		<0.6	<0.6		<0.6		<0.6
				#	#		#		#
Copper (diss.filt) NRA leach	<0.3 µg/l	TM152					2.51		
Zinc (diss.filt) NRA leach	<1 µg/l	TM152					20.2		
Cyanide, Total	<1 mg/kg	TM153		<1	<1		<1		<1
				M	M		M		M
Sulphide, Easily liberated	<15 mg/kg	TM180		<15	<15		91.7		<15
				♦ M	♦ M		♦ M		♦ M
Chromium, Trivalent	<0.9 mg/kg	TM181		6.35	12.9		35.2		10.7
Arsenic	<0.6 mg/kg	TM181		7.91	12.8		15.6		14.6
				M	M		M		M
Cadmium	<0.02 mg/kg	TM181		0.0599	0.225		0.147		0.252
				M	M		M		M
Chromium	<0.9 mg/kg	TM181		6.35	12.9		35.2		10.7
				M	M		M		M
Copper	<1.4 mg/kg	TM181		16.4	41.5		447		84.8
				M	M		M		M
Lead	<0.7 mg/kg	TM181		16.2	245		166		152
				M	M		M		M
Mercury	<0.1 mg/kg	TM181		<0.1	<0.1		<0.1		<0.1
				M	M		M		M
Nickel	<0.2 mg/kg	TM181		12.9	22.3		21.6		44.4
				M	M		M		M
Selenium	<1 mg/kg	TM181		<1	<1		1.96		<1
				#	#		#		#
Vanadium	<0.2 mg/kg	TM181		13.5	21.9		42.4		34.2
				#	#		#		#
Zinc	<1.9 mg/kg	TM181		70.1	256		1360		467
				M	M		M		M
Sulphate, Total	<48 mg/kg	TM221		1880	251		3610		361
				M	M		M		M
Boron, water soluble	<1 mg/kg	TM222		<1	<1		<1		<1
				M	M		M		M
Water Soluble Sulphate as SO4 2:1 Extract	<0.004 g/l	TM243		0.0064	0.0182		1.2	0.0395	0.021
				M	M		M	M	M
Asbestos Quantification - Gravimetric - %	<0.001 %	TM304			1.46	<0.001			0.0151
					#	#			#
Asbestos Quantification - PCOM Evaluation - %	<0.001 %	TM304			<0.001	<0.001			<0.001
					#	#			#
Additional Asbestos Components (Using TM048)		TM304			None	None			None
					#	#			#
Analysts Comments		TM304			Soil containing materi	0			ACM debris found in
Asbestos Quantification - Total - %	<0.001 %	TM304			1.46	<0.001			0.0151
					#	#			#

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Validated

Report Number: 611200

Superseded Report: 610517

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Report Number:	611200
Superseded Report:	610517

Results Legend	
#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
dis.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-49%	Sample deviation (see appendix)

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CERTIFICATE OF ANALYSIS

Validated

SDG: 210811-106

Client Reference: 21-1732-2

Report Number: 611200

Location: Rochdale Kidney Centre

Order Number: 1732-2

Superseded Report: 610517

PAH Spec MS - Aqueous (W)

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Validated

SDG: 210811-106
Location: Rochdale Kidney Centre

Client Reference: 21-1732-2
Order Number: 1732-2

Report Number: 611200
Superseded Report: 610517

TPH CWG (S)

Results Legend			Customer Sample Ref.	WS 1	WS 2	WS 2	WS 3	WS 4	WS 6
#	ISO17025 accredited.		Depth (m)	0.30 - 0.90	0.00 - 0.90	2.40 - 2.60	0.00 - 1.00	0.00 - 0.50	0.20 - 0.60
M	mCERTS accredited.		Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
dis.flt	Aqueous / settled sample.		Date Sampled	09/08/2021	09/08/2021	09/08/2021	09/08/2021	09/08/2021	09/08/2021
tot.unflt	Dissolved / filtered sample.		Sample Time						
*	Total / unfiltered sample.		Date Received	11/08/2021	11/08/2021	11/08/2021	11/08/2021	11/08/2021	11/08/2021
**	Subcontracted - refer to subcontractor report for accreditation status.		SDG Ref	210811-106	210811-106	210811-106	210811-106	210811-106	210811-106
	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery		Lab Sample No.(s)	24787447	24787448	24787453	24787449	24787450	24787451
(F)	Trigger breach confirmed		AGS Reference						
1-4xg	Sample deviation (see appendix)								
Component	LOD/Units	Method							
GRO Surrogate % recovery**	%	TM089	102	88.1	21	4	73	84	96.6
Aliphatics >C5-C6	<10 µg/kg	TM089	<10	<10	75.3	4	<10	<10	<10
Aliphatics >C6-C8	<10 µg/kg	TM089	<10	<10	183	4	<10	<10	<10
Aliphatics >C8-C10	<10 µg/kg	TM089	<10	<10	143	4	<10	<10	<10
Aliphatics >C10-C12	<1000 µg/kg	TM414	<1000	<1000	<1000	#	<1000	1730	<1000
Aliphatics >C12-C16	<1000 µg/kg	TM414	<1000	<1000	24200	#	<1000	4910	1060
Aliphatics >C16-C21	<1000 µg/kg	TM414	<1000	<1000	459000	#	#	5030	1650
Aliphatics >C21-C35	<1000 µg/kg	TM414	1980	7510	3980000	#	#	8550	19300
Aliphatics >C35-C44	<1000 µg/kg	TM414	<1000	<1000	4750000	#	#	1460	<1000
Total Aliphatics >C10-C44	<5000 µg/kg	TM414	<5000	8060	9210000	#	#	21700	23000
Total Aliphatics & Aromatics >C10-C44	<10000 µg/kg	TM414	<10000	21400	9600000	#	#	746000	55700
Aromatics >EC5-EC7	<10 µg/kg	TM089	<10	<10	<10	4	<10	<10	<10
Aromatics >EC7-EC8	<10 µg/kg	TM089	<10	<10	<10	4	<10	<10	<10
Aromatics >EC8-EC10	<10 µg/kg	TM089	<10	<10	95.1	4	<10	<10	<10
Aromatics > EC10-EC12	<1000 µg/kg	TM414	<1000	<1000	<1000	#	<1000	1140	<1000
Aromatics > EC12-EC16	<1000 µg/kg	TM414	<1000	<1000	5960	#	#	32400	<1000
Aromatics > EC16-EC21	<1000 µg/kg	TM414	<1000	1970	35100	#	#	160000	4500
Aromatics > EC21-EC35	<1000 µg/kg	TM414	3580	10400	342000	#	#	438000	26000
Aromatics >EC35-EC44	<1000 µg/kg	TM414	<1000	<1000	<1000	#	#	93500	<1000
Aromatics > EC40-EC44	<1000 µg/kg	TM414	<1000	<1000	<1000	#	<1000	17000	<1000
Total Aromatics > EC10-EC44	<5000 µg/kg	TM414	<5000	13400	384000	#	#	724000	32700
Total Aliphatics & Aromatics >C5-C44	<10000 µg/kg	TM414	<10000	21400	9600000	#	#	746000	55700
Total Aliphatics >C5-C10	<50 µg/kg	TM089	<50	<50	402	4	<50	<50	<50
Total Aromatics >EC5-EC10	<50 µg/kg	TM089	<50	<50	95.1	4	<50	<50	<50
GRO >C5-C10	<20 µg/kg	TM089	<20	<20	497	4	<20	<20	<20

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CERTIFICATE OF ANALYSIS

Validated

SDG: 210811-106

Client Reference: 21-1732-2

Report Number: 611200

Location: Rochdale Kidney Centre

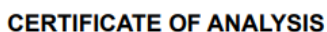
Order Number: 1732-2

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TPH CWG (W)[illegible]

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Superseded Report: 610517

Results Legend	
#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
dis.filt	Dissolved / filtered sample.
tot.filt	Total / unfiltered sample.
*	Subcontracted - refer to subcontract accreditation status.
**	% recovery of the surrogate standard efficiency of the method. The results of compounds within samples aren't recovery
(F)	Trigler breach confirmed
1-4450	Sample deviation (see appendix)

Customer Sample Ref.	WS 1	WS 2	WS 2	WS 3	WS 4	WS 6
Depth (m)	0.30 - 0.80	0.00 - 0.90	2.40 - 2.60	0.00 - 1.00	0.00 - 0.50	0.20 - 0.60
Sample Type	Sol/Solid (S)	Sol/Solid (S)	Sol/Solid (S)	Sol/Solid (S)	Sol/Solid (S)	Sol/Solid (S)
Date Sampled	09/08/2021	09/08/2021	09/08/2021	09/08/2021	09/08/2021	09/08/2021
Sample Time						
Date Received	11/08/2021	11/08/2021	11/08/2021	11/08/2021	11/08/2021	11/08/2021
SDG Ref	210811-106	210811-106	210811-106	210811-106	210811-106	210811-106
Lab Sample No. (s)	24787447	24787448	24787453	24787449	24787450	24787451

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SDG: 210811-106

210811-106

Client Reference: 21-1732-2

21-1732-2

Report Number: 611200

611200

Location: Rochdale Kidney Centre

Order Number: 1732-2

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610517

VOC MS (W)

[illegible]

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SDG: 210811-106
Location: Rochdale Kidney Centre

Client Reference: 21-1732-2
Order Number: 1732-2

Report Number: 611200
Superseded Report: 610517

Asbestos Identification - Solid Samples

Results Legend

- # ISO17025 accredited.
M mCERTS accredited.
* Subcontracted test.
(F) Trigger breach confirmed
1-5&5@ Sample deviation (see appendix)

		Date of Analysis	Analysed By	Comments	Amosite (Brown) Asbestos	Chrysotile (White) Asbestos	Crocidolite (Blue) Asbestos	Fibrous Actinolite	Fibrous Anthophyllite	Fibrous Tremolite	Non-Asbestos Fibre
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Received SDG Original Sample Method Number	WS 1 0.30 - 0.80 SOLID 09/08/2021 00:00:00 11/08/2021 05:00:00 210811-106 24787447 TM048	16/08/2021	James Richards	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Received SDG Original Sample Method Number	WS 2 0.00 - 0.90 SOLID 09/08/2021 00:00:00 11/08/2021 05:00:00 210811-106 24787448 TM048	16.08.21	Emily Anderton	Loose fibre bundle in soil	Not Detected (#)	Trace (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Received SDG Original Sample Method Number	WS 2 2.40 - 2.60 SOLID 09/08/2021 00:00:00 11/08/2021 05:00:00 210811-106 24787453 TM048	18/08/2021	James Richards	Fibre bundles in soil	Not Detected (#)	Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Received SDG Original Sample Method Number	WS 3 0.00 - 1.00 SOLID 09/08/2021 00:00:00 11/08/2021 05:00:00 210811-106 24787449 TM048	16/08/2021	Agnieszka Chelmonska	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Received SDG Original Sample Method Number	WS 4 0.00 - 0.50 SOLID 09/08/2021 00:00:00 11/08/2021 05:00:00 210811-106 24787450 TM048	16/08/2021	Agnieszka Chelmonska	Loose fibres in soil	Not Detected (#)	Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Received SDG Original Sample Method Number	WS 6 0.20 - 0.60 SOLID 09/08/2021 00:00:00 11/08/2021 05:00:00 210811-106 24787451 TM048	16/08/2021	Agnieszka Chelmonska	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected



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SDG: 210811-106

Client Reference: 21-1732-2

Report Number: 611200

Location: Rochdale Kidney Centre

Order Number: 1732-2

Superseded Report: 610517

Asbestos Quantification - Full

Results Legend

ISO17025 accredited.
 M mCERTS accredited.
 * Subcontracted test.
 (F) Trigger breach confirmed
 1-55+9@ Sample deviation (see appendix)

Additional Asbestos Components	Analysts Comments	Asbestos Quantification - Gravimetric - %	Asbestos Quantification - PCDM	Asbestos Quantification - Total - %
None (#)	Soil containing material typical of asbestos cement.	1.4644 (#)	<0.001 (#)	1.4646 (#)
None (#)	-	<0.001 (#)	<0.001 (#)	<0.001 (#)
None (#)	ACM debris found in soil	0.0151 (#)	<0.001 (#)	0.0151 (#)



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SDG: 210811-106

Client Reference: 21-1732-2

Report Number: 611200

Location: Rochdale Kidney Centre

Order Number: 1732-2

Superseded Report: 610517

Table of Results - Appendix

Method No	Reference	Description
PM023	Leaching test method for the Assessment of Contaminated Land: Interim NRA Guidance. National Rivers Authority R & D note 301. (1994).	Leaching Procedure for NRA Leachates
PM024	Modified BS 1377	Soil preparation including homogenisation, moisture screens of soils for Asbestos Containing Material
TM048	HSG 248, Asbestos: The analysts' guide for sampling, analysis and clearance procedures	Identification of Asbestos in Bulk Material
TM062 (S)	National Grid Property Holdings Methods for the Collection & Analysis of Samples from National Grid Sites version 1 Sec 3.9	Determination of Phenols in Soils by HPLC
TM089	Modified: US EPA Methods 8020 & 602	Determination of Gasoline Range Hydrocarbons (GRO) by Headspace GC-FID (C4-C12)
TM116	Modified: US EPA Method 8260, 8120, 8020, 624, 610 & 602	Determination of Volatile Organic Compounds by Headspace / GC-MS
TM132	In - house Method	ELTRA CS800 Operators Guide
TM133	BS 1377: Part 3 1990/BS 6068-2.5	Determination of pH in Soil and Water using the GLpH pH Meter
TM136	Method 17.10, Second Site property, March 2003	Determination of Sulphur by HPLC
TM151	Method 3500D, AWWA/APHA, 20th Ed., 1999	Determination of Hexavalent Chromium using Kone analyser
TM152	Method 3125B, AWWA/APHA, 20th Ed., 1999	Analysis of Aqueous Samples by ICP-MS
TM153	Method 4500A,B,C, I, M AWWA/APHA, 20th Ed., 1999	Determination of Total Cyanide, Free (Easily Liberatable) Cyanide and Thiocyanate using the Skalar SANS+ System Segmented Flow Analyser
TM174	Analysis of Petroleum Hydrocarbons in Environmental Media - Total Petroleum Hydrocarbon Criteria	Determination of Speciated Extractable Petroleum Hydrocarbons in Waters by GC-FID
TM178	Modified: US EPA Method 8100	Determination of Polynuclear Aromatic Hydrocarbons (PAH) by GC-MS in Waters
TM180	Sulphide in waters and waste waters 1991 ISBN 01 175 7186 SCA rec. 2007 (unpublished)	The Determination Of Easily Liberated Sulphide In Soil Samples by Ion Selective Electrode Technique
TM181	US EPA Method 6010B	Determination of Routine Metals in Soil by iCap 6500 Duo ICP-OES
TM208	Modified: US EPA Method 8260b & 624	Determination of Volatile Organic Compounds by Headspace / GC-MS in Waters
TM218	Shaker extraction - EPA method 3546.	The determination of PAH in soil samples by GC-MS
TM221	Inductively Coupled Plasma - Atomic Emission Spectroscopy. An Atlas of Spectral Information: Winge, Fassel, Peterson and Floyd	Determination of Acid Extractable Sulphate in Soils by ICP OES
TM222	In-House Method	Determination of Hot Water Soluble Boron in Soils (10:1 Water:Soil) by ICP OES.
TM243		Mixed Anions In Soils By Kone
TM245	By GC-FID	Determination of GRO by Headspace in waters
TM304	HSE Contract research Report no 83/1996	Asbestos Quantification in Soil: Fibres identified by morphology only
TM414	Analysis of Petroleum Hydrocarbons in Environmental Media - Total Petroleum Hydrocarbon Criteria	Determination of Speciated Extractable Petroleum Hydrocarbons in Soils by GCxGC-FID

NA = not applicable.

Chemical testing (unless subcontracted) performed at ALS Life Sciences Ltd Hawarden (Method codes TM) or ALS Life Sciences Ltd Aberdeen (Method codes S).



CERTIFICATE OF ANALYSIS

Validated

SDG: 210811-106
Location: Rochdale Kidney Centre

Client Reference: 21-1732-2
Order Number: 1732-2

Report Number: 611200
Superseded Report: 610517

Test Completion Dates

Lab Sample No(s)	24787447	24787448	24787453	24787449	24787455	24787450	24787461	24787451	24787462
Customer Sample Ref.	WS 1	WS 2	WS 2	WS 3	WS 3	WS 4	WS 4	WS 6	WS 6
AGS Ref.									
Depth	0.30 - 0.80	0.00 - 0.90	2.40 - 2.60	0.00 - 1.00	1.20	0.00 - 0.50	2.00	0.20 - 0.60	2.50
Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
Anions by Kone (soil)	16-Aug-2021	16-Aug-2021		16-Aug-2021	16-Aug-2021	16-Aug-2021	16-Aug-2021	16-Aug-2021	16-Aug-2021
Asbestos ID in Solid Samples	16-Aug-2021	16-Aug-2021	18-Aug-2021	16-Aug-2021		16-Aug-2021		16-Aug-2021	
Asbestos Quantification - Full		20-Aug-2021	25-Aug-2021			20-Aug-2021			
Boron Water Soluble	13-Aug-2021	13-Aug-2021		13-Aug-2021		17-Aug-2021		13-Aug-2021	
Chromium III	14-Aug-2021	16-Aug-2021		16-Aug-2021		16-Aug-2021		16-Aug-2021	
Cyanide Comp/Free/Total/Thiocyanate	13-Aug-2021	13-Aug-2021		13-Aug-2021		13-Aug-2021		13-Aug-2021	
Dissolved Metals by ICP-MS				31-Aug-2021					
Easily Liberated Sulphide	17-Aug-2021	17-Aug-2021		17-Aug-2021		17-Aug-2021		17-Aug-2021	
Elemental Sulphur	18-Aug-2021	18-Aug-2021		18-Aug-2021		18-Aug-2021		18-Aug-2021	
EPH CWG (Aliphatic) Aqueous GC (W)			31-Aug-2021			31-Aug-2021			
EPH CWG (Aromatic) Aqueous GC (W)			31-Aug-2021			31-Aug-2021			
EPH CWG GC (S)	13-Aug-2021	13-Aug-2021	16-Aug-2021	13-Aug-2021		13-Aug-2021		13-Aug-2021	
GRO by GC-FID (S)	17-Aug-2021	13-Aug-2021	17-Aug-2021	13-Aug-2021		18-Aug-2021		13-Aug-2021	
GRO by GC-FID (W)			31-Aug-2021			31-Aug-2021			
Hexavalent Chromium (s)	13-Aug-2021	13-Aug-2021		13-Aug-2021		13-Aug-2021		13-Aug-2021	
Metals in solid samples by OES	13-Aug-2021	16-Aug-2021		16-Aug-2021		16-Aug-2021		16-Aug-2021	
NRA Leachate			26-Aug-2021	24-Aug-2021		24-Aug-2021			
PAH by GCMS	12-Aug-2021	12-Aug-2021		12-Aug-2021		16-Aug-2021		12-Aug-2021	
PAH Spec MS - Aqueous (W)						31-Aug-2021			
pH	13-Aug-2021	16-Aug-2021		16-Aug-2021	12-Aug-2021	13-Aug-2021	12-Aug-2021	16-Aug-2021	12-Aug-2021
Phenols by HPLC (S)	13-Aug-2021	12-Aug-2021		13-Aug-2021		13-Aug-2021		12-Aug-2021	
Sample description	12-Aug-2021	12-Aug-2021	12-Aug-2021	12-Aug-2021	12-Aug-2021	12-Aug-2021	12-Aug-2021	12-Aug-2021	12-Aug-2021
Total Organic Carbon	17-Aug-2021	18-Aug-2021	18-Aug-2021	17-Aug-2021		17-Aug-2021		17-Aug-2021	
Total Sulphate	16-Aug-2021	16-Aug-2021		16-Aug-2021		16-Aug-2021		16-Aug-2021	
TPH CWG (W)			31-Aug-2021			31-Aug-2021			
TPH CWG GC (S)	17-Aug-2021	13-Aug-2021	17-Aug-2021	13-Aug-2021		18-Aug-2021		13-Aug-2021	
VOC MS (S)	12-Aug-2021	12-Aug-2021	16-Aug-2021	12-Aug-2021		13-Aug-2021		12-Aug-2021	
VOC MS (W)			31-Aug-2021			31-Aug-2021			



CERTIFICATE OF ANALYSIS

SDG:	210811-106	Client Reference:	21-1732-2	Report Number:	611200
Location:	Rochdale Kidney Centre	Order Number:	1732-2	Superseded Report:	610517

Appendix

General

1. Results are expressed on a dry weight basis (dried at 35°C) for all soil analyses except for the following: NRA and CEN Leach tests, flash point LOI, pH, ammonium as NH₄ by the BRE method, VOC TICs and SVOC TICs.

2. If sufficient sample is received a sub sample will be retained free of charge for 30 days after analysis is completed (e-mailed) for all sample types unless the sample is destroyed on testing. The prepared soil sub sample that is analysed for asbestos will be retained for a period of 6 months after the analysis date. All bulk samples will be retained for a period of 6 months after the analysis date. All samples received and not scheduled will be disposed of one month after the date of receipt unless we are instructed to the contrary. Once the initial period has expired, a storage charge will be applied for each month or part thereof until the client cancels the request for sample storage. ALS reserve the right to charge for samples received and stored but not analysed.

3. With respect to turnaround, we will always endeavour to meet client requirements wherever possible, but turnaround times cannot be absolutely guaranteed due to so many variables beyond our control.

4. We take responsibility for any test performed by sub-contractors (marked with an asterisk). We endeavour to use UKAS/MCERTS Accredited Laboratories, who either complete a quality questionnaire or are audited by ourselves. For some determinands there are no UKAS/MCERTS Accredited Laboratories, in this instance a laboratory with a known track record will be utilised.

5. If no separate volatile sample is supplied by the client, or if a headspace or sediment is present in the volatile sample, the integrity of the data may be compromised. This will be flagged up as an invalid VOC on the test schedule and the result marked as deviating on the test certificate.

6. NDP - No determination possible due to insufficient/unsuitable sample.

7. Results relate only to the items tested.

8. LoDs (Limit of Detection) for wet tests reported on a dry weight basis are not corrected for moisture content.

9. **Surrogate recoveries** - Surrogates are added to your sample to monitor recovery of the test requested. A % recovery is reported, results are not corrected for the recovery measured. Typical recoveries for organics tests are 70-130%. Recoveries in soils are affected by organic rich or clay rich matrices. Waters can be affected by remediation fluids or high amounts of sediment. Test results are only ever reported if all of the associated quality checks pass; it is assumed that all recoveries outside of the values above are due to matrix affect.

10. Stones/debris are not routinely removed. We always endeavour to take a representative sub sample from the received sample.

11. In certain circumstances the method detection limit may be elevated due to the sample being outside the calibration range. Other factors that may contribute to this include possible interferences. In both cases the sample would be diluted which would cause the method detection limit to be raised.

12. Mercury results quoted on soils will not include volatile mercury as the analysis is performed on a dried and crushed sample.

13. For leachate preparations other than Zero Headspace Extraction (ZHE) volatile loss may occur.

14. For the BSEN 12457-3 two batch process to allow the cumulative release to be calculated, the volume of the leachate produced is measured and filtered for all tests. We therefore cannot carry out any unfiltered analysis. The tests affected include volatiles GC/FID/GCMS and all subcontracted analysis.

15. Analysis and identification of specific compounds using GC/FID is by retention time only, and we routinely calibrate and quantify for benzene, toluene, ethylbenzenes and xylenes (BTEX). For total volatiles in the C5-C12 range, the total area of the chromatogram is integrated and expressed as ug/kg or ug/l. Although this analysis is commonly used for the quantification of gasoline range organics (GRO), the system will also detect other compounds such as chlorinated solvents, and this may lead to a falsely high result with respect to hydrocarbons only. It is not possible to specifically identify these non-hydrocarbons, as standards are not routinely run for any other compounds, and for more definitive identification, volatiles by GCMS should be utilised.

16. We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials - whether these are derived from naturally occurring soil profiles, or from fill/made ground, as long as these materials constitute the major part of the sample. Other coarse granular material such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.

17. **Tentatively Identified Compounds (TICs)** are non-target peaks in VOC and SVOC analysis. All non-target peaks detected with a concentration above the LoD are subjected to a mass spectral library search. Non-target peaks with a library search confidence of >75% are reported based on the best mass spectral library match. When a non-target peak with a library search confidence of <75% is detected it is reported as "mixed hydrocarbons". Non-target compounds identified from the scan data are semi-quantified relative to one of the deuterated internal standards, under the same chromatographic conditions as the target compounds. This result is reported as a semi-quantitative value and reported as Tentatively Identified Compounds (TICs). TICs are outside the scope of UKAS accreditation and are not moisture corrected.

18. Sample Deviations

If a sample is classed as deviated then the associated results may be compromised.

1	Container with Headspace provided for volatiles analysis
2	Incorrect container received
3	Deviation from method
4	Matrix interference
♦	Sample holding time exceeded in laboratory
@	Sample holding time exceeded due to late arrival of instructions or samples
§	Sampled on date not provided

19. Asbestos

When requested, the individual sub sample scheduled will be analysed in house for the presence of asbestos fibres and asbestos containing material by our documented in house method TM048 based on HSG 248 (2005), which is accredited to ISO17025. If a specific asbestos fibre type is not found this will be reported as "Not detected". If no asbestos fibre types are found all will be reported as "Not detected" and the sub sample analysed deemed to be clear of asbestos. If an asbestos fibre type is found it will be reported as detected (for each fibre type found). Testing can be carried out on asbestos positive samples, but, due to Health and Safety considerations, may be replaced by alternative tests or reported as No Determination Possible (NDP). The quantity of asbestos present is not determined unless specifically requested.

Identification of Asbestos in Bulk Materials & Soils

The results for identification of asbestos in bulk materials are obtained from supplied bulk materials which have been examined to determine the presence of asbestos fibres using ALS (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining, based on HSG 248 (2005).

The results for identification of asbestos in soils are obtained from a homogenised sub sample which has been examined to determine the presence of asbestos fibres using ALS (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining, based on HSG 248 (2005).

Asbestos Type	Common Name
Chrysotile	White Asbestos
Amosite	Brown Asbestos
Crocidolite	Blue Asbestos
Fibrous Actinolite	-
Fibrous Anthophyllite	-
Fibrous Tremolite	-

Visual Estimation Of Fibre Content

Estimation of fibre content is not permitted as part of our UKAS accredited test other than: - Trace - Where only one or two asbestos fibres were identified.

Respirable Fibres

Respirable fibres are defined as fibres of <3 µm diameter, longer than 5 µm and with aspect ratios of at least 3:1 that can be inhaled into the lower regions of the lung and are generally acknowledged to be most important predictor of hazard and risk for cancers of the lung.

Standing Committee of Analysts, *The Quantification of Asbestos in Soil* (2017).

Further guidance on typical asbestos fibre content of manufactured products can be found in HSG 264.

The identification of asbestos containing materials and soils falls within our schedule of tests for which we hold UKAS accreditation, however opinions, interpretations and all other information contained in the report are outside the scope of UKAS accreditation.



CERTIFICATE OF ANALYSIS

Validated

SDG: 210911-67
Client Ref.: 21-1732-2Report Number: 613381
Location: Rochdale Kidney Centre

Superseded Report:

Received Sample Overview

Lab Sample No(s)	Customer Sample Ref.	AGS Ref.	Depth (m)	Sampled Date
24960309	CP 1		4.50 - 4.60	07/09/2021
24960310	CP 1		5.20 - 5.30	07/09/2021
24960311	CP 2		3.80 - 3.90	07/09/2021

Only received samples which have had analysis scheduled will be shown on the following pages.



CERTIFICATE OF ANALYSIS

Validated

SDG: 210911-67
Client Ref.: 21-1732-2

Report Number: 613381
Location: Rochdale Kidney Centre

Superseded Report:

Results Legend



Test



No Determination Possible

Sample Types -

S - Soil/Solid
UNS - Unspecified Solid
GW - Ground Water
SW - Surface Water
LE - Land Leachate
PL - Prepared Leachate
PR - Process Water
SA - Saline Water
TE - Trade Effluent
TS - Treated Sewage
US - Untreated Sewage
RE - Recreational Water
DW - Drinking Water Non-regulatory
UNL - Unspecified Liquid
SL - Sludge
G - Gas
OTH - Other

Lab Sample No(s)

Customer Sample Reference

AGS Reference

Depth (m)

Container

Sample Type

Anions by Kone (soil)	All	NDPs: 0 Tests: 3	X	X	X
pH	All	NDPs: 0 Tests: 3	X	X	X
Sample description	All	NDPs: 0 Tests: 3	X	X	X



CERTIFICATE OF ANALYSIS

Validated

SDG: 210911-67
Client Ref.: 21-1732-2

Report Number: 613381
Location: Rochdale Kidney Centre

Superseded Report:

Sample Descriptions

Grain Sizes

very fine	<0.063mm	fine	0.063mm - 0.1mm	medium	0.1mm - 2mm	coarse	2mm - 10mm	very coarse	>10mm
-----------	----------	------	-----------------	--------	-------------	--------	------------	-------------	-------

Lab Sample No(s)	Customer Sample Ref.	Depth (m)	Colour	Description	Inclusions	Inclusions 2
24960309	CP 1	4.50 - 4.60	Dark Brown	Sand	Stones	Vegetation
24960310	CP 1	5.20 - 5.30	Dark Brown	Sand	Stones	None
24960311	CP 2	3.80 - 3.90	Dark Brown	Clay	Stones	Crushed Brick

These descriptions are only intended to act as a cross check if sample identities are questioned, and to provide a log of sample matrices with respect to MCERTS validation. They are not intended as full geological descriptions.

We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials - whether these are derived from naturally occurring soil profiles, or from fill/made ground, as long as these materials constitute the major part of the sample.

Other coarse granular materials such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.



Superseded Report:

Location: Rochdale Kidney Centre

15:38:27 16/09/2021



CERTIFICATE OF ANALYSIS

Validated

SDG: 210911-67
Client Ref.: 21-1732-2

Report Number: 613381
Location: Rochdale Kidney Centre

Superseded Report:

Table of Results - Appendix

Method No	Reference	Description
PM024	Modified BS 1377	Soil preparation including homogenisation, moisture screens of soils for Asbestos Containing Material
TM133	BS 1377: Part 3 1990;BS 6068-2.5	Determination of pH in Soil and Water using the GLpH pH Meter
TM243		Mixed Anions In Soils By Kone

NA = not applicable.

Chemical testing (unless subcontracted) performed at ALS Life Sciences Ltd Hawarden.



CERTIFICATE OF ANALYSIS

Validated

SDG: 210911-67
Client Ref.: 21-1732-2

Report Number: 613381
Location: Rochdale Kidney Centre

Superseded Report:

Test Completion Dates

Lab Sample No(s)	24960309	24960310	24960311
Customer Sample Ref.	CP 1	CP 1	CP 2
AGS Ref.			
Depth	4.50 - 4.60	5.20 - 5.30	3.80 - 3.90
Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
Anions by Kane (soil)	16-Sep-2021	16-Sep-2021	16-Sep-2021
pH	14-Sep-2021	14-Sep-2021	15-Sep-2021
Sample description	13-Sep-2021	13-Sep-2021	13-Sep-2021



CERTIFICATE OF ANALYSIS

SDG: 210911-67 Client Reference: 21-1732-2 Report Number: 613381
 Location: Rochdale Kidney Centre Order Number: 21-1732-2 Superseded Report:

Appendix

General

1. Results are expressed on a dry weight basis (dried at 35°C) for all soil analyses except for the following: NRA and CEN Leach tests, flash point LOI, pH, ammonium as NH₄ by the BRE method, VOC TICs and SVOC TICs.

2. If sufficient sample is received a sub sample will be retained free of charge for 30 days after analysis is completed (e-mailed) for all sample types unless the sample is destroyed on testing. The prepared soil sub sample that is analysed for asbestos will be retained for a period of 6 months after the analysis date. All bulk samples will be retained for a period of 6 months after the analysis date. All samples received and not scheduled will be disposed of one month after the date of receipt unless we are instructed to the contrary. Once the initial period has expired, a storage charge will be applied for each month or part thereof until the client cancels the request for sample storage. ALS reserve the right to charge for samples received and stored but not analysed.

3. With respect to turnaround, we will always endeavour to meet client requirements wherever possible, but turnaround times cannot be absolutely guaranteed due to so many variables beyond our control.

4. We take responsibility for any test performed by sub-contractors (marked with an asterisk). We endeavour to use UKAS/MCERTS Accredited Laboratories, who either complete a quality questionnaire or are audited by ourselves. For some determinands there are no UKAS/MCERTS Accredited Laboratories, in this instance a laboratory with a known track record will be utilised.

5. If no separate volatile sample is supplied by the client, or if a headspace or sediment is present in the volatile sample, the integrity of the data may be compromised. This will be flagged up as an invalid VOC on the test schedule and the result marked as deviating on the test certificate.

6. NDP - No determination possible due to insufficient/unsuitable sample.

7. Results relate only to the items tested.

8. LoDs (Limit of Detection) for wet tests reported on a dry weight basis are not corrected for moisture content.

9. **Surrogate recoveries** - Surrogates are added to your sample to monitor recovery of the test requested. A % recovery is reported, results are not corrected for the recovery measured. Typical recoveries for organics tests are 70-130%. Recoveries in soils are affected by organic rich or clay rich matrices. Waters can be affected by remediation fluids or high amounts of sediment. Test results are only ever reported if all of the associated quality checks pass; it is assumed that all recoveries outside of the values above are due to matrix affect.

10. Stones/debris are not routinely removed. We always endeavour to take a representative sub sample from the received sample.

11. In certain circumstances the method detection limit may be elevated due to the sample being outside the calibration range. Other factors that may contribute to this include possible interferences. In both cases the sample would be diluted which would cause the method detection limit to be raised.

12. Mercury results quoted on soils will not include volatile mercury as the analysis is performed on a dried and crushed sample.

13. For leachate preparations other than Zero Headspace Extraction (ZHE) volatile loss may occur.

14. For the BSEN 12457-3 two batch process to allow the cumulative release to be calculated, the volume of the leachate produced is measured and filtered for all tests. We therefore cannot carry out any unfiltered analysis. The tests affected include volatiles GCFID/GCMS and all subcontracted analysis.

15. Analysis and identification of specific compounds using GCFID is by retention time only, and we routinely calibrate and quantify for benzene, toluene, ethylbenzenes and xylenes (BTEX). For total volatiles in the C5-C12 range, the total area of the chromatogram is integrated and expressed as ug/kg or ug/l. Although this analysis is commonly used for the quantification of gasoline range organics (GRO), the system will also detect other compounds such as chlorinated solvents, and this may lead to a falsely high result with respect to hydrocarbons only. It is not possible to specifically identify these non-hydrocarbons, as standards are not routinely run for any other compounds, and for more definitive identification, volatiles by GCMS should be utilised.

16. We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials - whether these are derived from naturally occurring soil profiles, or from fill/made ground, as long as these materials constitute the major part of the sample. Other coarse granular material such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.

17 Data retention. All records, communications and reports pertaining to the analysis are archived for seven years from the date of issue of the final report.

18. **Tentatively Identified Compounds (TICs)** are non-target peaks in VOC and SVOC analysis. All non-target peaks detected with a concentration above the LoD are subjected to a mass spectral library search. Non-target peaks with a library search confidence of >75% are reported based on the best mass spectral library match. When a non-target peak with a library search confidence of <75% is detected it is reported as "mixed hydrocarbons". Non-target compounds identified from the scan data are semi-quantified relative to one of the deuterated internal standards, under the same chromatographic conditions as the target compounds. This result is reported as a semi-quantitative value and reported as Tentatively Identified Compounds (TICs). TICs are outside the scope of UKAS accreditation and are not moisture corrected.

19. Sample Deviations

If a sample is classed as deviated then the associated results may be compromised.

1	Container with Headspace provided for volatiles analysis
2	Incorrect container received
3	Deviation from method
4	Matrix interference
♦	Sample holding time exceeded in laboratory
@	Sample holding time exceeded due to late arrival of instructions or samples
§	Sampled on date not provided

20. Asbestos

When requested, the individual sub sample scheduled will be analysed in house for the presence of asbestos fibres and asbestos containing material by our documented in house method TM048 based on HSG 248 (2005), which is accredited to ISO17025. If a specific asbestos fibre type is not found this will be reported as "Not detected". If no asbestos fibre types are found all will be reported as "Not detected" and the sub sample analysed deemed to be clear of asbestos. If an asbestos fibre type is found it will be reported as detected (for each fibre type found). Testing can be carried out on asbestos positive samples, but, due to Health and Safety considerations, may be replaced by alternative tests or reported as No Determination Possible (NDP). The quantity of asbestos present is not determined unless specifically requested.

Identification of Asbestos in Bulk Materials & Soils

The results for identification of asbestos in bulk materials are obtained from supplied bulk materials which have been examined to determine the presence of asbestos fibres using ALS (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining, based on HSG 248 (2005).

The results for identification of asbestos in soils are obtained from a homogenised sub sample which has been examined to determine the presence of asbestos fibres using ALS (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining.

Asbestos Type	Common Name
Chrysotile	White Asbestos
Amosite	Brown Asbestos
Crocidolite	Blue Asbestos
Fibrous Actinolite	-
Fibrous Anthophyllite	-
Fibrous Tremolite	-

Visual Estimation Of Fibre Content

Estimation of fibre content is not permitted as part of our UKAS accredited test other than: - Trace - Where only one or two asbestos fibres were identified.

Respirable Fibres

Respirable fibres are defined as fibres of <3 µm diameter, longer than 5 µm and with aspect ratios of at least 3:1 that can be inhaled into the lower regions of the lung and are generally acknowledged to be most important predictor of hazard and risk for cancers of the lung.

Further guidance on typical asbestos fibre content of manufactured products can be found in HSG 264.

The identification of asbestos containing materials and soils falls within our schedule of tests for which we hold UKAS accreditation, however opinions, interpretations and all other information contained in the report are outside the scope of UKAS accreditation.

6. APPENDIX B: PHASE 1 PRA PHOTOS.

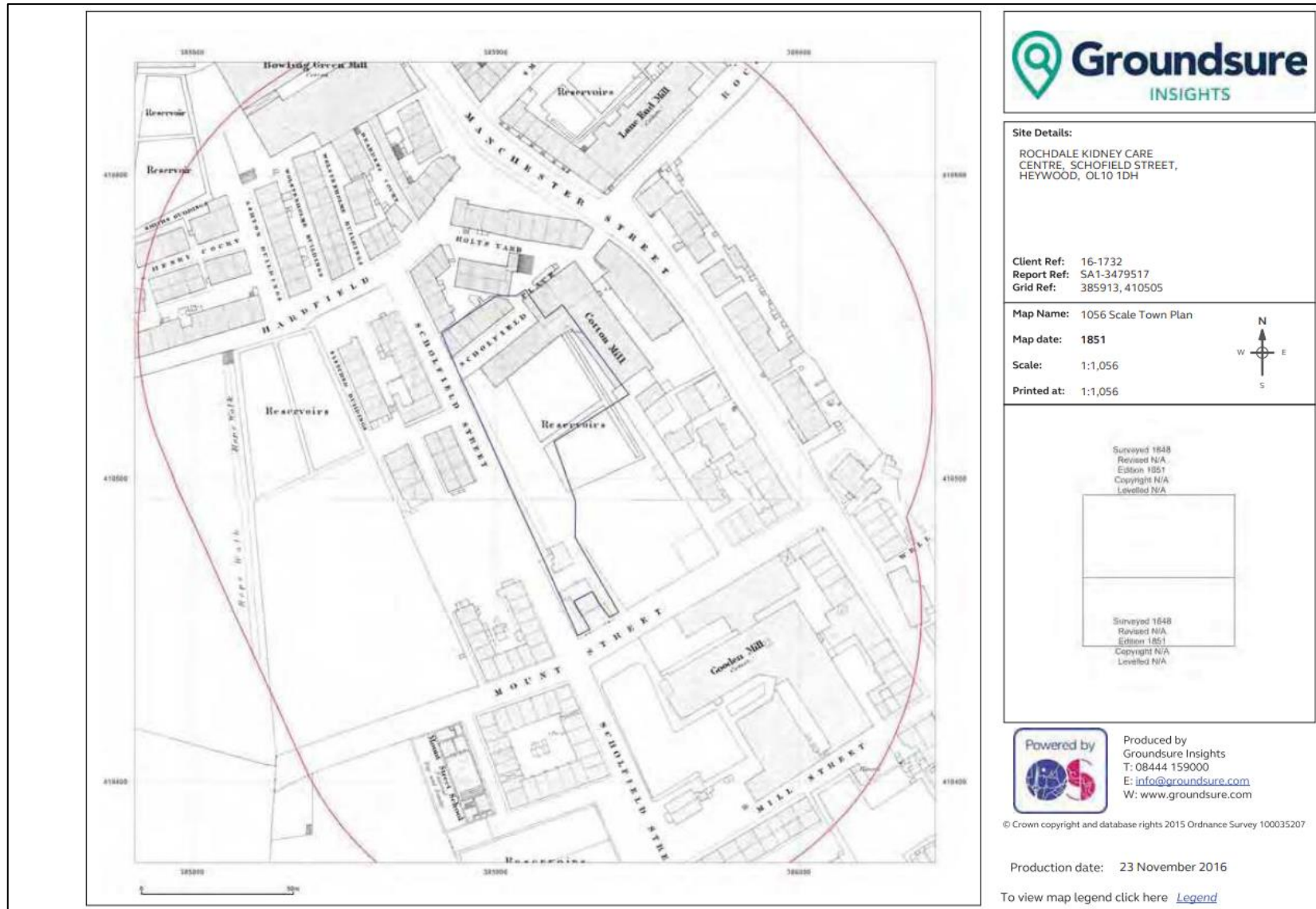


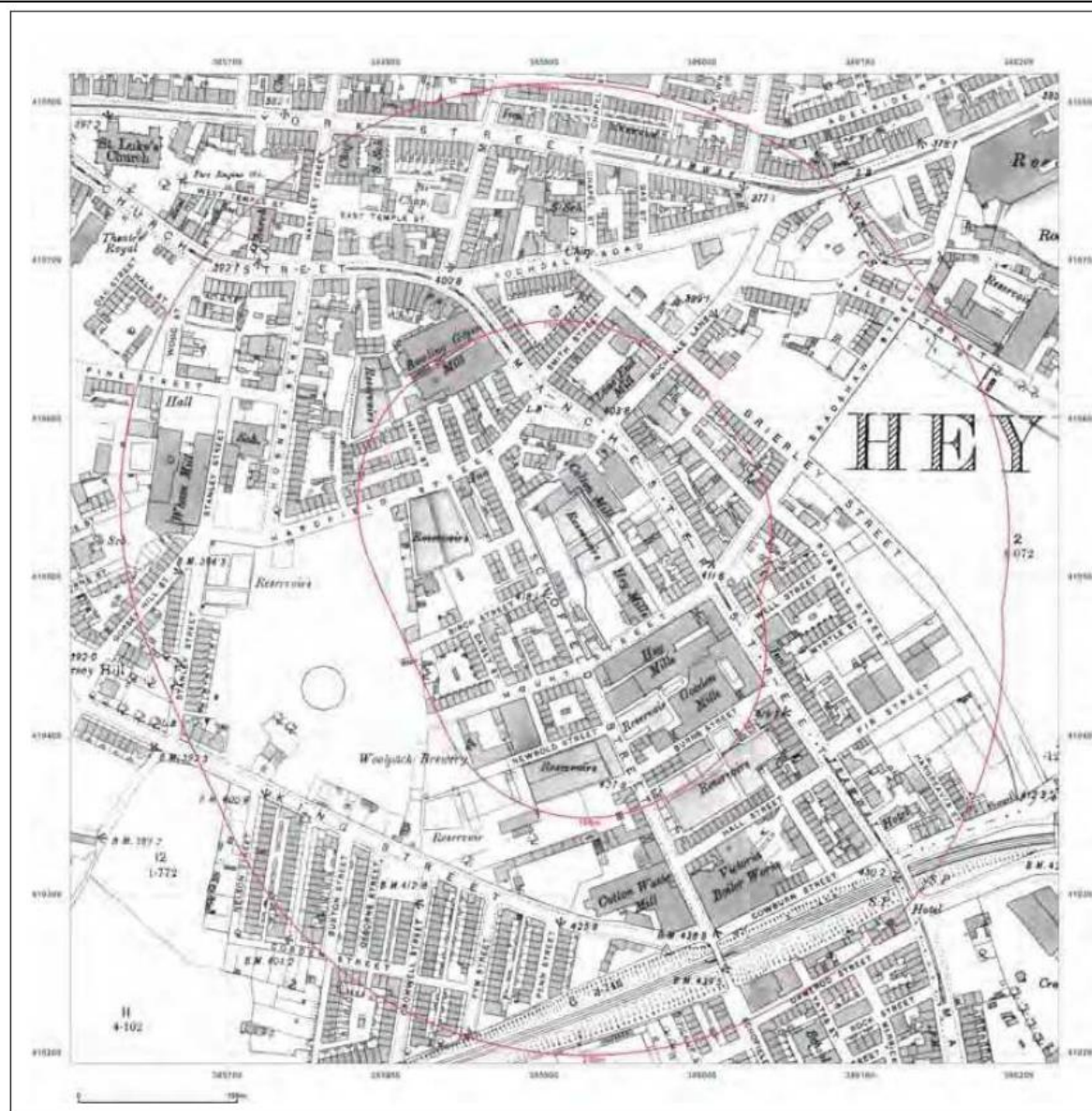






7. APPENDIX C: GROUNDsure INSIGHTS.





Site Details:

ROCHDALE KIDNEY CARE
CENTRE, SCHOFIELD STREET,
HEYWOOD, OL10 1DH

Client Ref: 16-1732
Report Ref: SA1-3479517
Grid Ref: 385913, 410505

Map Name: County Series

Map date: 1890

Scale: 1:2,500

Printed at: 1:2,500



Surveyed 1890
Revised 1890
Edition N/A
Copyright N/A
Levelled N/A

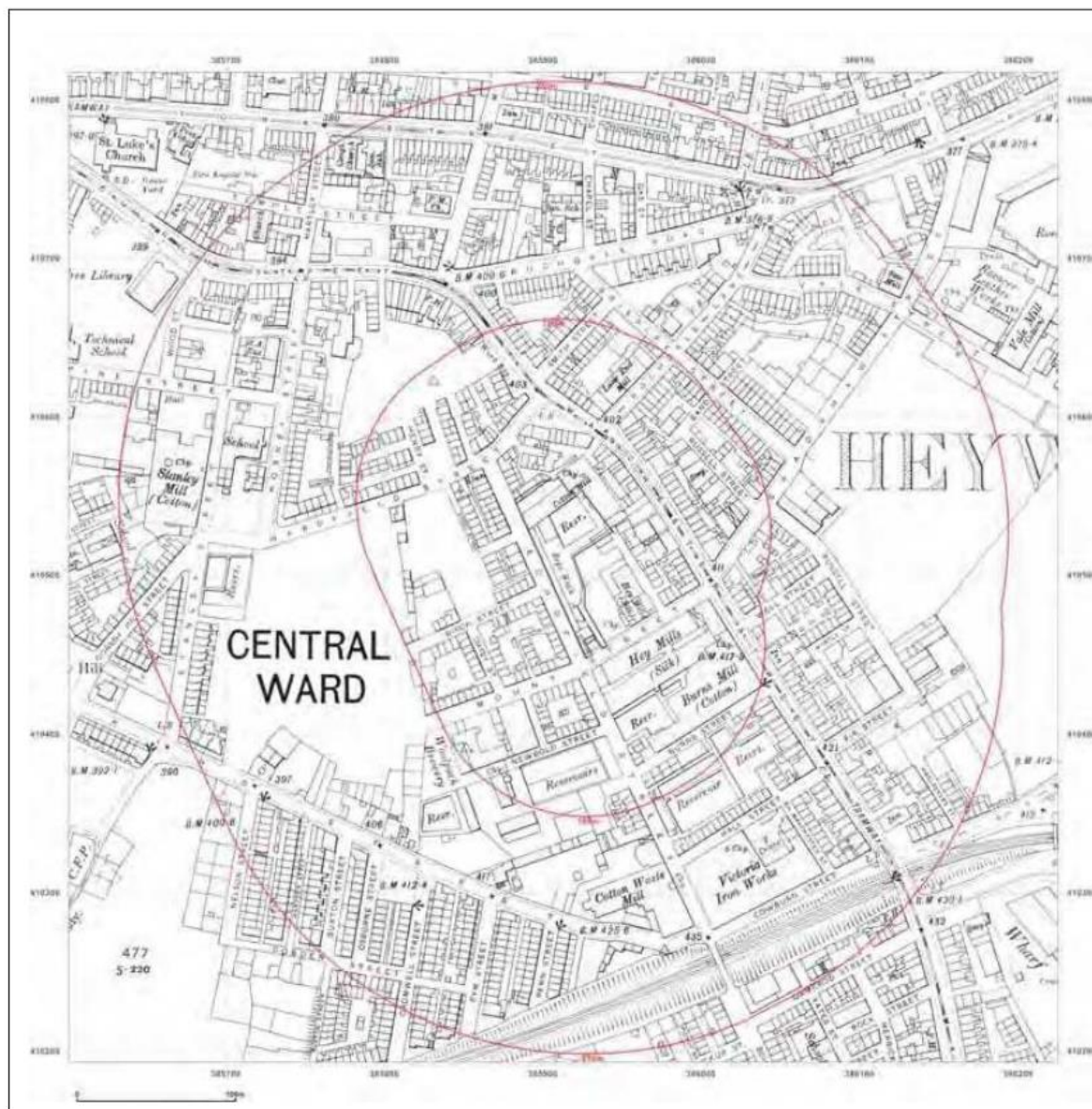


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Site Details:

ROCHDALE KIDNEY CARE
CENTRE, SCHOFIELD STREET,
HEYWOOD, OL10 1DH

Client Ref: 16-1732
Report Ref: SA1-3479517
Grid Ref: 385913, 410505

Map Name: County Series

Map date: 1910

Scale: 1:2,500

Printed at: 1:2,500



Surveyed 1910
Revised 1910
Edition N/A
Copyright N/A
Levelled N/A

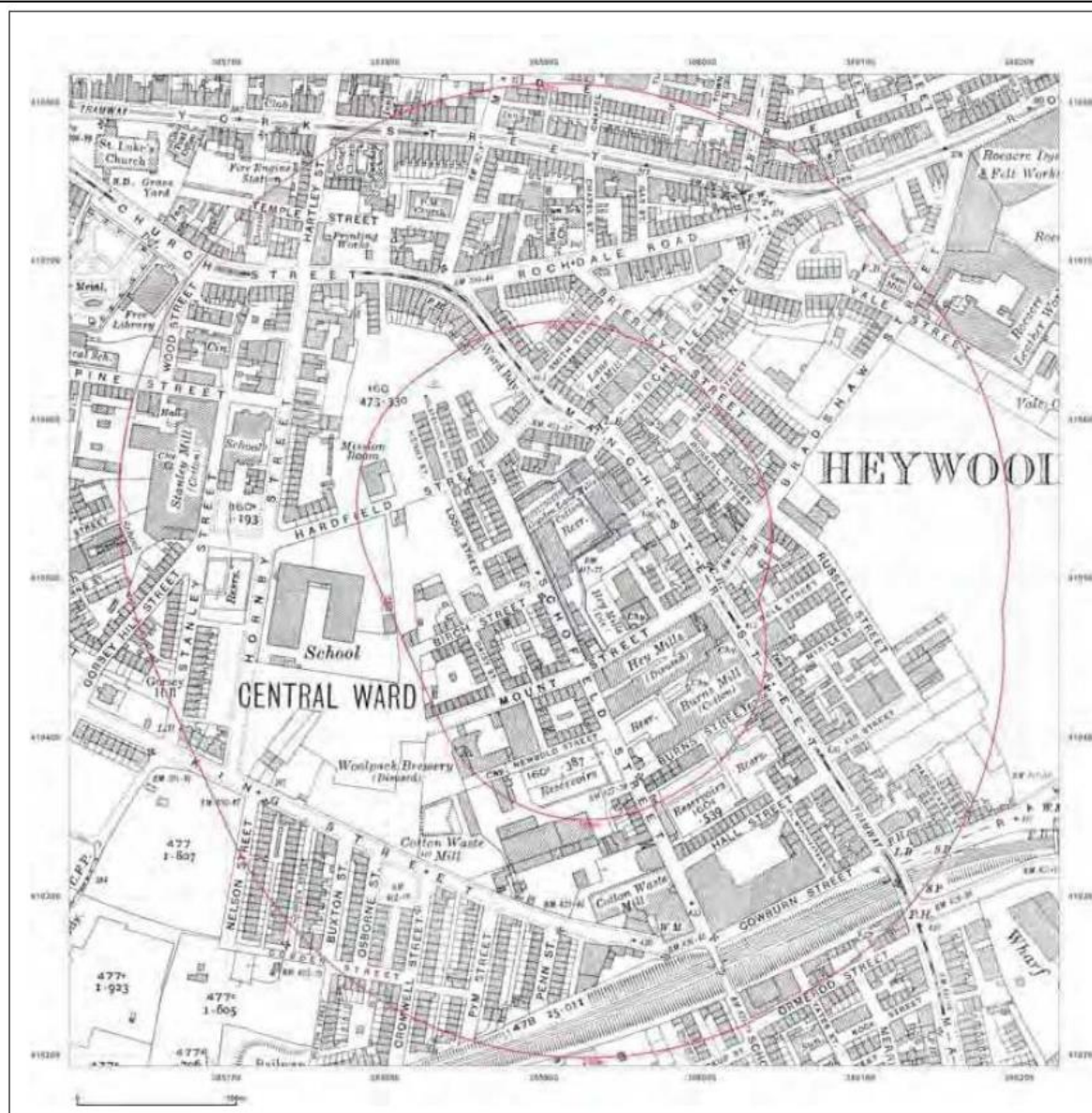


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Site Details:

ROCHDALE KIDNEY CARE
CENTRE, SCHOFIELD STREET,
HEYWOOD, OL10 1DH

Client Ref: 16-1732
Report Ref: SA1-3479517
Grid Ref: 385913, 410505

Map Name: County Series

Map date: 1929

Scale: 1:2,500

Printed at: 1:2,500



Surveyed 1929
Revised 1929
Edition N/A
Copyright N/A
Levelled N/A



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Production date: 23 November 2016

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Site Details:

ROCHDALE KIDNEY CARE
CENTRE, SCHOFIELD STREET,
HEYWOOD, OL10 1DH

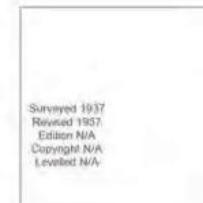
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Report Ref: SA1-3479517
Grid Ref: 385913, 410505

Map Name: County Series

Map date: 1937

Scale: 1:2,500

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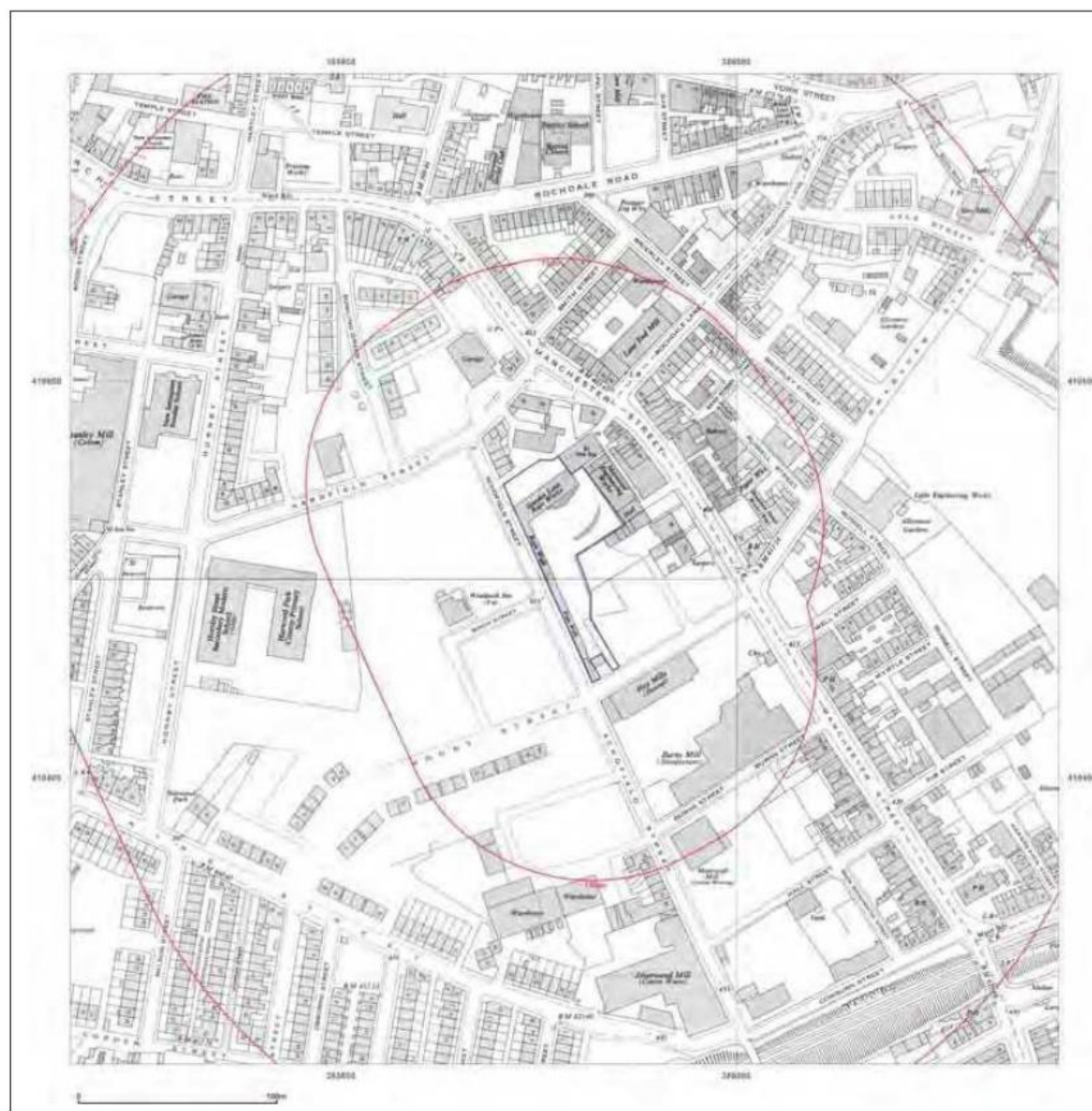


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Site Details:

ROCHDALE KIDNEY CARE
CENTRE, SCHOFIELD STREET,
HEYWOOD, OL10 1DH

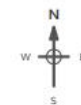
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Map Name: National Grid

Map date: 1956

Scale: 1:1,250

Printed at: 1:2,000



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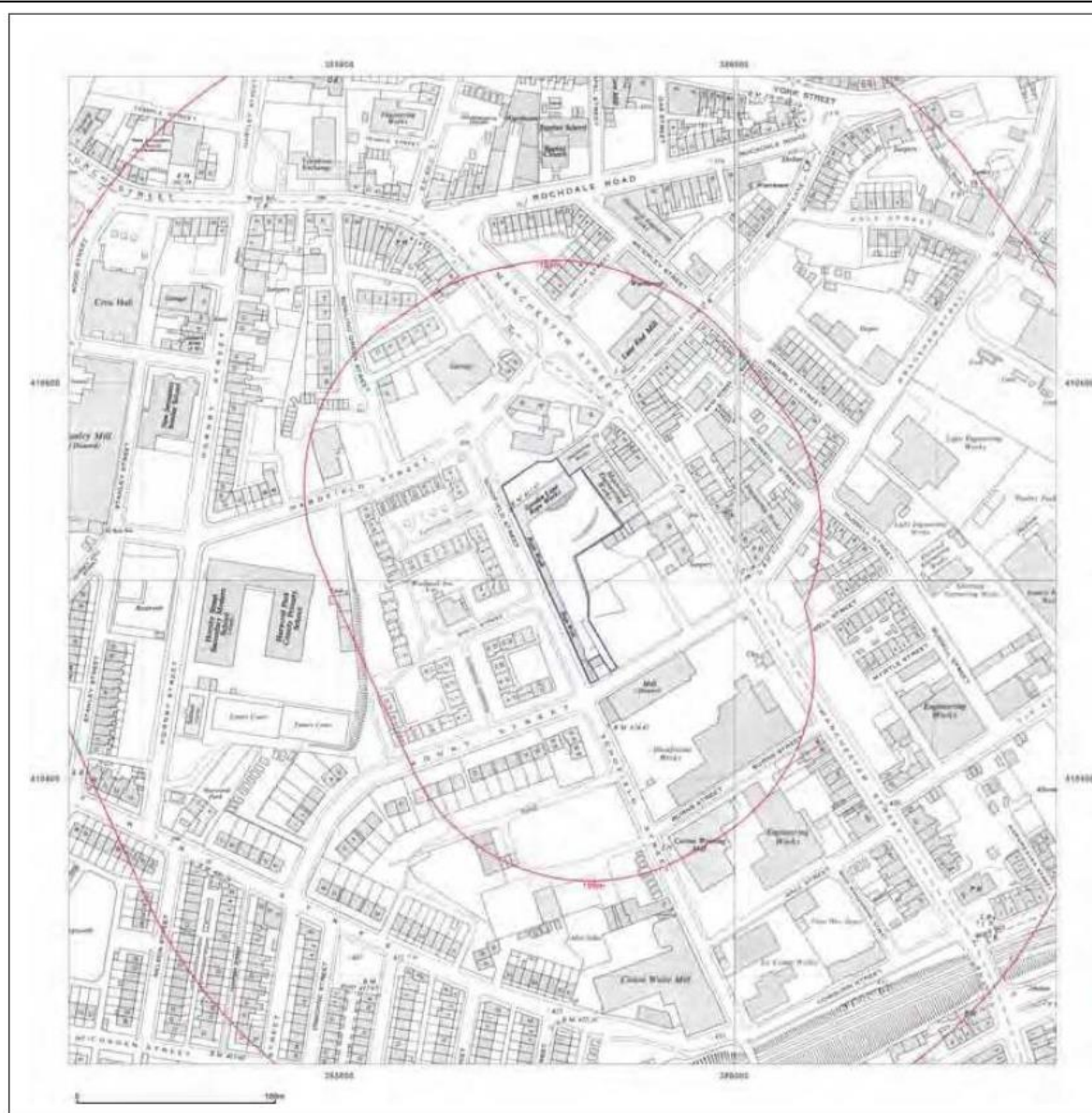


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Client Ref: 16-1732
Report Ref: SA1-3479517
Grid Ref: 385913, 410505

Map Name: National Grid

Map date: 1965-1968

Scale: 1:1,250

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Client Ref: 16-1732
Report Ref: SA1-3479517
Grid Ref: 385913, 410505

Map Name: National Grid

Map date: 1981-1985

Scale: 1:1,250

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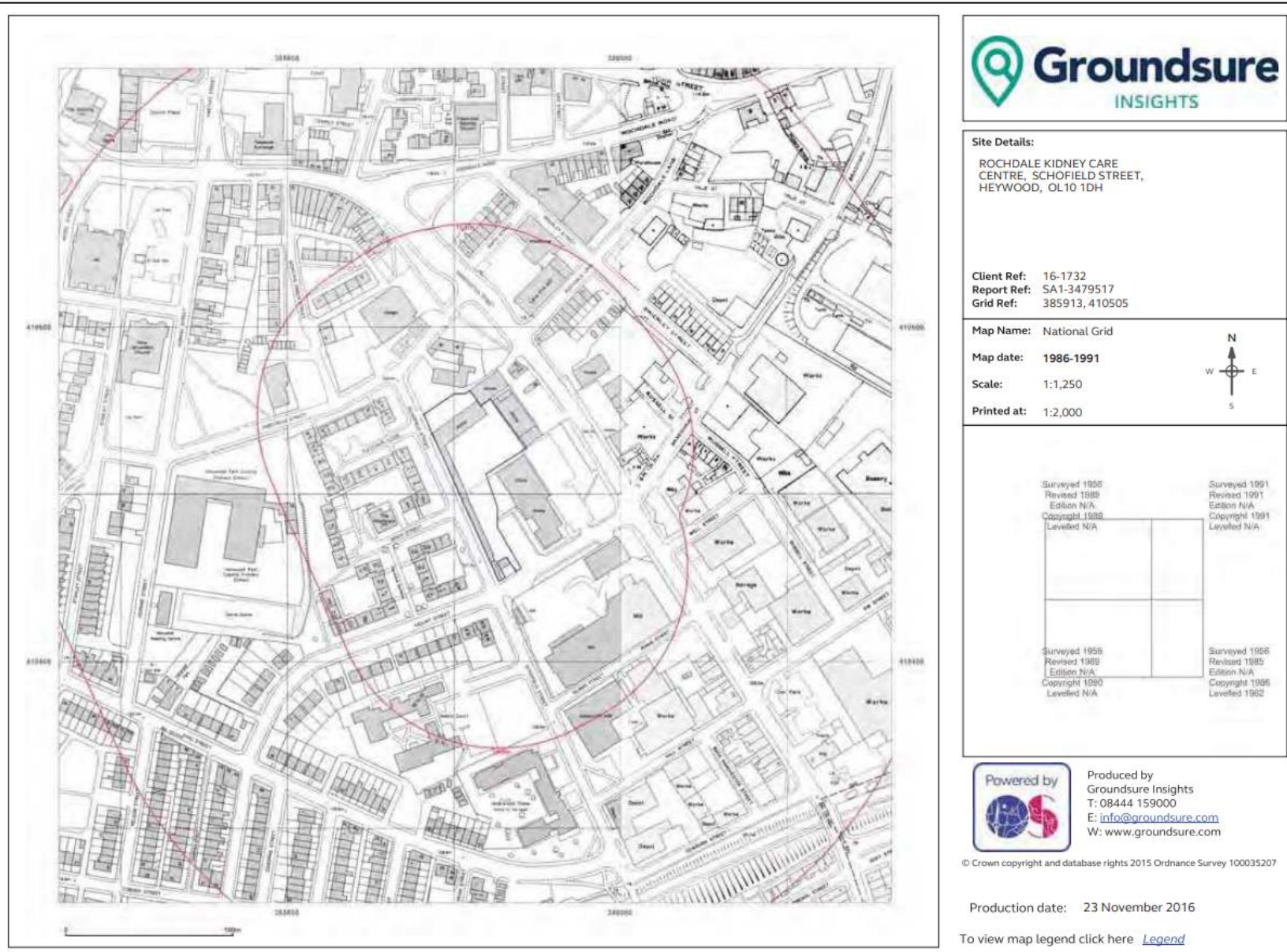


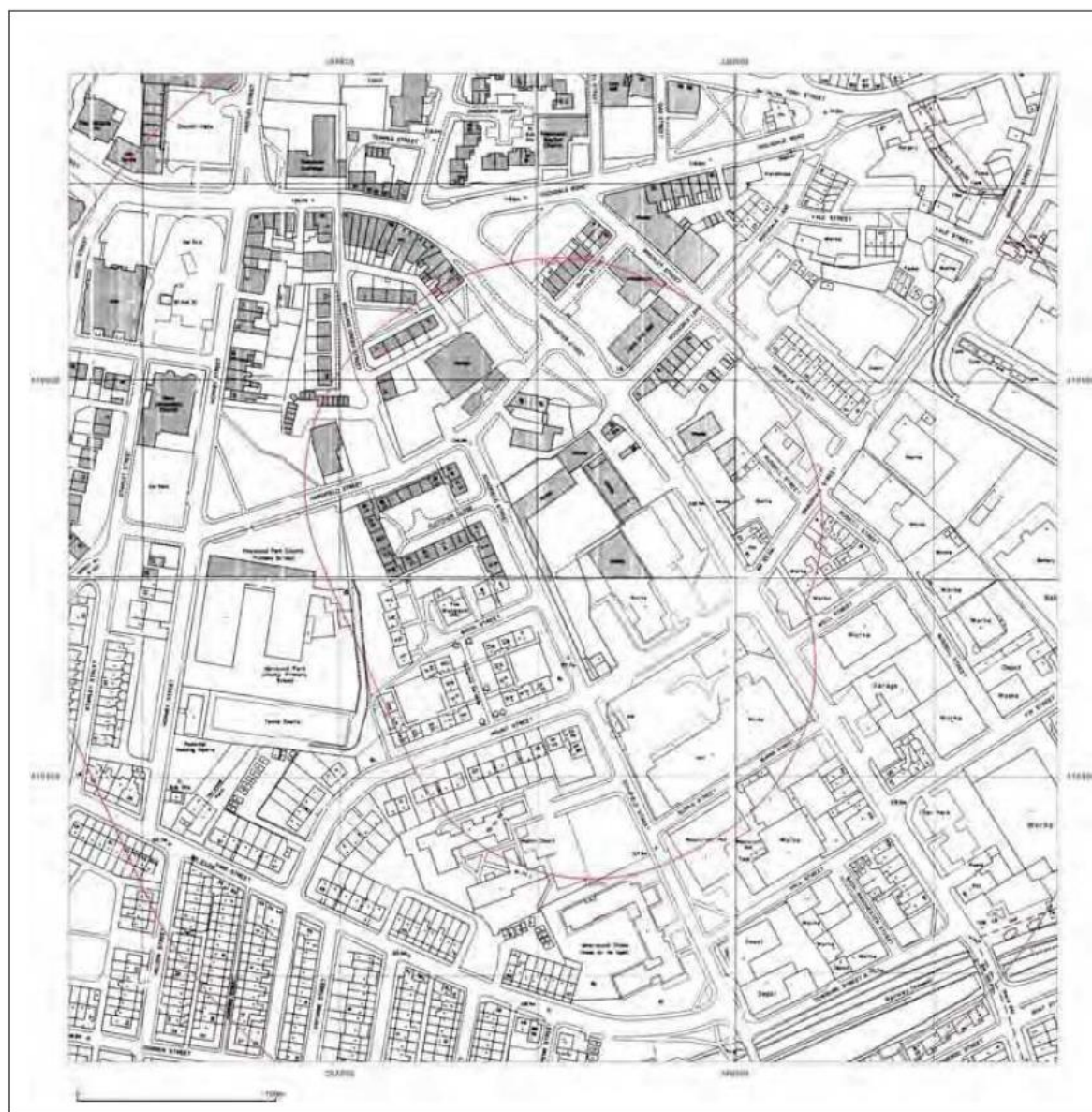
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Client Ref: 16-1732
Report Ref: SA1-3479517
Grid Ref: 385913, 410505

Map Name: National Grid

Map date: 1990-1992

Scale: 1:1,250

Printed at: 1:2,000



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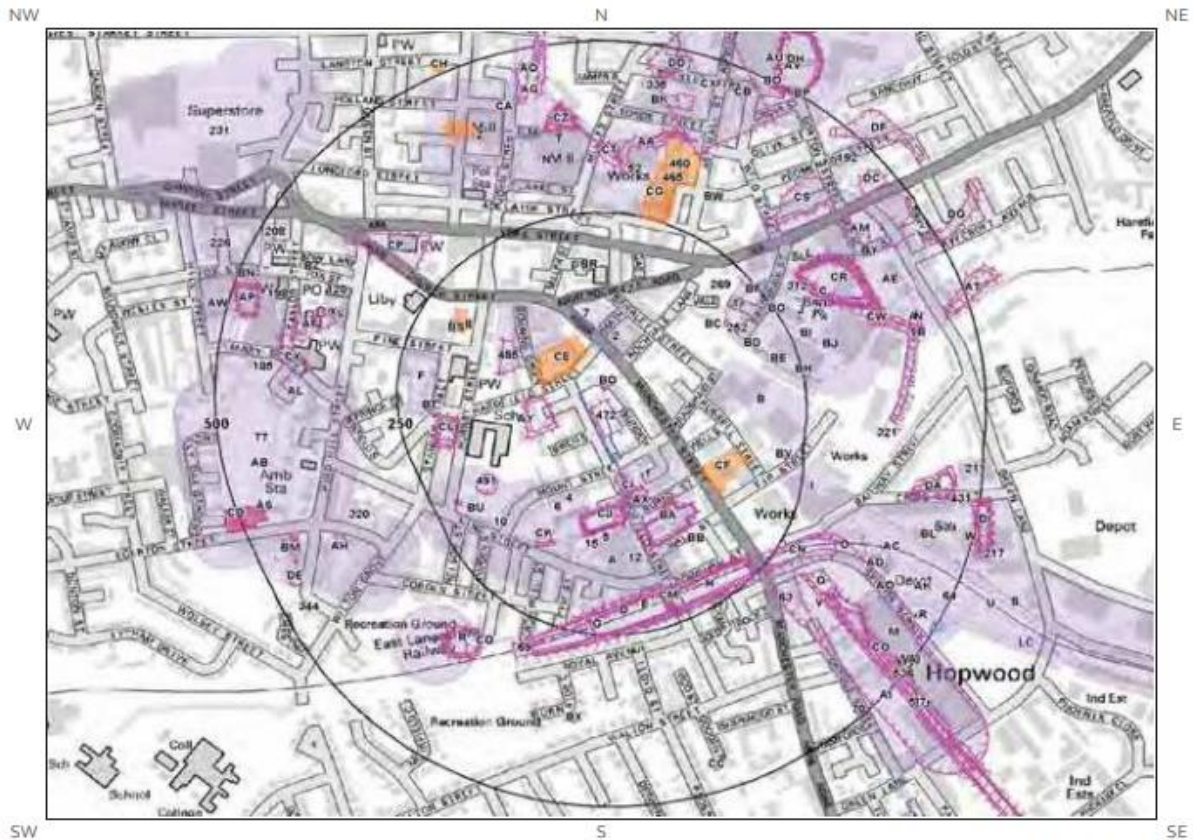
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1. Historical Land Use

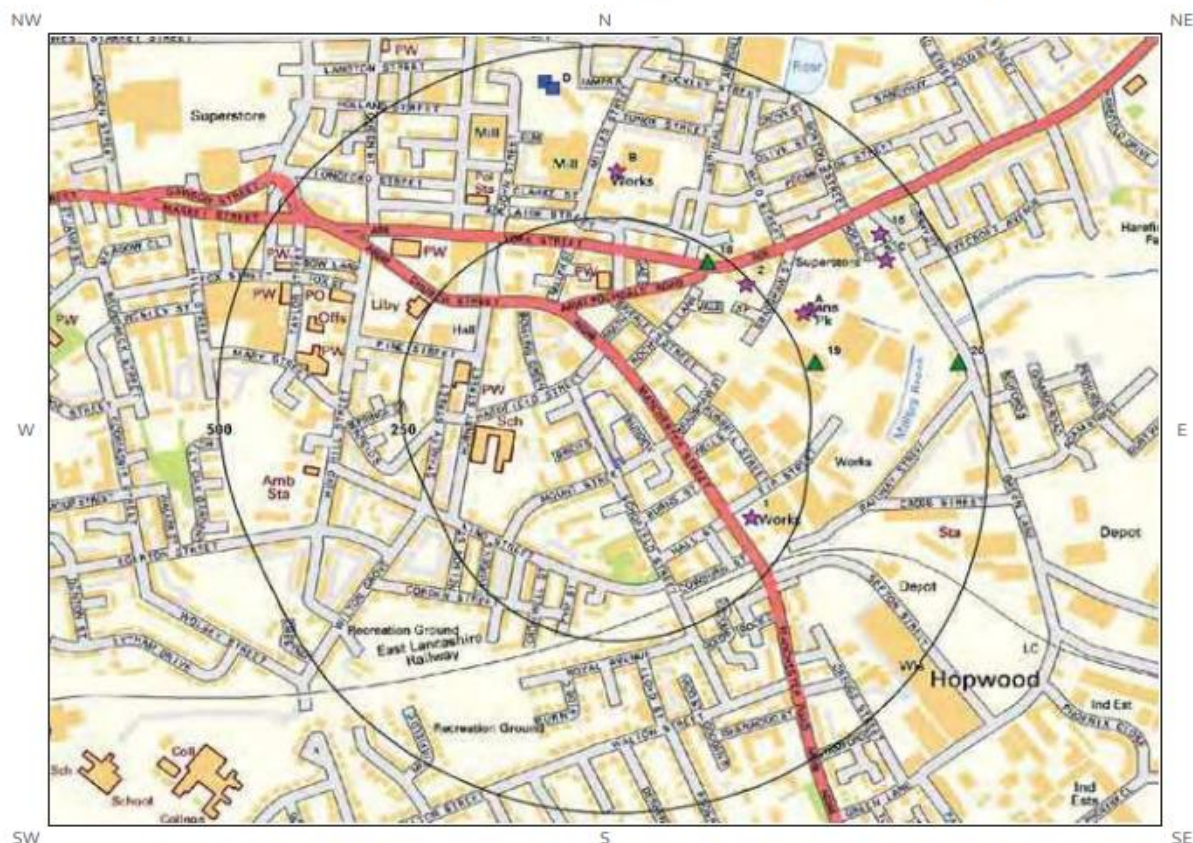


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2. Environmental Permits, Incidents and Registers Map



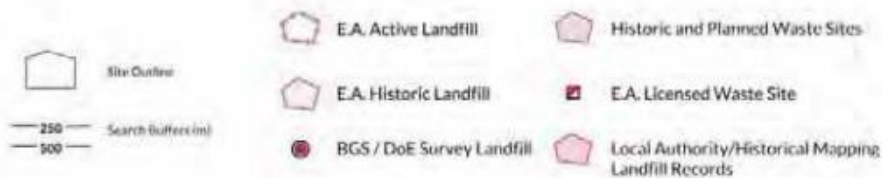
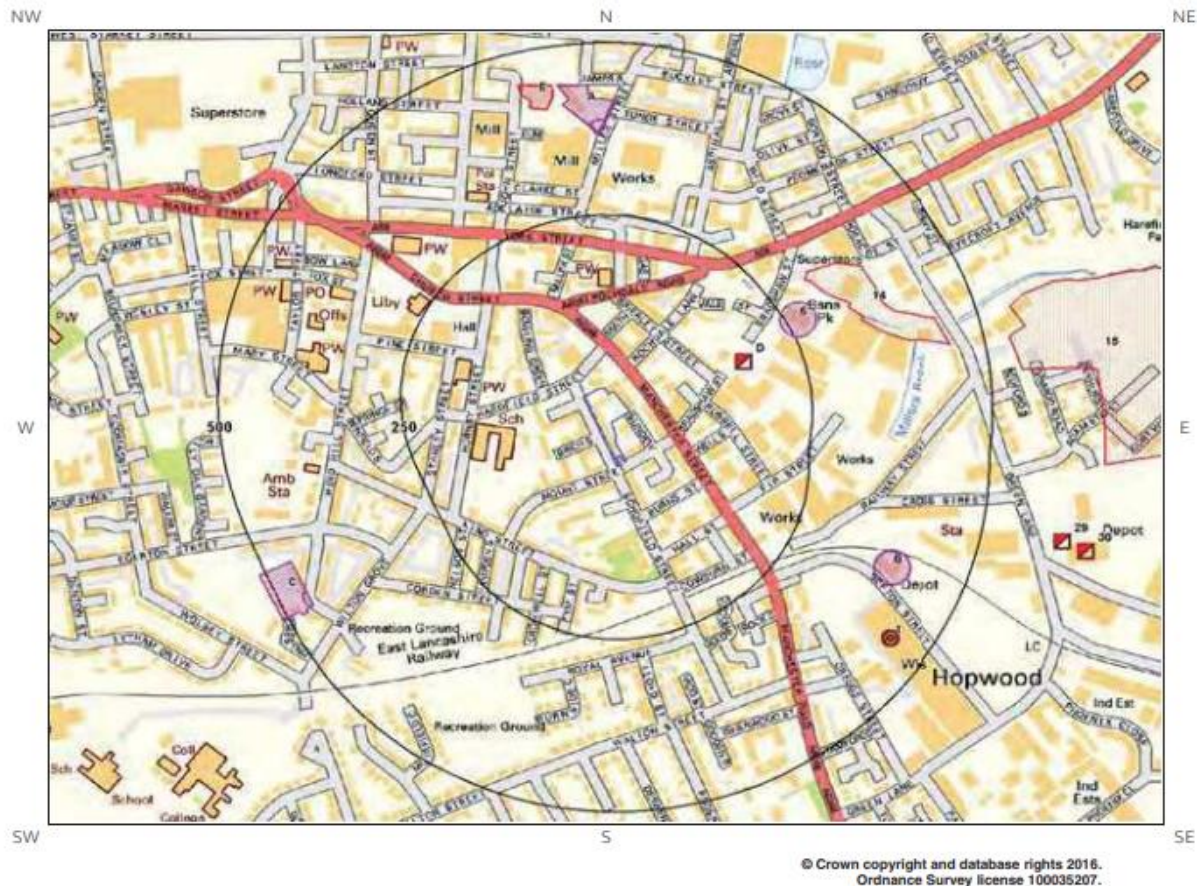
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- | | | | |
|---|-------------------------------|---|--|
|  | Recorded Pollution Incident |  | RAS 3 & 4 Authorisations |
|  | Dangerous Substances (List 1) |  | Part A(1) Authorised Processes and Historic IPC Authorisations |
|  | Site Outline |  | Part A(2) and Part B Authorised Processes |
|  | Dangerous Substances (List 2) |  | COMAH / NIHHS Sites |
|  | Search Buffers (m) |  | Water Industry Referrals |
| | |  | Licensed Discharge Consents |
| | |  | Sites Determined as Contaminated Land |
| | |  | Red List Discharge Consents |
| | |  | Hazardous Substance Consents and Enforcements |

Report Reference: SA1-3479515
Client Reference: 16-1732

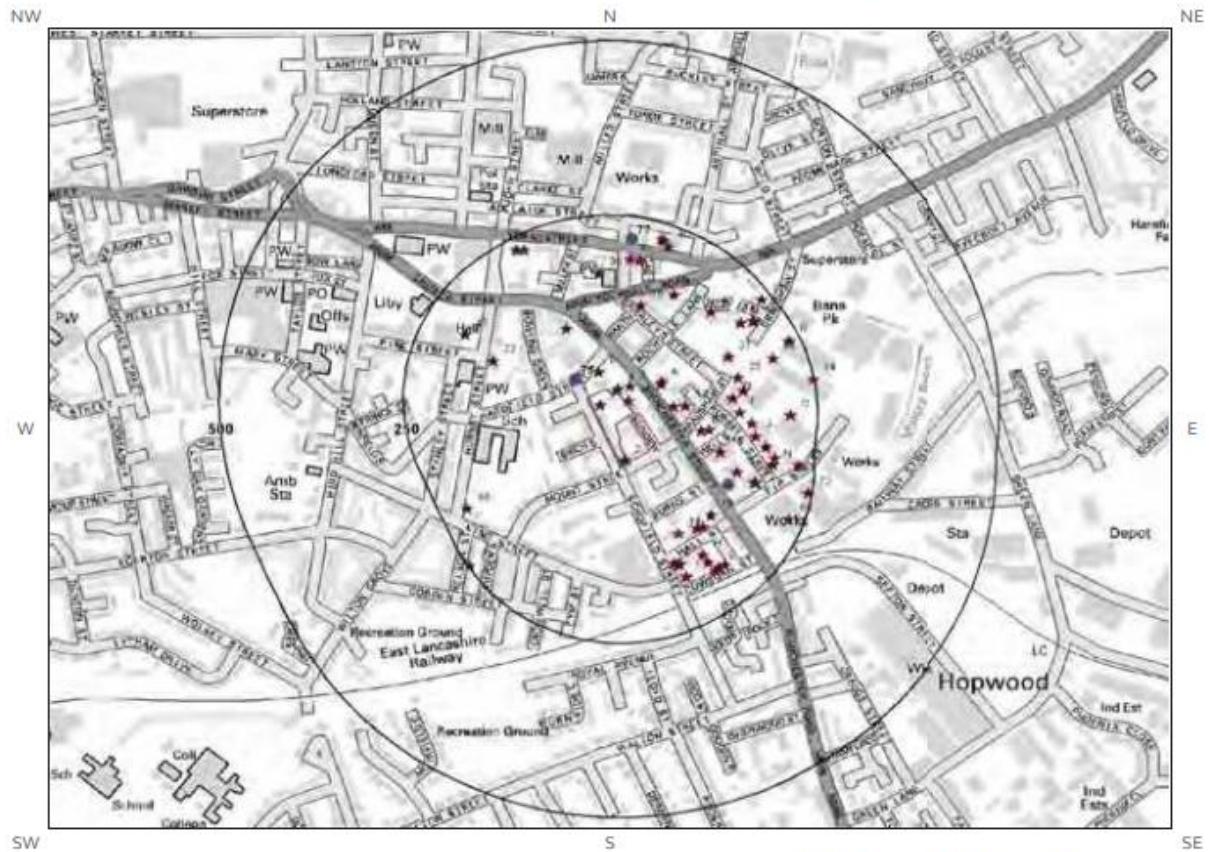


3. Landfill and Other Waste Sites Map





4. Current Land Use Map



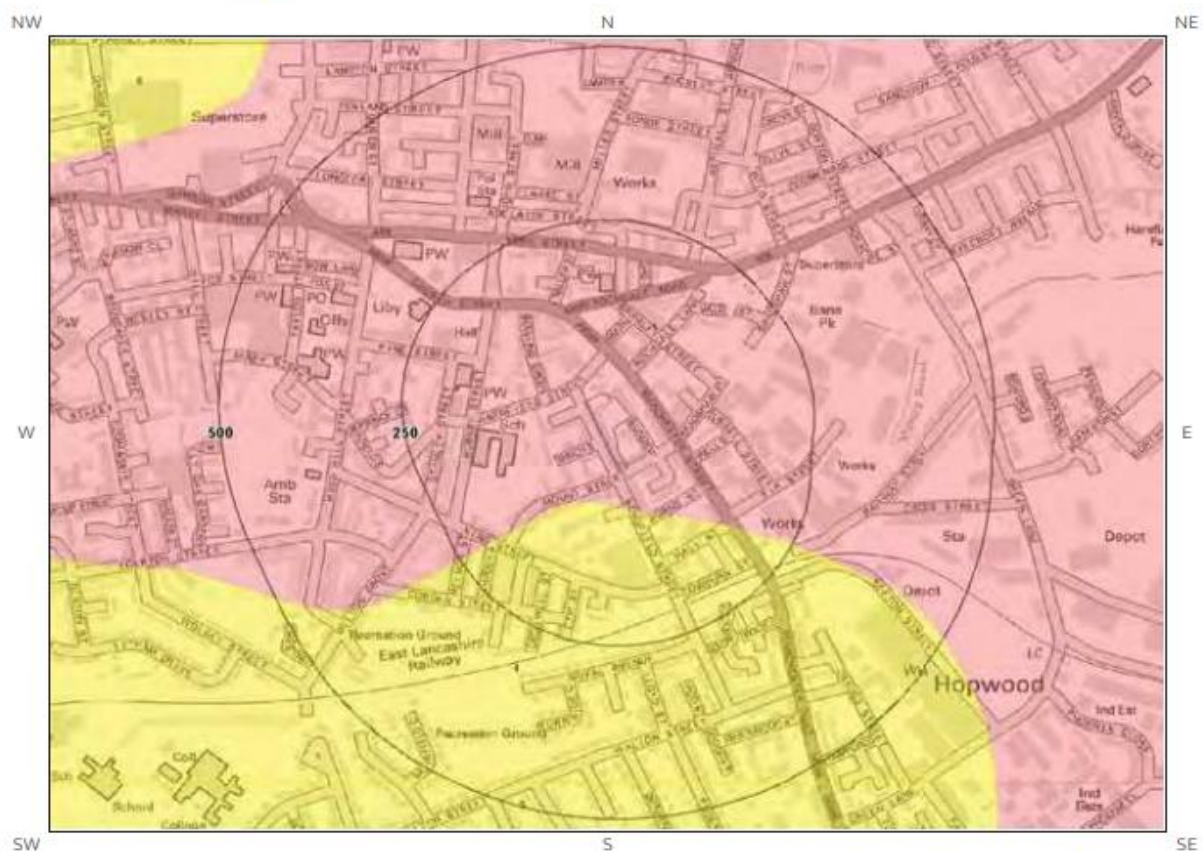
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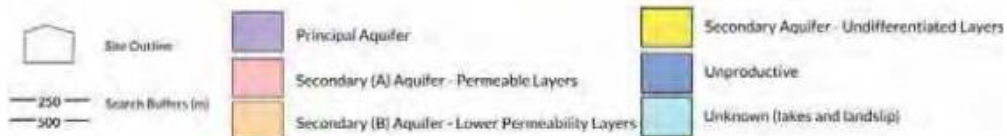


6 Hydrogeology and Hydrology

6a. Aquifer Within Superficial Geology



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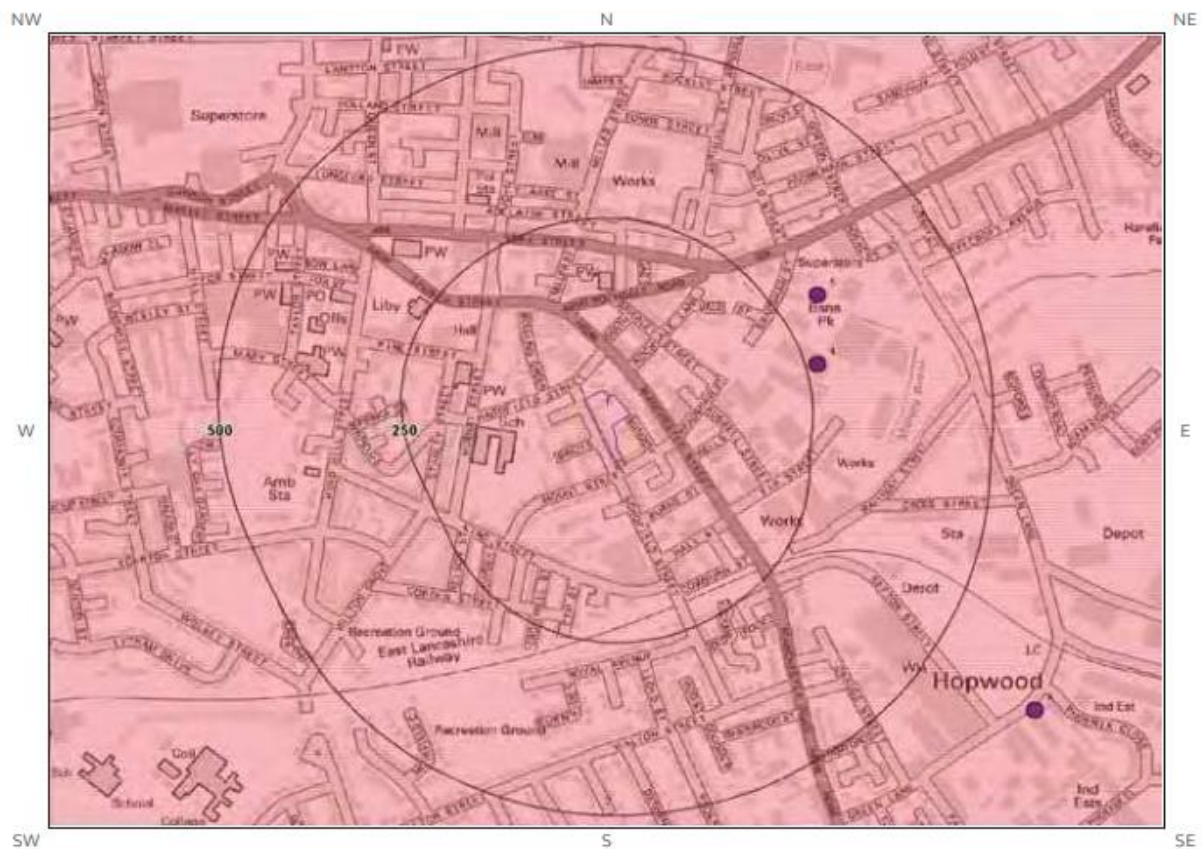


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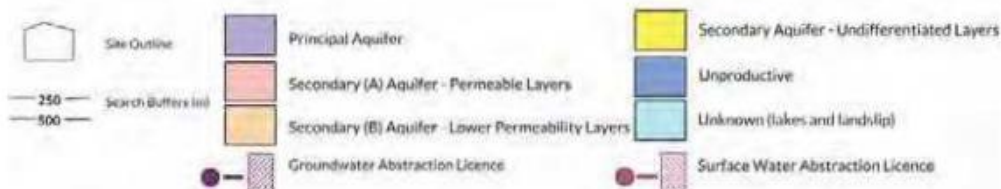
49



6b. Aquifer Within Bedrock Geology and Abstraction Licenses



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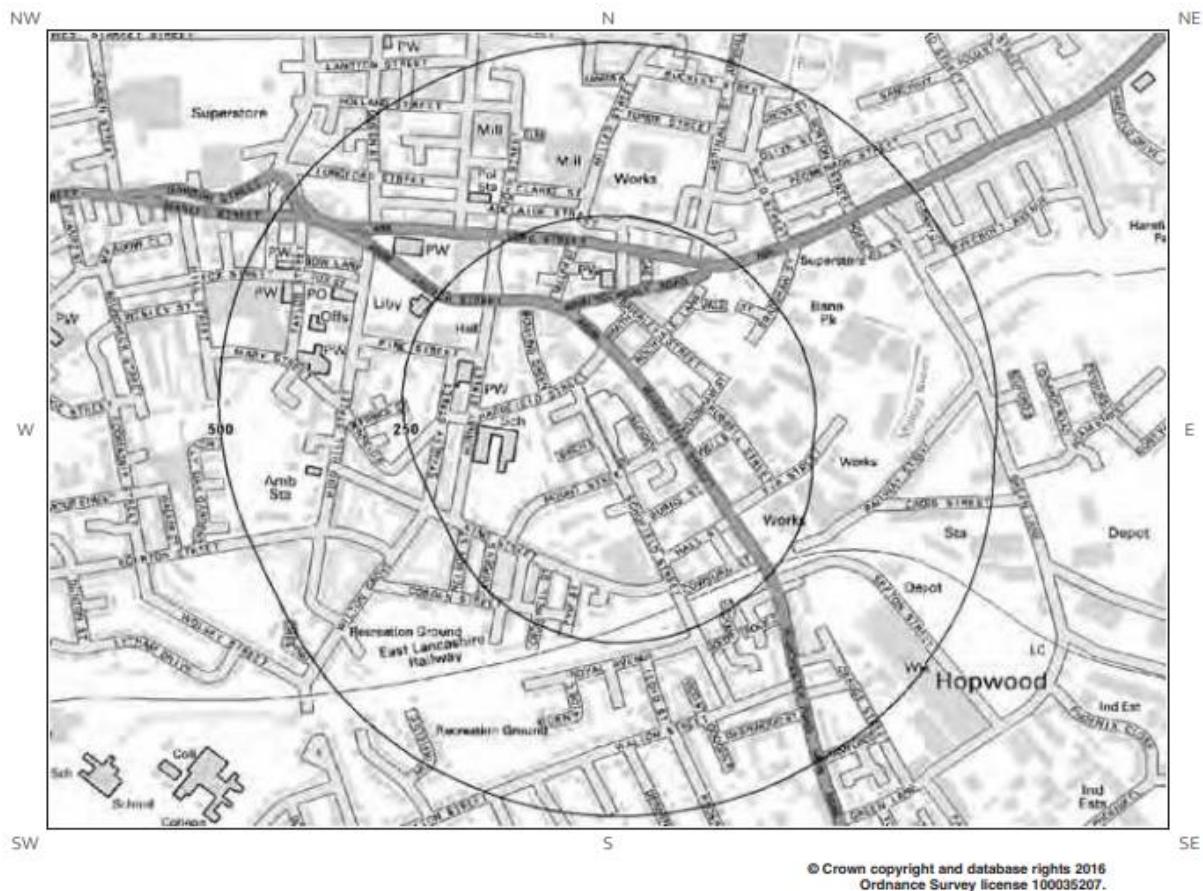


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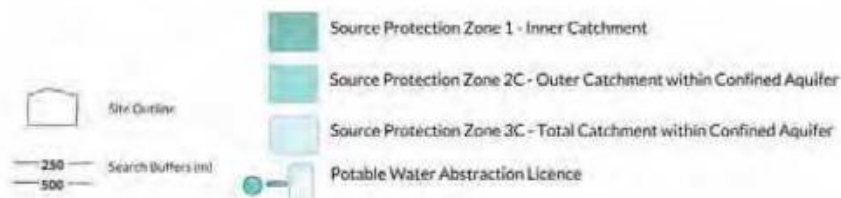
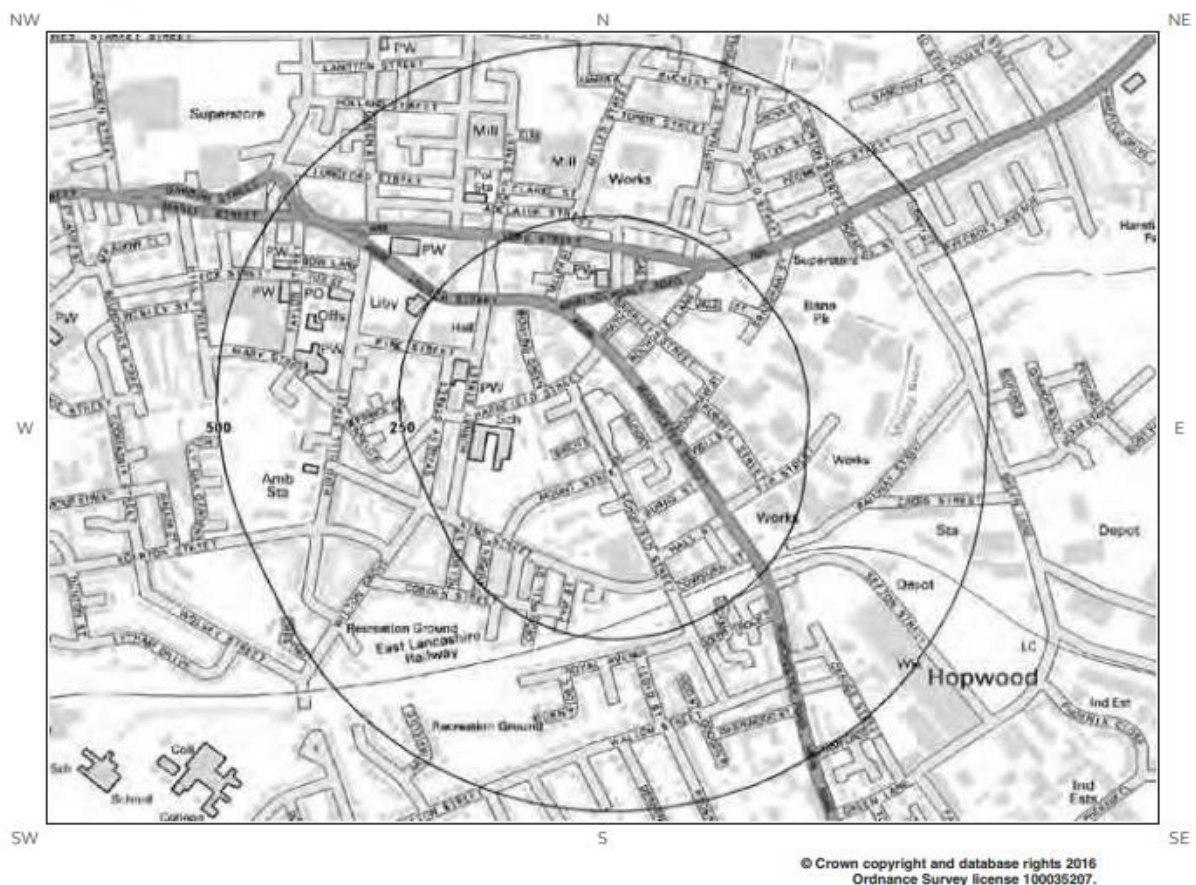


6c. Hydrogeology – Source Protection Zones and Potable Water Abstraction Licenses



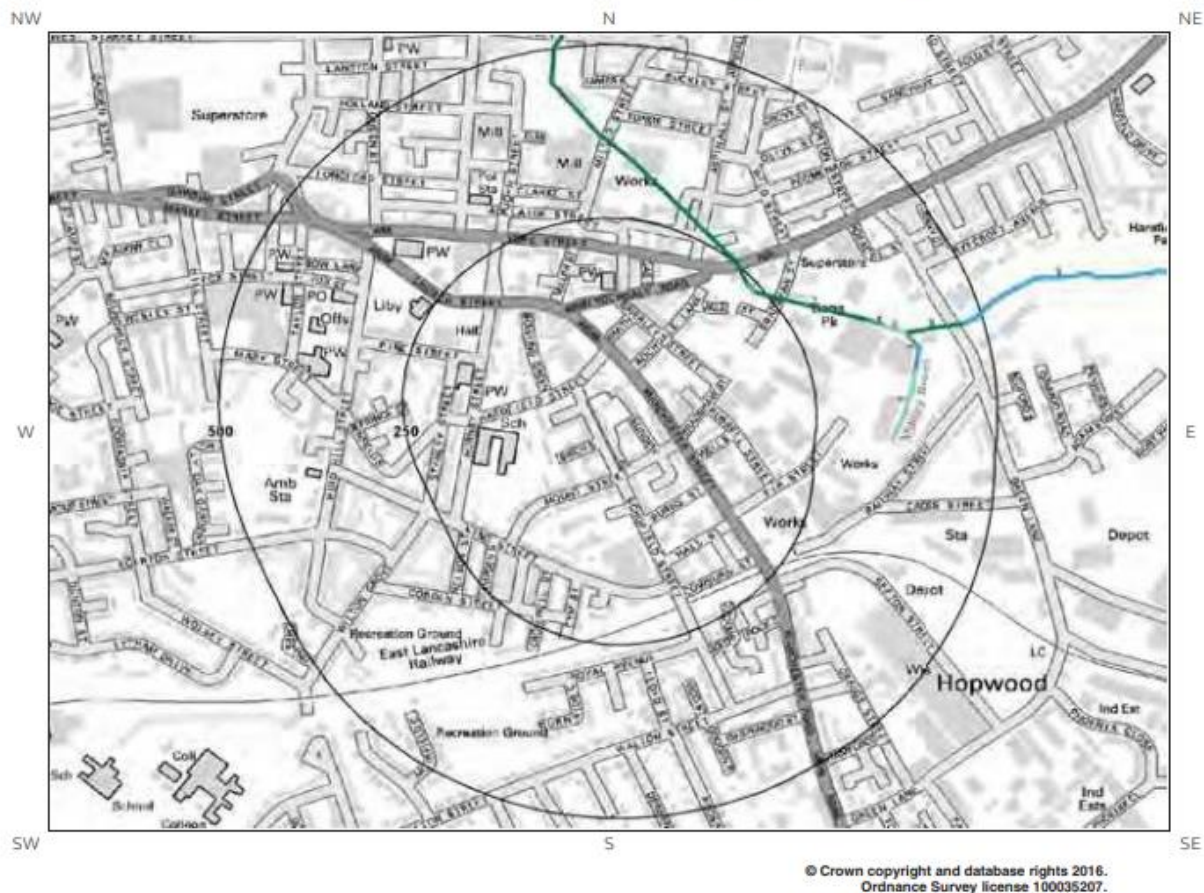


6d. Hydrogeology – Source Protection Zones within confined aquifer



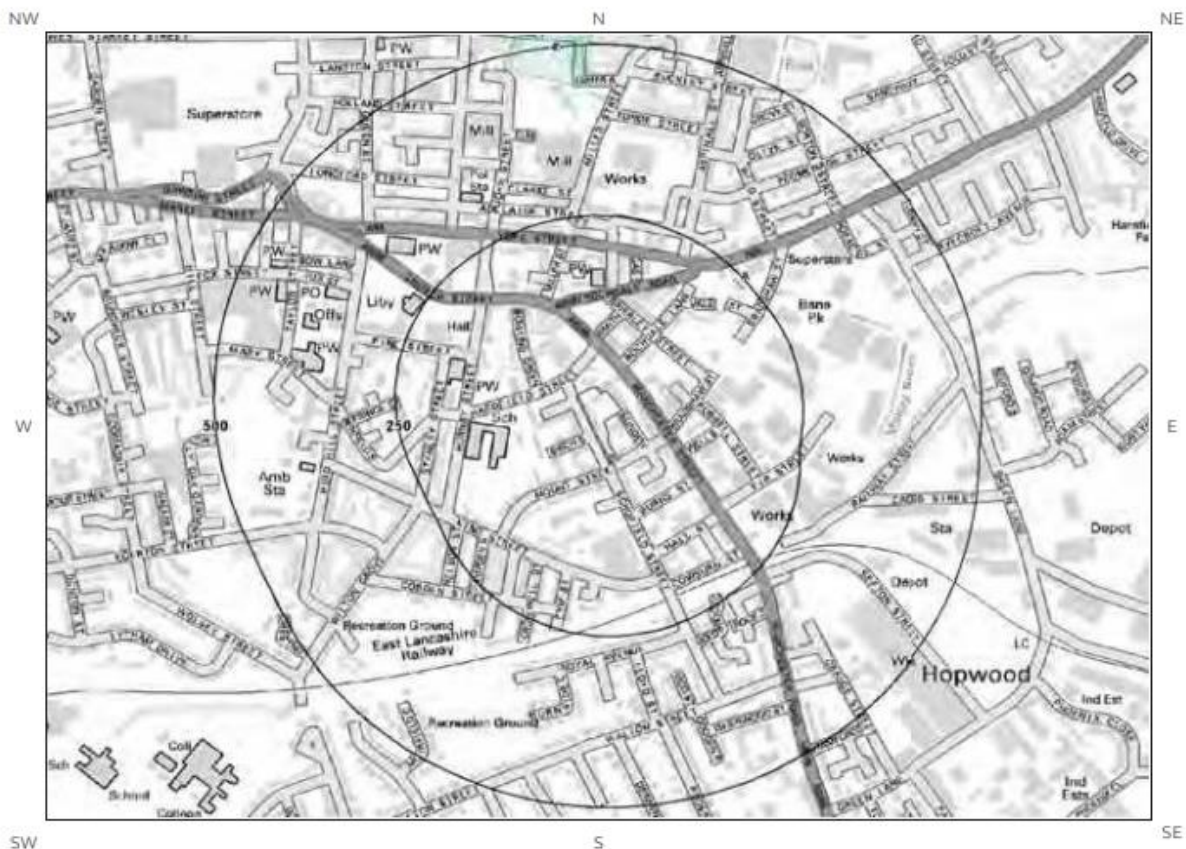


6e. Hydrology – Detailed River Network and River Quality





7a. Environment Agency Flood Map for Planning (from rivers and the sea)



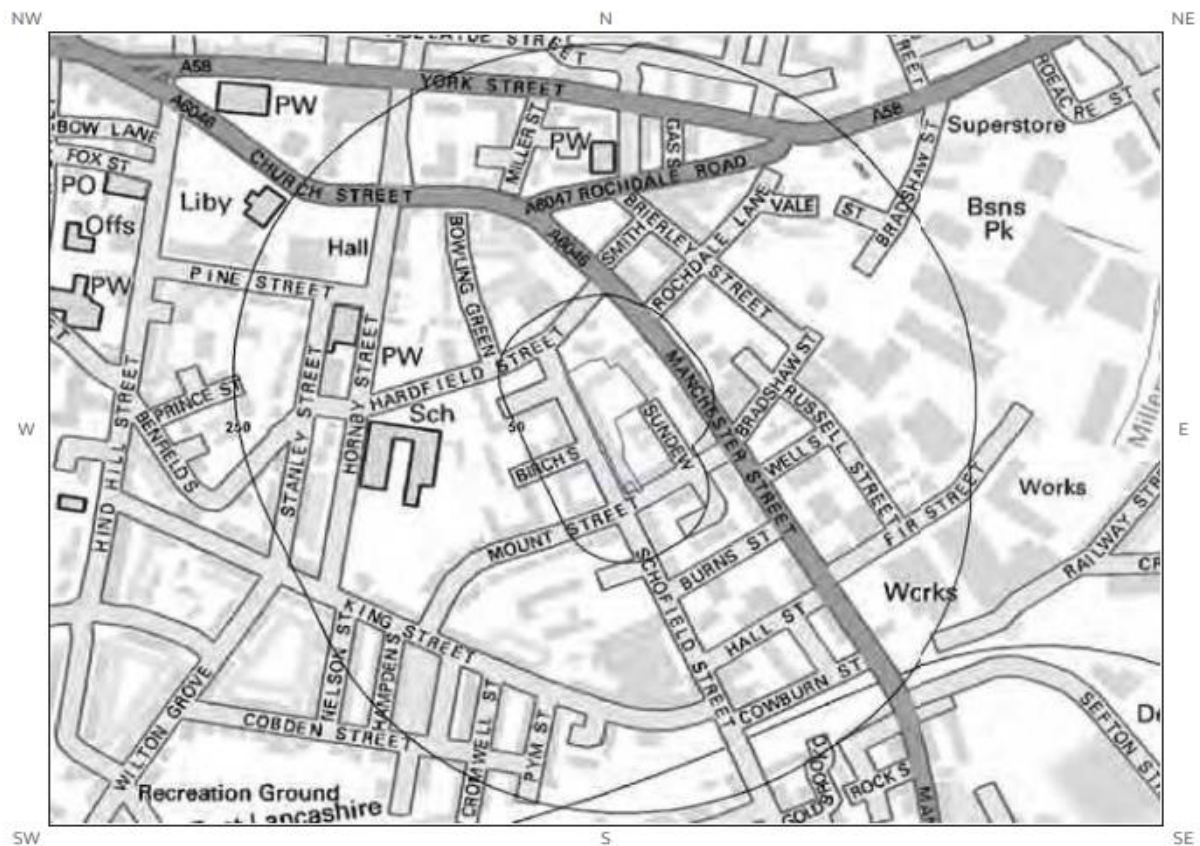
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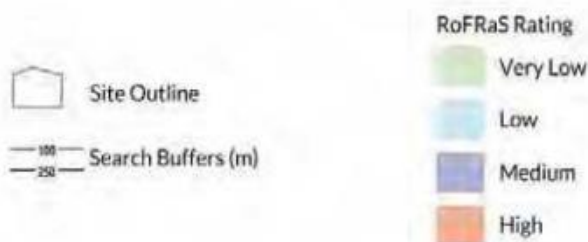
Report Reference: SA1-3479515
Client Reference: 16-1732



7b. Environment Agency Risk of Flooding from Rivers and the Sea (RoFRaS) Map

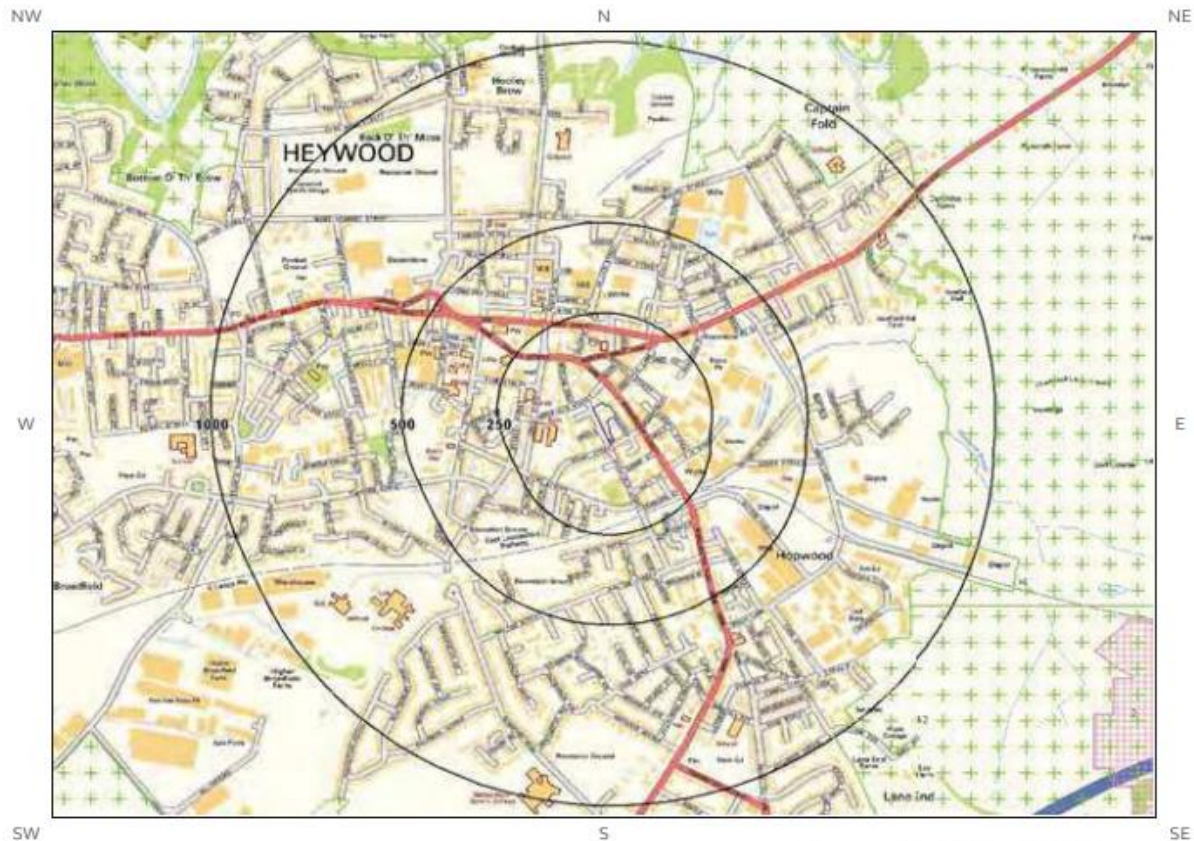


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8. Designated Environmentally Sensitive Sites Map



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The Coal
Authority

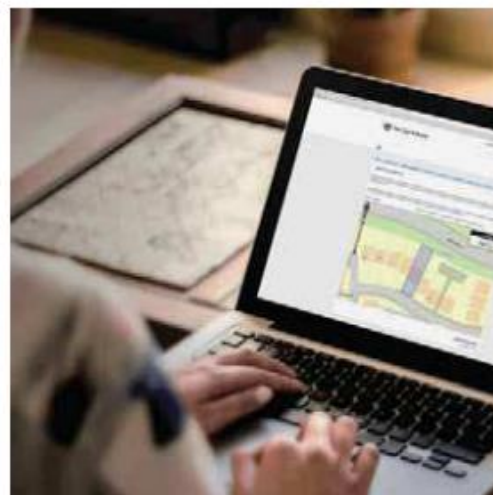
Resolving the *impacts* of mining

CON29M Non-Residential Mining Report

ROCHDALE KIDNEY CARE CENTRE
SCHOFIELD STREET
HEYWOOD
GREATER MANCHESTER
OL10 1DH

Date of enquiry: 23 November 2016
Date enquiry received: 23 November 2016
Issue date: 23 November 2016

Our reference: 51001291713001
Your reference: SA1-3479518



CON29M Non-Residential Mining Report

This report is based on, and limited to, the records held by the Coal Authority and the Cheshire Brine Subsidence Compensation Board's records, at the time we answer the search.

Client name

GROUNDSURE LIMITED

Enquiry address

ROCHDALE KIDNEY CARE CENTRE, SCHOFIELD STREET, HEYWOOD, GREATER MANCHESTER, OL10 1DH

How to contact us

0345 762 6848 (UK)
+44 (0)1623 637 000 (International)

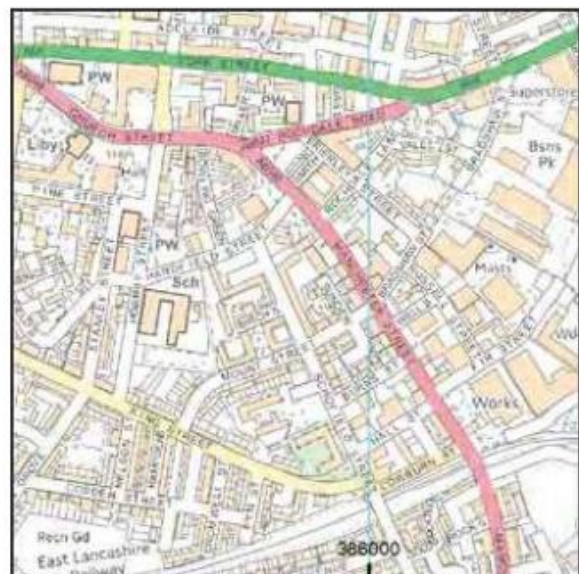
200 Lichfield Lane
Mansfield
Nottinghamshire
NG18 4RG

www.groundstability.com

 /company/the-coal-authority

 /thecoalauthority

 /coalauthority



Approximate position of property



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Summary

Has the search report highlighted evidence or potential of		
1	Past underground coal mining	Yes
2	Present underground coal mining	No
3	Future underground coal mining	Yes
4	Mine entries	Yes
5	Coal mining geology	No
6	Past opencast coal mining	No
7	Present opencast coal mining	No
8	Future opencast coal mining	No
9	Coal mining subsidence	No
10	Mine gas	No
11	Hazards related to coal mining	No
12	Withdrawal of support	No
13	Working facilities order	No
14	Payments to owners of former copyhold land	No
15	Information from the Cheshire Brine Subsidence Compensation Board	No

For detailed findings, please go to page 4.

Detailed findings

1. Past underground coal mining

The property is not within a surface area that could be affected by past underground mining.

However the property is in an area where the Coal Authority believe there is coal at or close to the surface. This coal may have been worked at some time in the past. The potential presence of coal workings at or close to the surface should be considered prior to any site works or future development activity. Your attention is drawn to the Comments on the Coal Authority information section of the report.

2. Present underground coal mining

The property is not within a surface area that could be affected by present underground mining.

3. Future underground coal mining

The property is not in an area where the Coal Authority has plans to grant a licence to remove coal using underground methods.

The property is not in an area where a licence has been granted to remove or otherwise work coal using underground methods.

The property is not in an area likely to be affected from any planned future underground coal mining.

However, reserves of coal exist in the local area which could be worked at some time in the future.

No notices have been given, under section 46 of the Coal Mining Subsidence Act 1991, stating that the land is at risk of subsidence.

4. Mine entries

There are no known coal mine entries within, or within 20 metres of, the boundary of the property.

There may however be mine entries/additional mine entries in the local area which the Coal Authority has no knowledge of.

5. Coal mining geology

The Coal Authority is not aware of any damage due to geological faults or other lines of weakness that have been affected by coal mining.

6. Past opencast coal mining

The property is not within the boundary of an opencast site from which coal has been removed by opencast methods.

7. Present opencast coal mining

The property does not lie within 200 metres of the boundary of an opencast site from which coal is being removed by opencast methods.

8. Future opencast coal mining

There are no licence requests outstanding to remove coal by opencast methods within 800 metres of the boundary.

The property is not within 800 metres of the boundary of an opencast site for which a licence to remove coal by opencast methods has been granted.

9. Coal mining subsidence

The Coal Authority has not received a damage notice or claim for the subject property, or any property within 50 metres, since 31 October 1994.

There is no current Stop Notice delaying the start of remedial works or repairs to the property.

The Coal Authority is not aware of any request having been made to carry out preventive works before coal is worked under section 33 of the Coal Mining Subsidence Act 1991.

10. Mine gas

The Coal Authority has no record of a mine gas emission requiring action.

11. Hazards related to coal mining

The property has not been subject to remedial works, by or on behalf of the Authority, under its Emergency Surface Hazard Call Out procedures.

12. Withdrawal of support

The property is not in an area where a notice to withdraw support has been given.

The property is not in an area where a notice has been given under section 41 of the Coal Industry Act 1994, cancelling the entitlement to withdraw support.

13. Working facilities order

The property is not in an area where an order has been made, under the provisions of the Mines (Working Facilities and Support) Acts 1923 and 1966 or any statutory modification or amendment thereof.

14. Payments to owners of former copyhold land

The property is not in an area where a relevant notice has been published under the Coal Industry Act 1975/Coal Industry Act 1994.

15. Information from the Cheshire Brine Subsidence Compensation Board

The property lies outside the Cheshire Brine Compensation District.

Comments on the Coal Authority information

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In view of the mining circumstances a prudent developer would seek appropriate technical advice before any works are undertaken.

Therefore if development proposals are being considered, technical advice relating to both the investigation of coal and former coal mines and their treatment should be obtained before beginning work on site. All proposals should apply good engineering practice developed for mining areas. No development should be undertaken that intersects, disturbs or interferes with any coal or mines of coal without the permission of the Coal Authority. Developers should be aware that the investigation of coal seams/former mines of coal may have the potential to generate and/or displace underground gases and these risks both under and adjacent to the development should be fully considered in developing any proposals. The need for effective measures to prevent gases entering into public properties either during investigation or after development also needs to be assessed and properly addressed. This is necessary due to the public safety implications of any development in these circumstances.

Additional remarks

Information provided by the Coal Authority in this report is compiled in response to the Law Society's Con29M Coal Mining and Brine Subsidence Claim enquiries. The said enquiries are protected by copyright owned by the Law Society of 113 Chancery Lane, London WC2A 1PL. Please note that Brine Subsidence Claim enquiries are only relevant for England and Wales. This report is prepared in accordance with the Law Society's Guidance Notes 2006, the User Guide 2006 and the Coal Authority and Cheshire Brine Board's Terms and Conditions applicable at the time the report was produced.

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Enquiry boundary

Key

Approximate position of enquiry boundary shown



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